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THE JOURNAL-~~L~~ 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

PUBLISHED TWICE A MONTH

A SEMIMONTHLY MEDICAL JOURNAL

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EARACHE*

BY CARL C. COWIN, M.D.

JAMESTOWN, NORTH DAKOTA

By earache I mean actual pain in or about the ear, and not the other things commonly referred to as earache by the laity, namely: Tinnitus aurium, headache, cervical adenitis, etc.

Earache is due to—1. Local pathology, for example, pathology in the ear itself. 2. Eustachian pathology. 3. Pathology located elsewhere and indirectly affecting the middle ear or causing referred pain.

Local pain is usually a symptom of pressure, either positive or negative, more frequently positive. In explanation we may as well proceed immediately with a chronological sequence of the events producing a suppurative otitis media, the most common cause of earache. Ordinarily, trouble begins with a cold, acute infections of the upper respiratory tract, acute infectious fevers, or chronic diseases, especially of the sinuses, adenoids, or tonsils. In all these the causative agent is scattered freely in the secretions of the nasopharynx. Due to the irritation and inflammation thus produced, the lower or pharyngeal end of the Eustachian tube becomes closed and we have a consequent absorption and rarefaction of the air in the middle ear.

Symptoms,—Slight pain, intermittent; dull heavy feeling in ear, often "clicking" on swallowing or blowing the nose.

Deafness: More or less marked, described by

patients as fullness of the ear, or "stuffed up" feeling.

Tinnitus: More or less marked.

Appearances of drum membrane: Retraction. Congestion of the long handle of the malleus.

This constitutes a so-called acute catarrhal otitis media, which should be more appropriately termed acute non-suppurative otitis media.

This is the first phase of negative pressure.

Treatment,—Treatment consists of:

1. General, for example, saline purgatives; and rest.
2. Treatment of the naso-pharynx; for this I am using a solution which for want of a better name I call "shrinki," consisting of adrenalin, cocaine, antipyrine, and aqua.

This is used to shrink the tissues, give better drainage, and to allow the antiseptics to reach the desired place. Incidentally it makes your patient feel much more comfortable, although the effect is temporary, lasting only about three hours. The "shrinki" is followed with some antiseptic. We ordinarily use either a solution of dichloramine-T—2 per cent in chlorcozane or a 25 per cent solution of argyrol.

3. After cleaning nose.

Gentle inflation with the catheter, the Politzer method may be used, but it is not as safe, because it cannot be definitely controlled.

4. Local treatment, for example, heat to the ear and warm phenol in glycerine, 5 to 10 per cent, q. 4. h.

*Presented at the thirty-fifth annual meeting of the North Dakota State Medical Association, Jamestown, N. D., June 1 and 2, 1922.

At this time it is very necessary to teach your patient how to blow his nose. Usually we close both nostrils or at least one with a handkerchief and blow hard—to dislodge the thick abundant and tenacious mucus co-incident with the infection. By so doing the intranasal pressure is increased, and, if there is a perforation in the drum membrane or a negative pressure in the middle ear, we are very liable to blow a bacteria-laden plug of mucus up into the tube or even into the middle ear. Neither nostril should ever be closed. In connection with this Brubaker has written a very interesting article on the physiology of sneezing, in which he states that the lower animals are seldom affected with suppurative conditions of the middle ear, and are seldom deaf, due, he thinks, to the fact that they have no method of clearing the nose, except by sneezing. The importance of correct blowing of the nose cannot be over emphasized.

Next, due to rarefaction of the air in the middle ear, we have an exudation of serum into the middle ear. At this time pain may be lessened slightly. The symptoms remain about the same, but the appearance of the drum membrane changes. The congestion remains, the retraction may or may not be marked, the cone of light usually disappears, the membrane loses its shiny appearance and there is usually a line of demarcation of fluid in which air bubbles can often be seen. This is the second stage of negative pressure.

Treatment—General as above. Pharyngeal as above. Local, gentle inflation, with heat, and phenol in glycerine in the ear. Some men advise paracentesis at this stage, but, if the patient is under direct control of the physician and can be seen often, I do not think it necessary, although infection is practically inevitable.

Next, due to our infection in the tube and our ideal culture media of serum at body temperature in the middle ear, usually an actual infection occurs. The drum membrane changes markedly in appearance at this stage, its luster is gone, the congestion extends from the handle of the malleus over the whole drum and instead of a retraction of the drum membrane we have a bulging, and frequently a pulsation of the membrane can be noticed. Pain is intense, temperature high, hearing poor, tinnitus more or less marked.

In children, particularly in babies, the head symptoms in acute suppurative otitis media often

reach such a degree of severity before spontaneous perforation occurs, that we frequently have vomiting, unconsciousness, and convulsions. These are so severe that they often present the picture of a meningeal affection. The practitioner must always keep this fact in view and never neglect to thoroughly examine the ears in affections of this kind.

The treatment consists of—

1. Paracentesis. By paracentesis I do not mean merely a puncture of the drum, but a long, free incision, which will heal better and quicker on account of better drainage than just a puncture. Never let the fear so common among the laity of a hole in the drum deter you from doing a paracentesis. There are several reasons why this is preferable to spontaneous rupture: (1) spontaneous rupture is dangerous to life; (2) it is more likely to cause irreparable damage to the ear; and (3) the period of convalescence is prolonged.

Paracentesis can be done both in children and in adults with practically no pain under local anesthesia. The drum membrane should be painted with a solution of equal parts of the crystals of phenol, menthol and cocaine. If this is done and a few minutes allowed between painting the drum and making the incision there will be very little pain, and immediate relief follows. If the patient is in the office or at the hospital, gas may be used.

We now have a running ear, the pain is better, but the condition of the patient is still serious and should be watched carefully. After-treatment consists of cleaning the ear with cotton applicators and insertion of gauze wicks which should be changed as often as they become moist. Treatment of the pharyngeal condition is in my estimation equally as important as local treatment. If discharge remains profuse and pain or tenderness over the tip of the mastoid does not disappear within ten days or two weeks the mastoid should be looked upon with suspicion.

So much for the earache from otitis media.

We also have earache caused by otitis externa, for example, abscesses, furuncles, or carbuncles of the canal. In this condition our picture differs in the following respects:

1. The tissues around the ear are swollen.
2. The canal is swollen.
3. The pain is more gradual in its onset, although severe.

4. The pain is increased by pressure and also by movements of the jaws.

5. The most tender point in otitis externa is the tragus; in otitis media, the mastoid tip.

6. Fever is unusual in otitis externa.

7. Impaired hearing is usually of a less degree in otitis externa than in otitis media.

The treatment consists of:

1. Rest in bed, purgatives.

2. Local heat and careful cleansing of the canal. No irrigations should be used, as they increase the danger of re-infection through maceration of the tissues.

3. Medication of the canal.

4. Incision as soon as there is any localization of the pus; when not localized I use sedatives freely to control the pain which is intense. Incision is very painful and whenever possible I give my patients a little gas or even chloroform.

Our third type of pain in the ear is that pain which is referred from the various surrounding tissues most frequently from the teeth, occasionally from tonsillar or peritonsillar conditions. In this type the appearance of the drum membrane is normal, and there is no swelling of the canal or surrounding tissues except occasionally in the small glands in the anterior triangles of the neck. Under these conditions the teeth should be x-rayed for the purpose of discovering apical or periapical infections or crowded, unerupted, or impacted teeth, usually the third molar. This pain is referred through the branches of the fifth nerve.

In cases of suppurative otitis media our duty to our patient does not cease when the discharge stops. The suppurative ear is not cured until the function of the ear and the hearing are properly restored. After every acute suppuration we have a certain amount of connective tissue formation resulting from the growth of the round cells during inflammation of the mucous membrane. This connective tissue forms adhesions, with gradual retraction and consequent decreased function of the ossicular chain and drum membrane causing a gradually increasing deafness. These adhesions can and should be broken up early. In children Politzerization is easy and effective. In adults catheterization is preferable. If this is done early a permanent and practically normal hearing is restored. This necessity for after treatment is of such importance that the laity must be educated to it, and

must not be allowed to think their duty to the child is over when the discharge ceases.

In conclusion, examination of the ear should be routine in every case and every practitioner should be equipped to recognize the more important conditions in the middle ear.

Treatment of earache should consist of—

1. Prevention, for example, routine examination and treatment of nose, throat, teeth, and ears.

2. Prevention by early treatment of the nasopharynx in all acute infections of the upper respiratory tract.

3. General and local treatment in a negative pressure stage.

4. Early and thorough paracentesis in the suppurative otitis media or positive pressure stage.

5. Treatment until the ear is dry.

6. After-treatment until the hearing and the function of the ear has returned to normal.

DISCUSSION

DR. C. E. SPINER (Valley City): The author has rightly alluded to the term earache. His logical presentation of the subject from a pathological standpoint seems the rational one. Pathology is the only true basis for rational classification and treatment of disease. Symptoms only and symptomatic treatment have little place in modern medicine. He has in a masterly manner given us a chronological picture of the causes leading up to the symptom which usually drives the patient to the doctor. A person will endure any other hardship or inconvenience before seeking a remedy, but pain alone is a thing that must be relieved at all hazards.

Barring referred pain from the teeth and otitis externa, earache is invariably due to some abnormal throat condition. People with normal throats suffer very little with earache or with any other ear abnormality. I regard the presence of adenoids and bad tonsils as practically the only cause for earache in children. Children furnish us fully 90 per cent of all our cases of earache, and they are the ones who have defective throats. Even the exanthematous fevers of childhood do not cause the ear complications unless we have defective throats. Adenoids and diseased tonsils incite infection and interfere with the normal ventilation of the middle ear, resulting in negative pressure, or a positive pressure due to the accumulation of pus or of serous exudation and the resultant pain.

The author speaks of a congestion along the handle of the malleus as an early sign in suppurative otitis media. I have more often observed such a congestion to mean a local irritation due to the engorgement of the linear vessels running along the malleus. A diffuse redness or congestion of the entire drum membrane is more significant of the beginning of an otitis.

I agree thoroughly with Dr. Cowin that paracentesis should mean a full, liberal incision and not a mere puncture. This should always be made in the more bulging portion, which is usually in the posterior quadrant.

In the after-care we should be careful to guard against a mixed infection. Both our surgical and our post-surgical treatment should be carried out with aseptic precautions. A point also well taken by the author is that we should be suspicious of mastoid in any case in which a diffuse discharge persists after two weeks. A change in the color and consistency of the discharge from the usual yellow and serous character to a thick, lighter, and mucoid discharge is of good prognostic outlook. The development of secondary pain, increased discharge, or a change in the odor should be heralded with suspicion.

The differential diagnosis of otitis media and otitis externa has been covered fully by the author. Traction or movements of the auricle elicit pain in the external variety, while in the otitis media they have no effect.

It is apparently a minor point the author makes of the manner in which the patient blows his nose, but I would doubly repeat what he says of the importance of a correct manner. It is a fact that few people know how to blow the nose correctly.

Decayed teeth often cause sympathetic referred pain in the ear. A differential diagnosis is easily made by the means outlined by the doctor.

The best preventive treatment of earache is to clean up the throat condition, correct by submucous resection all septal deviations and other abnormalities in the nose, and instruct the patient in the care and hygiene of the external auditory canal. Practically all cases of boils and erosions in the canal are due to local irritation, probably by tooth-picks and hairpins used in the attempt to remove cerumen or to relieve itching sensations. These cause abrasions which later become infected with the bacteria present.

DR. G. J. GISLASON (Grand Forks): I appreciate having the President invite me to discuss this paper, but have nothing to say, except that I think it is a very fine paper, and I wish to thank the doctor for it.

DR. FRED EWING (Kenmare): I would like to ask Dr. Cowin to tell us how much antipyrin he uses.

DR. COWIN (closing): I use antipyrin in about a 3 per cent solution. That is pretty strong, and for children we reduce it to about 1.5 per cent.

As to blowing the nose; I believe there is only one man in the country that blows his nose properly, and that is the East Side wop.

COMPLICATIONS OF THE SURGICAL REMOVAL OF STONES FROM THE KIDNEY AND URETER*

By VERNE C. HUNT, M.D.

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ROCHESTER, MINNESOTA

Stones in the kidney or in the ureter, aside from the subjective symptoms they produce, are of importance because of their effect on the kidney by virtue of obstruction and infection.

The amount of damage that has occurred in the kidney at the time the patient is seen by the urologist and surgeon determines largely the indications for treatment. It may be said that with stones in the kidney or ureter there is practically always some infection of that side of the urinary tract, which may vary from no more than a few scattered pus cells in the urine to the thick, purulent urine of pyonephrosis. With the advent of infection in the presence of stones in the kidney and obstruction from stones in the ureter, the kidney is badly damaged, and this damage often terminates in complete destruction of function, so that no procedure will suffice except nephrectomy for pyonephrosis or nephroureterectomy for pyonephrosis with a large dilated

ureter above a stone low in the ureter. It is not, however, within the scope of this paper to discuss all phases of ureteral and renal stones. I have chosen for discussion a group of cases in which the damage has not been sufficient, from the presence of renal and ureteral lithiasis, to contra-indicate the conservative operation,—that is, removal of the stones and preservation of the kidney.

In order to review the complications attending the surgical removal of stones by pelviolithotomy, nephrolithotomy, and ureterolithotomy, the complete series of patients with lithiasis of the upper urinary tract operated on in the Mayo Clinic by one of these methods or by combined methods, from January 1, 1920, to January 1, 1922, was chosen. There were 171 patients with renal lithiasis, on whom 181 pelviolithotomies and nephrolithotomies were performed. Ten patients had bilateral renal stones. Seventy-four patients had ureterolithotomies; 7 patients had bilateral ureteral stones, but in only one in-

*Presented at the forty-first annual meeting of the South Dakota State Medical Association, Huron, S. D., May 17 and 18, 1922.

stance was it necessary to perform bilateral ureterolithotomy. During this same two-year period 88 patients were observed with renal lithiasis and so much resultant destruction of renal tissue that it was necessary to perform nephrectomy or nephro-ureterectomy.

The effect of stones in the kidney is illustrated by the necessity of nephrectomy in 34 per cent of the cases of renal lithiasis. It should also be noted that the 74 patients in whom a ureterolithotomy was performed represent less than 50 per cent of the patients from whom ureteral stones were removed during this period. The improvement in methods of cystoscopic and catheter manipulation and in the nonoperative removal of ureteral stones has decreased the necessity of surgical interference. During the past year Braasch and his associates have been successful in removing fully 75 per cent of the ureteral stones by nonsurgical methods. However, in cases of large stones in the ureter or stone completely obstructing the ureter, and in cases in which patients are intolerant to catheter manipulation, surgical procedures are required. It is quite apparent that an increasingly large percentage of ureteral stones may be removed in the future by nonsurgical methods.

Stones in the ureter and kidney were associated in only two cases. In one of these there were stones in both kidneys; a stone was also present in the middle third of the right ureter. In the other there was a single stone in the right ureter, and there were two stones in the right kidney. Stones in the ureter were multiple in eight cases, two stones in four, three in three, and six in one.

In 145 patients (80 per cent) with renal lithiasis, the stones were removed through the renal pelvis by pelviolithotomy; in 14 (7 per cent) through the cortex by nephrolithotomy, and in 22 (12 per cent) by combined methods. When a conservative operation can be performed for renal lithiasis, pelviolithotomy is preferable to nephrotomy or removal of the stone through the renal tissue.

Practically all stones originate in the pelvis or the calices of the kidney; certainly few are primarily cortical. In 61 per cent of the cases in this series the stones were in the pelvis of the kidney; in 21.5 per cent in the calices. In 12 per cent they were multiple in the calices

and pelvis, and in only 8 cases (4 per cent) were they cortical. True cortical stones are uncommon, and occur usually in close proximity to a calix.

The arrangement of the renal pelvis and calices is such that most renal stones can be readily approached and removed through an incision in the renal pelvis. A sufficiently large incision to allow elevation of the kidney out of the wound affords such excellent exposure of the pelvis that it can be accurately opened. It is necessary to perform nephrolithotomy usually only in cases in which there is a short pedicle or in fleshy patients in whom the kidney cannot be elevated. Pelviolithotomy possesses an advantage over nephrotomy in that it is not destructive to kidney tissue. An incision in the kidney through the avascular zone is accompanied by sufficient bleeding to require a number of mattress sutures, which are destructive to renal tissue and diminish subsequent function. This point is of particular importance in case the kidneys are already damaged by infection. Usually, large stones can be removed through an incision in the renal pelvis, and the pelvis and calices can be accurately explored and, at the conclusion of the procedure, accurately closed.

Complications seldom occur following the surgical removal of stones from the kidney or ureter. This is owing to the accuracy of pre-operative diagnosis and the proper selection of cases. By the aid of the cystoscope and the perfection of its allied methods of examining the urinary tract, the diagnosis of surgical lesions of the urinary tract approaches an exact science. Such methods of diagnosis and estimation of renal function have largely eliminated postoperative renal insufficiency, anuria, uremia, and exploratory operations because of uncertain diagnoses. They have decreased very materially the negative findings at operation following a positive preoperative diagnosis. The pyelogram, ureterogram, and other means of accurately localizing stones have practically obviated fruitless explorations.

This series of patients has not been studied from the standpoint of recurrence of stones as a remote complication. There are unquestionably stone-forming kidneys. Recent experimental work has shown quite conclusively that foci of infection play an important part in the development of calculi in the urinary tract. Braasch has reported recurrence in 14.7 per cent in a

series of patients who returned for re-examination after operation. This percentage appears to be exceedingly high, but renal stones were multiple in 66 per cent of a certain series of patients; it is possible that all were not removed or that broken fragments remained in the kidney to form the nuclei for reformation. It would seem reasonable to explain some of the so-called recurrences in this manner. Multiple stones in the renal pelvis or the calices may be situated so as to cast a single shadow in the röntgenogram, and, unless thorough search is made for additional stones in all such cases, there will be occasional persisting stones overlooked at operation. Oversight of additional stones is readily obviated by fluoroscopic examination of the kidney at the time of operation.² This examination is easily made and should be carried out, not only in cases in which the kidney is readily delivered out of the wound, but also in fleshy patients in whom the kidney cannot be elevated. It has the distinct advantage of localizing stones in the kidney and of assuring the surgeon that all stones have been removed and no fragments remain. Stones high in the calices are often found by fluoroscopic examination that otherwise would not have been found, or, at least, would have been difficult to find.

Postoperative complications are strikingly infrequent in patients selected for removal of stones from the kidney as a conservative operation. No complications occurred in this series other than temporary drainage of urine in a certain percentage and infection of a few wounds incident to contamination from the infection within the kidney at the time of operation. The incision in the kidney, as described by W. J. Mayo, affords adequate exposure and elevation of the kidney, so that the operation of pelviolithotomy can be accurately conducted under the eye. The pleura and peritoneum are pushed back and are seldom unintentionally opened, thereby obviating postoperative pulmonary and peritoneal complications.

POSTOPERATIVE DRAINAGE OF URINE

The amount of postoperative drainage of urine seems to bear a direct relationship to the amount of infection in the kidney at the time of operation. Patients who have large single or multiple stones usually have varying degrees of pyelitis

or pyelonephritis. Accurate suture of the renal pelvis and covering of the suture line with perirenal fat in most instances is unattended by postoperative leakage. Not all cases are suitable for suture. In a kidney badly damaged by infection, but with an amount of renal tissue sufficient to warrant a conservative operation, it usually is best to institute temporary drainage of the renal pelvis. In cases, however, in which there is little infection, the pelvis can be accurately closed with much less liability to postoperative urinary drainage.

In 131 of the 181 cases in which pelviolithotomy or nephrolithotomy was performed, the renal pelvis or kidney was sutured. No drainage of urine occurred in 98 cases (75 per cent). However, in cases in which the pelvis is not sutured, not all the patients drain urine. In 50 cases, because of the desirability of maintaining drainage of the kidney or because of the inaccessibility, the renal pelvis was not sutured. In 26 of these (52 per cent) urine did not drain through the wound postoperatively. The fatty renal capsule which is stripped off as the kidney is elevated very readily seals the opening in the renal pelvis when the kidney is replaced and prevents leakage in many cases in the absence of sutures. In only 57 (31.5 per cent) of the entire series of 181 cases, urine drained postoperatively; in 28 of these (approximately 50 per cent) urine drained for one day, in 20 (35 per cent) for seven days, or until the drainage tube was removed; in 6 cases drainage continued for fourteen days, and in only 3 as long as twenty-one days.

Drainage of urine, therefore, may be regarded as of distinct advantage postoperatively in badly infected kidneys, and in no case in the absence of an obstructing stone in the ureter is it a complication prolonging convalescence. Such drainage seldom occurs after ureterolithotomy if the ureter is accurately sutured, and usually is of short duration, subsiding after removal of the drainage tube. Complete obstruction of the ureter for several days may cause serious damage to the kidney. In one such case subsequent nephrectomy for the resultant pyelonephritis was necessary.

Multiple ureteral stones which may have been overlooked may be responsible for inadequate drainage of an infected kidney secondary to

ureteral obstruction. Such a complication is readily obviated by exploring the ureter as high as the kidney and as low as the bladder with a probe through the ureteral incision. This is particularly important if multiple ureteral stones are suspected. There were multiple stones in 12 per cent of our series. Exploration of the entire lower third of the ureter should always be made for additional stones. Through a low middle-line incision the entire lower third of the ureter can be exposed extraperitoneally. In 70 per cent of the cases the stones were in the lower ureter.

Obstruction in the ureter rarely occurring shortly after removal of a stone is usually due to edema at the site of the ureterolithotomy, and the manifestations are those of an infected hydronephrosis and readily overcome by ureteral catheterization, leaving the catheter in place for several days. Obstruction and subsequent hydronephrosis due to stricture at the site of a previous ureterolithotomy probably rarely occur. In all probability there is less chance of stricture if the ureter is accurately sutured after the removal of the stone. An open ureter invites infection of the wound by urinary drainage from an infected kidney with subsequent deposit of an increased amount of scar tissue around the ureter when healing does occur. Usually one or two interrupted sutures inserted in the ureter are sufficient to prevent leakage.

Sudden impaction of a ureteral stone with complete obstruction of the ureter, so that ureteral catheterization is impossible, may be responsible for complete anuria; the function of the opposite kidney is inhibited reflexly, and the condition is serious from the standpoint of life and death, unless it is recognized early and treated as an emergency. Perinephritic and peri-ureteric abscesses are avoided by routinely inserting a drainage tube to the kidney after pelviolithotomy and to the ureter after ureterolithotomy.

The risk of surgical removal of stones from the kidney and ureter is exceedingly small. There was but one death in this series. This patient had bilateral renal lithiasis with marked renal insufficiency as shown by a phenolsulphonephthalein return of but 5 per cent in two hours, and urea retention of 146 mg. for each 100 c. c. of blood.

CONCLUSIONS

1. Stones in the kidney or ureter, causing symptoms and damaging the kidney, should be removed early, as early removal conserves renal function.
2. Postoperative complications have been minimized by the accurate methods now at hand for examining the upper urinary tract.
3. The majority of ureteral stones can be removed by nonsurgical methods.

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DISCUSSION

DR J. R. WESTABY (Madison): The question of urology is one that bothers more general practitioners and general surgeons than any other subject, due to the fact that we are more ignorant regarding these things and are only beginning to see light. Therefore, Dr. Hunt's paper is very pertinent to me, and in a trip I made to Rochester last winter I learned the why of a great many things from Dr. Braasch and Dr. Bumpus that had bothered me in my diagnosis of these cases before.

Dr. Hunt mentioned the rarity of bilateral stones in the kidney. He mentioned one instance where it occurred. A very interesting case in my own practice occurred several months ago. Seven years ago the young man had had one kidney removed because of extensive calcification of the right kidney, accompanied by infection and abscess. After several years of perfect health, he called me and stated that for four days he had complete anuria with symptoms of uremia developing. The x-ray showed the development of calcification of the left kidney pelvis. All the calices were filled completely and all connections. There was also an abscess. He was operated upon immediately and we had worked as rapidly as possible in an effort to try and save his life. On opening up the kidney we removed all the calcified material, drained the abscess, put a catheter into the bladder and by draining well, we were able to save the man's life. He is now in good health and working every day. We may get a recurrence in this case. It was an exceedingly interesting case to me.

DR. HUNT (closing): I wish to thank Dr. Westaby for his discussion, and also the President and the members of the society for the privilege of appearing on your program.

FRACTURES OF THE CARPAL SCAPHOID*

BY ALBERT F. TYLER, B.Sc., M.D., F.A.C.P.

OMAHA, NEBRASKA

No literature on fracture of the carpal scaphoid is found previous to the year 1900. Shortly thereafter, however, one begins to find an occasional report until the year 1910, while from that time up to the present considerable attention has been called to this fracture.

INCIDENCE.—Many investigators have estimated the incidence of fracture of the carpal scaphoid at 0.5 per cent of all fractures. The late John B. Murphy¹ however, made the statement, in 1915, that this estimate, in his opinion, was too low and that it should be from 1 to 2 per cent of all fractures. He also found one fracture of the carpal scaphoid to every ten, or less, of Colles' fracture. Magnuson² says, "A fracture through the middle of the carpal scaphoid is as common as Colles' fracture." The personal experience of the author during the past two years has shown an incidence of one fracture of the carpal scaphoid to less than four fractures of the lower end of the radius. Out of forty-one different cases of fracture of the carpal scaphoid, nineteen were accompanied by fracture of the lower end of the radius, and twenty-two were unaccompanied by fracture elsewhere in the wrist. I mention these facts in order to call your attention to the importance of this type of fracture. Since it so often accompanies fracture of the lower end of the radius, we should always be sure that it is not present. It not only occurs as a complication with other fractures of the wrist but frequently occurs alone.

ANATOMY.—It will be recalled that the carpal scaphoid has roughly the shape of a hollowed out crescent³ with a broad portion at either end and a narrow portion in the center, the whole bone being concave palmarad and ulnarad. On the palmar surface of the distal portion is the tuberosity. The distal portion, including the tuberosity, is rough for the attachment of the ligaments, while the proximal portion, being almost wholly articular, is smooth and has nothing attached to it. The carpal scaphoid articulates with five bones, the radius being proximal, the trapezium and trapezoid distal, and the os magnum and semilunar on the inner side. The

os magnum fits into the concave surface of the scaphoid. The anatomical location of the scaphoid places it in a buffer position, so that, when sufficient force is applied in such a way as to make the scaphoid the apex of the applied force, a fracture occurs. The blood supply for the scaphoid comes through the small vessels in the ligamentous attachments of the distal portion.

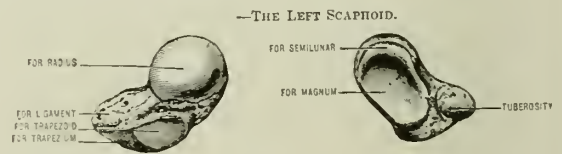


Fig. 1. From Gray's Anatomy, showing various anatomical features of the left scaphoid.

ANOMALIES.—There has been considerable argument by different authors as to whether fractures of the carpal scaphoid are as frequent as clinicians would lead us to think, or whether part of the so-called fractures are really defects in development. Pfitzner,² in his study of the comparative anatomy of the carpus, found that some scaphoids consist, normally, of two and others of three parts. The bipartite type consists of an individual radial and ulnar bone, while the tripartite has a radial, ulnar and central bone. Pfitzner also claims that even the normal one-bone scaphoid has two or three centers of ossification, which later in life become united by intervening cartilage, and when the cartilage fails to unite there results in the adult either the bipartite or tripartite type of scaphoid. He gives the results of his investigation, saying that in 1,456 wrists he found nine completely bipartite and twenty-nine partially cleft scaphoids. Grueber³ confirms the observations of Pfitzner except that he did not find them so frequent. Out of 3,007 wrists he found four bipartite and one tripartite. Since the common usage of the x-ray in conducting an examination of injured wrists the clinicians are doubtful whether Pfitzner's statistics were altogether accurate. Codman and Chase⁴ have examined 1,040 radiograms of wrists and find not one divided scaphoid without history of injury. Todd⁵ admits the possibility, but says that in his experience he has never seen the de-

*Presented at the meeting of the Botna Valley Medical Society, Avoca, Iowa, Oct. 5, 1922.

fective type of scaphoid unless there was definite history of trauma.

MECHANISM OF FRACTURES.—Fractures of the carpal scaphoid are produced by hyperextension of the carpus on the radius plus slight radial abduction. This places the scaphoid at the apex of the applied force and the narrow portion usually snaps. The force must be applied chiefly to the radial half of the hand at the base of the metacarpal bones. It is produced by falling on the outstretched hand or, more commonly, by the back-firing of a motor during cranking. The fact that this type of fracture is found in the

manner described under mechanism of fractures. Fractures of the tuberosity, however, are received in a different manner. Instead of the wrist being forcibly radially abducted, it is forcibly ulnar adducted during hyperextension. This throws great stress on the palmar portion of the annular ligament of the wrist, the fibers of which are attached to the tuberosity of the carpal scaphoid and, in turn, pull the tuberosity loose from the main portion of the bone. This type of fracture of the carpal scaphoid is extracapsular, while the first two types are intracapsular.

SYMPTOMS AND PHYSICAL FINDINGS.—Todd⁵

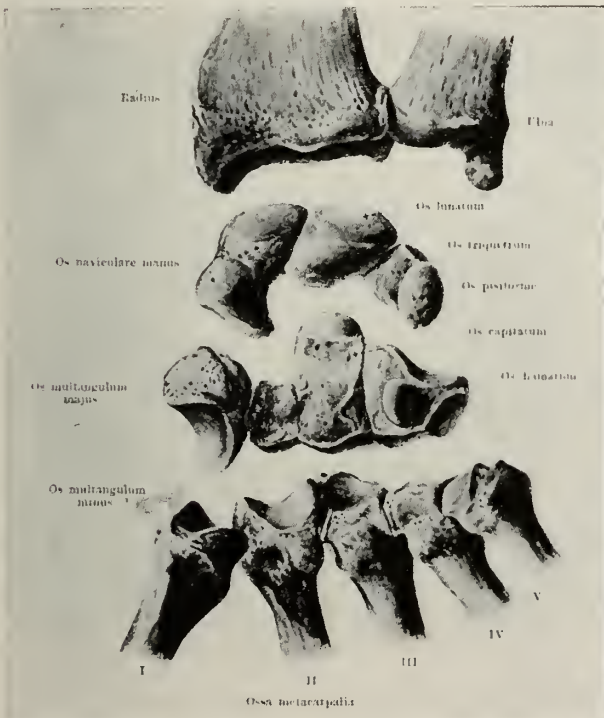


Fig. 2 From Spalteholz, showing relationship of carpal scaphoid to the other bones of the wrist.

active period of life, eighteen to forty, and as a result of manual labor, makes it typically a fracture to be found in males who are actively engaged, the right wrist being the more frequently affected.

TYPES OF FRACTURE.—There are three types of fracture of the carpal scaphoid as described by Speese and Skillern⁶: first, the simple, transverse type, which is the most common type of fracture, making up 66 per cent of all fractures of this bone; second the transverse fracture, which is impacted; and, third, fracture of the tuberosity. The first two types are received in



Fig. 3. Photograph showing swelling over anatomical "snuff-box" (After Todd by courtesy of the British Journal of Surgery).

has admirably pointed out that the first symptom of importance is the history accurately obtained. He makes the statement that the force which is necessary to produce a fracture of the carpal scaphoid is so great that it will always be definitely recalled by the patient, even though the interview is had many years after the actual injury. In his opinion this one thing will usually enable the physician to determine whether it is a fracture of the carpal scaphoid or simply a sprain of the wrist. This differentiation is important because most fractures of the carpal scaphoid are mistakenly diagnosed as sprains. The

second symptom of importance is local swelling occurring over the anatomical "snuff-box." Third the patient suffers from inability to fully extend the carpus on the radius, forty-five degrees being the maximum. It is always impossible for the patient fully to abduct the carpus radially. Limitation of these movements is due to the pain produced and to the misplacement of the distal fragment. This portion drops palmarad, together with the trapezium and the first metacarpal bones. Another sign of fracture of the carpal scaphoid is extreme tenderness to pressure over the anatomical "snuff-box." Roger T. Vaughan⁷ has called attention to a very valuable diagnostic point which he calls the percussion test. This

oid have been recorded only since the year 1900 is ample testimony to the value of the *x*-ray examination in this type of fracture. The *x*-ray examination to be of value, however, must be properly made. A simple flat plate of the wrist without attention to proper positioning will often be misleading. Codman and Chase⁴ recommend that both wrists be placed palm down on the *x*-ray plate, as close together as possible, with the hand adducted ulnarad; that the *x*-ray tube should be centered over the space between the two wrists on a level with the carpal scaphoid so that the angle of incidence will be the same for both bones. This position gives them satisfactory results. It has been the author's privilege,



Fig. 4



Fig. 5



Fig. 6

Fig. 4. One of a pair of stereoscopic radiograms, showing case No. 16,294 with an impacted Colles' fracture of the lower end of the left radius with slight shortening of the dorsal aspect; fracture of the carpal scaphoid with the distal fragment misplaced palmarad along with the trapezium.

Fig. 5. One of a pair of stereoscopic radiograms showing case No. 16,232, having a fracture of the carpal scaphoid with misplacement of the distal frag-

ment is made by having the patient flex the phalanges on the metacarpals, then with the ordinary rubber percussion-hammer the ends of the metacarpal bones are tapped so the force will pass up along the longitudinal axis toward the carpus. In cases of fracture of the carpal scaphoid the tapping of the second metacarpal bone elicits extreme pain in the region of the scaphoid while tapping the others does not produce pain.

The *x*-ray findings are very helpful, and we think the fact that fractures of the carpal scaph-

ment palmarad together with the trapezium. There is no other fracture of the left wrist or forearm.

Fig. 6. One of a pair of stereoscopic radiograms showing case No. 16,986, having a fracture of the styloid process of the right radius extending into the joint surface. There is no misplacement. Fracture of the carpal scaphoid with the distal fragment misplaced palmarad.

amply proven by experience, to get great help from the stereoscopic *x*-ray examination of the wrist. Stereoscopic study of the bones of the carpus will not only show the fracture, but will tell whether the distal fragment is misplaced palmarad. This information enables us at the time of diagnosis to determine whether the patient should receive the closed or open method of treatment. Todd⁵ has suggested the fluoroscopic examination of the injured carpus, gradually pronating and supinating the wrist, saying

that, when the line of fracture is parallel with the main beam of the rays, it will be definitely visualized on the fluoroscope.

DIAGNOSIS.—The diagnosis then will be made, first, on the history; second, limited motion; third, swelling over the anatomical "snuff-box;" fourth, extreme tenderness over the anatomical "snuff-box;" fifth, the percussion test; sixth, the *x*-ray. Fractures of the carpal scaphoid will need to be differentiated from fractures of the lower end of the radius, lower end of the ulna, fractures of carpal and metacarpal bones, and sprain of the wrist.

PROGNOSIS.—Unreduced fractures of the carpal scaphoid give a permanent disability of 50 per

cent, and when fracture occurs the proximal portion has its blood supply completely cut off, so that this portion of the bone rests within the joint like a foreign body; third, many of the fractures of the carpal scaphoid have the distal fragment misplaced palmarad, so that the broken ends of the bone are not actually in apposition. If it is possible to reduce fractures of the carpal scaphoid by the closed method at once, the result will be as good as can be expected, even though union does not take place. If it is not possible to reduce the misplacement the open method of treatment should be done. This will not give a perfect wrist, but will do away with pain incident to use and, consequently, give a more use-

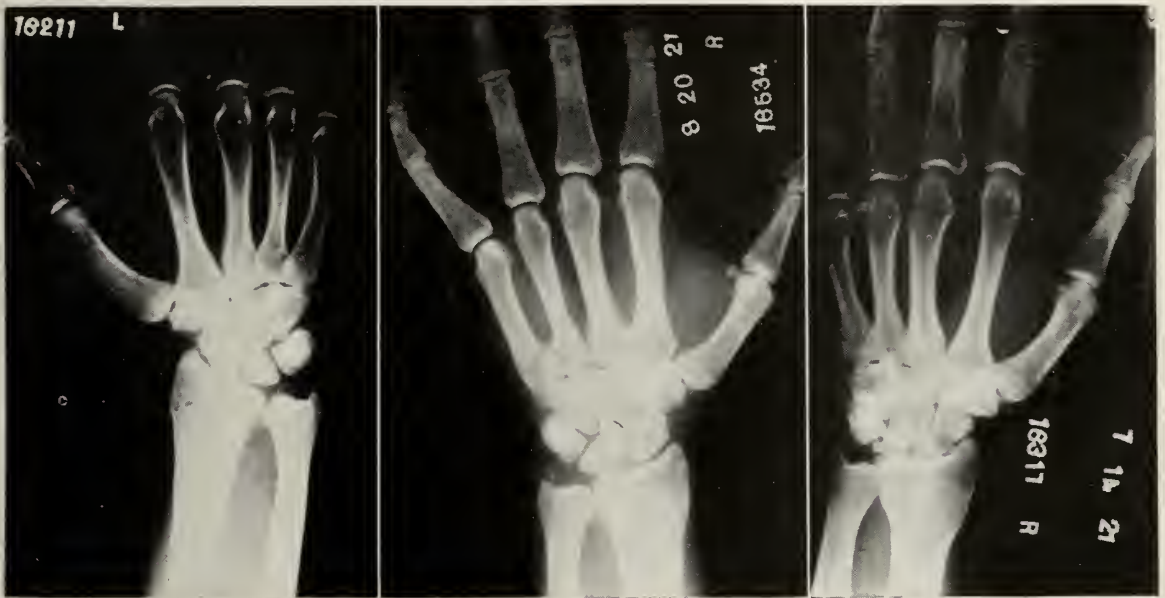


Fig. 7

Fig. 8

Fig. 9

Fig. 7. One of a pair of stereoscopic radiograms showing case No. 16,211 having a Colles' fracture of the left radius about three-fourths of an inch above the lower end. The joint is not involved. The position is good. Fracture of the carpal scaphoid with the distal fragment misplaced palmarad, together with the trapezium. Proven at operation.

Fig. 8. One of a pair of stereoscopic radiograms showing case No. 16,534 having a Colles' fracture of the right radius. There is no misplacement. There is a fracture of the styloid process of the ulna and a

fracture of the carpal scaphoid with misplacement of the distal fragment palmarad.

Fig. 9. One of a pair of stereoscopic radiograms showing case No. 16,317 having a previous fracture of the right carpal scaphoid with the distal fragment misplaced palmarad and upward. Injury to the semilunar followed with almost complete absorption. There is compensatory narrowing of the carpus with over-riding of the distal row of carpal bones, especially noticeable in the shifted position of the trapezium and ulnariform.

cent in the use of the hand. This is due to the fact that fragments seldom unite, so that in certain positions a sudden twinge of pain may be felt in the wrist, causing the workman to suddenly drop his tools or some similar calamity. The failure of this bone to unite is due, in our opinion, to three things: first, it is an intracapsular fracture, so that the broken ends are bathed in synovial fluid which inhibits union; second, the blood supply of the carpal scaphoid is very

ful hand than if the proximal fragment is not removed.

TREATMENT.—The closed method: Of course this is the method of first choice and should be tried in every instance providing we are able to reduce the misplacement of the distal fragment. Our own experience, however, has led us to doubt whether it is possible to reduce this misplacement except in very rare instances. The closed method of treatment should consist of fixation for a

period of three weeks followed by massage at the end of the first week and thereafter. The patient should not be allowed to attempt work for a period of twelve weeks. This long period of disability is necessary on account of the slow healing of this type of fracture as mentioned above.

The open method: The open method consists in making an incision on the dorsum of the wrist immediately over the carpal scaphoid, cutting through the skin and subcutaneous fat, opening the tendon sheath of the extensor longus pollicis, and retracting this tendon radially and the other radial extensor tendons ulnarad from the field of operation; then the dorsal portion of the capsular

should be placed in the capsular ligament, the tendon set back in its normal position, and a few sutures placed in the skin, and a firm dressing applied on the dorsum of the wrist. Passive motion should be begun in twenty-four hours; active motion, as soon as the patient can be induced to do it. With this method of treatment complete restoration of function will be established in about two months.

CONCLUSIONS:

We believe that we are warranted in the emphasis of frequency of fracture of the carpal scaphoid, either as a distinct entity or as a complication of fractures of the lower end of the



Fig. 10



Fig. 11



Fig. 12

Fig. 10. One of a pair of stereoscopic radiograms showing case No. 16,492 having a previous fracture of the carpal scaphoid of the right wrist with the distal fragment, together with the trapezium misplaced palmarad.

Fig. 11. One of a pair of stereoscopic radiograms showing case No. 16,135, having a transverse fracture one-half inch distal to the base of the 2", 3", 4", and 5" metacarpal bones. The distal fragments are all misplaced palmarad and overlap the proximal frag-

ments. The relationship of the radius to the carpus is normal; also the relationship of the radius to the ulna. There is a fracture of the carpal scaphoid at the junction of the middle with the distal third. The distal fragment is misplaced together with the trapezium and first metacarpal bone upward and palmarad to the proximal fragment.

Fig. 12. Same as Fig 11 after open method of treatment and removal of the proximal fragment. Complete restoration of function in eight weeks.

ligament should be incised parallel to the tendon. With the wrist sharply flexed the proximal fragment of the carpal scaphoid will come directly into view and will be found free from any attachment and can be lifted out of the wound, after which the distal fragment, together with the trapezium and the first metacarpal bone, will come dorsalad into their normal position, and movements of the carpus will be free and unrestricted. When this has been lifted out a few sutures

radius, and that in every injury of the wrist we should not be satisfied until we have ruled out fracture of the carpal scaphoid. This can be done usually by the physical examination if one understands definitely the symptoms described above. In addition to this, however, stereoscopic x-ray examination is very helpful and should always be employed. Following the diagnosis we urge the employment of proper treatment, together with the knowledge of the seriousness of

this fracture. Those surgeons engaged in industrial surgery will need to be especially watchful for fracture of the carpal scaphoid.

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THE PHYSICIAN'S OFFICE AS A BUSINESS ASSET

BY ROBERT OLESEN, M.D.

GRAND FORKS, NORTH DAKOTA

The average physician's office is a distinct detriment to the successful practice of medicine. In delivering this pronouncement the writer realizes that he will draw the fire of those practitioners who believe that the arrangement, mechanical equipment, and upkeep of their offices are beyond reproach. It is fully realized that a few professional offices meet all reasonable requirements; however, the large majority of physicians' offices are so lacking in fundamentals as to repel, rather than attract patients.

In these days of keen professional competition, with the steady encroachment of the drugless cults upon the field of scientific medicine it behooves the individual medical practitioner to safeguard his own and his patient's interests. In many instances attention to the arrangement and organization of the office will aid materially in bringing about a notable improvement in business conditions.

In the present article the need for continued study, for attendance upon postgraduate courses, and for more careful history-taking and examination of patients, will not be discussed, though the importance of each merits careful consideration. The sole purpose of this article is to offer practical suggestions, keeping in mind the necessity for economy, by means of which the physical equipment of the physician's office may be materially improved.

It was formerly believed that a weather-beaten and unpolished name-plate at the physician's door or a worn-out gilt sign on the window was an indication of skill and experience of long standing. The tyro was known by the newness and shininess of his announcement plates. But times have changed. The name-plate, being the first glimpse the patient has of the physician, can well be of the spick-and-span variety. We

are certainly justified in believing that the personality behind the plate or sign is as up to date, bright and shining as the announcement itself. The contention that only the novice has the necessary time to devote to the upkeep of a brass sign is well founded; however, the successful practitioners can employ someone to attend to this matter for them. There is no gainsaying the fact that the first, as well as subsequent, impressions are strongly influenced by such trivial material things as physicians' signs.

The writer was discussing this matter with the owner of a small but unusually successful confectionery. "Doc," he said, indicating the physician neighbor who occupied offices overhead, "hurts his business by not putting up a front. The office windows haven't been washed in ages, the brass plate is black, and the gilt window signs are so scratched and worn that one doesn't know whether its a doctor's office or a pool room. If my place looked like that I wouldn't sell a pound of candy in a month."

The stairs and corridors leading to the offices of many physicians are often disreputably dirty. Inspection shows that they are only slightly acquainted with the broom, less with the mop and seldom or not at all with the scrub brush. It is true, of course, that physicians' offices are often located in buildings occupied by other tenants, consequently stairs and corridors are shared in common and traversed daily by many persons; however, even the indifferent are inclined to aid in maintaining the cleanliness of an office building when the floors are clean and mats are provided for cleaning the shoes. The writer has recently seen an office building in which the wooden floors were as immaculate as those of the proverbial Dutch kitchen.

The psychological impressions created by clean

and tidy surroundings have not been sufficiently appreciated. Yet it must be apparent that a clean office and a clean approach to the office unconsciously suggest a careful and competent person associated with the office.

Of course, the extent to which a physician might go in improving the appearance of his office is limited only by his resources. However, wonders could be accomplished in many physicians' offices without the outlay of a single penny. Mere mechanical cleanliness and tidiness of equipment would materially enhance the appearance of many offices. A general house-cleaning which would have for its purpose the elimination of litter and junk would certainly prove exceedingly useful.

The training of office secretaries, nurses, or mere office girls in the kindly, sympathetic, and diplomatic handling of persons entering an office could well be made the subject of a separate article. Suffice it to say that some time and attention might advantageously be directed to the appropriate instruction of office assistants. First impressions, as created by the secretary, may mark the acquisition or loss of a desirable patient. Notable improvements in handling telephone calls could be brought about by elementary instruction.

The littered table in the waiting-room, with its tattered and manifestly old periodicals, is a too familiar picture. The littered desk in the physician's office or the undestroyed evidence of a dressing just completed or of an examination made some time before, naturally arouses a doubt in the mind of the observant patient as to the resourcefulness and carefulness of the medical attendant. If the safe is piled high with open boxes of one time sterile cotton and gauze, intermingled with unstoppered bottles of medicine, the suspicion of inefficiency may be heightened. If the table is cluttered with medical magazines still reposing in their original wrappers and manifestly aged medical books repose in a dusty book case there may justly be a doubt as to whether the physician is interested either in ancient or modern medical literature.

When the linoleum is worn through to the wooden floor and the rugs are obviously of ancient and neglected vintage it may be reasonable to conclude that the physician has not been successful, either professionally or financially.

It is not the purpose of this article to advocate the equipment of physicians' offices on the

white-enameled tiled-floor principle. Such accessories are helpful, but not essential to the successful practice of medicine; yet, it does seem reasonable to expect such slight outlays for office equipment as may be warranted by the success of the practitioner.

Many landlords appear to be so busily occupied in collecting rents from physicians that the desirability of redecorating the walls, ceilings, and woodwork of offices is entirely neglected after the building is erected, yet, the dinginess of many offices is manifestly caused by the dirty or dark walls and ceilings. Persistent effort will usually bring about a change in these conditions.

To observe the defective artificial illumination in the average physician's office one would assume that the science of illuminating engineering was a lost art. Two principal defects are usually apparent, either the oldest type of feeble electric lamp is used or the high-powered but unshaded modern lamp is permitted to impair the vision of physician and patient alike. The happy medium of soft and diffused, yet ample, illumination, is too often a hidden mystery, although practicable and valuable suggestions are readily obtainable for the asking from experts associated with industrial commissions, health departments, power companies, and electrical contracting firms. Floor, desk, and table lamps usually afford a soft, diffused, and comforting glow, yet are seldom used in physicians' work places.

As regards office furniture and equipment, there is certainly ample room for improvement. Refinishing and repainting of chairs and tables already in use will frequently provide the fresh appearance so desirable in an up-to-date office. In numerous instances, however, the furniture has become so dilapidated and antiquated as to be manifestly in need of replacement.

It is greatly to be regretted that the feminine members of physicians' families have failed to take a substantial interest in the upkeep of the offices. Such supervision is being exercised in some instances in an unobtrusive fashion, but to the marked improvement not only of the physical equipment but also of the business.

One of the most immaculate physician's offices the writer has ever seen is located in a small town. Personal attention to the mechanical upkeep of this office by the doctor's wife effected a transformation which has aided in turning a mediocre into lucrative practice. There is no

gainsaying the fact that the feminine touch and supervision is an asset of value when extended beyond the confines of the physician's home.

Many will recall the good natured raillery at the expense of the literature on the physician's reading table resulting from the conversation between two men. "You appear to be well posted on the Spanish-American War," said the first individual. "Yes," replied the other, "I have spent considerable time in the doctor's office lately and have looked over the literature on the waiting-room table." While this story may be far fetched it is, nevertheless, true that much of the literature on waiting-room tables is of ancient and not particularly attractive vintage. Torn, soiled, and disarranged periodicals of none too excellent choice are frequently in evidence. Profusely and happily illustrated magazines, cheerful stories and poems of short length, and pamphlets dealing with up-to-date public health topics are suggested as worthy competitors for the poorly selected material so much in evidence at present. The use of neat binders bearing the physician's name, and for the preservation of current literature, is distinctly advantageous. A writing-table with stationery bearing the physician's name and address would prove an innovation with definite advantages.

It is time that some of the "art" objects displayed on office walls were discarded. The picture of the physician keeping vigil over the sick bed and the once popular skull picture created by the lady gazing into the mirror are ready for the discard. Likewise the cheap "art" calendars bearing commercial advertising may well be eliminated. Old etchings, as well as modern artists and photographers, have provided an infinite number of beautiful, cheerful, and instructive subjects suitable for display in physicians' offices. A few, small, well-framed, and well-hung subjects will create an atmosphere of refinement, readily transferable into professional profit. In selecting pictures for a doctor's office depressing subjects are naturally to be avoided. Appropriate advice in these matters is available for the asking from art critics, artists, and educators.

A somewhat extensive experience in public health work has taken the writer into physicians' offices in many parts of the country. Rural and urban offices alike have been visited. The utter inadequacy of many of these offices as business assets has been painfully apparent. Apparently

an office patient is presumed to be without the finer sensibilities which will enable him to associate a neat and up-to-date office with an alert, trained and competent medical mind. And yet it is a fact that patients, particularly women, do discriminate and favor, other circumstances being equal, the apparently better equipped and more prosperous physicians.

It is wholly unnecessary for physicians to have so-called marble palaces as offices; nor are expensive furniture, gaudy draperies, and glittering equipment essential. However, neatness, which costs little more than mental and physical effort, is a tangible and prime requisite which may readily be incorporated in any office. If a physician is to be regarded as clean, capable, and clever, he should present some striking, though mute, outward evidence of these attributes by attention to the several details already enumerated. In other words his capabilities are reflected in numerous ways by the purely physical side of his work-shop.

Many physicians appear not to have participated in the "clean-up," "paint-up" campaigns. In the future they should be among the first to practice these precepts.

(Reading Notices, continued on page 22)

PRACTICE FOR SALE IN NORTH DAKOTA A RARE OPPORTUNITY

I have formed a partnership to practice a specialty in a distant state, and I now offer my practice and some office and hospital equipment at a very low price. Population of the town is 800, and there are all modern improvements. Rent of the residence and hospital building very low. The field is big enough for two men when times improve. Practically no competition. Insurance, railroad and other work can be transferred at once. A good income is assured from the start. Price very low. Address 310, care of this office.

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A NURSES' BILL

The following is an abstract of the bill to be introduced in the coming legislature by the Minnesota State Registered Nurses' Association:

1. A nurses' board, consisting of five members to be appointed by the Governor upon the recommendation of the Minnesota State Registered Nurses' Association.

2. The right to hold examinations in any part of the state. (The reason for this is that it means a great expense to nurses in outlying communities to go to St. Paul for their examinations.)

3. Provision for an educational director. This educational director will help to standardize the schools of nursing. The director will be appointed by the Board of Examiners of Nurses, and will be paid out of the examination fees. The examination fee will, therefore, be raised from five to fifteen dollars, in order to pay for the educational director and in order to make it possible to hold examinations in different localities. The bill calls for no appropriation.

4. Provision for a minimum course of twenty-eight months, instead of thirty-six months. This does not mean that the hospitals running a full three-year course will be asked to cut down their course.

5. To license all those who nurse for hire. This includes the registered nurse as well as the

licensed attendant, and will be a great help in controlling the nursing situation in general.

6. Provision for licensed attendants. For these licensed attendants will be provided an eight-months course. There is a definite need for this sort of an attendant.

7. An ample waiver provided for nurses who are qualified to register under this bill in the state of Minnesota, for nurses as well as for licensed attendants. A reciprocity clause which is based upon individual qualification rather than upon state law. It is the aim to raise the educational qualifications to a full high-school course. This will be done very gradually: 1926, eighth grade, as at present; 1927, two-year high school; 1928, three-year high school; 1929, four-year high school education.

This bill will probably meet with the approval of the medical profession because it covers all they have discussed and asked for during the past few years. It provides, also, that people in moderate circumstances may, under this law, employ a nurse who is licensed and under the control of the Minnesota State Registered Nurses' Association.

SUIT TO ANNUL DRY LAWS AFFECTING THE PRACTICE OF MEDICINE

This is a delicate subject even to approach, first, because of the determined endeavor of the country to make itself dry, and, secondly, because so many physicians who have been granted permits to issue prescriptions for liquor have so thoroughly abused their privileges that one hardly knows how to act. Yet the American Medical Association attempted some time ago (at its meeting of the House of Delegates in St. Louis last June) to have the eighteenth amendment revised so that the prescribing of real liquor (good, pure brands) could be taken over by the Government, and prescription issued by a physician who recognized his limitations in prescribing and who would not, for a profit, prescribe for fictitious diseases or for people using fictitious names. The effort on the part of 105 doctors in New York to unite and carry to the United States Supreme Court a proposition which will put alcoholic prescriptions on a normal basis is under way, and the principal argument of those who are opposed to the present method of restricting physicians' practice is that Congress has attempted to dictate to the medical man what he shall and what he shall not use. For instance,

there may be some people who, from illness, need an alcoholic stimulant; but Congress says the physician shall not be permitted to issue such a drug without a definite license. They may attempt, later, to restrict the sale of tincture of digitalis or aromatic spirits of ammonia on a similar basis, that is, Congress may attempt to practice medicine on its own hook without having been legally examined by an examining board and licensed by the same.

The effort, then, of these men—and they include the best men in New York and the highest class of attorneys—is to eliminate some of the bad features of legislation and to attempt to put the responsibility of therapeutics on the doctors, letting them decide what they shall prescribe according to the individual case they are called upon to treat. No one for a moment would uphold the man who writes prescriptions for liquor when it is wholly unnecessary, for he does it simply to oblige some alcoholic friend who wants a drink. The result is that hundreds of prescriptions are sent to drug-stores that have to go through the internal-revenue department, and they draw discredit upon the medical men as a class, whereas it is a comparatively small number who override their privilege and attempt to deceive the Government by their efforts illegally to administer liquor as a medicine. This body of men in New York have formed the "Association for the Protection of Constitutional Rights," and the officers are such men of prominence as Dr. Samuel W. Lambert, president; Dr. James F. McKernon, vice-president; Dr. Warren Coleman, secretary; and Dr. E. Sondern, treasurer. Those making up the executive committee are Dr. Nathan E. Brill, Dr. Wm. K. Draper, Dr. Charles L. Dana, Dr. J. T. Gorton, and Dr. J. Bentley Squier. It is assured that this effort on the part of the organization will be carried on with dignity and for a definite purpose.

There are very few physicians who will question the advisability of the occasional use of alcohol in critical disease. For example, a woman is sent to Minneapolis from an adjoining state with suppression of urine, due to a pregnancy. Her doctor advises her to have her uterus cleared out. The surgeon to whom she is sent takes the matter under advisement, concludes that the condition may be relieved in some other manner, and attempts to do so and succeeds. At the

eight month and by artificial assistance, the woman gives birth to twins. Within the following two weeks one of the twins dies. The woman contracts pneumonia, and upon the return of her medical advisor he finds her prepared for death. He recognizes a situation that is desperate and orders two ounces of whiskey every two hours, and the desired result is produced. The woman passes through the crisis of her pneumonia and makes a complete recovery. Yet it is known that this surgeon is an absolutely temperate man. He would not think of taking a drink himself, nor would he prescribe it except that he recognized its value in certain cases. Let us hope the committee may succeed in their honest efforts to protect themselves from an ill-advised action of Congress, and also put alcohol where it belongs as a drug for administration to people who actually need a stimulant. This would insure the purity of the product and would do away with the illegal manufacture of so much that is poisonous and which appeals to the commercialized or self-appointed agent for the sale of illicit drugs.

IS THE WORLD SYPHILIZED?

According to some combustible literature which has just come out, and which relates to the radio-activity of the San Francisco specialist who makes and rents, for a stipulated sum, the "oscilloclast" and also furnishes instruction in the manipulation of blood-drop diagnosis through a finely constructed vibratory apparatus, it seems quite evident that the whole world is suffering basically from syphilis that someone introduced centuries ago. And the curious part of it is that these cases are not recognized by the common, every-day, scientific Wassermann reaction, but can be recognized only by this special device which is now supposed to create a revolution in medicine. One would naturally expect from Upton Sinclair, who is what might be called an "enthusiastic optimist," that a new discovery is on the boards which will take the sting away from all illness, and that, as he says, all disease loses its terrors. Of course, a good deal of this has been published in the *Journal of the American Medical Association*, both for and against Abrams and his radio-activity methods. But no one knows, not even the writers of these extraordinary pamphlets, when the world actually became syphilized; and who can tell who is pure

and without a stain or without an effect from someone's old spirochete.

It is not very pleasant, from some points of view, to think that everything, from baldness to sore, ingrowing toe-nails, is due primarily to syphilis, and that all disease, from the top of one's head to the sole of one's foot, can be almost universally classed under one basic cause. Unfortunately, if this broad statement, made in this remarkable bit of evidence, be true nothing is said about the treatment of these unfortunates except that they must be vibrated according to certain well-known instructions, which accompany the renting of the oscilloclast.

It is probably the best scheme that has come out in many years, and it has secured a great deal of free advertising. The newspapers print all this without a moment's hesitation, perhaps not knowing that it carries with it an unsound and an unscientific assumption. It is simply asserted that all of the illnesses to which the human race is susceptible will be looked upon from an absolutely different point of view. This pamphlet also criticises the art of diagnosis and makes the statement that the greatest medical men are wrong in fully 50 to 60 per cent of their diagnoses, and that the ordinary physician is mistaken in fully 75 to 80 per cent of the general run of his cases. Therefore, the treatment must likewise be incorrect and often harmful in a large proportion of cases. Instead of relieving the world of its terrors of disease it seems to the writer that terrors are added tenfold, except, of course, for this easy method of treating disease by a vibration scheme.

The medical men who have put in much time and many years of labor, the research men, and the laboratory men who have looked at disease from almost every angle will doubtless not be wholly discouraged by this supposedly new discovery.

All medical men are trained in disappointments, and they are so frequently criticized and held up to ridicule that one more added insult or two will do no harm. But what about the victim of this disease, or these diseases? In looking over the list of troubles which flesh is heir to we find that this vibratory method of determining the source shows that basic syphilis is the cause of cancer, tuberculosis, insanity, asthma, epilepsy, high and low blood-pressure, diabetes, eczema, psoriasis, exophthalmic goiter,

varicose veins, ulcers, chronic headaches, chronic stomach troubles, chronic uterine troubles, chronic eye and ear troubles, enlarged tonsils, pyorrhea, and many catarrhal conditions, and, incidentally, brain tumors and everything under God's shining heavens. What will become of us practitioners, particularly when this same authority has thrust upon us a dreadful new disease called "bovine syphilis?" It certainly looks, now, as if we would have to have all our cows subjected to the Wassermann or vibratory test. For some strange reason the communicable diseases other than just plain, ordinary syphilis are not mentioned, such as gonorrhoea (which might be classed as a "vibratory" disease, at least contracted under the vibratory method). Then, again, no mention is made of diphtheria and the salvation of the diphtheritic by antitoxin. Perhaps the Klebs-Loeffler bacillus may have a corresponding vibration in this delicate mechanism that is so automatically skilled and tuned to diagnostic methods.

It is gratifying to know, however, that in the state of California an association for the purification of the race has been organized and established. It is equally gratifying to know that these new electronic findings prove very clearly to the finder's mind that vaccination against smallpox, or the use of serum in any form, is to be regarded with extreme displeasure. So the purification of the race which is going on in California now will probably clear up all of these difficulties, in the face of the fact that vaccination against smallpox has been definitely and permanently established.

Of all the literature that the editor has gone over, these two or three little advertising documents show how far and into what delusions the people may be led. There is no effort, and there is no reason, to attempt to check these blatant statements, at least not until the public have become more thoroughly aroused to what is normal in the way of research and what is fundamentally sound in a scientific conclusion. The education of the public is almost a hopeless problem, and, rather than getting better, it seems to be growing worse, that is, the public seems to be sick in mind, as well as in body. But, like the newest thing in radio, we may be able, eventually, to carry around a pocket "oscilloclast," start our vibrations, and cure our people by meeting them either on the street or at the bedside.

MISCELLANY

THE MENACE OF THE CROWD-MIND

We are glad to reproduce from the *Minneapolis Journal* of December 3rd a very able editorial on a subject that needs the attention of public-spirited medical men. The menace of ignorance and superstition as manifested in the "crowd-mind" is both real and alarming in this country, and no men are so well prepared as are physicians to point out the antidotes for this state of mind. We commend these words of wisdom to our readers:

THE MENACE OF THE CROWD-MIND

In the opinion of Dr. Everett Dean Martin of New York, there is no more serious menace to the Nation than the habit of crowd-making. He writes:

"Our society is becoming a veritable babble of gibbering crowds. Not only are mob outbreaks and riots increasing in number, but every interest, patriotic, religious, ethical, political, economic, easily degenerates into a confusion of propagandist tongues, into extravagant partisanship and intemperance."

There is much truth in the statement. One need only look about to see its evidences on every side. For the crowd is more than an aggregation of people; it is a state of mind. It lives on ego; it cherishes hate; it is more absolute than a czar; it lives off generalities and platitudes. Our crowds today are identified with such terms as "the people," "society," "humanity" and abominable "conspiracies." The crowd state of mind can be studied at any political convention, mass meeting or even revival.

"Crowd ideas," says Dr. Martin, "are ready-made. They possess finality and universality. They are fixed, they do not develop. They are ends in themselves."

Crowd-thinking is never more than in platitudes, propaganda, rituals, dogmas and symbols. Every age has felt its effect. When one considers, however, that progress is made only at the expense of the crowd-mind, the need of individual thinking becomes more apparent.

The Panama Canal as it stands today illustrates both the evils of the crowd-mind and the overcoming thereof. To France it is a reminder of what might have been, but for the mental make-up of the Parisian throng. It typifies the great engineering skill of De Lesseps throttled by the crowd-mind, stultified by calumny, until the mental ills of the mob become the ailments of the government.

To America, the Panama Canal represents the triumph of individual thought over the false cry of the crowd-mind. For even as late as 1901 the public had its eyes fastened on Nicaragua. Panama, then, was only a "conspiracy"; a bit of engineering foolishness. But the crowd dispersed before the facts. The Panama Canal is a reality, but at a greater cost than if the

crowd had not placed mental obstacles in the pathway of the individual common sense that finally triumphed.

The process repeats itself today, wherever crowds gather. On practically every national issue, labor, the railroads, what not, will be found the crowd-mind expressing itself.

The situation can be remedied only as the individual mind is stimulated to action. What we need is individual thinking, and not the loose mental action of the crowd. And increasing numbers must come to know themselves instead of thinking they know others. Self-reliance, grounded upon knowledge and reflection, is the beacon that will guide us through our problems, the crowd-mind to the contrary.

BOOK NOTICES

SYMPTOMS OF VISCERAL DISEASE. A Study of the Vegetative Nervous System in its Relationship to Clinical Medicine by Francis Marion Pottenger, A. M., M. D., Medical Director, Pottenger Sanatorium for Diseases of the Lungs and Throat. Second Edition. With Eighty-Six Text Illustrations and Ten Color Plates. St. Louis: C. V. Mosby Company, 1922.

Pottenger has made a timely contribution to medicine in a day when the patient is often lost sight of in a maze of laboratory data accumulated at the hands of multiplying specialists. Emphasis is placed on accurate clinical observation and interpretation as the one outstanding need of modern medicine. He advises that the individual be studied and that the study be as accurate as laboratory observation is sought for.

To that end symptomatology is studied as the expression of altered nerve and endocrine activity. Thus symptoms of a disease are divided as originating from toxemia, reflex causes, or the process per se. One of the most important subjects studied is the visceral reflex, that reflex which arises in some tissue or organ and expresses itself in the same or in some other tissue or organ. Fairly complete physiology of the autonomic nervous system is given with appropriate illustrations.

Sympathetic reflexes are considered under three heads: (1) the visceromotor, the only true sympathetic reflex in tissues; (2) the viscerosensory; and (3) the viscerotrophic.

Mention is made of the viscerotrophic reflex to explain degeneration of skeletal soft tissues associated with chronic inflammatory processes as seen in diseases of the lungs and pleura. Stimulation of parasympathetic fibres is considered by the author to give rise to such symptoms as hyperchlorhydria, nausea, spastic colon, bradycardia, asthma, hay fever, epiphora, cough, hoarseness, and so-called nasal and nasopharyngeal cough. The sympathetic is considered as the protective and energy expending system of the body while the parasympathetic is considered as providing sustenance for the individual.

In part two is considered innervation of important viscera with a clinical study of viscerogenic reflexes. The enteral system and thoracic and abdominal viscera are considered from standpoint of innervation and reflex symptoms produced by disease. Study of this section will simplify many clinical pictures.

In part three is given a survey of vegetative neurology in such a manner as to be understood and applied in the every-day practice of medicine.

This book is a valuable contribution to medicine and stresses the value of careful study of symptomatology in the light of known facts and the physiology of the vegetative nervous system.

—A. A. LAURENT, M. D.

CLINICAL TUBERCULOSIS. By Francis Marion Pottenger, A.M., M.D., LL.D., medical director, Pottenger Sanatorium for Diseases of the Lungs and Throat, Monrovia, Cal. With a chapter on laboratory methods by Joseph Elbert Pottenger, A.B., M.D., assistant medical director and director of the laboratory, Pottenger Sanatorium for Diseases of the Lungs and Throat, Monrovia, Cal. Two volumes. Second edition. St. Louis: C. V. Mosby Company, 1922.

"Clinical Tuberculosis" was written after Dr. Pottenger had made a careful study of tuberculosis for nearly twenty-five years. During this time the author believed that a wide knowledge of anatomy, physiology, and pathology is essential for those who wish to become expert in tuberculosis; consequently he spent much time in the study of these subjects, which has resulted in several splendid contributions to our knowledge of physical diagnosis and treatment of tuberculosis. Therefore, in "Clinical Tuberculosis," space is devoted to the fundamental subjects to such an extent that the student obtains a splendid foundation upon which to build a clinical structure. Physical signs are made easily understandable by showing their anatomical and pathological bases. Symptoms are explained upon the basis of physiological disturbances of certain organs and groups of organs due to the products of the tubercle bacilli. In fact, a successful attempt is made "to approach the study of tuberculosis from the standpoint of internal medicine in its broadest sense."

Dr. Pottenger's chapters on the "Nervous System in Tuberculosis" are unique. He has pointed out the various reflex paths and has proved definitely that through these connections marked changes in the skin and superficial muscles of the neck and thorax may result from deeply seated pulmonary lesions. Such changes affect chiefly the turgor of the skin and tonus of the muscles. In fact he finds that an early active lesion produces spasticity of certain superficial muscles, while an old chronic lesion results in atrophy of these muscles.

The chapters on the treatment of tuberculosis of various organs of the body are rational and safe to follow. Dr. Pottenger's views of the therapeutic value of tuberculin differ from those of some of the other leading authorities at the present time. Unquestionably, the pendulum swung too far in favor of tuberculin a few years ago, and now it is probable that it has swung too far in the opposite direction; however, Dr. Pottenger continues to obtain good results from the tuberculin treatment in properly selected cases.

On the whole it must be said that "Clinical Tuberculosis" contains a wealth of information on tuberculosis and closely allied and supporting subjects. It is clearly and logically written and should be studied by all students of medicine and all physicians interested in tuberculosis.

—J. A. MYERS, M. D.

NEWS ITEMS

Dr. C. M. Adkins has moved from Thief River Falls to Grygla.

The Peabody Hospital of Webster, S. D., has added an automobile ambulance to its equipment.

The Willmar Clinic has dissolved, and its members will continue in private practice at Willmar or elsewhere.

A county administrative board on maternal and infant hygiene has been organized under the Sheppard-Towner bill at Luverne.

Dr. James F. Smersh was elected president of the Steele County Medical Society at its annual meeting held at Owatonna last month.

Dr. Palmer Johnson, a pioneer physician who practiced in early days at St. Charles and Owatonna, died last month in Florida at the age of 80.

The Hennepin County Medical Society has endorsed the movement of the State Board of Health to control the sanitation at tourists' camps in Minnesota.

A survey to determine the extent of trachoma in Minnesota is now under way under the supervision of Dr. Taliaferro Clark, of the U. S. Public Health Service.

The new out-patient department of the City and County Hospital of St. Paul is to be known as the Arthur B. Ancker Dispensary, in honor of Superintendent Ancker.

Seven teachers are now engaged in the Minneapolis public schools in the examination and correction of speech defects in children, in and outside of the schools.

Dr. George A. Stevenson, of Minneapolis, died last month at the age of 40. Dr. Stevenson was a graduate of Minneapolis College of Physicians and Surgeons, class of '04.

The Women's Auxilliary of the Hennepin County Medical Society gave a concert last month, and the proceeds will be used for the patients at Hopewell Hospital.

Dr. H. G. Woutat and Dr. M. B. Ruud, of Grand Forks, N. D., were elected, respectively, president and secretary of the Grand Forks District Medical Society at its annual meeting last month.

Dr. John T. Bowers, of River Falls, Wis., has become a member of the staff of the Swedenburg Clinic of Thief River Falls. Dr. Bowers has been doing postgraduate work in Chicago for the past year.

Dr. Albert A. Campbell, of Ogema, died last month at the age of 54, Dr. Campbell was a graduate of the Medical School of the University of Minnesota, class of '04, and formerly practiced in St. Paul.

Mower County (Minnesota), of which Austin is the county-seat, is one of the richest agricultural counties in America, yet it advertises for the lowest bid obtainable for the medical care of its sick poor. Shame on rich Mower County!

The Methodist Episcopal Church maintains 80 hospitals in this country, the smallest of which, with 22 beds, is located at Windom, Minn., and the largest, with 380 beds, at Indianapolis, Ind. The capacity of the 80 hospitals is 6,775 beds.

Dr. W. R. Hand, of Elbow Lake, received his book of liquor-prescription blanks from the Government last month. He returned the book with the notation that he "had gone out of the liquor business." Many other physicians have returned their books.

Dr. M. N. Triplett, of Floodwood, a pioneer physician and newspaper man, died last month at the age of 68. Dr. Triplett was a graduate of the Medical Department of the University of Louisville, class of 95. He began practice in Floodwood in 1902.

The Hennepin County Tuberculosis Association proposes to locate this year every case of tuberculosis in Minneapolis, and to extend its advice and services in all suitable cases. A free clinic for such cases has been established at Glen Lake Sanatorium.

The infant-mortality rate in Minneapolis has dropped from 55.6 per 1,000 in the first eleven months of 1921 to 50.2 for the same period in 1922. This handsome decrease in infant mortality is due, in large measure, to the work of physicians and welfare societies.

One of the features of "Minneapolis Week," a week observed by all the activities of the

city in various forms, last month, was a free clinic day in all the hospitals of the city, when the best medical services of the profession were given free to the poor of the city.

The legal proceedings by which the Brown-Redwood Medical Society is attempting to compel the Minnesota State Medical Association to restore the charter of the Society revoked in 1918, have reached the Supreme Court of the State, and will soon be decided.

Before a building for the A. M. Miller Hospital of Duluth can be built, the trustees will seek from the courts an interpretation of the will. Mr. Miller left \$600,000 for a free hospital, and the trustees want to know how the sum can be divided into a building fund and an endowment fund.

Dr. and Mrs. John W. Bell, of Minneapolis, are at Kerrville, Texas, for a short time. From there they will go on to some point in Arizona or perhaps to California for the winter. Dr. Bell's friends will be glad to hear that he is very much improved in health and is having a thoroughly enjoyable time.

The Central States Orthopedic Society met in Rochester and the Twin Cities last month. On Friday, the 15th, a meeting was held in Rochester, and on the 16th the meeting was held in Minneapolis and St. Paul, a half day being given for each city. Dr. Wallace Cole had charge of the St. Paul program, and Dr. Emil Geist that of Minneapolis.

The Sioux Valley Medical Association holds its next annual meeting on Jan. 25 and 26 at Sioux City, Iowa; and the Sioux Valley Eye and Ear Academy meets in the same city on January 24. These two societies are composed of medical men from South Dakota, Iowa, Nebraska, and Minnesota. THE JOURNAL-LANCET is the official organ of the former society.

The Minnesota-North Dakota conference of the Catholic Hospital Associations of the two states was held in Rochester last month. Papers were presented by physicians, ministers, nurses, and hospital superintendents. Among the physicians speaking were Drs. C. H. Mayo and E. S. Judd, of Rochester; Dr. E. L. Tuohy, of Duluth; and Dr. H. B. Sweetser, of Minneapolis.

The result of limiting to 100 the number of students admitted to the freshman class of the Medical School of the University of Minnesota, has become strikingly apparent. While Colum-

bia, Michigan and other medical schools drop during their course from one-third to one-half of the medical students admitted, Minnesota dropped only one of the medical students who entered last year.

HENNEPIN COUNTY MEDICAL SOCIETY NOTICE

The annual meeting of the Hennepin County Medical Society will be held in the Library Rooms on the eleventh floor of the Donaldson Building, Monday evening, January 8, at 7:45 P. M.

The program will consist of the president's address, by Dr. A. E. Benjamin, reports of committees, and election of officers, committees, and delegates.

Unless otherwise specified the regular monthly meetings are held on the first Monday of each month at the above hour, and regular noon-day luncheon meetings are held weekly on Wednesday at 12:30 P. M.

All out-of-town physicians are cordially invited to attend these meetings. A Bureau of Information has been established in the Hennepin County Society Library. Visiting physicians may obtain information from this Bureau between the hours of 9:00 A. M. and 5:00 P. M. regarding clinics, etc. Telephone, Geneva 6846.
R. T. LA VAKE, M.D.
Secretary.

SAINT PAUL CLINIC WEEK

Third Annual Session

January 9, 10, 11 and 12

The following are the principal features of the tentative program:

Each day from 8 A. M. to 1 P. M., clinics in all branches of medicine and surgery at all the hospitals in the city.

Tuesday: 2 P. M., to 6 P. M., A symposium on fractures.

4 P. M., Paper by Dr. V. P. Blair, of the Washington University Medical School, St. Louis, Mo.

8 P. M., Annual meeting of the Northwestern Medical Officers Association of the World War.

Wednesday: 2 P. M., Symposium on pregnancy.

4 P. M., A scientific paper, name of speaker and subject to be announced in the daily program.

7 P. M., Banquet at St. Paul Hotel. All visiting physicians and their ladies are invited.

Thursday: Symposium on mastoiditis.

4 P. M., The Surgical Removal of Corneal Opacities, by Dr. Meyer Weiner, of the Washington University Medical School, St. Louis, Mo.

7 P. M., Banquet of the Minnesota Academy of Ophthalmology and Oto-Laryngology at the St. Paul Hotel. All visiting physicians are invited.

Friday: 2 P. M., Symposium on pneumonia.

4 P. M., Symptoms and Signs of Aneurysm of the Aorta. By Dr. C. P. Howard, the State University of Iowa, Iowa City, Iowa.

Headquarters and place of meetings for the scientific program, St. Paul Hotel.

Entertainment will be provided for visiting ladies.

OPENING FOR A PHYSICIAN

Hanley Falls, Minn., offers an excellent opening for a doctor. Address, President of the Commercial Club, Hanley Falls, Minn.

POSITION WANTED

A recent University of Nebraska graduate with two years internship and a good surgical training desires a location or association with hospital facilities. Licensed in Minnesota. Age 30. Mason. Highest of references. Address 305, care of this office.

PRACTICE FOR SALE

An \$8,000 practice in a county-seat city in Minnesota is offered for sale at a low price, on easy terms. The territory and opportunity are almost unlimited. Price, \$2,200, including a one-fifth interest in a \$25,000 hospital fully equipped. Insurance and other appointments transferable. Address 312, care of this office.

UNOPPOSED PRACTICE FOR SALE

Prosperous town of 500, Nearest competition, 14, 18, 20 miles; good roads; good schools; German community. New modern home to rent; collections, 98%. Will sell for price of drugs and office furniture. \$400.00 Address 303, care of this office.

PRACTICE FOR SALE

In Southeastern Minnesota; general practice established thirty years; office and equipment; population 1,400; rich farming community; American; excellent roads, schools, churches; unusually fine opening; terms very reasonable. Address 311, care of this office.

(Continued on page 15)

THE JOURNAL-LANCET

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MEDICAL AND SURGICAL TREATMENT OF GASTRIC ULCER*

BY B. F. LOUNSBURY, M.D.

CHICAGO, ILLINOIS

Because of the great variation in clinical and pathological manifestations of stomach ulcer it is not possible to successfully apply a single line of treatment to all cases. Careful observation of large numbers of cases has demonstrated the necessity for both medical and surgical care. Sir Berkeley Moynihan recently said: "It is at least arguable that the necessity for surgical relief in many cases is due to a too perfunctory trial of medical treatment." Judd has called attention to the frequency and seriousness of jejunal ulcer following gastro-enterostomy. Prominent internists are recommending surgical treatment in cases that do not improve in a reasonable time on medical management. This would seem to indicate a broader understanding of the ulcer problem and the gradual elimination of the antagonism of surgical versus medical care.

Some of the factors in the etiology of ulcer are as yet not clear, but a great deal of positive evidence concerning the healing process has been demonstrated. Pathologically, an ulcer of the stomach does not differ from an ulcer in other parts of the body. *The corrosive action of the gastric juice retards or prevents healing.* When this action is neutralized the healing process of stomach ulcer is on a par with that of ulcer elsewhere.

From this point on the principles of rest, nourishment, and protection apply generally. My observations on the medical management of gastric ulcer have come largely from Dr. Sippy's work during the past few years at the Washington Boulevard Hospital, Chicago. You are all familiar in a general way at least with this method. It may be worth while, however, briefly to sketch the main points in the treatment.

When there is reason to believe that an ulcer exists, the patient is put to bed with a definite understanding that his treatment must be continued there in all probability for a period of three or four weeks, and his co-operation is an essential factor in its success. He is placed on feedings of milk and cream, 1½ ounces of each every hour from 7:00 A. M. to 7:00 P. M., inclusive. Midway between these feedings he is given an alkaline powder consisting of 10 grains of sodium bicarbonate and 10 grains of calcined magnesia, alternating with a powder containing 10 grains of calcium carbonate and 30 grains of sodium bicarbonate. After the last feeding the powders are continued every thirty minutes until 9:00 P. M. Usually pain will disappear in forty-eight hours on this management, but should it persist and the patient have distress in the night, the stomach is aspirated to determine whether or not the acidity is controlled. If it is not then 40 grains of calcium carbonate is given every forty minutes from 9:00 to 12:00

*Presented at the forty-first annual meeting of the South Dakota State Medical Association, Huron, S. D., May 17 and 18, 1922.

P. M. Should pain persist and the midnight aspiration show free hydrochloric acid, an additional drachm of calcium carbonate is given at 2:00 A. M. and 4:00 A. M. When the free hydrochloric acid is controlled there should be no pain. If it persists under these conditions there is reason to suspect some other pathology than ulcer as its cause.

Simultaneously with the neutralization of acid a daily analysis is made of the stools for blood. When the patient is controlled (that is, when the free hydrochloric acid is constantly neutralized), the blood should disappear in a few days. Bleeding that persists longer than two weeks under these conditions is suggestive of malignancy.

Sometimes, especially in ulcer at or near the pylorus, we find at the end of a week of freedom from pain a recurrence of pain at night. Aspiration at midnight or at the occurrence of distress may show a few cubic centimeters or ounces of highly acid gastric juice. In some instances this increases in amount and is a troublesome complication. This hypersecretion is aspirated, and the distress disappears. The cause for this increase in acidity is not definitely known. Usually it will come under control by the midnight aspirations and the further administration of calcined magnesia or calcium carbonate.

During the administration of calcined magnesia the patient may complain of cramps in the lower abdomen and of diarrhea. This is due to irritation of the large bowel by the magnesia. The substitution of calcium carbonate will usually relieve this condition. Occasionally calcined magnesia will need to substitute the calcium carbonate because of constipation.

In cases that progress favorably during the first few days the food is gradually increased by the addition of soft eggs and cereals. Aspirations to determine the control of acidity are performed on two afternoons and three evenings each week when a non-obstructive type of ulcer is present, while the patient is under active observation in the hospital. When pyloric obstruction exists, aspiration is performed every evening a half-hour after the last powder is taken, thus removing the food and irritating secretion, with its tendency to the production of a continued night secretion. At the end of three or four weeks the patient is usually able to take three small meals daily, in addition to the hourly feed-

ings of milk and cream. The powders are continued thirty minutes after meals. This routine continues until by gradual trials it is found the patient can take three meals daily. It is possible easily to continue small hourly feedings if necessary while the patient is about his work and to maintain the best conditions for ulcer healing as long as is necessary. With the acid under control and the patient receiving sufficient nourishment to maintain his body-weight, the great majority of ulcers will heal. Dr. Sippy estimates that between 80 and 90 per cent will recover under these conditions.

With the acid controlled and the granulating surfaces protected, we have in the stomach ulcer practically the same condition that might be found in an ulcer of the leg. The great majority of these, if not starved by dense scar tissue, will heal when the granulations are protected by adhesive strips. Those in which scar tissue has strangulated the blood supply never heal until the entire mass is excised and new granulations connected with a free blood supply fill in the defect. These new granulations if properly protected will cover over with epithelium.

While it may seem a tedious undertaking to carry out so much detail of laboratory work and supervision of diet, yet when the system is once understood and the patient's co-operation secured, it is quite simple and easy to handle. If by a simple gastro-enterostomy we could promise the patient relief or cure without the necessity of so much care, then we should all be advising the simpler way. Much evidence is accumulating to show that this is not the case and that frequently following a gastro-enterostomy we have continuation of ulcer symptoms, either from the original ulcer or from a new one in the jejunum. Unless the ulcer is excised or destroyed by cautery, we still must have healing by granulation.

Frequently in the stomach there will be found ulcers whose craters burrow for a centimeter or more in calloused scar which scarcely bleeds when cut. These are the type, which, when located at the pylorus, produce an intractable tissue narrowing that demands surgery for the relief of obstruction and when situated on the lesser curvature or at some other nonobstructing point, require excision to forestall perforation or malignancy.

By observation with the fluoroscope the penetrating ulcer is easily detected. Under accurate

medical management in the nonsclerosed type, it is common to note a flattening out of this crater. If an ulcer of this type fails at the end of three or four weeks to show definite change in depth of crater, then the condition should be considered surgical, and the mass excised if possible. This decision would be more imperative if blood persisted in the stools or a palpable mass were felt in the abdomen, and especially so should the patient be in the cancer bearing age.

There are certain conditions which are not readily overcome by medical care and some in which the indication for surgery is definite.

A palpable mass with persistent bleeding should always be explored, and the conditions dealt with according to what is found. A resectable mass without metastases should be removed, either with knife or cautery. When situated at the pylorus, a pylorotomy with gastro-enterostomy or the Polya operation. In favorable cases this operation saves time and has some advantages over the gastro-enterostomy. It obviates the necessity of making a new opening in the stomach and leaves it more normal anatomically and functionally. An illustration of the end-results will be put on the screen (illustrations shown on the screen).

An ulcer in which bleeding persists as shown by occult blood in quantity in the stool for a period of two weeks or more in spite of accurate control, should be explored. If accessible a resection should be done. Frequently a cauterization and suture can be performed in situations inaccessible to resection. Much depends on the mobility of the stomach. Sometimes perigastric adhesions make difficult either procedure. Pyloric obstruction from tissue narrowing (scar formation) is best treated either by resection or gastro-enterostomy. The choice of operation will be determined by the patient's age and general condition. If favorable, a resection with Polya operation; if uncertain, a gastro-enterostomy. Often in these old scar obstructions one is surprised on checking the patient up with fluoroscope, a few months or a year later, to find the pylorus working again. This particular case is one of syphilitic sclerosis and canalization of the pylorus with obstruction.

Perforation is a complication which may be met at any time and demands prompt surgical care. There should be little difficulty in making the diagnosis, or, at least, the decision to open

the abdomen. The symptoms of pain and shock later followed by the board-like rigidity of the abdomen are quite characteristic. Patients operated on in the first twelve hours have a much better chance than those operated on later. Occasionally the ulcer slowly perforates into an inflammatory mass of plastic fibrinous exudate, and the seepage of gastric content into the peritoneal cavity is slow. As most of the perforating ulcers are in the duodenum or anterior wall near the pylorus, a gastro-enterostomy is advisable. Sometimes, when situated away from the pylorus, the ulcer can be resected and closed without gastro-enterostomy.

The question of drainage has been much discussed. Gibson of New York says he has obtained the best results by closing the abdomen without drainage. Bevan says he not only likes drainage but lots of it, and he would feel safer with a drain at the top and bottom of the peritoneal cavity. In spite of the seriousness of a condition in which the stomach contents are spilled into the peritoneal cavity, most patients operated on early do well. The stomach content seems not to set up a virulent peritonitis if operation is done and drainage instituted within the first eight or ten hours.

Hemorrhage from erosion of large vessels is a serious matter and at first becomes surgical for a blood transfusion. Generally the patient is in a weakened condition, which would contraindicate a laparotomy. The results of surgery to stop active, serious bleeding have been discouraging. Repeated blood transfusions, alkalization of the gastric content, and absolute quiet, with or without narcotics, offer a better chance of success.

It must be remembered in considering the surgery of stomach ulcer not to overlook the infections of tonsils and teeth, for, if we are to hope for permanent results, all known etiological factors should be removed.

Because of the anatomical distribution of gastric ulcer a large majority will be inaccessible, or accessible only by a rather formidable operation. One set of statistics distributes them as follows:

Lesser curvature.....	35 per cent
Posterior wall.....	30 per cent
Pylorus.....	12 per cent
Anterior wall.....	9 per cent
Cardia.....	6.5 per cent

Fundus.....	3 per cent
Greater curvature.....	3.5 per cent
Anterior and posterior wall.....	1 per cent

Resection or destruction with the cautery is the only surgical procedure which does not leave the ulcer still to be healed by nature. While a gastro-enterostomy lessens the time the gastric contents act on an ulcer, yet in the absence of outlet obstruction it is not necessary,

for the secretions can be rendered inert by alkalies.

Medical management can remove the chemical irritation, and nature will heal the defect. Surgery is necessary to remove the mechanical hindrances to healing. In all our surgery for gastric ulcer we continue as after-care the medical management until healing is complete.

FOR DISCUSSION SEE PAGE 29

CHRONIC DUODENAL AND GASTRIC ULCER DIAGNOSIS*

BY DONALD MACRAE, JR., M.D., F.A.C.S.

COUNCIL BLUFFS, IOWA

The quantity of literature on the subject of gastric and duodenal ulcer has reached such enormous proportions that further discussion may seem a waste of time. However, the writer, having an average experience in an effort to diagnose and treat these disorders and having read much concerning the cause, symptoms, and cure of chronic gastric and duodenal ulcer, and, furthermore, after having had failures in his own work and observed the many ill results of treatment in the hands of competent surgeons, wishes to confess a thought, possibly not in keeping with good manners, namely, that much of this volume of literature should be boiled or burned, and the residue therefrom carefully analyzed for the good which is permanent and indestructible.

The greatest need now is a standardization of thought and action in dealing with these diseases. I say thought rather than technic, for after all, technic is largely individualistic. I care not whether the surgeon uses catgut or silk sutures for a gastro-enterostomy, provided the operation is indicated and justifiable and the openings placed in proper anatomical position for the desired mechanical drainage of the stomach.

Satisfactory standardization of a single operation for both gastric and duodenal ulcer is obviously absurd, likewise no one operation should be dogmatically advised for either condition. No real surgeon will definitely settle upon any one procedure until after the abdomen is open and the ulcer inspected, in fact no operation for gastric or duodenal ulcer should be performed until the ulcer is definitely palpated or inspected. Sir Berkeley Moynihan, the Mayo of Europe,

says: "By far the most frequent cause of disappointment after gastro-enterostomy is that the operation has been performed in the absence of any organic lesion justifying it." "In every ten cases of unsatisfactory results nine are due to this cause and this cause alone." (British Med. Jour., July 12, 1919.)

From my own limited but equally sad experience, I do not hesitate to agree fully with Sir Berkeley.

I shall attempt not to tire you with an exhaustive discourse on the history of the literature, good or bad; neither shall I quote statistics which are truly tiresome and oftentimes useless or misleading.

This paper, therefore, will contain personal opinions of the writer based on a fairly extensive operative experience, coupled with personal observations backed by the evidence of authorities procured here and there, from whom he has gained most.

My first thought is antagonistic to a discussion of duodenal and gastric ulcer as a single disease. Moynihan and Latarjet have decided in favor of the "pyloric white line" and "pyloric vein" as the landmark to guide the surgeon. An ulcer occurring on the proximal side of the vein in "gastric"; an ulcer one-fourth inch beyond is "duodenal."

I know of no other almost imaginary line of demarcation of anatomical interest in the human body where the finding is of any great significance. Here, however, a vast difference exists in the pathologic processes of the ulcer, whether it exists on one side or the other of this "pyloric vein." Not only the pathologic condition differs, but the whole course of symptoms and treatment is not only not alike, but

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oftimes the surgical technic, as well as the prognosis of the case, depends upon the geographic position of the ulcer, whether on one side or other of this line.

A differential discussion may be about as follows:

Gastric ulcer—a rare disease; duodenal—a common disease. (One of the former to twelve of the latter.—Macrae.)

Gastric ulcer patients are usually emaciated and weak, and look ill; duodenal ulcer oftentimes produces mild symptoms, especially when no obstruction is present, and the patient is often strong and athletic.

Gastric ulcer varies much in appearance and sensation on palpation, and large excavated cavities are common, sometimes perforating the liver or pancreas; duodenal ulcer is astonishingly similar in size and appearance.

Gastric ulcer is prone to produce carcinoma; duodenal ulcer, never; duodenal ulcer symptoms are commonly a mimicry of other infections or irritations within the abdomen, that is, gallstones, chronic appendicitis, etc. A duodenal ulcer is more jealous of its situation and is less disposed to flirt with its neighboring organs.

Gastric ulcer cries out with pain soon after eating; in duodenal ulcer pain is long delayed.

Gastric ulcer seldom calls for gastro-enterostomy alone; in duodenal ulcer gastro-enterostomy is the rule.

Gastric ulcer is best treated by excision, cauterization, or partial gastrectomy, the latter being combined with gastro-enterostomy; duodenal ulcer does not demand excision to prevent the danger of carcinoma; therefore its removal is not so vital from a prognostic standpoint.

SYMPTOMS

In the order of their importance the symptoms may be described about as follows:

1. *Pain*.—Pain of a gnawing, boring character in the "pit of the stomach," coming on within an hour after a meal, is suspicious of gastric ulcer. Pain two to four hours after eating is common with duodenal ulcer. Unlike pain in other diseases, this symptom is fairly clock-like in its regularity during a "spell."

Giving the same quantity and quality of food at each meal, the time of pain is almost characteristic of gastric ulcer. It is present after each meal, day in and day out, during the period of activity.

Pain of duodenal ulcer is usually less acute, at times very slight, producing more a feeling of "fullness" or "distention." The reception of food gives relief to the sufferer, and thus he soon learns to select food stuffs productive of less pain, and thus, again, many of these cases grow gradually better and even gain weight, the result of frequent ingestion of soft nutritious nourishment.

Pain is usually associated with a desire for food, the taking of which invariably gives some relief, only to be followed later by pain. As Moynihan says: "Food, comfort, pain—food, comfort, pain" with strict regularity is the most important of all the clinical matters concerned with diagnosis of gastric ulcer.

Localization of tenderness in either disease is of so little importance that it is hardly worthy of discussion; however, a deep burning pain in the epigastric region, boring through to the back, may help in localizing the seat of the lesion. In this case the ulcer, if present, is frequently found on the posterior surface, not seldom contaminating the pancreas.

2. *Vomiting*.—While this symptom is placed second, I am satisfied it is of little or no value in the diagnosis, except in marked stenosis or obstruction of the pylorus. Too much stress is given this symptom in our text books. Marked vomiting without partial obstruction of the pylorus is probably not due to ulcer.

3. *Hemorrhage*.—Hematemesis, like vomiting, is given much space by some writers, but, like the latter, I am convinced, it is a rare symptom of ulcer. Blood in the stool or vomit is present in less than 20 per cent of gastric ulcers.

I have seen a number of deaths and near deaths follow severe hemorrhages from the stomach, later followed in those surviving by the expulsion of large quantities of black clots from the rectum. Several autopsies were performed, and in no case was a true gastric or duodenal ulcer determined. Preble, in his description of symptoms of cirrhosis of the liver fifteen years ago, taught us that severe gastric hemorrhage is the first symptom of this disease in 25 per cent of the cases. In a paper before the Western Surgical Association fifteen years ago I attempted to establish post-operative gastric hemorrhage as a real possibility following any operation, especially abdominal. I held at that time, and I insist now, that any obstruction to the portal circulation, whether it be due to a cirrhosis,

mechanical pressure of a large uterine fibroid, or what not, may produce stomach and esophageal varices. These, in turn, are quite apt to rupture following any unusual occurrence, such as a surgical operation, especially if severe vomiting is a feature of convalescence. A number of these hemorrhages followed an all-night or long-continued whiskey round up.

Many unnecessary abdominal sections with a fatal issue have been and are being performed for "bleeding ulcers" when the true condition was provoked by cirrhosis of the liver. Post-mortem evidence of slits in the mucous membrane or esophageal venous ruptures may be pleasant findings to lull the conscience of the surgeon into a false attitude of greater respect for his own diagnostic ability, which however, may be a menace to his next patient with "gastric hemorrhage."

Gastric hemorrhage may be a symptom of gastric ulcer, but in my opinion it is extremely rare. When I see a case with gastric hemorrhage, I am inclined to rule out gastric or duodenal ulcer. In these cases my interest is directed to cirrhosis of the liver with portal obstruction first, not forgetting splenic anemia and other infection within the abdomen.

What symptoms or set of symptoms, then, may we depend upon for a positive diagnosis? After careful thought I feel perfectly justified in stating that no symptom or set of symptoms can be taken as positive evidence. Regularity of pain in gastric ulcer with the "food-comfort-pain" trinity is the one outstanding light which may enable us to see out of the darkness of uncertainty.

VALUE OF EXAMINATION

The history of the case having been taken, little can be gained from a physical examination in so far as ulcer is concerned. A few years ago chemical examination of the stomach contents was considered absolutely necessary, and many gastro-enterostomies were performed on this evidence alone. To-day too many physicians have not yet seen the light. I am satisfied that this procedure, unpleasant for the operator and most disagreeable and repellent to the victim, may be placed in the discard.

Hyperchlorhydria is evident in so many other diseases and its value as a diagnostic agent is so uncertain that I have abandoned the chemical examination of the stomach contents.

What then have we left to aid our feeble efforts in detecting this most secretive and cunning culprit?

I am frank in my declaration that exploratory operation with actual inspection of the ulcer is the only positive means of diagnosis.

X-ray examination with the bismuth meal is the trump card to play before exploration with the knife. It is astonishing how accurately the trained röntgenologist is enabled to determinate the situation of an ulcer, whether gastric or duodenal. Even here mistakes are frequent. Unless the technician is thoroughly at home in his work he may lead us astray, for or against ulcer. It must not be forgotten that the shadow showing an "incisura" is often misleading and may be due to other influences, principally appendicitis, gall-stones, etc.

An incisura that is not constant, that is not always in the same place, that changes position on palpation or massage or disappears after large doses of atropine, is probably a spasm caused by chronic appendicitis, gall-stones, duodenal ulcer, etc.

A gastric incisura produced by a gastric ulcer is always constant, does not change about while undergoing manipulations, and will not relax on the administration of belladonna. It will disappear under general anesthesia.

Bud-like projections of bismuth beyond the stomach borders suggest the excavating type of gastric ulcer.

THE CAUSE OF ULCER

I believe ulcer of either organ is always due to infection from foreign parts. It is conceivable that even the teeth or the much-abused tonsil may be an accessory to the ulcer crime. If this position is correct, it follows that ulcer itself is a symptom, an S. O. S. symptom calling for attention to the truth that search should be made for a hidden enemy, the real criminal in the long train of pathologic destruction.

Again, 90 per cent of so-called dyspepsia or other "stomach troubles," more or less positively diagnosed as ulcer (without the x-ray or surgery) are not ulcer, but the cause of these phenomena, like ulcer itself, is usually due to outside irritations or infections.

Thus we may conclude that the stomach is a barometer for the entire abdominal cavity, if not for many other organs of the body, and is seldom guilty of wrong doing itself in spite of

the abuse it is subjected to by the average owner of a stomach. Ulcer or no ulcer, then, with a patient suffering from stomach symptoms, the wise surgeon or internist will look elsewhere other than this organ for the offending principal.

The following are a few conditions producing stomach symptoms, often called gastric or duodenal ulcer:

The two outstanding offenders are the appendix and the gall-bladder. The former should always be removed, ulcer or no ulcer; the latter should receive exquisite attention and should be drained or excised if pathology is present.

Gastro-enterostomies have been done not only in the chronic appendix and gall-bladder cases, but for the following diseases, as well, namely:

Splenic anemia, tabes dorsalis, cirrhosis of the liver (hemorrhage), the vomiting of pregnancy, lead poisoning, mechanical interference of function from visceral ptosis, including loose kidney, various adhesions especially of the colon, epigastric hernia, infections and "bilious stomach" from intestinal stasis, and tuberculous intestine, especially when located near the cecum.

THE PYLORIC VALVE

The pyloric valve is not an ulcer, but is sometimes quite thickened, and by pressing on either side the inexperienced anatomist may mistake a normal condition for disease. It has been my unpleasant privilege to be present at several clinics when the operation of gastro-enterostomy was performed, the operator mistaking the white line for ulcer. In one of these cases an autopsy was held, but no evidence of ulcer could be determined; instead there had been a cardia spasm with an immense dilation of the esophagus. This patient had suffered pain, but the main symptom was vomiting soon, thirty minutes after eating a meal.

From the discussion thus far and if my contentions are correct, it would seem proper to follow at least one definite plan of procedure before opening the abdomen for ulcer of the stomach or duodenum, namely, never operate for the ulcer unless you can see and feel it. Remember that every man found prowling about your home at night is not a thief (he may be a police officer) the thief may be on the other side, so do not shoot until you are sure and then shoot—to cure in ulcer. In my opinion all chronic ulcers are surgical and should be removed if possible, regardless of what addi-

tional interference seems best suited to the case.

In closing I wish to thank the South Dakota Medical Association members for this very kind and thoughtful honor in permitting me the privilege of appearing before you.

DISCUSSION OF THE TWO PRECEDING PAPERS

DR. B. A. BOBB (Mitchell): I shall not take much time in discussing these papers. One man this afternoon said there is no such thing as chronic appendicitis; that ulcer of the stomach may be the cause of chronic appendicitis in a great many cases without infection, and one wonders where he is at. We are at sea somewhere when it comes to a consideration of these two papers, the authors of which differ very materially.

I was almost persuaded this afternoon after listening to these papers never to operate on a case of gastric ulcer, particularly when I heard the paper of Dr. Lounsbury, in which he stated that some of these very large ulcers will heal up without operation. Within the last six weeks I have had four cases of perforation of ulcer of the stomach and duodenum and two hemorrhages, and I operated on all of them, and all recovered. It would seem that we are at sea most of the time in regard to these cases. We are all learning by experience. If we continue to do gastro-enterostomies where the pylorus is not closed, or obstructed, the day will come when the symptoms will return. If the stenosis or adhesions around the pylorus are sufficiently marked they will cause obstructive symptoms, and, if you do a gastro-enterostomy where these conditions do not obtain, you are likely to obtain unsatisfactory results.

I have had a case under my observation in which a gastro-enterostomy was done four years ago at Rochester. They do a great many gastro-enterostomies there. I took a picture of this man. He had a return of all symptoms, and at this time the stoma was almost completely closed up, the pylorus was open, and barium was going through freely. He also had a good batch of gall-stones, which showed up in the picture. I sent the picture to Rochester and asked for a statement of what was done, whether they closed off the pylorus or not. They wrote back that they did not occlude the pylorus, but there were no gall-stones found at the time of their examination. After four years there were pronounced symptoms of gastric ulcer. Unless we take these things into consideration and use common sense, as Dr. Macrae has pointed out, when we go in we should be prepared to do whatever is necessary.

I have had two cases of perforating ulcer of the lesser curvature of the stomach in which I excised them and then did a gastro-enterostomy. These patients have done well for several months, but how long the improvement will last we do not know. In the case of four years' duration which I have mentioned all of the symptoms returned, but there was no particular lesion found, and the opening

in the pylorus was sufficient, and the stoma as shown by the *x*-ray was practically closed.

DR. R. L. MURDY (Aberdeen): It seems to me there is little for me to add to the discussion of this subject as presented by the essayists. However, the subject of ulcer of the stomach and duodenum is a very large one, and it can be discussed from so many angles, with a large territory for one to cover, that the best one can do is to hit a few of the high spots.

Referring again to the diagnosis: I think Dr. Macrae has emphasized this very well, and to me there are two big things in the diagnosis of either gastric or duodenal ulcer, the first of which is a carefully worked out clinical history well pieced together. Secondly, the *x*-ray examination and Röntgen diagnosis. Your *x*-ray will make the diagnosis in a high percentage of these cases. The value of good *x*-ray reports has been emphasized in this meeting repeatedly. There is no place in the work of the clinician where it is as valuable as in this gastro-intestinal work, and there is nothing quite as misleading as poor *x*-ray and poor laboratory work. The laboratory or *x*-ray work is of very little value to the clinician unless it is done well. Laboratory methods in connection with the diagnosis of ulcer are of little value, as many of these conditions exist in cases of appendicitis, in hyperchlorhydria, or in pyloric spasm. Signs of retention exist in appendicitis and gall-bladder disease the same as they do in gastric or duodenal ulcer. Therefore, laboratory methods are of little or no value. However, your *x*-ray study is of great value as are good laboratory reports and good *x*-ray reports.

Group practice is another advantage. It has the advantage of two things, balancing the conservatism of the internist against the day-light information of the surgeon. I mean by day-light information the information the surgeon obtains with abdomen open, the things he sees with his eyes and feels with his fingers, which is, after all, the last word in the diagnosis of these conditions. If we wish information we have to gain it from operation, and we base our treatment on this information, and if we do this we shall certainly be guided into the right paths in regard to our treatment. Using this knowledge, I am convinced there are certain types of ulcers that should be treated medically, and likewise certain types of ulcers that should be treated surgically. Using this same information we would know how to limit our medical treatment to superficial ulcers and to acute ulcers; but when it comes to chronic ulcers, deep ulcers, and calloused ulcers the radical treatment is surgery plus medical management.

DR. N. J. NESSA (Sioux Falls): There is very little I have to say in connection with the discussion of these papers. However, I wish to thank the gentlemen who referred to the *x*-ray in the diagnosis of gastro-intestinal diseases. Personally, I would say that a good clinical history should come first, the *x*-ray second, and the laboratory third in the order of importance of methods of making a diagnosis prior to operation.

DR. LOUNSBURY (closing on his part): I do not want to leave the impression that I would not operate on gastric ulcer where symptoms and indications were sufficient to warrant it. It is highly important, however, to differentiate between the ulcer which will get well on medical attention and the one which only surgical treatment will relieve. When there is an intractable scar at the pylorus, with obstruction, surgery is necessary. Tissue-narrowing of the pylorus with obstruction, which does not yield after three or four weeks of thorough control of the acid, should be relieved surgically. Oozing of blood which persists after perfect control of acidity for three or four weeks is an indication for an exploration of the abdomen and the condition dealt with according to the indications. The ideal procedure is to destroy the ulcer with cautery or remove it. By this process we frequently eliminate a cancer-bearing field.

DR. MACRAE (closing on his part): My paper was very short compared to those thus far presented, and I could not cover as many of the points on the subject as I would like to have done.

The nub of my discussion is this:

History taking is important, especially to determine the chronicity of the disease.

If ulcer symptoms of long duration are present the *x*-ray in the hands of an expert is nearly, but not always positive.

Exploratory incision with actual inspection of the ulcer is imperative before any operation is done.

Always bear in mind that ulcer symptoms are usually not due to ulcer.

Always remember that a crippled appendix, gall-bladder or pancreas is more likely to be the culprit.

Moynihan says that gastric hemorrhage is seldom a symptom of ulcer, and the author fully agrees. In the far past, I have operated for gastric ulcer when later it was shown that no ulcer existed. I say this without apology, for I have witnessed a gastro-enterostomy performed by perhaps the leading surgeon in this country where the autopsy revealed a cardiospasm.

The Sippy treatment cannot be excelled for the relief of hyperacidity or acute ulceration and for even the chronic type when the patient is financially able to be a chronic invalid.

ACUTE INTESTINAL OBSTRUCTION*

BY PAUL H. BURTON, M.D.

FARGO, NORTH DAKOTA

When called upon to deal with a case of acute intestinal obstruction, the doctor is confronted with one of the gravest and most disastrous emergencies. The patient may be a man or woman in the prime of life, enjoying the best of health, who, without warning, is suddenly seized with intense pain in the abdomen, followed by collapse and vomiting, at first slight but later unremitting. The abdomen distends, intestinal action ceases, and the bowel above the block, loaded with retained and septic contents, becomes a vehicle for the absorption of poisonous products that hasten the patient to his end. It is still, unfortunately, true that, in the great majority of cases, the surgeon is called upon to act in too late a stage of the disease. Moynihan says that it is not too much to say that in a consecutive series of twenty cases of average intensity the conditions disclosed at operation will show that in at least fifteen, operation has been too long deferred. To operate early in a case of intestinal obstruction is an experience that few surgeons often enjoy. It is at times very difficult to make an early diagnosis.

There are many cases of acute abdominal pain which a hypodermic of morphine permanently relieves, or a brisk cathartic drives away; and in its early development a case of acute obstruction may differ in no perceptible degree from any of these. The administration of morphine in such a case of acute onset is held to be necessary. But it is not the one dose of morphine which does the harm; it is the needless repetition of the dose. It is, in no small degree, that administration of morphine which is responsible for the disastrous results in cases of acute obstruction. The comfort and repose thereby induce the physician in charge into the belief that the disease is of trivial import; and yet, during every hour, the pathological conditions within the abdomen are changing for the worse. When the exact state of affairs is revealed upon the operating-table, it will constantly be found that precious time has passed away and that the

operation, whether ultimately successful or not, has been performed too late.

The surgery of acute obstruction is most discouraging work. The mortality following all cases, early and late, is very large—far larger than it ought to be. There are few surgeons who, in a series of twenty or more cases, can show a mortality lower than 50 per cent; anything over a 10 per cent mortality, which should be attainable, is the mortality of delay. An examination into the conditions found at operation or at an autopsy shows that in all cases two factors are at work in determining the fatal issue. Of these the first and least important, is the mechanical block in the bowel, the actual obstruction. The second and more serious is the toxic absorption from the distended, congested, and perhaps ulcerated bowel above the place of obstruction. It will be clear, therefore, that in operating upon patients so afflicted the relief of the mechanical obstruction is but a part of what the surgeon must do. The overloaded bowel must be emptied of its putrid contents; and no operation should be considered complete until this has been done.

During the operation the surgeon will need all his dexterity, rapidity, and judgment if he is to be successful. In all abdominal operations speed is a desirable thing; here it is an imperative necessity. The surgeon must discover what is to be done, and do it with all possible dispatch. One point in the preparation of the patient needs to be emphasized. The stomach must be emptied and washed out. The stomach is often greatly distended, being filled with a turbid, yellow or brownish-yellow, highly offensive toxic fluid. Some fluid of this kind has probably been vomited upon many occasions within the few hours preceding operation, but the stomach rapidly fills up again with similar material. If the patient is anesthetised with the stomach overfull, it often happens that, as soon as general relaxation is produced, there is a profuse gush of this fluid through the mouth and nostrils of the patient, and if a deep inspiration be taken, the trachea is filled. The patient is drowned in

*Presented at the thirty-fifth annual meeting of the North Dakota State Medical Association, Jamestown, N. D., June 1 and 2, 1922.

his own vomit. The stomach, therefore, must always be emptied and washed out.

In studying large series of cases, such as have been reported by Gibson, Deaver and Ross, and others, one gains certain impressions, the most marked of which is a definite relationship existing between the promptness of the operation after onset of the symptoms and recovery; the shorter the length of time, the higher the recovery rate.

The next thing that impresses one is the difficulty in many cases in arriving at a definite diagnosis. There is one important fact, however, namely, that practically all the conditions with which it is likely to be confused, demand operation almost as imperatively as does intestinal obstruction. Finally, one of the strongest impressions that one gains in this study, and of great practical importance, is that, once the question of possible intestinal obstruction has been raised in a case presenting marked symptoms and becoming progressively more grave, immediate recourse should be had to a surgical operation. Any part of the intestinal tract may be obstructed. The obstruction may be complete or in part, and may be due to a variety of causes, for example, intussusception, volvulus, internal strangulation, foreign bodies, enteroliths, intestinal parasites, bands, adhesions, kinks, twists, post-operative or not, paralysis, tumors, congenital defects, for example, megacolon, Meckel's diverticulum. Intestinal obstruction may at times be simulated by various conditions, for example, mesenteric thrombosis, acute pancreatitis, certain infections, appendicitis, typhoid fever, the twisted pedicle of a tumor, lead colic, gall-stones, renal colic, and pleurisy; and so it is not always easy to diagnose.

The clinical picture of acute intestinal obstruction is fairly constant and characteristic, although not always so, especially in post-operative conditions. The problem is to differentiate the two conditions,—a not always easy or possible task. It is not necessary in these cases to make an absolute diagnosis. The important point is to recognize the cases which do not respond to gastric lavage, enemata, and the proper administration of cathartics, in which the symptoms are becoming progressively worse, and to re-open the abdomen before irreparable damage has been done. In cases of doubt it is always safer to

operate. The determining factors are the character of the vomitus, the failure of lavage and enemata to relieve the vomiting and tympanites, and an increasing pulse rate and thirst. The passage of the stomach tube in doubtful cases may furnish valuable information as to the character of the stomach contents, and, followed by repeated lavage, may be of great benefit. When it is intelligently used, especially in cases of suspected obstruction following shortly after an abdominal operation, it may change the clinical picture sufficiently, so that opening the abdomen is not necessary.

The most important symptoms of intestinal obstruction are pain of sudden onset, constipation, nausea, vomiting, and distention. The presence of shock early in the course of the trouble is of especial significance. Constipation is usually present, but may be preceded by one or more movements of the bowels, the bowels emptying below the point of obstruction. Distention is a fairly late manifestation; it is more pronounced, as a rule, the lower the obstruction. Where the obstruction is high, tympany is less marked. Pain is one of the first symptoms observed, "colicky" in character, later becoming more continuous and more severe. The vomitus first consists of stomach contents, followed by bile-stained mucus and fluid from the upper intestinal tract, later becoming fecal. Tenderness is largely dependent upon the character and location of the obstruction and only occasionally is a marked feature.

As the condition progresses the patient, who at first may have shown few signs of a serious illness, now begins to develop, in addition to his pain and vomiting, an anxious expression, pallor, cold sweat, sunken eyes, rapid pulse, subnormal temperature, dryness of the mouth, severe thirst, scarcity of urine, and a very high leucocyte count. Death usually follows in a few days, if operation or other relief is not given.

To wait for a sure diagnosis before operating is sometimes to lose the opportunity to benefit your patient. Much better a few exploratory incisions on live patients than a continuance of the long and melancholy roll of hurried enterostomies done on moribund patients.

DISCUSSION

DR. E. P. QUAIN (Bismarck): Dr. Burton has touched all the high spots of his subject, although he has not had time to discuss any of the points very extensively.

In the upper part of the intestinal tract, and especially in the duodenum, are produced the most toxic elements during an acute obstruction. This fact will often be a guide as to the approximate location of the obstruction. The more acute and violent the symptoms the higher is the obstruction. If the obstruction is in the upper part of the jejunum or duodenum, the patient is doomed in a few hours unless relief is obtained. One of the best means of guarding the patient against too great absorption is found in gastric lavage, frequently repeated. This should be done, not only before operation, but after, and sometimes during, the operation, as well.

Acute gastric dilatation with continuous emesis in post-operative patients is often due to obstruction of the duodenum at the junction with the jejunum. This condition is usually relieved by placing the patient in the ventral position so that the drag on the superior mesenteric artery may be relieved.

It is difficult to so place a patient with a large abdominal wound, but by proper arrangement of pillows and cushions it can be done, and in such a way that no undue pressure is produced over the wound. The relief it offers will repay the effort.

The importance of intestinal fistula in cases of threatening or developing obstruction cannot be over-emphasized. Many patients apparently moribund have been saved by timely intestinal fistula. It is not a difficult thing to do and does not require very much surgical skill. It can be done easily under local anesthesia, or, if need be, a few drops of ether or ethyl chloride may be added. No time or effort should be wasted in trying to suture the bowel to the abdominal wall. The results will be better if a rubber tube is tightly introduced, surrounded by a fold of omentum, and the loop allowed to rest some distance away from the peritoneum.

FURTHER OBSERVATIONS ON THE FUNCTION OF THE PARATHYROID GLANDS

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GRAND FORKS, NORTH DAKOTA

While much has been learned of the function of the various endocrine glands, much yet remains to be investigated. Among the better known organs are included the thyroid and parathyroid glands, but, while many of the changes in bodily function which are attributable to these glands are known, there are yet many pathological conditions in which these glands are involved that remain to be demonstrated. Of the two, the thyroid has received the greater share of attention, and work on the parathyroid is comparatively recent and incomplete.

Since the discovery of the parathyroids by Sandstrom, in 1890, the work on differentiation of function between the thyroid and parathyroids has been carried out more or less continually, but with the preponderance of investigation centering on the thyroid. Among the first to differentiate the glands were Vassale and Generali,¹ who proved that the parathyroids were a distinct entity in the glandular circle and not embryonic remains of thyroid tissue, as had hitherto been supposed. They demonstrated that ablation of these organs caused death from tetany, which did not follow the removal of the thyroid. Massaglia² followed this work up and further differentiated the functions of the two glands by his work on dogs. Later, Vassale³ and Massaglia⁴ demonstrated that the apparent func-

tion of these glands (the parathyroids) was the neutralization of toxins produced by muscular fatigue and by pregnancy

The results of this work showed that removal of the thyroid produced a myxedematous condition, but never immediate death, the animals dying after a long time, as do myxedema patients. Parathyroidectomy, on the contrary, always produced immediate death by tetany. While tetany is not necessarily caused by removal of the glands, as is demonstrated⁵ by the effects of varying diets on the metabolism of infants, yet this same work indicates that the tetany is caused by a dysfunction of the parathyroids. This conclusion is reached from the fact that it was demonstrated that the same type of calcium metabolism is present in tetany due to variations in the diet, in spontaneous tetany of infants, in guanidin tetany, and in parathyroid tetany. In parathyroid tetany, indeed, the severity of the attacks may be materially lessened by the administration of calcium.

Following the work of Massaglia,⁶ the present group of experiments were intended as part of a larger series to control his work on the hypothesis that eclampsia in women is due to a dysfunction of the parathyroids. Unavoidable conditions, however, interfered with the completion of the experiments, for the time being, at least, and

it has seemed advisable to publish the results obtained in this group.

The clinical symptoms of these experiments tallied with those of eclampsia in women, and it seems logical to assume that latent parathyroid insufficiency, made manifest by the additional toxins of pregnancy, is at least one factor in the etiology of this condition.

EXPERIMENT 1: A dog, male, weight 25 kilos, was operated on November 14, 1921, for the extirpation of the thyroid gland. Recovery was uneventful and he was apparently in normal condition until killed on May 26, 1922. Microscopical examination showed myxedema developing. No remnants of the thyroid could be found.

EXPERIMENT 2: A dog, male, weight 16 kilos, was operated on November 22, 1921, for the extirpation of both internal and external parathyroids. The removal of the internal parathyroids injured the thyroid but slightly. Twelve hours after the operation, tetany set in with severe general convulsions. The following morning (November 23) the convulsions were severe but intermittent. In the afternoon the convulsions had become continuous, and the dog died during that night. When found on the morning of the 24th he was in marked opisthotonos.

Microscopic examination showed the thyroid apparently normal, but no trace of parathyroid tissue.

EXPERIMENT 3: A dog, male, weight 12 kilos, was operated on November 27, 1921, for extirpation of the external parathyroids. No symptoms developing during the first week, on an unrestricted diet; he was again operated on December 6, when two supernumerary parathyroids were found. These were removed. The following day tetany developed, but on a meat-free diet the symptoms cleared up and the dog recovered. Three weeks after the operation meat was fed, and symptoms of tetany again appeared. He remained apparently normal on a meat-free diet until killed on June 3, 1922.

Microscopical examination showed the internal parathyroids and the thyroid apparently normal, but no trace of external parathyroids could be found.

EXPERIMENT 4: A cat, female, well along in pregnancy, was operated on April 1, 1922, for the extirpation of the external parathyroids. Examination of the urine previous to operation showed no albumin present. Recovery from the operation was normal, with but slight tetany during the first twenty-four hours. Forty-eight

hours after the operation a slight paralysis and tremor appeared in the posterior extremities and persisted for twenty-four hours. On April 4 she was permitted to eat meat, which produced severe intermittent convulsions for a period of twelve hours. On a meat-free diet she was free from any symptoms except albuminuria. On April 8 she was delivered of six kittens, three of which died immediately (due to failure of the membranes to rupture). During the labor, which lasted for two hours, she had three severe convulsions, but was afterwards apparently normal except for extreme weakness. On April 11 she was again fed meat, when slight symptoms developed, in marked contrast to the severe convulsions of April 4. On April 12 she was placed in the common animal room and was apparently normal on the routine meat-free diet. She was found dead on the morning of April 15 by the janitor. No autopsy was performed as the writer was out of the city at the time, and the body had been destroyed before his return.

CONCLUSIONS

1. The functions of the thyroid and parathyroid glands are distinctly separate.
2. Extirpation of the thyroid alone, or of the thyroid and one pair of parathyroids, produces no apparent immediate effect; later myxedema develops slowly.
3. Extirpation of one pair of parathyroids may produce tetany immediately following the operation, but it clears up on a meat-free diet. Complete extirpation of the parathyroids produces death from tetany within from forty-eight hours to a few days.
4. The thyroid exercises a trophic function on the metabolism of the body, removal of this gland causing myxedema, while the parathyroids exercise an antitoxic function, removal of these glands causing death from tetany.
5. In pregnant animals symptoms closely resembling, if not identical with, those of eclampsia may be produced by causing a parathyroid hypofunction. The symptoms of hypoparathyroidism which remain latent in the non-pregnant animal, tend to develop strongly in pregnancy with a syndrome markedly similar to that of eclampsia.
6. Even in pregnancy these symptoms may be lessened, if not completely removed, by eliminating meat from the diet and so, presumably, lessening the toxins in the circulation. Parathyroidin administration would undoubtedly serve the same purpose by increasing the anti-toxin in the body.

While the etiology of eclampsia may not be entirely dependent upon parathyroid hypofunction, yet the results obtained in the experimental production of this condition indicate that the parathyroid does exercise an antitoxic function and that any latent hypofunction is made manifest by the increased toxins of pregnancy⁷. The symptoms experimentally produced point to a close causal relationship between parathyroid hypofunction and eclampsia.

It is also possible that the endocrine system of the mother must function for the child,⁸ particularly in the early months of pregnancy, thus increasing the overload on an already weakened organ.

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HELIO THERAPY*

By J. H. BENDES, M.D.

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Not very many years ago, patients suffering with surgical tuberculosis had a very difficult time in seeking a cure. The surgeons looked upon them as helpless cases, and they certainly were unwelcomed patients at any clinic. These patients were operated on repeatedly, arms and legs being amputated, and after long months and years of suffering, if their pulmonary condition did not kill them, they finally developed amyloid disease or a tuberculous meningitis and died. This same condition, but to a far less degree, continues today, and it will continue as long as we look upon surgical tuberculosis as a local condition and not as a general constitutional condition with local manifestations. Just as soon as we fully realize this fact we shall get results in these conditions, and not any sooner. Not only will satisfactory results be obtained from these cases, but great pleasure will be derived from taking care of them.

In treating a case of surgical tuberculosis, several important factors should be taken into consideration, and conservative methods should be employed. We must remember that we can always operate as a last resort; but why operate when a cure can be effected by adopting a more conservative procedure?

The things to be taken into consideration in the treatment of a case of surgical tuberculosis are the following:

1. Age. Time is a negligible factor in a

child's life. Up to the age of thirty, a few years, say two, three, or five years, in bed seeking health, is a good investment; after the age of thirty, if economic conditions make it imperative, operate; in old age, or after forty, amputate.

2. The general health of the patient. In the majority of cases the general physical condition will not warrant an operation.

3. Presence of tuberculosis in some other part of the body. Frequently, after an operation upon a joint, a quiescent tuberculous process in a kidney is activated, or a quiescent bone lesion is activated.

4. The presence of an abscess in relation to a tuberculous focus.

5. The location of the lesion. Operative wounds are unsightly; as an example, take cervical adenitis. Should a mixed infection take place, and there is constant drainage, a disfigurement results. If the disease is situated in or near a joint, it is almost impossible to clean away all of the diseased bone, and, as a result, draining sinuses and fistulas remain, being a source of constant irritation and annoyance.

In the conservative method of treatment, heliotherapy is the only solution to this problem. The results obtained by heliotherapy are certainly sponsors for its application. Not only is a cure obtained in one sense of the word, but it is obtained without resorting to operation, without resections, without ankylosis, and, most of all, without loss of limb or organ.

In giving heliotherapy, diseased joints are not

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immobilized, and plaster casts and braces are not applied. Diseased joints are placed in extensions or hyperextensions to relieve interosseous pressure, thereby helping overcome deformity. By doing this, passive motion is allowed, there is a complete return of function, and ankylosis and atrophy are avoided.

At the present time, a large percentage of the hospitals which are being erected are including solaria, or sun porches, as one of the most important features of their construction. This is due to the fact that heliotherapy has ceased to be a fad, and the treatment as propagated by Rollier is being extensively used throughout the country.

When we take into consideration that syphilis and cancer are practically the only known diseases which are not benefited by this treatment alone, we realize something of the unlimited therapeutic value of solarization. It may be given with beneficial results to patients of all ages. It acts as an alterative and a reconstructant. In all conditions where faulty metabolism and malnutrition play an important part, heliotherapy is especially efficacious.

As we follow the Rollier technic as closely as conditions will allow, I think it is well to recapitulate our method of procedure.

Heliotherapy does not mean indiscriminately consists of a series of systematic and carefully turning a patient out into the sunlight, but it regulated insulations.

The patient, upon admission, if a child, is put into isolation for two weeks to determine whether it is free from contagious diseases, and its temperature and pulse range are found. If an adult, a two weeks' observation period enables us not only to determine a temperature and pulse range, but to work the case up from a clinical standpoint. For instance, a patient is sent into the sanatorium as a tuberculous bone or joint case, and upon observation a kidney condition is determined. Also, the opposite is true. Usually by this time we have a fairly accurate clinical picture of the patient. The patient now is wheeled out upon the porch, during specified hours, for one week, in order to become acclimated to the air and sun. The patient is now ready for the initial sun-bath.

Febrile cases must be watched very closely; and in these cases the time of exposure must be gauged according to the way the patient reacts to the treatment.

No sun treatment is given later than one-half hour before a meal, and not earlier than an hour

after a meal. During the hot summer months, it is well not to give the sun treatment during the heat of the middle of the day, as it is very depressing and devitalizing, causing nausea, headache, and an elevation of temperature.

A movable screen about five feet high

can be placed in such a position as to afford protection. This is absolutely necessary in the fall, winter, and early spring. Although the patients are able to endure a great deal of cold, the slightest breeze will cool the body and will produce a chill, which is liable to be the exciting factor in producing pneumonia.

The head is protected from the direct rays of the sun by means of a linen cap, sunbonnet, or awning at the head of the bed. The eyes are protected by means of colored glasses. This is to ward off the intense sunlight, which will produce symptoms of eye-strain, and also cause *muscæ volitantes* after the patient is taken out of the sun.

The *muscæ volitantes* at first are very slight and transitory, but, later, become more or less uncomfortable. This condition, although transitory, is accompanied by headache, dizziness, and derangements of digestion. This can easily be avoided by colored glasses.

The schedule is as follows:

The body is divided into zones: as feet, legs, thighs, abdomen, chest, and neck.

1st Day: The patient is clothed in either pajamas or nightgown. The head and eyes are protected from the sun by means of a sun-shade or glasses. The feet are exposed first, without regard to the site of the lesion. The lesions are kept covered with a gauze or wire screen until the whole body has been gradually exposed. The feet are exposed as far as the ankles, and insolated for five minutes. This is done anteriorly and posteriorly. There are four insulations given at not less than one hour intervals.

2d Day: The feet are insolated for five minutes. At the end of five minutes the legs are insolated for five minutes as far as the knees, thereby giving the feet ten minutes of insolation and the legs five minutes. This is done anteriorly and posteriorly four times at one-hour intervals.

3d Day: The feet are insolated for five minutes. At the end of five minutes the legs are insolated as far as the knees. At the end of ten minutes the thighs are insolated as far as the hips; thereby giving the feet fifteen minutes, the

legs ten minutes, and the thighs five minutes. This is done anteriorly and posteriorly once in the morning and once in the afternoon.

4th Day: The exposure is extended another five minutes up to the next zone, that is, the abdomen as far as the chest is insolated. This gives the feet twenty minutes, legs fifteen minutes, thighs ten minutes, and abdomen five minutes of sun. Of course, the posterior part of the body is also insolated.

5th Day: The next zone, or the chest, is insolated the same way, increasing five minutes each day. The insolations are increased five minutes each day until the patient is able to take three hours of sun daily, one and one-half hours in the forenoon and one and one-half hours in afternoon. We never give more than a two-hour exposure at one time. (See note at end of article). When the entire body is being insolated, a loin cloth is the only garment the patient wears.

Occasionally, on account of severe pain or flexions of a limb or other conditions, it is impossible to roll the patient over and give sun on the back. In such cases, it is well at first just to give solar radiations on the anterior part of the body, but just as soon as the condition permits they may be given on the posterior part. This can usually be done in about ten days or two weeks.

Precaution must be exercised, while the patient is becoming accustomed to the sun and during the formation of the hyperemia, that no burn or any reaction occurs; for it is at this stage that the greatest damage can be done. If, for any reason, such as burn, high temperature, acceleration of pulse, nausea, emesis, headache, or any other constitutional disturbances it is necessary to discontinue the treatment for a few days, the insolations must be started again a few steps back from where they were discontinued. On cloudy days, when we are unable to give sun cure, we give a general air-bath, in place of the sun-bath. This acts as a general tonic and a stimulant.

As a substitute for sun, on cloudy days and in the winter, we use the "Mercury Vapor Lamp." This lamp has been used for so long a time that it can no longer be deemed an experiment. On the contrary, it is an approved mode in the treatment.

In using the lamp we have deviated a little from general radiation. Beginning with one-minute exposures of the entire body, we increase one minute each day until fifteen minutes are

given. We then increase by five minutes, instead of one minute, until thirty minutes are taken. The lamp is thirty inches from the body. By using precaution in this, burns can be prevented. Later, after a patient has become well tanned, we can proceed more boldly and by successive steps shorten the distance of the lamp from the body to fifteen inches. When it is necessary to substitute the lamp for the sun during the course of the treatment, one minute of lamp is given for every five minutes of sun. The distance of the lamp from the body depends upon the degree of tan. The lamp treatment is just as injurious to the eyes as sun treatment, and the same precautions must be used in both.

Before insolations are begun, there are two important factors that must be carefully considered. They are, first, the type of patient, and, second, his temperature. By type of patient I mean whether fair-skinned or dark. In order to obtain results, it is necessary for the ultra-violet rays to be absorbed by the body, and, in order to do this, the body must be tanned. Blonds and red-haired individuals, where the blood vessels are superficial and where the pigment deposit in the skin is scant, are inclined to burn instead of tan. For this reason they do not stand radiations as well as brunettes and colored people, who tan readily. These fair-skinned patients are put on a diet of carrots and spinach to produce a carotenemia and a deposit of pigment in the skin. This enables them to develop a deep pigmentation, the degree of which is an index to the progress the patient is making. The deeper the tan, the sooner the recovery.

The temperature of the patient must be carefully watched, as the actinic rays are usually very toxic and too great radiation will act in a manner similar to tuberculin. Instead of having a soothing and beneficial effect, they produce great excitability, elevation of temperature, acceleration of pulse, and cause chills, headache, nausea, and vomiting.

It is necessary to check a patient's reaction to the sun, and this is done as follows:

The temperature and pulse are taken immediately after the sun-bath, and again one-half hour later, during which time the patient lies at rest in bed. It is preferable to have the patient sleep during the half hour if possible. If, at the end of that time, the temperature drops and the pulse slows up, the patient is reacting favorably. If the opposite is true, that is, if the temperature becomes elevated and the pulse accelerated, it

means that the patient is getting too great radiation, and the length of exposure must be cut down. If it persists, sun-baths must be discontinued for a time and started again from the beginning.

Let us consider some of the changes that the action of the sun soon makes apparent. On the skin its effect is varied. There is little immediate reaction upon it while it is exposed to light. Several hours, usually from six to twenty-four, after an exposure, the patient feels the sensations of itching, smarting and pain; then redness appears, and all the sensations of a burn manifest themselves. Likewise the reaction of the skin to the sunlight depends upon the intensity of the rays and the duration of the exposure. At first the skin responds and endeavors to protect itself from a foreign irritation, this irritation being the ultraviolet ray, for it is due to these rays that sunburn is produced, and not to the red rays, as is commonly supposed. At first a dilation of the superficial capillaries and blood vessels with a resultant erythema occurs. Following the erythema, a pigment is produced in the skin. This deposit of pigment becomes greater in intensity, and the skin takes on a bronze hue, then a copper color, and finally a chocolate brown.

Another result of sun cure is a marked change in the blood picture. Hemoglobin absorbs the ultraviolet rays and is increased. Erythrocytes are multiplied, leucocytes are decreased, and the calcium index is improved. Due to this improved blood condition, as well as to a stimulated circulation, waste tissues are repaired, inflammatory conditions are reduced, ulcers and sinuses heal, profuse discharges dry up, auto-intoxication is overcome, enlarged glands decrease in size, and excessive blood-pressure is lowered.

More clearly to explain the beneficial action of solarization, I shall use a case of surgical tuberculosis as an example.—for instance, a case with a diseased joint. Upon entering the hospital, the patient is often suffering from both mental and physical fatigue. He is nervous, thin, emaciated, feverish, anemic, and experiencing considerable pain. His skin is pale and moist. Often the joint is in a cast. The musculature has become weakened and atrophied, the joint ankylosed, pressure sores have developed, and the uncleanness attendant upon casts prevails.

First, the patient is put to bed, and, if there is a cast, it is removed. The limb is put into a proper position, and weight extension is applied. Then a systematic series of insulations, such as

we have described, is begun. In about two weeks or just as the body starts to tan, the pain is alleviated, nervousness disappears, and sound and restful sleep ensues, the appetite improves, fever subsides, chills and night sweats cease. As time goes on, the muscles regain their normal tone, atrophy and muscle spasms are overcome, and, if there have been pressure sores, they heal. A bed sore is unknown in heliotherapy.

It may also be said that sunlight improves the vitality and increases the resisting and immunizing powers of the body. This is clearly demonstrated in specific infectious diseases, especially in cases of measles, chicken-pox and diphtheria.

I have found that children who have had solar radiation were only slightly ill in the above-named diseases, and, in the cases of measles and chicken-pox, had either a very faint rash or none at all, whereas children who did not have solar radiation were all acutely ill and all were covered with a typical rash. In diphtheria a similar condition prevailed. Very few patients who were taking sun-cure were affected; and those who were affected were affected only slightly; while those who had not been having such treatment were very sick.

Again, in the treatment of children who are physically and mentally subnormal due to environment and contact with disease, sun treatment cannot be instituted too early. In my experience I have found that heliotherapy, together with a change of environment, has not only improved their physical condition, but has also brought about a marked improvement in mentality.

Children of eight, nine, ten, and twelve years of age, respectively, whose mentality was that of children two or four years younger than they, soon overcame their mental handicap, and not only attained the mentality of normal children of those respective ages, but, in almost every case, became unusually acute of mind. Not only were they able to comprehend things readily, but they were eager to learn, anxious for new fields to conquer, and, from dull, stupid, sulky children, became bright, intelligent, tractable boys and girls.

Sun-cure is not a panacea for all evils, but in surgical tuberculosis it is the remedy par excellence. By its judicious use almost hopeless cases can be restored to a normal life, filled with happiness and usefulness. Other conditions, such as rickets, puerperal sepsis, secondary anemias, dermatitis, cellulitis, selected cases of pulmonary

tuberculosis, and many other conditions, both chronic and acute, may be cited in which heliotherapy has proved very efficacious; but, I trust, enough has been said to clearly show that, when properly given, sun baths are of unlimited therapeutic value.

Note:—Since the presentation of this paper, we have varied our schedule to conform with the one that Rollier is following.

To the patients, who have reached the maximum sun cure time, we are now giving four hours of sun from 7:00 A. M. until 11:00 A. M. The patients are allowed to have their breakfast while taking their exposure.

After four months of this routine we have noticed no ill effects. The patients enjoy this, as they are able to take their cure and avoid the hot afternoon sun. It also enables them to have two hours of air cure in the afternoon. In addition more patients can be started on the treatment.

BOOK NOTICES

THE TREATMENT OF FRACTURES: With Notes Upon a Few Common Dislocations. By Charles L. Scudder, M. D., Assistant Professor of Surgery at the Harvard Medical School. Ninth Edition, Revised. Octavo volume of 749 pages, with 1252 illustrations. Philadelphia and London: W. B. Saunders Company 1922. Buckram, \$8.50.

This volume takes up the diagnosis and treatment of fractures of the various bones of the body, considering the skull, vertebræ, carpals, metacarpals, metatarsals and phalanges as groups, but discussing all other bones individually. There are a few changes in the plates and literature from the last edition. Especially is this true in relation to the fractures of the femur, in which condition the additions made have brought the book into the foremost rank of reference books for fractures. There are also chapters on the important anatomical considerations necessary for the treatment of fractures, on *x*-ray diagnosis and on the treatment of dislocations.

This book is well arranged and concisely written. Proper attention has been given to complications in the form of damage to the soft parts, especially in injuries to the skull and spinal column. It is an excellent text or reference book.

—DANIEL H. BESSESEN, M. D.

SUBMUCOUS RESECTION OF THE NASAL SEPTUM. By William Meddough Dunning, M.D. Published by the Surgery Publishing Company, New York.

This little book, the first separate volume, so far as the reviewer knows, to be written on this subject will undoubtedly meet with a cordial reception at the hands of students and practitioners of rhinology the country over. The submucous resection of the nasal septum is,

in many cases, a very difficult operation and one in which the technic has been undergoing constant modification and improvement ever since it was first described. Probably no rhinologist is entirely satisfied with his own technic for this operation, and considerable interest will naturally be attached to the work of a man of Dr. Dunning's experience and attainments. This book, however, should be of particular value to post-graduate students beginning the study of rhinology, as the descriptions are clearly and tersely written and the underlying principles of the operation covered with commendable thoroughness.

Men of wider experience in nasal surgery will find much of interest and benefit although many of them, like the reviewer, will find it impossible to agree with all the author's conclusions even in regard to so fundamental a matter as the anatomical descriptions. There is at present a very wide divergence of opinions as to the best technic for inducing local anesthesia for this operation, and the technic of the operation itself probably varies more widely in individual cases than does any other undertaken in this specialty.

—ARTHUR EDWARD SMITH, M.D.

THE THYROID GLAND. Clinics of George W. Crile, M.D., and Associates at the Cleveland Clinic, Ohio. Octavo of 228 pages, with 106 illustrations. Philadelphia and London: W. B. Saunders Company, 1922. Cloth; \$5.00 net.

The title of the book is somewhat misleading. The volume consists of a collection of papers discussing the thyroid gland by numerous contributors all of whom are associated with Lakeside Hospital or the Cleveland Clinic. It does not pretend, however, to be an exhaustive work, but deals with the experience and viewpoint of its authors. Naturally, there will be some overlapping of subject matter. Several sections are contributed by Dr. Crile, namely on the following subjects:

The Function of the Thyroid.

A Physical Interpretation of the Rôle of the Adrenals in Exophthalmic Goiter.

Partial Hyperthyroidism.

Surgery vs. X-Ray in the Treatment of Hyperthyroidism.

The Technique of Operations on the Thyroid Gland.

Certain Postoperative Complications of Operations on the Thyroid Gland.

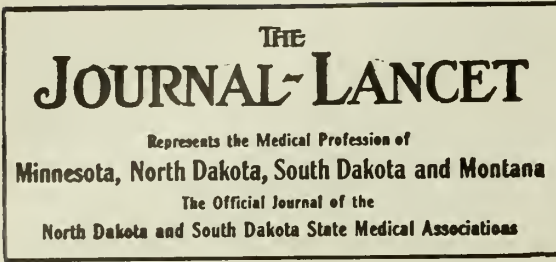
Treatment of Inoperable Cancer of the Thyroid by Decompression.

The Protection of the Patient in Surgery of the Thyroid.

Chester D. Christie contributes a very sane article upon the value of "Basal Metabolism Studies in Exophthalmic Goiter. O. P. Kimbell, who was associated with David Marine, discusses "The Prevention of Simple Goiter in Man."

The latter part of the book describes surgical procedures and operating-room technic as employed at Lakeside Hospital. The book is full of good material of a practical nature. The illustrations are well chosen and clear. It is to be hoped that more of such volumes will be published in the future.

—E. L. GARDNER, M.D.



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M. EMIL COUE

The three daily newspapers of Minneapolis have, one after another, taken up M. Coue as if he were one of the great men in medicine. They have copied his books verbatim. They have had special articles concerning his powers and possibilities; and at the same time books concerning Coue have been put on the market by others who are equally interested in suggestion and autosuggestion. The result is that the country is talking Coue, and some physicians are inclined to ridicule M. Coue and his manner and method, but why worry? This is a tremendous wave that has been raised by a great wind, and behind it is the power of the man who is promoting Coue and who is reaping the financial results of his business acumen. All these articles are copyrighted and syndicated, and, doubtless, all these papers pay for their information. Consequently, as one reporter has said, we have to take this stuff just as it comes to us, and we can make no change in it whatever. And the newspapers who pay for this all over the country are certainly contributing substantial sums of money to M. Coue and his business manager.

Then, too, one must remember that these enormous waves which sweep over the land, any land, at any time and place, are quite apt to recede and a calm follow. Consequently, M. Coue, with

his methods, will leave behind him some good. He will make people feel more confident of themselves, he will help them to adjust themselves to their various illnesses and complaints, and, if he could only reach a certain class of mental or nervous people who are the greatest complainers, he would not only be doing the people but the medical profession a great favor.

But, somehow, these nervous people with their nervous troubles are less impressed with these suggestions than are the people who are more stable. They dislike very much to be deprived of their opportunities for complaint, and they feel hurt, mentally, to think that anyone should tell them that they must use their imagination and not their will-power to overcome their symptoms. From the writer's point of view, Coue's visit is a great boon, for the reason that all these well-established and well-circulated ideas of illnesses invariably do the doctor a great deal of good. The writer recalls that when Christian Science came into vogue his business went up immeasurably because attention was called to a possible or definite illness; and those who are timid about accepting a suggestion are less timid about going to a doctor. The ultimate result is that he is the arbitrator of their fate. He is the one that really, in the end, decides what should be done. The one harmful point in Coue's doctrine is that someone may wake up in the middle of the night with a very severe pain in his abdomen or in the chest and, instead of sending for a physician, may repeat the slogan of Coue. The pain becomes intensified, and ultimately the doctor has to decide whether the patient has pneumonia or appendicitis. These are details that occur in people who are sick and are Christian Scientists, and they are the delays that may occur among the people who are "Coueites."

The people are apparently ready for most anything, and anything new that appeals to their reason—no, that cannot be—to their sense of speculation, is freely and quickly adopted. When the epidemic has passed they are ready for anything else, no matter how ridiculous it may be. Every doctor has seen cases that have responded to suggestions of one kind or another. Seemingly hopeless people have recovered from their apparently chronic diseases. The shrines of Lourdes and of St. Anne de Baupre and others have their evidences of spontaneous cures by

suggestion, and piles of crutches and other surgical and orthopedic appliances have been cast into the mound which occupies a conspicuous place in the church in which the cures were effected. This is a good thing, of course. But how many realize that a great many of these cases are only temporarily relieved and then drift back into the old chronic condition. Coue, fortunately, is able to appreciate that there are some diseases which cannot be cured by suggestion, and to such patients he offers very little encouragement, but the patients say he relieves their pain. At all events, let us welcome his method, let us all be encouraged to be hopeful and cheerful in our treatment of the patient rather than skeptical and pessimistic. In that way we will do them good. We all know that the Coue method is as old as time. The caveman used it when he fell and broke his leg or was bitten by a prehistoric animal. He did not sit down and die without a struggle; he made every effort to get better. He told himself, in his cave-manlike way, that he was going to get well, and he did so in spite of the hurt and the limp which followed his injury. Every sect in the world for centuries has used suggestion. The most curious thing about this matter is that the psychologists in the universities rise in their wrath and condemn Coue's principles,—that is, that the subconscious or the unconscious mind is the one which retains the impression; and these psychologists claim there is no such thing as a subconscious or unconscious mind. Perhaps not. Who knows? There is something in us all that retains impressions, and it is probably our nerve cells, but the working of the nervous system is still a matter for study and wonder.

MINNESOTA LEGISLATIVE NEEDS

There are three bills which are of special interest to the medical profession in the state of Minnesota that should be passed at the present session of the legislature. The first bill is that of the new medical-practice act, in which all those who participate in the healing art are required to have the same fundamental education and pass the same fundamental examination before a new board of examiners. It may be possible that, for many reasons, this year is not a very good year in which to introduce anything that is radical or new, but the Publicity Committee and the Legislative Committee, of both

the county societies and the State Association, were determined that it should be done, and, so far as we can learn, there is a strong probability that this bill may go through, in spite of the opposition which will develop, without question,—that is, the opposition from the various cults which will probably throw their influence against the passage of the bill, and they are a force to be reckoned with. While the Legislative Committee of the State Medical Association has been active, other organizations have been equally so, and the question will resolve itself into the advancement of arguments, to convince by special pleas the legislator who knows and cares little or nothing about the passage or non-passage of this bill. If the bill gets a hearing and the support of the committee to which it is presented, it is quite likely that it will go through, and it will be killed only by a combination of circumstances which no medical man and perhaps no legislator can foresee, or, if he can foresee it, he cannot prevent its occurrence.

The second bill, which is equally important, is one introduced by the State Board of Health providing for the establishment of rules and regulations for tourist camps, which includes locations, water supply, drainage, and everything that pertains to sanitary engineering. It has been found that there are many careless people in the world who, if left undirected, commit minor errors, and it has also been found that there are a large number of typhoid carriers at large who frequently pollute the water that supplies tourist camps. Then, too, the question of disposal of offal and the destruction of left-over foodstuffs is not looked after. As long as Minnesota seems to be the mecca of tourists, and it probably will be for many years to come, the situation should be carefully considered that an epidemic of diseases may not follow carelessness in encampments.

The third bill, which is of more or less interest to doctors, is the nurses' bill, which provides for a new nurses' board, examiners, and new methods of examination, and for the holding of examinations in various parts of the state. This bill is an effort to reduce the time spent in acquiring a diploma or a license to become a nurse for hire. It says nothing, however, about pay, time off, or anything of that sort; for that is something which must be regulated by individual

effort. The bill is a worthy one, and we are surprised to hear that the League of Women Voters is very much opposed to it, but for what reason no one knows.

The only advice THE JOURNAL-LANCET can give in these matters is that medical men throughout the state should be ready to inform their legislators as to the merits or demerits of any of the bills that come before them. Medical men have had hard sledding lately, and it is necessary that some definite measure should be adopted for the protection of the public, as well as for the protection of the doctor.

REVEILLE IN NORTH DAKOTA

North Dakota has never had a State Department of Health. Truly enough there has been and is a State Board of Health, but this has been merely a name and not a living, functioning, and result-producing organization. When epidemics threaten, when advice in sanitary engineering is sought, when local health organizations are in need of guidance, the State Board of Health stands idly by, powerless to function because of lack of funds and personnel.

North Dakota is not included in the birth and death registration areas for obvious and just reasons. Public health education, with the exception of the laudable efforts put forth by agencies not correlated with the State Board of Health, is manifestly in its infancy. On every hand there are indications that the opportunities for performing effective public health work in North Dakota have been both overlooked and neglected.

How, let us ask, may North Dakota obtain a State Department of Health which is properly organized, adequately financed, and competently officered? Certainly not at the request of a few interested individuals. There must be a genuine demand for adequate health protection on the part of a considerable portion of the people, particularly those classed as clear-thinking and far-seeing men and women. Moreover, this demand must be made perfectly clear to those who guard the purse-strings of the State's money-bags.

Unless legitimate needs are made known to the State legislators in a clear and decisive manner it cannot be expected that action will ensue. Two years ago a bitter battle was waged in Wisconsin against smallpox vaccination. Led by a "spiritist" member of the Assembly, aided and abetted by antimicrobial cults both within and with-

out the State, these forces opposed to vaccination made a formidable showing. Before the organized public health forces of the State realized the strength of the opposition the antivaccination bill had passed the Assembly by a liberal margin.

Investigation showed that each State senator had received approximately two hundred telegrams and letters from those who wished to see vaccination discarded. Not a single telegram, letter, or verbal boost in behalf of vaccination had been received. Naturally, the situation appeared serious.

However, by intensive effort the tide was made to turn in the opposite direction. The friends of vaccination, always in the majority, responded promptly and vigorously, the result being one of the most insistent demands for the retention of vaccination that has been recorded. Needless to say the voice of the right-minded people was heard and interpreted correctly.

Similarly, the people of North Dakota must make known their desire for an efficient State Department of Health. If the project possesses merit, energetic support is both desirable and necessary. It is not sufficient merely to voice a subconscious approval of the proposed State health organization, for legislatures are unacquainted with the means of telepathic communication. Nor should the matter of giving approval be left to the "other fellow."

By all comparative standards the plans for the State Department of Health in North Dakota are reasonable and satisfactory. If each physician in North Dakota will make these facts known to the legislators in his territory the State will soon be able to offer more adequate protection to human life within its confines.

SOME REASONS WHY MANY PHYSICIANS ARE NOT MEMBERS OF MEDICAL SOCIETIES

Over 50 per cent of the physicians in some counties in the Northwestern States do not belong to their county or district medical societies; and, apparently, they cannot be induced to join them. If it be admitted—and it surely must be—that the public work incumbent upon medical men by their professional obligations cannot be done outside of organized groups,—namely, county or district, state and national associations,—the failure of physicians to join these groups is a serious matter.

The problem is further complicated by the fact that every reputable physician reaps a rich reward from the work done by medical societies, especially in the form of stabilized fees, which, however, are not fixed or obtained by any group action further than to convince, by education, the public that professional fees have a just basis in the time spent and financial cost to obtain a professional man's education, and in what we now call "overhead" in doing professional business. No statute law compels a physician to render free service or partially paid service to the poor and the unfortunate; but no physician refuses such service, for the traditions of the profession are more effective than the laws of man.

THE JOURNAL-LANCET has long sought for the reasons back of the refusal, direct or indirect, of so many physicians to join medical societies. In our issue of July 1, 1922, we set forth this deplorable condition in an editorial under the caption, "Physician, Be A Good Sport," and we sent a copy of this editorial, together with a questionnaire, to several hundred physicians not members of county societies.

We wish to say, as an aside, that a courteous questionnaire seeking proper information, requiring only a few moments to answer, and with a stamped and addressed return envelope furnished, ought not to go without an answer.

A large number of answers were received, and some of them led to further and pleasant correspondence between this office and the physicians who were willing to state frankly why they are not members of medical societies. We have endeavored to obtain from the whole correspondence how a man can share in large benefits to himself without giving his aid in procuring such benefits, and how a man justifies himself in hampering a movement for the public welfare, as he does when he refuses to co-operate with his professional co-workers.

We give herewith some of the reasons which were given a sufficient number of times to entitle them to a respectful hearing:

1. The society is run by a clique for self-advertisement.
2. Benefits do not pay the cost of membership.
3. The society is not interested in me.
4. The papers are read mainly by specialists, and are of no interest to the general practitioner.

5. Dues are too high.

6. Legislative and protective benefits are nil.

7. Commercialism, not ethics, governs the society.

We fail to find in any of the above criticisms a valid reason why a physician should not belong to and take an active part in his county society. The first complaint may be true in rare cases, but it is generally true only when a society has been temporarily swept off its feet by designing men seeking some selfish purpose. Moreover, every society is run by a few men, for the many will not take an active part in the work; and the few may become dictatorial, but not for long.

Reason No. 2 has no foundation in fact from any point of view, and, besides, it states a purely selfish reason for not doing one's duty; and No. 3 is purely imaginary.

Reason No. 4 is, unfortunately, true, and the condition requires a remedy. Who has it?

Reason No. 5 suggests the inquiry, too high for what?

Reason No. 6 simply states a weakness of medical men, which can be corrected only by the co-operation of medical men in their societies which will enable them to obtain legislation that will protect the public as well as themselves.

Reason No. 7 is simply not true, except in rare instances; and the total eradication of the implied spirit can be accomplished only by the co-operation of all the profession in efforts to make the ideals of the profession the realities of the relation of physician to physician everywhere, and of all physicians to the public.

May we not repeat the injunction of our former Editorial, "Physician, Be a Good Sport"—and join your medical society to give it some more strength, and do so for the good of the public, as well as for the good of yourself.

NEWS ITEMS

Dr. H. R. Russell has moved from Stewartville to St. Paul.

Dr. F. A. Northrup has moved from Fort Pierre to Pierre, both in South Dakota.

The Minneapolis public schools employ about sixty nurses to look after the health condition of the pupils.

Dr. T. C. Witherspoon, of Butte, Mont., was married last month to Miss Rita De Courtney, of the same city.

Dr. E. T. Martin, of Marble, has moved to Coleraine and become associated with Dr. N. D. Kean of that place in hospital work.

The third annual meeting of St. Paul Clinic Week is being held as this issue of THE JOURNAL-LANCET goes to press.

Dr. Hugo Hartig, of Minneapolis, has been elected County Physician by the Hennepin County Commissioners, succeeding Dr. T. T. Warham.

Seventy-seven cases of trachoma were positively diagnosed in Minnesota in a recent survey of the state. A third as many more suspected cases were found.

It is reported that Fargo, N. D., has been chosen for the Commonwealth Fund Hospital for the care of the health of children in schools and maternity hospitals.

Sioux Falls, S. D., keenly feels the need of a new hospital for contagious disease cases, and a movement has been started to obtain a hospital of at least twenty beds.

The new quarters, in a business block, of the hospital of the Union Clinic of Willmar, have increased the capacity of the hospital so that twenty patients can be cared for.

Dr. Merton Field, of Northfield, who has confined his practice for several years to eye, ear, nose, and throat work, announces that he will accept general practice hereafter.

St. Cloud has a handsome new medical office and laboratory building, which was erected by Dr. P. E. Stangl, to be occupied by Drs. Fred Stangl, I. E. Browning, and P. E. Stangl.

Dr. A. J. Chesley, Executive Officer of the Minnesota State Board of Health, has been awarded the Cross of Valor of Poland for his work in that country during the World War.

Dr. Louis Hinicker, of Minneapolis, has become associated with Dr. F. J. van Bohland, of Belle Plaine. Dr. Hinicker has just completed his internship at the St. Paul City and County Hospital.

A so-called Minneapolis sanitarium announces that its pathologist has a perfected process of rejuvenation of aged tissues and glands, and that one of its twenty recent patients was a state legislator.

The Minneapolis Clinical Association has opened a thoroughly equipped Physiotherapy Department at 211 LaSalle Building, with a physician and trained nurse in attendance. It is open to all physicians.

Dr. Walter R. Ramsey, of St. Paul, has been chosen a delegate to represent the United States at the third meeting of the International Congress for the Promotion of Child Welfare, to be held in Geneva, Switzerland, in July.

A woman's auxiliary was organized last week for the Shriners' Hospital for Crippled Children in Minneapolis. The organization will represent ten thousand women of the Northwest, who will supplement the work of the Shriners in their hospital.

The first English translation of Dr. Feer's "Text-Book of Pediatrics" is just off the press of the J. B. Lippincott Co. The translation is by Dr. J. P. Sedgwick, of Minneapolis, and Dr. C. A. Scherer, of Duluth. The volume contains over 900 pages, and sells for \$8.50.

Dr. Roy E. Swanson, of Alexandria, was married last month to Miss Katherine Jacobson, also of Alexandria. Dr. Swanson is a graduate of the Medical School of the University of Minnesota, class '16, and is to return to the Medical School for graduate work on a fellowship recently granted him.

At the annual meeting of the Huron, (S. D.) District Medical Society officers for the current year were elected as follows: President, Dr. L. N. Grosvenor; vice-president, Dr. O. R. Wright; secretary-treasurer, Dr. W. H. Saxton; censors, Drs. J. C. Shirley, E. B. Taylor, and Benjamin Thomas.

The Mounds Park Sanitarium, of St. Paul, announces that it has added to the Sanitarium a Psychopathic Department for the treatment of the milder psychoses. The announcement of work of this character undertaken in such an institution as Mounds Park Sanitarium will be welcomed by the medical profession of the Northwest.

The Huron (S. D.) Clinic, which was organized over a year ago, has found it necessary to enlarge the Sprague Hospital, which it has controlled since the organization of the Clinic, to the extent of sixteen rooms. The addition, which will soon be completed, will make this

hospital one of the finest institutions of this type in South Dakota.

The Northwestern Medical Officers' Association of the World War held their annual meeting last week in St. Paul in connection with St. Paul Clinic Week. The following officers were elected for 1923: President, Dr. J. Frank Corbett, Minneapolis; vice-president, Dr. W. F. Maertz, New Prague, secretary-treasurer, Dr. Stanley R. Maxeiner, Minneapolis.

The action of the Minnesota State Medical Association in revoking the charter of the Brown-Redwood County Medical Society two years ago, has been upheld by the Supreme Court of the State. The State Association revoked the charter because the Society refused to expel Dr. L. A. Fritsche, who was charged with advising the members not to enlist in the army or navy.

A fire last week at 827½ Nicollet Ave., Minneapolis, drove out a number of firms dealing in medical and surgical supplies. The following men and firms are located in the Rand Building at the corner of LaSalle Ave. and Sixth St.: Mr. K. V. Black, Mr. E. J. Kimball, the G. C. Cowfeldt Co., the Wm. Meyer Co., and the Wm. Painter Co. They are all prepared to do business as usual.

An extensive program of public health lectures is again being given at Rochester this winter. Dr. L. D. Bristol, of the University Medical School, gave the lecture for the week of January 4. Health talks are given each week under the auspices of the Health Department and have been the means of conveying information on preventive medicine and hygiene to a large number of people.

Dr. Edward Mercur Williams, of Sioux City, Iowa, a prominent neurologist, died there of pneumonia on January 8. Dr. Williams was forty-four years old, and graduated from the University of Pennsylvania in 1905 and was licensed in 1913. He had been, since then, a prominent practicing neurologist of Sioux City and had many friends, not only there, but in the surrounding country. He was a man of fine type, with good experience and judgement, and he will be very much missed.

At the annual meeting of the Hennepin County Medical Society, held last week, the following officers were elected: President, Dr. F. L. Adair; first vice-president, Dr. C. B. Wright;

second vice-president, Dr. W. H. Aurand; librarian, Dr. T. A. Peppard; members of the board of censors, Drs. George D. Head and W. E. Rochford; members of the executive committee, Drs. J. F. Corbett and A. E. Benjamin; delegates, Drs. J. F. Corbett, Geo. D. Head, W. A. Jones, R. T. LaVake, and T. A. Peppard.

Sensational reports concerning the work being done with Insulin at the Medical School of the University of Minnesota have appeared in our daily papers, and this work is tied up, by at least one or two of the papers, to the extravagant and absurd claims of diabetic work done in a local sanitarium of no standing in the profession. Dr. R. G. Green, bacteriologist of the Medical School, is making investigations along this line, but he is not "promoting" anything. Like sensational reports in daily papers have appeared about Drs. Banting and Best, of the University of Toronto, who are carrying on this investigation; and the head of the Department of the University of Toronto in which Drs. Banting and Best are working, has made a report of their work, to offset the effects of the sensational reports current in the East.

ANNUAL MEETING OF THE SOUTHERN MINNESOTA MEDICAL ASSOCIATION

The annual meeting of the Southern Minnesota Medical Association was held in Mankato on December 4 and 5, with headquarters at the Loyola Club. Dr. W. F. Braasch, President, presided. The meeting was so arranged that the program was completed in twenty-four hours, which expedited matters and occasioned the members a minimum loss of time. Although the attendance was somewhat smaller than usual, there were over two hundred persons seated at the banquet. During the banquet a radio message was received from Dean Lyon of the University of Minnesota who requested the support of the members in passing the bill authorizing establishment of a psychopathic hospital at the University. At the business meeting the following resolution was passed:

WHEREAS, Dr. Aaron F. Schmitt for many years has rendered the Southern Minnesota Medical Society long and efficient service and is no longer a member of this organization,

Be it resolved that he be made an honorary member of this Society.

It was voted that future meetings of the Association be held annually and in various cities of Southern Minnesota; also that the meetings be held in April so as not to interfere with the meetings of the State Medical Association.

Much of the success of the recent meeting should be credited to the activities of the Committees on Arrangements and Entertainment, of which Dr. Kemp and Dr. Pratt, of Mankato, were chairmen.

The following officers were elected for the ensuing year.

Dr. F. P. Strathern, St. Peter.....President
 Dr. C. J. Holman, Mankato.....Vice-President
 Dr. H. T. McGuigan, Red Wing.....Sec.-Treas.

ANNUAL MEETING OF THE SIOUX VALLEY MEDICAL ASSOCIATION

Sioux City, Iowa, January 24, 25 and 26, 1923

On Wednesday, January 24, the Sioux Valley Eye and Ear Academy will hold its Twentieth semi-annual meeting at the West Hotel, Sioux City, Iowa.

On Thursday and Friday, January 25 and 26, the Sioux Valley Medical Association will convene at the Martin Hotel for its Fifty-fourth semi-annual meeting.

The profession of this territory is particularly fortunate in having a large number of "stars" as its guests on this occasion.

Dr. A. J. Ochsner, Professor of Surgery, University of Illinois; Dr. Martin Fischer, Professor of Physiology at the University of Cincinnati; Dr. Wm. Engelbach, Professor of Medicine at the St. Louis University; Dr. Dean Lewis, Professor of Surgery at the Rush Medical College; Dr. Clifford Grulee, Professor of Pediatrics at Rush Medical College; Dr. M. A. Blankenhorn, of the Department of Medicine, Western Reserve University, Cleveland, Ohio; Dr. J. S. Evans, Jr., Professor of Clinical Medicine at the University of Wisconsin; Dr. Henry Schmitz and Dr. Lewis Bremerman, of Chicago, and others of equal prominence will be with us on this occasion.

FINE PRACTICE FOR SALE

Owing to the death of my husband I will sell his general practice at once. Town of 5,500 population, the seat of St. Olaf and Carleton Colleges. Office equipment reasonable. Write or phone Mrs. J. G. Phillips, Northfield, Minn.

POSITION AS SURGICAL ASSISTANT WANTED

By a woman who has had two and a half years' experience in a large clinic. Will work with a dentist, an eye, ear, nose and throat man, or a surgeon, preferably in the Twin Cities. Address 315, care of this office.

POSITION WANTED

By a young woman who has taken two years of nurse's study and work in a hospital and has had two years in a doctor's office. Will begin work at \$15.00 a week. Address 317, care of this office.

PRACTICE FOR SALE IN NORTH DAKOTA A RARE OPPORTUNITY

I have formed a partnership to practice a specialty in a distant state, and I now offer my practice and some office and hospital equipment at a very low price. Population of the town is 800, and there are all modern improvements. Rent of the residence and hospital building very low. The field is big enough for two men when times improve. Practically no competition. Insurance, railroad and other work can be transferred at once. A good income is assured from the start. Price very low. Address 310, care of this office.

PRACTICE FOR SALE

In Southeastern Minnesota; general practice established thirty years; office and equipment; population 1,400; rich farming community; American; excellent roads, schools, churches; unusually fine opening; terms very reasonable. Address 311, care of this office.

WANTED—POSITION AS LABORATORY TECHNICIAN AND PRIVATE SECRETARY

By a thoroughly competent and experienced young woman with best of city references. Address 306, care of this office.

OPENING FOR A PHYSICIAN

Hanley Falls, Minn., offers an excellent opening for a doctor. Address, President of the Commercial Club, Hanley Falls, Minn.

NURSE FOR HOSPITAL WANTED

A small up-to-date hospital in a South Dakota town wants a nurse who can give anesthetics or act as surgical nurse. German-speaking preferred, but not necessary. Enclose your photograph and state your age and year of graduation. Town of 1200, with five churches, Catholics predominating. Salary, \$100 a month and maintenance. Address 318, care of this office.

BUFFALO HIDE FOR SALE

I have for sale a fine Buffalo hide nicely tanned. It will make a handsome rug or overcoat. Make an offer for it. Address B. A. Adams, Bristol, S. D.

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THE OPPORTUNITY OF THE FAMILY PHYSICIAN TOWARD THE INSANITY OF THE YOUNG—THE DEMENTIA PRAECOX PATIENT*

BY BAYARD HOLMES, M.D.

CHICAGO, ILLINOIS

No medical subject is in greater disfavor in the public and professional mind than that of insanity. No subject approaching equal importance has received from the profession and the reading public such scant attention. Yet one cannot take up a daily paper without observing evidences of the grave social disturbances of the disease, both in the columns devoted to the records of crime and in those describing family infelicities and educational complications.

Perhaps no words in our language are subject to such quibbling ambiguity as those applying to the insane. No two persons give the same meaning and color to these common terms. The psychiatrists (soul-healers) and alienists (transferers of patients' rights by legal process) have fixed terms which they use without fixed meanings, because the meanings change from time to time and even vary in describing different mental conditions.

Take the following for examples: lunacy, madness, psychosis, derangement, aberration, mania, frenzy, delirium, paranoia, hysteria, monomania and mental slant, and the adjectives, crazy, confused, irrational, unreasonable, pig-headed, freakish, nutty, demoniac, deluded and locoed.

These words are all used both in solemn earnest and in careless derision. No two persons

attach the same significance to them or use them under the same circumstances.

The first important matter to any open-minded enquirer in connection with this subject is the necessity of considering a man as an entity. The individual must not be anatomized into body, mind and soul, or any such metaphysical pieces. He must be looked upon as one and inseparable. Think of the mind, the psyche, as the manifestation or excretion of the brain, just as the bile is the excretion of the liver. Avoid every sort of mysticism or vitalism, and don't quibble at the imperfections of the foregoing simile.

The second important matter is the separation of insanity from irrationality. It is a fact that most insane persons appear irrational, but many, if not most, irrational persons, regardless of the degree of their irrationality, are not insane and no one would seriously accuse them of insanity. I despair of finding an example that some one would not object to at once, but take a group of people who now argue that the earth is flat. They may be considered by most of us as perversely irrational, but they cannot therefore be adjudged insane.

AN INDUBITABLY INSANE PERSON MAY BE
LOGICAL AND RATIONAL

In many if not every particular an indubitably insane person may be logical and rational and his conduct may be on a very high plane of rectitude. When the insane in a certain insti-

*Presented at the forty-first annual meeting of the South Dakota State Medical Association, Huron, S. D., May 17 and 18, 1922.

tution were crowded and sleeping on the floor, with utterly inadequate facilities for feeding, for toilets and for bathing, an insane engineer went to the superintendent and proposed a new method of building which could be utilized with patient labor and a minimum of outside help. The superintendent was a practical man and took readily to the lunatic's novel proposition. Beginning in a small way and extending as rapidly as possible, he and the lunatic constructed building after building, greatly to the relief of the congestion and to the burden on the public purse. Irrationality and insanity are only incidentally associated. The insane are sick and the sick deserve a physician.

Insanity is generally looked upon as a chronic if not a permanent and irretrievable condition. This is not an essential characteristic of insanity. An insanity may be acute, temporary and transient and leave no trace behind. The drinking of "moonshine" frequently produces a temporary condition that is truly an insanity, and it sometimes produces permanent defect, Korsokov's psychosis. Poisoning with belladonna, hashish, pulka and some minerals like lead and antimony display symptoms inseparable from those of insanity. Infectious and febrile diseases are frequently characterized by periods of temporary insanity and even by permanent insane states. These states are sometimes short and violent and are clinically termed delirium, but they are also often enough protracted and take on all the essential features of an insanity. Local disease of the brain, tumors, abscesses, diffuse infections, emboli, thrombi, and anatomic defects produce the clinical pictures of insanity, and patients with these conditions are frequently committed to asylums by legal process and their bodily sickness is first discovered at postmortem.

EVEN ANIMALS BECOME INSANE

Even animals, ordinarily considered without reason, become insane. There was a widespread disease of cattle and horses and even of wild animals noticed in Mexico and the southwestern states, known to the rangers as "loco." This term was derived, no doubt, from the Spanish "locura," crazy; or "loco," mad, crackbrained. It was believed to be due to eating a weed called the loco-weed and homeopaths sought this weed as a remedy. Large appropriations have been made by some of the western states to exterminate this weed. In India elephants become in-

sane from certain glandular infections on their foreheads, and it is necessary to scrape and cauterize these places or kill the animal. Hunters tell stories of insane wild beasts, but these stories are largely discredited, because we have no way of recognizing insanity in dead animals (or dead men, either) by objective scientific tests. The sleeping sickness is perhaps the only exception to this generalization. The worm that causes sleeping sickness in man is found in the animals, and it is also found in the fly that carries the parasite from animal to animal and from animal to man.

INSANITY IS NOTHING NEW OR MODERN

Insanity is nothing new or modern. It was described in the Eber's Papyrus, a medical encyclopedia of 110 pages written 2,500 years before Christ. It was often mentioned in the Hebrew Bible. In the New Testament a crazy man was cured. The demons, long considered the cause of mental aberration, were driven out and went into a herd of swine. The crazed animals ran down a steep place into the sea, and were drowned. The keepers of the swine didn't like the method of cure and begged the innovator to depart out of their country. The geographical distribution of insanity is practically universal, and no tribe, clan, race, nation or family has ever entirely escaped it. While it appears to be more frequent in some places than in others, no locality and no civil or social condition is immune. The civilized and the uncivilized, the black, the white, the red and the yellow, present typical cases of each form of insanity. The insane are statistically more common in New York than in Alabama, but statistics are based on reported, committed, custodial cases. There is no significant difference in frequency that does not depend on the attitude of the public to these unfortunates. While the insane were looked upon as demons and chained up and kept in jails and poorhouses, they had a short life and were fewer relative to the living population; now that they receive better institutional care they live longer and seem therefore in greater ratio to the sane population. In the State of New York Pollack has found inexplicable differences between the ratio of commitment of dementia praecox patients in neighboring cities, and among populations of different racial origins. Occupation or custom may yet yield some explanation if the cause of dementia praecox is ever discovered.

The very aged sometimes become insane and this condition is usually a part of a general nutritional decline, and a slow invasion with parasites.

The symptoms of the insanity depend not alone on the cause (the cause of one insanity is definitely known), but upon the patient's personality. The personality changes with the age and education of the patient, hence the symptoms of two different insanities, that is, of insanities with different causes, in young patients, are apt to be similar in a larger measure than when one patient is young and the other old. Paresis in the adolescent resembles the more common insanity of youth, dementia praecox, and (but for the objective methods of diagnosis and the favorable result of treatment) the former case would pass for dementia praecox.

NO EVIDENCE OF HEREDITY

There has occasionally been noticed a tendency for members of certain families to suffer from insanity. This has led to the presumption that insanity is hereditary. The same was said of tuberculosis before the cause of tuberculosis was discovered. Consumption was said "to run in the family" and many old bachelors and old maids lived lonely lives because they feared if they married and had children, these children would be scrofulous or consumptive. We now know that tuberculosis of the lungs is no more hereditary than are cooties or the itch. There is no better evidence to-day that insanity is hereditary than there was fifty years ago that tuberculosis was hereditary. The one insanity for which we have discovered the cause, namely paresis, is certainly not hereditary or transmissible, though a syphilitic infection is contagious. It makes lots of difference to the brothers and sisters of an insane youth when their mating time comes whether the insanity is hereditary or not. If the professional and public opinion is toward the hereditary and familial origin of insanity, some of the marriages will be interrupted or after marriage some conception or pregnancy will be interfered with. The physician, the alienist and the psychiatrists are taking grave responsibilities when they declare insanity hereditary and transmissible, but they now assume that responsibility with no more scientific basis than had their grandfathers in declaring tuberculosis hereditary and transmissible, and ruthlessly performing abortions on this theory after grave consultations.

So far as I know, insanity has not been produced experimentally in men or animals, though some of the symptoms of insanity appear in occupational poisonings. Workers in lead and antimony, those who use crude wood alcohol and benzol (benzine), those subject to gases containing CO., have more or less permanent abnormal psychoses and are occasionally committed to insane asylums.

The idea that soldiers were scared crazy by the explosion of great shells has been much exploited in the daily press, now become a great medium of medical education, and the assertion by autogenous uplifters that adolescent delinquents have been made crazy by the abuses of the police and by the so-called third degree of the prosecuting attorneys does not seem to be well founded. If these shocks made men and boys crazy, then there ought to have been many more such persons made insane. It is more likely that the few who became insane under such shock were previously sick and about ready to go crazy anyway, or in the case of the police atrocities upon the young, the insanity of adolescence provoked the delinquent action which aroused the furor of the officer who brought the smoldering insanity into flame.

There are several clinical forms of insanity, but it is enough for our purpose to mention four of the more common groups.

PARESIS

1. Paresis, or the insanity of the syphilitic, comprises about ten or fifteen per cent of the commitments to the state institutions. That is to say, of the 90,000 commitments in the United States each year, 9,000 to 12,000 are insane because syphilis has attacked certain parts of the brain. These patients live only a short time in custody, perhaps three years on the average, so only 30,000 to 40,000 of the nearly 400,000 in the institutions for the insane of the United States are paretics. Although the cause of this disease is known and methods of diagnosis by biochemical, colloidal, chemical and histopathologic or cytologic tests are positive and indisputable, little progress has been made toward cure. This insanity can, however, be prevented by preventing the spread of syphilis and by adequate protracted treatment of the infected. This is the only one of the insanities which has submitted to mechanistic solution. It is the only one that can be rationally treated. It is the only one against which preventive measures can be instituted.

AGED OR SENILE DEMENTIA

2. The insanity of the aged, or senile dementia, comprises about the same proportion of commitments as paresis. The duration of the disease is considerably longer in custody, so that the number of the senile insane in our institutions is somewhat greater. Much can be done and is done for their relief and comfort, and much more should be done under proper segregation and colonization. Not enough, however, is known of the physical condition of the aged patients to provide any prophylaxis or prevention. The first steps in research require a complete survey of their physical condition, and their restoration as far as possible to a non-parasitic (uninfected) normal existence. The senile insane might well be cared for in isolated wards, where attendants would be prepared to cater to their infirmities or placed in colonies like that of Gheel, where they would still have the stimulus of family surroundings and young life.

MANIC-DEPRESSIVE GROUP

3. The manic-depressive group comprises the largest proportion of admissions and the greatest variety in regard to the symptoms of the disease. It presents the most difficult group to manage, for it contains a large proportion of the suicides, the assaultive and the noisy patients. Many of these patients are in a most acute and fulminating condition and they need the most immediate and aggressive therapy. Yet this group furnishes the largest per cent of recoveries. Probably half of all the manic-depressives are discharged quite recovered. Relapses are, however, frequent. The etiology of this clinical group is still unknown. The treatment is symptomatic, eliminative and hydrotherapeutic, open air and out of doors. Many respond promptly to the removal of foci of infection in teeth, tonsils, gall bladder, appendix, kidneys, tubes, uterus, bladder or seminal vesicles. There is no demonstrated histopathology of the cerebrum or other parts of the brain in this condition. Mental hygiene and psycho-analysis have not, however, sustained themselves either in prevention or cure. It is a fascinating field for biochemical research. It is distinctly institutional.

DEMENTIA PRAECOX

4. Dementia praecox is the diagnosis of the group that supplies the growing population of the asylums for the insane, because the patients

are young when committed, and they live, even in the restraint of custody, for sixteen years or more. Only twenty per cent of the total admissions belong to this group, but sixty-five per cent of the patient population are dementia praecox. There are quite a number of deaths among these patients during the first year of the disease, but after that time they seem to live in confinement until tuberculosis carries them off. Fifty-two per cent of them die eventually of this disease, and some psychiatrists believe there is a causative relation between dementia praecox and tuberculosis. Thus it appears that dementia praecox is the great problem of insanity and it is obvious that it costs the state sixty per cent or more of the annual output for the insane. The charities budget in most northern states is one-third or more of the total state expenditure. Yet no state has supported any active research into cause, cure and prevention, and no state board or national psychiatric society has ever petitioned a legislature for such an undertaking.

This leads to the study of dementia praecox alone and to a consideration of the obstacles to be overcome before dementia praecox is as rare a condition in our state hospitals as typhoid fever is in the civil and military hospitals, where it once filled a major portion of the beds. It is my firm conviction that such an issue would follow adequate research. One would say at once that a disease which costs the state more than half its appropriations for the dependents, delinquents and defectives must have been pretty acutely and diligently investigated during the last thirty years. Unfortunately such was not the case.

While the State of New York, for example, with nearly forty thousand insane, costing ten million a year for custody alone, is building new institutions at five million dollars each, that State is making no effort at research and supports the psychiatric institute with less than fifty thousand dollars a year—an institute the bulk of whose energies is expended in staff training and routine service rather than in research for prevention and cure.

There are men in high places who excuse this lack of vigorous research into cause, cure and prevention by asserting that aggressive attack on a practical problem, however important, is a wasteful and extravagant method, and that each practical problem should await the steady advance of the frontier of pure science by which

advance its solution will be automatically accomplished. What did these opportunists say about the conduct of affairs by the Council of Defense in the late war in organizing the chemists, physicists and other technologists of the United States to discover and contrive poisonous gases and new means of assault—that is, new means of destroying people? The neglect of aggressive research by the professional erudite and the professional keepers of the insane has been again called up by "A report on the future independence and progress of American Medicine in the age of chemistry," a document signed by nine of the most conspicuous chemists of the United States. It was probably written by Julius Stieglitz. This booklet should have the serious consideration of every physician and educated man, whether professional politician or industrial organizer, in the United States. In spite of the years-long custom and present conduct of the official almoners of the state and of the official directors of state education, the committee above mentioned urges aggressive, coördinated strategic attack of the problems of disease, among which it especially mentions dementia praecox.

When in 1907 I began the study of the literature of the insanity of youth, my astonishment at the scanty records of physical and biochemical examinations of patients was paralyzing. It was generally asserted that no histopathologic changes in the brain and other organs of the body of dementia praecox patients *had been recognized*. It was, however, noted that the brain weight as compared with the cranial capacity was increased, and that there was a relative hydrocephalus, especially that *the left ventricle* was enlarged and the amount of cerebrospinal fluid was increased. (Reichardt, Zeit., f. Psy. 75, p. 34-103.)

In the following years the evidences of a pathologic condition of the brain and other organs of the body developed until we can now give a fair description of its pathology and histopathology correlated to the symptoms of the disease. (v. Southard, Gurd, Rawlingson, Mott, Busciani, v. Dementia Praecox Studies, Vol. II to Vol. V.)

With diagnostic physical, chemical, thermal and electric findings the literature was almost equally silent in 1908.

The condition of the capillary circulation had been noticed and this was generally attributed to the inactivity and the catatonia of the patient. The dilated pupil was noticed and occasional mention was made of other pupillary ab-

normalities. Some Italians had noticed the excessive low blood pressure of the early cases, among youths where a low blood pressure is to be expected. There was reported occasional sudden death and even rupture of the heart without any obvious external cause. These events sometimes gave rise to confusing legal investigations, during which the existence of myocarditis was brought out. There was just enough clue in the literature to keep the flair of research acute, the pursuit interesting and to prevent utter discouragement when a lead ended in a succession of negatives.

Then in 1913 I fell upon the German translation of A. Justschenko's summary of psychiatric research, which I translated into English, but was not able to publish. It arranged in a systematic manner the physical, chemical, serological and biological findings already discovered in the insane.

The efforts which I had made to arouse the state psychologic institutes of Illinois, of Michigan and of New York to undertake research on dementia praecox had proved unavailing and it appeared impossible to activate the only endowment that had ever been made for research into the cause and possibility of cure and prevention of dementia praecox. (v. Dementia Praecox Studies, 1918, Apr. No.) Therefore, I sought aid from the Commissioners of Cook County, under the presidency of Peter Reinberg, and in January, 1917, they appropriated \$7,000 and the service of the Psychopathic and of Cook County Hospital for serious research. With two paid men and several volunteers and the hearty support and coöperation of Dr. Adam Sz wajkart, the head of the Psychopathic Hospital, who never ceased in enthusiasm for the laboratory, we established an exclusive research laboratory seeking the condition, the cause and the cure of dementia praecox. It was a great adventure and the laboratory ward of ten beds was always full of interesting cases. The friends of many other patients begged to have sons, brothers or husbands admitted for experimental study and treatment. We were greatly restricted by lack of funds for the chemicals and apparatus as well as by the inherent complexity of the problem. Most of the patients were free, a few paid the hospital ten dollars a week and fewer still paid our laboratory fee of fifty dollars.

It is not possible in this short article to recount the devious course of our single year of investigations. The war and other inimical in-

fluences brought the appropriation to an untimely end. The amount of new work done was, however, very considerable. Some of these investigations on individual patients have been recorded in full in "Dementia Praecox Studies," in the "Alienist and Neurologist" and in other medical journals. In the end we had evidence satisfactory to ourselves for the construction of the following working theory which can be grasped by any sympathetic person of some experience with disease and some knowledge of the insane.

PRECIS

Dementia praecox is an intoxication affecting the brain, the choroid plexus and other glandular organs of the body, particularly the testicles in males and the ovaries in females. The cerebral lesions are in the nerve cells and are recognizable histologically only when the irritation of the toxine has been so protracted or so acute as to produce cellular destruction. The glandular involvement, especially that of the generative portion of the sex glands, may be due to the primary toxæmia or to the intoxication which follows nature's effort to rid the body of the broken down, nervous tissues. (Carlo Ceni.) The fact of a toxæmia is demonstrated by clinical and pharmacological evidence only. That is to say, the toxine itself has not been chemically demonstrated in the blood nor has its catabolized residue been found in the urine. Adequate researches have not yet been made in these directions. Clinically there are indubitable evidences of a severe toxæmia. The reaction time for sight, touch and hearing is lengthened and abnormal pupillary and retinal findings are prevalent. (Blinn, Bumke). Basal metabolism is often enormously increased, and the thyroid shows very general hypertrophy, so much so that it has been occasionally attacked by surgeons and has been looked upon by some endocrinologists as a possible primary fault. Tachycardia is conspicuous on exertion, and low blood pressure is the rule—low even for the young. The skin shows a multitude of symptoms of toxæmia. The odor of the perspiration is conspicuous and suggestive. The sebum is excessive especially above the collar and in the scalp. The beard on the face of boys becomes patchy and the patches are separated by sharp demarcations. There is pronounced dermatographia over most parts of the body, often long lasting. The hair on the legs below the knees seems to grow excessively. The nails,

especially those of the thumbs and big toes, exhibit contemporaneous transverse grooves and ridges suggesting periods of diminishing and increasing nutrition. If the beard of such a patient is shaved at regular intervals it will be found to have grown more rapidly during some periods of improvement than during other periods of decline. There also appears a characteristic edema of the skin with cyanosis and in severe cases even gangrene. (Morel, Dide.) This is noticed most often upon the arms and legs, the feet and hands, but it does occur on the face. Since any and probably all the endocrines are affected by the toxic element either to increase, diminish or pervert their functions, we observe skin symptoms which may be attributed to each possibility—the skin of exophthalmic goiter or that of Addison's disease.

The interstitial portions of the sex glands are tardily affected, if at all, as histologic studies have shown. The shrinking of the testicle, which is generally less than one half the normal weight, may destroy the interstitial cells by sclerosis and pressure atrophy alone.

BLOOD CHEMISTRY

The histology of the blood marks the patients as toxic and ranges them with Osler's disease. There is a concentration of the blood, increased viscosity, and great increase in the number of red corpuscles, 6,000,000 to 8,000,000 erythrocytes, with only 6,000 to 10,000 leucocytes. The number increases with exacerbation of the disease and on the other hand when sudden betterment appears the number of red corpuscles just as rapidly approaches normal. (Kahlmeter, Lundvall.)

The blood chemistry of dementia praecox patients has never been systematically carried out on an adequate scale, coördinated with other examinations, but enough has been done to excite the greatest interest. Hemoglobin is increased and in a few cases methaemoglobin or sulphhaemoglobin have been recognized.

The defensive ferment reaction of Abderhalden suggests catabolizing ferments for cerebral tissue, the sex gland, the thyroid and often other endocrine glands and organs. These reactions are not to be considered as solitary diagnostic signs, but as indicative of the diffuse action of the toxine. Thus, the origin of the high haemoglobin index, the polycythaemia, the cyanosis, and the low blood pressure appears consistent with a disturbance of the efficiency of the circle of

detoxicating endocrine glands, acted upon by a particular sort of toxine not very unlike the toxins that come from latent or occult infection of teeth, tonsils and the closed cavities of the body. (Cotton.)

The adrenalin reaction suggests the sort of toxic substance with which the patient is overcome. When 0.5 cc. of 1-1000 solution (P. D. & Co.'s) adrenalin is injected into the deltoid muscle of a dementia praecox patient, the low blood pressure goes down still lower. When a few (3-7) drops of the same solution is dropped into the conjunctival sac of one eye of a dementia praecox patient and the patient kept quiet in the dark for half an hour or more, the pupil of the treated eye will be found more dilated than that of the untreated. This resembles the adrenalin reaction of an animal or a man to whom a large dose of ergot has been previously given, or to whom a proportionate dose of histamin (betaminazolyethylamine) has been given.

A large proportion of dementia praecox patients, regardless of the duration of sickness, give the clinical symptoms of spasmophilia. The Trousseau, the Chvostek, I and II, and the von Pirquet peroneal are generally constant over long periods of observation (del Rio). No adequate estimations of the Ca content of the blood in these patients has yet been made.

If a barium meal is given dementia praecox patients, no retardation or evidence of motor inefficiency is observed in the stomach or small intestine, though a few cases show cardiospasm and pylorospasm. Nearly every patient shows spasm of the ring of Cannon. This ring is rarely observed in man. It is about two or three inches to the left of the hepatic flexure of the colon. The barium meal is observed in dementia praecox patients to remain in a liquid state in the cecum for fifty-four to ninety-six or more hours—in a few cases for weeks. During all this time there are daily movements of the bowels. This condition, cecal retardation, is a major symptom.

Now, with this outline, if a physician tries rationally to regulate the condition by use of belladonna to relieve the spasm, laxatives and purgatives to empty the cecum, calcium and magnesium to diminish the spasmophilia, he will produce little betterment, though he will meet obvious indication.

APPENDECTOMY, FOLLOWED BY DAILY IRRIGATIONS

Appendectomy, however, has been very

effective when followed for months or years by daily irrigations of the cecum and colon with ten quarts of warm water at bed time. This operation was perfected for the treatment of amoebic dysentery and can be done by any surgeon. Of course, all infected teeth, tonsils or other foci of infection should be first removed before appendectomy is performed. The appendix should be well healed before the irrigations are begun.

Ten days or so after the operation the patient should sit on the water closet stool. A pail holding ten quarts of warm (110 degrees F.) water should be hung three feet above the level of the stool and connected by a small rubber tube to an inch and a half of small catheter, just large enough to slip through the appendix into the cecum. The water is allowed to run into the cecum until it is full and begins to give uneasiness. This is about 600 c.c. as a rule. The flow is stopped for a few moments and shortly a squirting sound will be heard at the ring of Cannon as the cecum empties into the transverse colon. Then the flow is allowed to go on. The cecum fills up again and empties more easily and quickly into the transverse colon. Shortly the rectum is emptied into the water closet bowl. This process goes on for twenty minutes to half an hour when the last discharges are relatively clean. Every night, four and a half hours after the last meal of the day, this process is repeated, and it should be followed up as long after it is begun, as the patient has been sick before it is begun. In some instances improvement appears almost at once, while in others absolutely no change is noticed for months—in one patient only after five months' faithful nightly irrigations. And yet this patient has remained well and at work since the summer of 1917. He was the second patient treated. (v. Dementia Praecox Studies, vol. II, case of Eldon Duggan.)

It is impossible with the present condition of our ignorance of the disease to foretell which patients are likely to recover or improve by this method of treatment and which ones will fail to be benefited. It certainly does not depend on the severity of symptoms or the duration of the disease. Patients sick for seven and for ten years have recovered, while quite mild cases have failed to show benefit even though sick only two years or even less. Nor do we know just how the irrigation does its work.

We presume at present that the toxic agent is the remnant of a histidin-like molecule (probably of a polypeptid containing an iminazol radicle), left after a colon bacillus has taken away

the portion it can consume. Ordinarily we think of the toxic substances produced by pathogenic bacteria as within the body of the bacterium, an endotoxine, or as an excretion of the microbe, an exotoxine; but in this instance it seems that it is a toxic food remnant after the bacterial repast—the poisonous residue of the feast of our messmates, the colon bacilli. In this respect it resembles the etiology of no other common disease. At first it seemed that this toxic residue might be betaminazolylethylamin, for it presents some of the physiologic actions of that toxic amine, and the biochemical paradigm of the production of this poison fits in with the retardation of the barium meal in the cecum, but such a presumption provides too much. This toxine is so poisonous that it kills in a few moments after it is injected into animals and before any neurologic changes have had time to appear. Research guided by clinical and especially by favorable therapeutic experiments alone will answer the many questions that have already come up. Until researches are established on an adequate scale, and the basis of the disease is completely elucidated, it is the duty of the physician who first recognizes a case of dementia praecox to institute detoxicating measures. The first of these is rest in bed in the outdoor air, and sunshine, both day and night, i. e., the same as in the tuberculous therapy of Rollier. The second is the treatment of the spasmophilia by phosphorated cod liver oil and calcium lactate together with calcium containing foods. The third is the removal of foci of infection in nose, ears, throat, teeth and natural cavities of the body, and early appendectomy and irrigation of the colon with large quantities of warm water every night four hours after last meal of the day

THIS PROBLEM IS IN THE HANDS OF THE
FAMILY PHYSICIAN

Whatever is to be done for the twenty thousand more youths who come down with dementia praecox every year must be done before commitment and before sanitarium segregation. Not much assistance can be expected from the professional psychiatrists as such authorities as Adolph Meyer, Petersen and Church teach that the obvious physical pathology observed in dementia praecox patients is due to mental states or unrelated accidents. If the family physician treats his own dementia praecox patients at the patient's home and the local curing hospital, on the indications which I have tried my best to

present, many commitments will be saved and the pessimistic and mystical attitude of profession and public toward the adolescent insane will disappear, research into cause, cure and prevention will be established and this curse of youth will be as rare in our state hospitals in another generation as typhoid fever, which filled one-third the beds in the Cook County Hospital when I was an interne there thirty years ago, is rare in the great civil hospitals of the United States to-day.

The problem of dementia praecox is in the hands of the family physician where the problem of every other disease which has been solved by our profession has been safely placed.

DISCUSSION

DR. G. S. ADAMS (Yankton): This is certainly a very big subject to go into at any length, and it would require much more time than we can possibly give the subject now.

It was Yankton that first became interested in this subject and in the work of Dr. Holmes in 1917. Dr. Holmes has been out to our institution on three different occasions, first in 1917, then again in 1920, and last year. We have operated according to his method. He did most of the operations on those occasions. The number of operations done under his supervision total fourteen. In the three series we have had, our results to date have been either recoveries or improvement to the extent that the patients are able to be at home, and are comfortable at home in 50 per cent of the cases. Seven of these fourteen patients made what we thought were recoveries,—at least, they have improved to such an extent that they have been able to take care of themselves at home during the period of 1917.

The first cases we had were possibly more recent cases than some we later operated on. Recovery seems to be directly related to the promptness with which the operation follows the onset of the disease. The earlier these patients can come to operation under this method, the greater their chances, I think, for recovery.

DR. B. A. BOBB (Mitchell): I would like to ask Dr. Adams a question. Were the other 50 per cent made worse by the operation or did they remain the same?

DR. ADAMS: Some of them became more comfortable. They improved in their habits in many ways and are now really more useful members of the hospital community than they were before, but they have not recovered to any great degree. Their mental state has not greatly improved.

DR. HOLMES (closing): I am much obliged to you for the manner in which you have received my paper. It is difficult to present the work of ten years in a few minutes, and especially to plow the ground and cultivate it a little bit so that you can get in the seed. May be that I did too much plowing and raking and too little seed-sowing but, nevertheless, I have presented to you the results of my work.

THE MODERN SANATORIUM IN THE TREATMENT OF TUBERCULOSIS*

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I have been asked by your secretary to include in this paper comparative statistics of the period before and after the resources of the Sanatorium were made available for the treatment of tuberculosis.

This request at once directs our attention to the two principal functions of the Sanatorium. It was called into existence for the purpose of providing treatment for persons afflicted with tuberculosis. It has developed another function, hardly less important, that of helping to prevent the spread of tuberculosis. This it accomplishes through isolation of infectious cases and by education of the patient and the public.

Conditions before and since its entrance on the field must be considered from both standpoints.

Sanatorium treatment of tuberculosis is comparatively recent. Practically the entire history of the movement is included within the last sixty years, and in this country within the last forty years.

What were the conditions as regards tuberculosis forty years ago? According to the United States Census reports the annual death rates in the registration areas for the United States were as follows:

1880 (Census year) 326 per 100,000 of population.

1890 (Census year) 267 per 100,000

In the State of Massachusetts the death rate was—

1881-1890 364 per 100,000.

1891-1900 263 per 100,000.

In England and Wales, it was—

1881-1890 243 per 100,000.

1891-1900 200 per 100,000.

In 1860 the death rates were still higher,—410 per 100,000 in Massachusetts and 349 per 100,000 in England and Wales.

Since 1860 the deaths from tuberculosis have steadily diminished throughout the world, except for a temporary increase in some of the European countries during and after the World War.

In 1916 in the United States Registration Area it had fallen to 142 per 100,000.

In 1920 it reached 114 for the whole country, 88 for Minnesota, 79 for St. Louis County, and 84 for the city of Duluth (73 in 1921).

It is very evident then that there has been a remarkable fall in the death rate from tuberculosis in the last forty years.

There are now less than one-quarter the number of deaths from tuberculosis in Minnesota per 100,000 inhabitants than there were in 1880 in Massachusetts. That means that, had there been no diminution in the death rate, there would now be in Minnesota about 10,000 deaths from this cause every year in place of the 2,000 that actually occur.

As regards the whole country, the death rate has been more than cut in two. Had there been no fall in the death rate 326,000 would annually fall victims to tuberculosis in place of 122,000 as at present. In other words 200,000 lives, or twice the population of Duluth, are saved annually.

It is difficult to say just what share the Sanatorium has had in bringing about this remarkable saving of life. Preliminary analysis of the institution and its functions is necessary before we can discuss the question.

The open-air treatment for tuberculosis was advocated by George Bondington, a physician in Sutton-Coldfield, England, as early as 1839. He received patients in a small house and was probably the first to give sanatorium treatment. The profession and the public generally did not, however, accept his views, although he had a scattered following.

The first successful sanatorium of any size was that established by Brehmer, in 1859, at Goerbersdorf in Germany. His pupil, Dettweiler, was that established by Brehmer, in 1859, at used there and emphasized, as he had not, the value of rest.

Although there had been "Homes for Consumptives" in this country for many years no serious effort was made in them to treat the dis-

*Read before the Medical Staff of St. Mary's Hospital, Duluth, Minn., March 15, 1922.

ease scientifically. A small private sanatorium had been opened in Asheville, North Carolina, in 1875, but the real beginning of the modern sanatorium movement in America was in 1884, when Dr. E. L. Trudeau established the Adirondack Cottage Sanatorium at Saranac Lake, N. Y. It was designed for patients of limited means and was conducted in accordance with the principles worked out by Brehmer and Dettweiler. The first state to establish a State sanatorium was Massachusetts, which opened its sanatorium at Rutland in 1893, adopting in its operation the methods in use at Saranac Lake.

By 1904 there were in the United States 96 sanatoria and special hospitals for tuberculosis.

A great impetus was given to the building of such institutions by the International Congress on Tuberculosis held in Washington in September, 1908. Among the papers read at that time was one by Dr. Arthur Newsholme, of London, entitled "The Causes of the Past Decline of Tuberculosis and Light Thrown by History on Preventive Measures for the Immediate Future." In this paper Newsholme claimed that the reduction of the death rate in England was largely due to the segregation, in work-house infirmaries and elsewhere, of consumptives with advanced disease.

Partly as a result of the interest aroused by this paper the Congress passed the following resolution:

RESOLVED, That we urge upon the public and upon all governments (a) the establishment of hospitals for the treatment of advanced cases of tuberculosis, (b) the establishment of sanatoriums for curable cases of tuberculosis, and (c) the establishment of dispensaries, day-camps, and night-camps for ambulant cases of tuberculosis which cannot enter hospitals or sanatoriums.

The rapid increase in the number of sanatoria in the country since that date is shown by the fact that, while at that time (1908) there were only 184 sanatoria in the country, there are now over 600, a very large proportion of them being public institutions. Their aggregate bed capacity is about 50,000, and their annual expenditures amount to over twenty million dollars.

Let us consider the sanatorium, first, as an agency for curing tuberculosis, and, secondly, from a public health standpoint as a place where infectious patients may be isolated and educated.

ESSENTIALS OF SANATORIUM TREATMENT

Rest.—Perhaps the most important feature of the modern treatment of tuberculosis is its emphasis on rest, which is felt to be even more necessary in the active stages of the disease than fresh air. Though first urged by Dettweiler, a pupil of Brehmer, the chief exponent of continued and prolonged rest in the treatment of tuberculosis, in this country has been Dr. Joseph Pratt of Boston. Complete immobilization is used in the treatment of hemorrhage; and rest in bed for prolonged periods is employed for combating rapid pulse, loss of weight, and cough.

Fresh Air.—The life in the open air at a sanatorium provides the patient with a maximum amount of oxygen ready for use by his red blood cells. It is believed to increase his vitality and resistance to disease in several ways. He usually sleeps better, has less cough and fewer night sweats, and in general suffers less from symptoms. To live in the open air comfortably he must, first of all, have suitable quarters,—a porch sheltered from the wind and from mosquitoes and a warm room in which he may dress and have his meals. In order to live outside comfortably or "take the cure," as patients say, there are certain tricks and devices to be learned. These are not usually taught outside of a sanatorium. Among these are the use of a Klondike bed, methods of folding blankets to place about the feet while sitting out-of-doors, etc. The open air does a shivering patient no good. He must be made comfortable.

Proper Feeding.—There is no specific diet for the tuberculosis patient. He should have an abundant supply of proteids, carbohydrates, and fat in the proportions required in a well-balanced dietary. Milk and eggs properly used are readily digestible, but should not be taken in excess. The day of forced feeding is passed. The weight should be carefully watched, and where gains are satisfactory extra milk and lunches may well be omitted. Patients with digestive disturbances require special diets. Every precaution should be taken to preserve good digestion,—in fact the maintaining of nutrition is one of the most important problems of treatment.

Supervision and Training.—Sanatorium treatment provides another special advantage over home treatment in that the patient follows a well ordered daily plan of life which should be

come habitual and be followed by him at his home after leaving the institution so long as active symptoms are present.

Occupational Therapy.—To help pass the long hours of rest and care-taking profitably most institutions have now departments of occupational therapy with instructors in various bedside occupations and simple crafts. They foster healthy mental conditions and are of great value, if carefully regulated, in hastening recovery.

Vocational Training.—In the larger institutions where patients with arrested disease remain for considerable periods, vocational training is now provided by the State under the Federal Industrial Rehabilitation Law, which fits the patient for return to active citizenship. Better education and the resulting ability to use his head more effectively may save the patient from breaking down under the strain of manual labor too arduous for him.

Social Service.—In order that the patient secure the maximum of benefit from his stay at the sanatorium it is necessary that he be not distressed by worries about financial and family problems. Efficient social service in connection with the sanatorium helps to set his mind at rest about such matters.

SPECIAL FORMS OF TREATMENT

Tuberculin Treatment.—In many sanatoria tuberculin classes have been conducted, in which very much diluted tuberculin has been carefully administered to selected cases, especially of gland and bone tuberculosis. The results have not proven conclusively the value of the treatment. It is apparently useful in certain cases and safe if carefully given.

Heliotherapy.—Sun treatment by the Rollier method is now generally employed with satisfactory results in sanatoria in the treatment of surgical tuberculosis.

Pneumo-thorax.—The injection of air or nitrogen into the pleural cavity is frequently employed in sanatoria as a means for keeping the affected lung at rest. It is used in certain cases of unilateral disease that are not doing well under hygienic treatment.

Symptomatic Treatment.—General medical and surgical measures are used, as indicated, to relieve the patient of the handicap of various accompanying conditions. Nose and throat abnormalities, defective teeth, chronic appendicitis—all require appropriate treatment if the patient is to succeed in conquering his tuberculosis. In

operative treatment the employment of ether should be avoided where possible. Another anesthetic or local anesthesia is preferable in most cases.

Suitable Surroundings.—The favorable influence upon the patient of attractive surroundings and well-constructed, well-equipped buildings is unquestioned. Through the efforts of the National Tuberculosis Association and the American Sanatorium Association, sanatorium construction is rapidly becoming standardized. Makeshift buildings, shacks, and temporary structures are replaced by permanent buildings more adapted to the purpose for which they are used. A modern sanatorium implies the best hospital architecture with the addition of conveniences for out-door life.

Favorable Climate.—The possibility of securing good results through the treatment of tuberculosis in sanatoria located in supposedly unfavorable climates was demonstrated by Dr. Vincent Y. Bowditch in the Sharon Sanatorium, near Boston, which was opened in 1890. It is now generally recognized that no certain climate is an essential to successful sanatorium treatment. In fact, most of the so-called favorable situations have drawbacks during part of the year. Among the disadvantages of the South-western and Western resorts for patients in the Middle West are rainy seasons, heat, dust, etc. Still more detrimental are the long journeys necessary to reach them and the homesickness resulting from the enforced separation from family and friends. With the other essentials of a good sanatorium provided, nearly every climate is sufficiently favorable and during a portion of the year even ideal.

RESULTS OF SANATORIUM TREATMENT

The Prudential Life Insurance Company has just published a very interesting summary of the results of sanatorium treatment of about 70,000 tuberculosis patients in the United States and Canada during the ten-year period 1909-1919. These statistics were made possible by the fact that most sanatoria now use the terms recommended by the National Tuberculosis Association in classifying their patients on admission and discharge.

Of all cases admitted, including those in a far-advanced stage of the disease, 64 per cent showed improvement on discharge. Included in this 64 per cent were 24 per cent who had lost all active symptoms of the disease (quiescent

cases) and 8 per cent who were fit to return to active citizenship,—apparently arrested cases. It is thus apparent that almost any patient, no matter what the stage of his disease, has more than an even chance of receiving some benefit by a stay at a sanatorium.

About 15,000 of the patients admitted to the various sanatoria were in the early stage of the disease when admitted. Of those, 89 per cent showed improvement, including 30 per cent who had lost all active symptoms of the disease, and 34 per cent who were ready to return to active life in the community. The natural inference is that it pays to discover tuberculosis as early as possible and get the patient to a sanatorium promptly if he is going at all.

No statistics including large numbers of cases are available as to the results of home treatment as compared with sanatorium treatment. Good results have been obtained in Dr. Pratt's tuberculosis classes, and much of the treatment of most cases must be conducted at home. Efficient follow-up work is necessary to secure permanent results. The writer believes that a course of treatment and training at a modern sanatorium offers the average patient his best chance for getting well started on his way toward recovery. Some men succeed in life with very little schooling, but school attendance is almost indispensable for success so far as the average man is concerned.

Field Work.—Adequate and continuous help and counsel must, however, be provided for the discharged patient if the results obtained at the sanatorium are to be lasting. Not only is it necessary that reports be obtained regularly from ex-patients, but they should receive, in addition, whatever treatment is indicated. If relapses occur or conditions develop which can not be satisfactorily treated at home, they should be returned to the sanatorium for short or longer periods. While at home they must be assisted in securing such employment as is suitable for them. Family problems, as regards finance and health should be met with the assistance of social workers. There are now about 50,000 sanatorium beds in the country, while there are 125,000 or more annual deaths and nearly a million active cases. Naturally these cannot all be in a sanatorium at one time, and its work must be supplemented by field work. Whenever possible each patient should have the privilege of at least a short stay at the sanatorium, in order to secure

educational benefit; and he should have the privilege of residence there while having active symptoms or suffering from relapse.

THE SANATORIUM AS A FACTOR IN THE PREVENTION OF TUBERCULOSIS

The segregation of advanced cases of tuberculosis in sanatoria has not been, in all probability, as yet an important factor in the reduction of the death rate from the disease. Of the 70,000 patients discharged in ten years from certain sanatoria where the results were studied by the Prudential Life Insurance Company, only about 10,000 died at the institution and only about one-third of the 9,000 advanced cases admitted died in the institution.

The sanatorium, undoubtedly, has been a factor in reducing the death rate, but its influence has been indirect. The organization of the National Tuberculosis Association was brought about by sanatorium men. The sanatoria, from the start, have been places for the education of the public, not only regarding the disease, but about hygienic living in general. Out of the sanatorium has come the impetus for the establishment of tuberculosis clinics and for the employment of visiting nurses. The movement has been so well organized, and the work done has been so effective, that fresh air is much more in evidence in homes, factories, and public places than ever before; better housing and a better standard of living have been secured for the working men; milk is purer; and water freer from contamination. The great movements for child welfare, for prevention of venereal disease and cancer, for playgrounds, for better nutrition, and for periodical physical examinations are all outgrowths of this first well-conceived and effectively managed popular public health movement, namely, the campaign against tuberculosis. The sanatorium has been the center and soul of the movement, the laboratory where methods were developed, and the means for demonstrating their value.

Sanatoria can be made immeasurably more effective if still further developed along rational lines. It is quite possible that in the near future we may see industrial colonies and vocational training settlements developing in connection with them.

Thus far the rather liberal investment of public money in sanatoria apparently has been profitable; at any rate during the years in which they have been developing, the death rate from

tuberculosis has been cut in two. It is fair to assume that the sanatorium and the public health movements centering in it have been important factors in reducing it. More and more we are coming to believe in the slogan of the New York City Health Department,—“Public Health is purchaseable; within natural limitations a community can determine its own death rate.”

In Minnesota, at the present time, a county or group of counties can probably not make a better investment for public health than the establishment of a tuberculosis sanatorium to be conducted under the supervision of the State Advisory Commission. Fourteen such institutions are now in operation, representing about 33 counties.

NON-VITAL TEETH AND THEIR RELATION TO FOCAL INFECTION*

A PLEA FOR A CLOSER CO-OPERATION BETWEEN THE PHYSICIAN AND THE DENTIST IN THE DIAGNOSIS OF ORAL CONDITIONS AND THE QUESTION OF TOOTH EXTRACTION

BY T. C. BONNEY, D.D.S.

ABERDEEN, SOUTH DAKOTA

The question of focal infection which received such an impetus a few years ago through the work of Rosenow, Billings, and others, and which has since had such a marked bearing on the diagnosis and treatment of many conditions, has, nevertheless, been productive of untold harm through the shortsightedness of many practitioners, both dental and medical; and it is my purpose this evening to show, if possible, why teeth from which the pulp has been removed are not always “dead” and why their extraction in very many cases is not justified. It may be well to digress for a moment and point out the difference between teeth which can properly be designated as “dead” and those which are non-vital; and, while it must be admitted that the words “dead” and “non-vital” are practically synonymous, there is an important difference in their meaning as applied to a tooth in which the pulp has died or from which it has been removed. A fact not generally known or appreciated by physicians is that the life of a tooth is not dependent upon the vitality of the pulp but upon the health of the peridental membrane; and it is this fact which makes possible the retention of a non-vital tooth in the mouth, often for many years, with a degree of safety to the patient that is too often overlooked.

Given a tooth from which the pulp has been removed and that has no area of infection at the apex of the root, and if the peridental membrane is in a healthy condition and its attachments to

the tooth and jaw are normal, this tooth is no more a menace to the health of the individual than a tooth which contains a vital pulp. On the other hand, a vital tooth that has a large amount of its peridental membrane destroyed becomes a menace to the health of the individual just to the extent that infection is present in the space around the tooth created by the loss of the peridental membrane.

PYORRHEA ALVEOLARIS

(Chronic suppurative pericementitis)

If a part of the peridental membrane is destroyed and infection is present around the tooth in the space thus formed, the tooth can be made to give many years of useful service without being a menace to the health of the individual *only if it is possible to clean up the infection permanently*; and in the opinion of most men this can be done only in two ways, namely, by the complete eradication of the pocket by surgical removal of the gum tissue forming its outer wall, and by extraction. In spite of assertions to the contrary by many men, we do not believe it possible to cure pyorrhea by scaling, removal of deposits of tarter, and the application of various drugs to the tissues surrounding the affected teeth; and our belief is founded on sound reasoning, as we shall endeavor to show. As above stated, the retention of a tooth in the jaw is dependent upon the health of the peridental membrane, and destruction of this membrane means the eventual loss of the tooth.

Pyorrhea when once established in the mouth inevitably results in the gradual progressive de-

*Presented before the Aberdeen (S. D.) District Medical Society at Aberdeen, S. D., November 28, 1922. The members of the Aberdeen District Dental Society were the guests of the former society at this meeting.

struction of the peridental membrane, and this destruction results in the formation of the so-called pyorrhea pocket. The peridental membrane is a distinct body entity (an organ, if you please, the same as a tooth, an eye, or a kidney), and, in common with other organs of the body, is never regenerated once it is destroyed; and it is this fact that dooms to positive failure all efforts to cure the disease by any other means than the two above noted. That failure is due to purely biological reasons is scarcely open to argument.

The pyorrhea pocket once formed is permanent and subject to bacterial invasion every moment, and, while it is true that many individuals can, and do, retain teeth affected with pyorrhea in the mouth for many years without apparent injury to their health, it is equally true that extraction or natural exfoliation is the ultimate fate of all teeth so affected. If it were possible by scaling, medication, and irrigation to render the pockets permanently sterile the problem of treating many of these focal infection cases would be greatly simplified; but the pocket once formed is permanent and increases in size as time goes by, and too often the physical condition of the patient is such that the constant infection in the mouth due to these pockets is the last straw, and any treatment directed toward relief of the general condition is useless until the mouth infection is eliminated.

So long as the patient's resistance is at or above par he will often notice no ill effects from the retention of such teeth any more than he will from the retention of infected tonsils, gall-bladder, or appendix under similar conditions of health; and in many cases teeth so affected may be safely left in the mouth, providing every precaution is taken to keep them as free from infection as possible, and to prevent, so far as we are able, the spread of the condition. Otherwise they should undoubtedly be extracted.

NON-VITAL TEETH

Unfortunately, the question of non-vital teeth is not so easy of solution, and too many times innocent teeth are condemned and sacrificed when a more careful physical examination would have prevented their loss. And it is equally true that many non-vital teeth are left in the mouth that should be removed. A great deal has been written about pulp removal and root-canal filling, and some men are so radical as to insist that every tooth that does not contain a vital pulp should be extracted and this without any regard to the condition of the tissues surrounding the tooth.

Others base their final opinion as regards extraction on the appearance of the root-canal filling alone, insisting that all teeth that do not have a perfect root-canal filling be sacrificed, paying absolutely no attention to the condition of the peridental membrane or the periapical tissues, and ignoring utterly the clinical history and physical findings of the case. It is a moot question whether or not a root canal should be filled to the apex or whether any root-canal filling is necessary. There are advocates of both methods and of all grades between. Areas of infection may be observed at the ends of roots of teeth that, so far as it is possible to judge, have perfect root fillings, and on the other hand many non-vital teeth without a vestige of root-canal filling of any kind have been serving, are serving, and will continue to serve their owners for years without in any way being a menace to their health. Therefore, it is evident that it is entirely wrong to condemn a tooth on the appearance of the root canal filling alone.

THE X-RAY

Probably no other diagnostic aid has been so misunderstood and abused as the *x*-ray in the matter of oral diagnosis. We feel that the commercial *x*-ray laboratories in the larger cities, run by men having absolutely no knowledge of medicine or dentistry, have been largely responsible for a great deal of the wholesale extraction during the past few years, but it must also be admitted that improper interpretation of *x*-ray films by both physicians and dentists has been a contributing factor. It must be remembered that not all shadows shown on a dental film or plate are to be considered as areas of infection. Neither should a tooth be condemned just because the bone around the apex of the root does not look like normal alveolar bone. It is just as unreasonable to sacrifice the teeth of a patient on such a finding as it would be to amputate a person's leg because in the course of a general examination an old healed osteomyelitis of one of the bones of the leg was discovered, and, not having a normal appearance, was immediately condemned, even though there were no local symptoms pointing to an infective process.

Healed osteomyelitis never presents the appearance of normal bone in an *x*-ray picture, and this holds true in the jaw as well as in any other part of the body, though the appearance of healed areas of infection at the apices of roots of teeth due to cystic destruction, is often so nearly normal as to make it impossible to tell that infection had ever been present.

Again, a shadow remains that is interpreted as infection when actually the area is absolutely sterile. The mental foramen, anterior palatine foramen, and, very rarely, the posterior palatine foramen are often interpreted as areas of infection by persons unacquainted with the anatomy of the jaws or who are unfamiliar with the appearance of these foramina on the dental film.

The condition of the lamina dura, the thin wall of cortical bone lining the alveoli, is one of the best guides we have in determining whether or not there has been destruction of bony tissue around the tooth, and too much importance cannot be placed upon its appearance on the film. In vital teeth and in non-vital teeth that have not been subject to infection or in which the infection has been slight or of short duration, the lamina dura persists as a continuous, fine white line around the tooth and in properly made films is distinctly visible; and where this line exists unbroken it can be quite positively stated that there is no need for extraction, and this without regard to the appearance of the root-canal filling, the vitality or non-vitality of the tooth, or the appearance of the surrounding cancellous bone. This statement is made because it is perfectly obvious that if there has not been sufficient trouble to cause a break in the cortical bone of which the lamina dura is composed, there can be no changes in the surrounding cancellous bone due to an infective process. Such changes as may be observed must be ascribed to some other causes among which may be mentioned trauma and the physiological variations in structure.

Improper technic in the making of dental radiographs is also another source of error, for, while proper exposure and correct dark-room technic are all-important, perfect exposure and development are useless if the angles at which the films are made are not carefully watched.

What then are the indications for extraction, and what logical reasons may be given why all non-vital teeth in the mouth of a patient showing signs of focal infection should not be removed?

First, and this is of primary importance, is a careful, thorough physical examination of the patient, and this examination should include a urinalysis and at least a white and red blood count.

A brief review of the literature shows the following symptoms present in the majority of cases of focal infection:

1. Lassitude.
2. Patient does not feel rested after a night's sleep and tires very easily.

3. A patient will often state, "I have lost my pep," and is unable to work.

4. Blood pressure is almost invariably low unless there is also present some condition which produces high arterial tension.

5. Red blood count is usually low, though not excessively so.

6. Slight anemia and hemoglobin slightly below normal, 70 to 80 per cent.

Some text-books mention a moderate leucocytosis, and all agree on lessened hemoglobin and destruction of red cells.

It has been our experience that in acute and subacute cases there is a slight leucocytosis, but in the chronic cases we have found a normal or slightly low white count. Dr. A. C. Potter, of Minneapolis, states that in chronic cases he has always found a low white count (5,000 to 7,000).

7. The urine almost always contains pus cells and generally a faint trace of albumen. In extreme cases there is lots of albumen.

8. The pulse is usually irritable.

X-RAY EXAMINATION

An *x*-ray examination is absolutely necessary if one is to gain a clear understanding of the condition of any suspected teeth. The possibility of impacted or unerupted teeth should always be considered, for frequently they are found in mouths that contain no dead or non-vital teeth and are often the seat of an unsuspected infection. We do not wish to convey the impression that we consider the *x*-ray infallible, as we realize full well its limitations. In spite of the greatest care mistakes are bound to be made, but we do feel that before a patient is subjected to the irreparable loss of teeth that could have been retained with safety, a careful, conscientious *x*-ray examination should be made. If every other possible source of focal infection has been ruled out and an *x*-ray examination shows a number of suspected teeth, the patient is often best served by sacrificing these teeth even though we may at times be sadly disappointed at the end-results of our treatment. But as the health of the patient is of paramount importance it would be folly to temporize and leave in the mouth teeth of the condition of which we were not quite certain; but it would be equally foolish to remove such teeth before all other known sources of infection had been eliminated.

The final diagnosis should never be based upon the *x*-ray findings alone, but careful consideration should also be given to the clinical history

and the physical and laboratory findings before making a decision. We believe these patients will be best served by a close co-operation between the physician and the dentist, and we should like to urge such co-operation for the mutual good we may all derive from it. In conclusion, we quote from an editorial in the February, 1922, number of the *Journal of The American Dental Association*: "There is in sight the dawning of a better day for those patients who are conjointly served by the medical man and the dentist. In the past, particularly the recent past, much injury has been done through lack of co-operation and consultation in cases of systemic trouble where the teeth were involved, or were supposed to be involved. Too frequently the physician has gone his way regardless of the dentist, and the dentist has gone his way regardless of the physician. This is all wrong, and it is this which is to be remedied—must be remedied. The dentist, in his attitude toward the teeth and their possible relation to systemic disorders must have an open and alert mind, and must leave no stone unturned to eliminate foci of infection in the mouth wherever they are demonstrated. He

owes this to the physician and to the patient. On the other hand, he must not permit himself to be stampeded out of common sense and reason, and submit to the extraction of every suspected tooth in his patient's mouth merely because a physician has ordered them out. Dentists need the greater breadth of vision to be gained by association with physicians whose work takes them into a wider field, and whose daily routine is broader and more comprehensive. And, conversely, when this is acknowledged, it may not be presumptuous or out of place to contend that when it comes to conditions in the mouth the physician should have as much respect for the opinion of the dentist as he demands when the situation is reversed."

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 NOTE:—A number of slides were shown to illustrate points stressed in the paper, after the paper had been read.

PROCEEDINGS OF THE MINNESOTA ACADEMY OF MEDICINE

Meeting of December 13, 1922

Dr. F. W. Schlutz reported a case of intestinal intussusception:

The case I wish to report tonight was seen in consultation with a local surgeon about ten days ago. The baby had been brought to him from out of town for a diagnosis of some acute abdominal condition. It was a six month's old baby, apparently in an extremely critical condition

There had been tremendous loss in weight. Both cornea were completely destroyed by ulceration, and the baby was in a semicomatose condition. The illness had developed rather suddenly about two weeks before. The baby was in perfect health before the illness. The onset was sudden, with some acute pain simulating colic and attended by moderate vomiting. The baby did not seem the same after these symptoms developed, and continued uneasy and occasionally in pain.

About the second day a reddish dark mucus made its appearance, and there was some showing in the passage that indicated the presence of blood. No definite diagnosis was made by the local physician except that he suspected that some acute abdominal condition, most likely nutritional, was present. He came to this conclusion about the fourth day of the illness. All food had been withheld for four days. The baby began to vomit

on the second day and continued vomiting occasionally for the next four or five days. It seemed continually to strain, but had very little stool and no stool after the third day.

Fever developed about the second day. Cathartics were given on the second day, but no stool followed. There was no history of any tumor having been felt at any time. The bloody discharge ceased after the fifth day. The baby continued to grow worse.

On the tenth day of the illness there seemed to be a complete prolapse of the rectum. This continued until the baby was brought in to the city. The infant was practically moribund when seen. Emaciation was extreme, and there was a continual slight grunting effort at straining. The rectum showed an extrusion of about four inches of the bowel. Examination showed that this was bowel and was not a prolapse of the rectum. No tumor mass was felt in any part of the abdomen. The prolapsed bowel could be replaced quite readily. No operative procedure was undertaken that night.

The baby was almost completely dehydrated, as no liquids had been given for the last four or five days. A 5 per cent glucose solution was given by the peritoneal route, and the operation attempted the following morning. A complete intussuscep-

tion was found, and the bowel was gangrenous at the point where the intussusception began, and was apparently in the process of amputation. If the baby had lived this would probably have resulted in a complete expulsion of the intussusceptive portion. There was only a moderate and local evidence of peritonitis. The baby died at noon on the day of the operation.

DR. S. MARX WHITE: Could you locate the point at which the intussusception had begun?

DR. SCHULTZ: It was impossible to do this on account of the gangrenous condition of the tissues, but it seemed to be the usual point of entry of the small bowel into the cecum. The interesting feature of this case to me is the complete extrusion of the bowel, and the length of time the baby lived with so serious a condition present in the abdomen. Usually intussusception cases succumb before the end of sixty or seventy-two hours, unless the condition is recognized early and prompt surgical relief given.

DR. A. SCHWYZER: I think the diagnosis in these cases is not always easy, and still if we have the picture in mind we can hardly mistake it. Not long ago we had one case where the ileum was in the cecum, and the large gut was inverted clear down to the descending colon. This had not lasted very long, and it was not even necrotic. The child got well though the colon burst on disinvagination.

In connection with the treatment I would like to say that a number of methods to avoid reinvagination have been proposed. I had a number of cases, and I make a fixation of the lowest ileum to the ascending colon somewhat like a double barrel shotgun effect. I fastened the ileum for nearly three inches (or two inches according to the age of the child) to the ascending colon; and sometimes we have, in addition, fixed the region of the ileocecal valve toward the promontory, and in this way we have had no reinvagination.

DR. H. B. SWEETSER: This case is of twofold interest. First, because of the effort made by nature to cure the condition by spontaneous amputation of the diseased intestine, in which she almost succeeded. It is also surprising that the child was able to withstand so serious a lesion for so long a time as fifteen days.

The second and much more interesting point is that a diagnosis should not have been made at least by the second day. A history of sudden intense pain in the abdomen repeated, with intervals in which the child is apparently perfectly well, even if the doctor sees him only in these intervals, should make the diagnosis of intussusception very clear.

Much has been said about educating the public in matters medical, but it seems as if the doctors could stand a little more education in clinical signs and symptoms.

I was interested also in the statement that the child was allowed to go for five days with practically no fluid and was markedly dehydrated. This

neglect to supply fluid is a serious oversight in any case, and not infrequently is the principle cause of the threatening symptoms. Several months ago I was asked to see a child seven days old who was supposed to have obstruction of the bowel. The child had vomited a great deal, and no effort had been made to supply water except by mouth. The temperature was 103°-104°, and the baby was much emaciated. The x-ray did not show obstruction, and water given subcutaneously and intraperitoneally promptly resulted in improvement and eventual recovery.

Dr. L. C. Bacon reported a case of perforated chronic ulcer of the stomach.

A business man of seventy-four years of age, still in active life and of vigorous make-up, ate his usual dinner a few days ago, and a few minutes afterwards experienced some pain in the left hypochondrium. The pain gradually increased through the night. I saw him the following morning and found his temperature slightly subnormal; pulse of fairly good character and about 100 per minute.

Physical examination was negative except for marked rigidity and tenderness of the left hypochondrium. He stated that he had never had any stomach trouble and that he had been feeling particularly well for several days, but had taken a dose of compound licorice powder the night before, which had caused several evacuations of the bowels.

I advised an enema, and gave one-eighth of a grain of morphine hypodermically, but without relief. He was sent to the hospital, and an attempt was made to pass a stomach-tube, but this could be inserted only to about the cardiac orifice. As the patient was rapidly growing worse it was decided to operate under the opinion that we were dealing with a perforated ulcer or obstruction from unknown cause. While being moved to the operating-room the patient suddenly became cyanotic, and his pulse mounted to 150. A hypodermoclysis was given, and an incision, under local anesthesia, was quickly made through the left rectus. Upon opening the peritoneum gas and gastric contents escaped, and the tremendously distended stomach protruded. The distention had caused a rotation of the stomach and a valve-like closure of the cardiac orifice. There was a perforated chronic ulcer on the posterior wall of the stomach near the greater curvature and nearer the cardiac than the pyloric orifice. The patient's condition was so desperate that no effort was made to close the perforation, but drains were placed, and the stomach distention was relieved by means of a catheter passed through a purse-string suture. With the relief of tension the pulse dropped to the neighborhood of 100, and the patient was returned to bed. Death ensued in a few hours.

The history of no previous stomach trouble and the gradual increase of pain made diagnosis difficult in this case.

Dr. Angus Morrison read his thesis entitled "Mental Hygiene and Our Universities."

Discussions followed by Drs. Herbert Jones, Corbett, White, (S. M.), Cross, Bacon, Ramsey, and Dr. Morrison, in closing.

DR. HERBERT JONES: I think the Society ought to thank Dr. Morrison for bringing up this subject, which is out of the usual line of our discussions. It certainly ought to be interesting for a body of this kind. There has been during the last few years a great tendency to govern health along public lines. This phase is probably the last one to be taken up by the State health authorities.

The greatest danger I see in it is the untrained or poorly balanced instructor examining students and trying to judge the student's mental condition without sufficient basis. I can look back and see in my class at school that a good many students who were regarded as poor students have made good, and a large number of those who were valedictorians and Phi Beta Kappas were never heard of afterwards. That is, the scholars who conformed to the wishes of the professors were given high marks, while some nondescript student—a mere private in the ranks—came forward in after years and made a good record. It seems to me there is the danger in letting the college professor say who shall be admitted to the special course.

As the world progresses the ability to think clearly and to control one's mental activities are going to be the important things in the world, and certainly they need the attention of our universities.

DR. J. FRANK CORBETT: I should perhaps hesitate to discuss this problem, but it seems to me that our consideration of mental hygiene in the University comes too late to benefit the individual very materially. The early years of a child are the important ones, and if this education has been neglected we may not hope to correct much of this deficiency that may develop during the college years.

In our present educational methods are the requirements such as to develop a strong mentality? Personally, I feel that the children of the present generation are missing many things that the former generation had the advantage of. When we started to school we were taught the alphabet; we were taught to spell correctly; we were taught to figure correctly; and one who did not accomplish these things did not advance any of his educational career. Today go into the University and see how many students can spell correctly? How many can write; and how many can figure the simplest problem? I think we should go back some in our educational system and correct these things. It is not merely a matter of selecting individuals to environment, but to develop the great majority of individuals so that they may master these environments. Our educational system should be one of development and discipline of the individual.

DR. S. MARX WHITE: The lines which the discussion has already taken illustrate the breadth of the subject Dr. Morrison has brought up. It might

lead into the education of the child and the practicability of educational methods in our institutions of learning.

Dr. Morrison's paper, as I take it, would bring up the question of mental hygiene for students, making it a common property of the university student, and would bring up also the question of the early discovery of aberrations which, I take it, was also one of the subjects which Dr. Morrison was discussing. I shall limit my discussion to that portion of the essay.

Just as in our movements toward better health conditions in all lines, the so-called "Students' Health Service" is already making headway in the early discovery of infectious diseases among students, and, I believe, successfully controlling epidemics better than they have ever been controlled in the past, and in that way contributing to better health in the student body. Just so, a study of the mental problems which confront the student is of benefit to the student body.

We are definitely in the period of infancy in mental hygiene. One interesting phase of that was brought out by the study made in recent years of entering students in the Medical School. An effort was made to study the applicant for admission so far as mentality tests were concerned. It is believed now by those who were interested in it at the time that those mental tests did not adequately test the student for the work he was intending to follow. We realize that the best tests are those which are determined by the history of the individual, which study his reaction to his normal every-day life. The tests of cardiac function which make him step up on a chair ten times and then measure his pulse rate and blood pressure, taken in the office, seem to have many sources of error. Just so the mental test may have a good many sources of error, such as the physical condition of the student at the time the tests are taken, and other sources difficult to evaluate.

The kind of study which the essayist has proposed seems to me to be one which has a real field. The proposal to have in connection with the Students' Health Service an individual thoroughly trained in the study of the mind who shall confer with, and study out the problems of, the student, is a good one. Such an expert student of the mind should be delegated to inquire early into the difficulties of those students who are having them. I believe this would be productive of a very great advance because as a long-time teacher I have seen instance after instance in which, if a student could have been advised early about his whole life and its difficulties, it would have gone far toward helping in the adjustment. There is a fairly large number of people who are entering our institutions of higher learning and who fail to secure the best that can be given by the institution. Mental hygiene properly directed and applied in this one field alone would more than justify any expense involved.

DR. JOHN G. CROSS: To me the most interesting feature of Dr. Morrison's paper was the response,

or lack of response, to his questionnaire, showing the lamentable lack of the sort of thing which he has proposed. He ought perhaps to have defined mental hygiene to these deans and professors.

Dr. Corbett spoke of the need for very early training. I think he might have gone a good deal farther than that. From the standpoint of a mere doctor it has seemed to me that at the university age, or even the graduate-school age, development does not take place in such a degree in people of mature age that any hard-and-fast line can be drawn which will take the square man out of the round hole and tell him just where he ought to be. If Dr. Morrison includes in this the expert advice which would adjust his mental environment and allow him to exercise his real ability, it might result in very great good.

I was reminded of two exceptions. One of our State Senators, when a boy, applied for a job in a dry-goods store to a very acute man—a man who was a good judge of men. The applicant was sixteen years old at the time and wanted to go into the store and become a merchant. The man talked with him for a while, and then told him he better go back to the farm, that he would never be a good merchant.

The second exception was a classmate of mine. He came to the University a very quiet fellow interested deeply in scientific work and not in other things very much. He did not speak good English and did not talk very much, anyway. The instructors did not rank him very high. He is now a highly cultured man. He has taken his place in social circles in Boston to a degree that is to be emulated, in addition to occupying an enviable place as a research chemist and teacher.

Dr. Morrison refers to an expert who is able to go farther in foreseeing the capacity of the man of university age than we have dreamed of. These things are so broad in their application that it is certainly stimulating to hear about them. I cannot as yet see, except as separating out those of incurable mental aberrations, how it is going to work out. But if it saves one man from the wrong track it is a good thing. If, in addition to that, he can prescribe the change in mental attitude it is desirable.

Dr. L. C. BACON: I have listened with much interest to Dr. Morrison's valuable thesis and its discussion, and the following anecdote will emphasize the necessity for thoroughly qualified individuals to administer departments of mental hygiene and make deductions therein. Dr. Vaughan once told me that in the early eighties a well-known physiologist came to the University of Michigan and was asked by Dr. Vaughan to form an estimate of the capacity of the senior class. The first three men sent up were reported back in uncomplimentary terms as unfit for the field of medicine. One was Dr. W. J. Mayo; one, our Brainerd friend, Dr. Courtney; and one was a distinguished eastern man—I am not sure of the name. The notable careers of these men coupled with the eminence of the physiologist would suggest that there are many factors in the mental processes of young

people which cannot be "measured by rule of thumb."

Dr. W. R. RAMSEY: I think Dr. Richard Smith, of Boston, made an interesting experiment in a boy's school. He made a careful study of the physical condition of the students, with the result that two or three of the boys at the foot of the class were soon transferred to the head of the class. He at least demonstrated the effects of the physical health upon the mental condition.

Dr. MORRISON (closing): The subject is a perfectly enormous one, and after I got started on it I was appalled. The paper was more of an effort to find out if we could make a further study and how it might best be done.

As Dr. Corbett has mentioned, the ideal time for mental hygiene is in early childhood. But there are many children who carry along all right at home, and do not break until thrown on their own resources, and I think that they should have an opportunity to turn to some one who could give them the proper advice. I have talked with two or three friends who have been to different colleges. One told me that what saved him was having some very good upper classman friend who straightened him out. Other cases need more profound advice.

Dr. Jones brought out the fact that some Phi Beta Kappas did not make good. They made good in their studies in college; why not out in the world? That is what we would like to find out. According to army reports there are great numbers of people who are unable to go beyond the fifth grade, but the men and women who are going to college have a better mentality. If some of the men and women who are particularly brilliant are failures, why are they failures? Dr. Paton brought up this question of mental hygiene in the universities at the last American Neurological Association meeting. About half of those discussing the question saw great difficulties in its practical application, while others felt that some attempt should be made to introduce it. Personally, I feel as if I really know very little about how we should approach this work.

Why not do some further investigating in the universities to see whether this work is really needed to be carried on there?

The trouble with many of us is that we avoid facing certain facts. Some of the men coming back from the World War developed marked nervousness. They had been through periods of extreme danger, and had seen things, heard things, and done things which they wished to forget. Instead of adjusting themselves, that is, facing these facts, they suppressed these disagreeable thoughts. As a result they were restless, could not sleep, and had bad dreams. They had not faced certain things which they had to face. One must face a situation, and adjust himself to it. When you adjust yourself to a situation it does not trouble you any longer. It is the situation which is not faced squarely and the thoughts which are repressed that trouble us.

THE
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Minnesota, North Dakota, South Dakota and Montana

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SCIENTIFIC PROGRESS

It is gratifying to note that much progress has been made in various departments of science which are very worthily recorded in a recent issue of *The Minneapolis Journal*. The advances made in this work are grouped under different headings, and, very naturally, the most interesting ones are those which pertain to medicine. Some of the findings are not, perhaps, as accurate as one might expect, and some of them are probably entirely untrue.

The first one made note of under medicine is a common chemical, carbon tetrachlorine, which has been found to be useful in the removal of hook-worms in man and is evidently expected to replace chenopodium and thymol. This drug may be used also for the elimination of other gastrointestinal occupants of various types,—and why not for gastro-intestinal infections in which the type of infection is unknown? At least it seems to be harmless, and may come into more general use for many things.

German chemists announce that they have perfected a drug, Bayer 205 (sounds like an advertisement), that is supposed to cure the African sleeping-sickness, caused by the tsetse fly.

Another important line of experimentation is derived from the extract of the pancreas. This substance, which is called "insulin," is very much used in diabetes, and under this method of treat-

ment the sufferer is supposed to use a larger variety of food and less rigid diet. This discovery, however, is still in the early stage of development, and, although it has been used on a number of typical sugar-diabetics, the final outcome is not yet in sight. It seems, too, that the use of insulin must be continued for an indefinite period. It is commonly given hypodermically from two to three times a day. The reports so far are that diabetic patients may be kept sugar-free while the medication is continued, but when it is discontinued they are quite apt to return to sugar production. This should not deter one from carefully investigating and using insulin if it can be done under proper guidance. There is some danger, however, that a few people are susceptible to an anaphylactic state, but no one can tell anything about that in advance. People sometimes die suddenly from a dose of diphtheretic antitoxin. Unfortunately, insulin is manufactured in only a very few places in this country. Toronto seems to have been the objective experimental station. The substance is now being produced in other places, and the University of Minnesota has been producing it on a small scale. If all the diabetics wanted insulin used, the supply would not equal the demand. There is danger of this becoming commercialized by unscrupulous experimenters, and some of the newspapers have given credit to the use of pancreatic extracts employed by quacks. It is rather amusing to learn that an insignificant hospital, without standing in the community, can get into the press by simply stating that they have transplanted pancreatic-gland substance under the skin of a diabetic who has recovered within a few weeks. All this is unscientific nonsense, and the newspapers should be made aware of the fact that this is not scientific medicine.

There seems to be no question but that diseases of the present day may have been quite as prevalent 4,000 years ago, and it has been declared that an Egyptian mummy has disclosed to the scientific world evidence of such diseases as infected teeth and caries of the ethmoidal cells and infections involving the skull and brain. The world may be many thousands of years old, perhaps millions of years, and it is quite likely that some of the same diseases existed at the beginning of time as exist at the present time. It has been declared, too, that a minute ameba (a single-celled animal) has been found in bone marrow and has been responsible for joint rheumatism or arthritis deformans. This discovery may

be important from a pathological point of view, but what is to be done about it? If direct sunlight, unimpeded by glass or clothing, will stop tuberculosis or rickets, perhaps it may have the same effect on these newly discovered amebæ.

ENCEPHALITIS EPIDEMIC

Most physicians are loathe to believe that a serious form of encephalitis from influenza would come at this season and in this year, but evidences are strong and sufficient cases have been noted so that it seems very likely that we are to have more of the type of encephalitis that scourged the country in 1918 and 1919, as well as later. For a year there were few, if any, cases of typical influenzal encephalitis reported. Now they are very much in evidence,—the typical forms, beginning with a rise in temperature, exhaustion and lack of strength and energy, sometimes accompanied by a furious cold of the coryza type involving the throat, the nose, and the sinuses; in other instances the attack seems to have been expended upon the mucous membrane of the intestines. Fortunately, the majority of these people improve in one or two weeks, and perhaps the larger majority of them make a very good recovery. But a sufficient number of cases have remained to make us pause and speculate as to why a typical encephalitic condition should mark the approach of 1923.

Again, the question comes up as to just what we are dealing with,—whether it is a specific infection with a focal lesion, or whether it is a general infection which breaks out in various foci and burns itself out and disappears only to rehabilitate itself in some other lesion. For one thing, we may be duly thankful that the serum idea has not been so conspicuous, showing that the profession has finally awakened to the fact that we know so little about the form of infection that we know still less about the anti-serum. Then, again, comes the problem of diagnosis. Many cases can so easily be slipped into the diagnostic envelope as encephalitis which may be either a polio-encephalitis forming the brain-tumor complex, or the lesions which commonly involve the cortex, and a further type which Dr. J. C. McKinley has called attention to, in which the patient suffers from a chain of symptoms which ultimately become a typical form of paralysis agitans. Here he finds the lesion involves the midbrain, either the caudate or the lenticular nuclei, the thalamus, and the red and black bodies

lower down in the brain. These findings have somewhat changed or, at least, modified, our idea of encephalitis, particularly when the lesion lies in the nervous system.

Then comes the question of what to do for these people, and at present we are ill at ease because there is no specific remedy, neither can we distinguish the individual who may develop a simple form of influenza from the individual who may develop a very serious type; consequently, in order to protect the victim as much as possible, everyone who has a cold of reasonable magnitude should be put to bed and kept there until he gets well enough to remain well. This all sounds very well in print, but, as a matter of fact, the majority of people who have any sense at all go to bed for a day or two and then get up and do some outlandish thing and wonder why they have a relapse. Therefore, if one can afford it at all, either from a time or professional point of view, he should go to bed and remain there until he gets well, and thus do everything possible to avoid an encephalitic attack. So far, no remedy has been of very great benefit. Experimenters have given intravenous injections of urotropin in large doses, and it is reported that, in occasional instances, the continuation of it has relieved the situation; but even that is not very satisfactory, as some of these patients get better without urotropin or anything else. Others have reported on the use of quinine in which they get great relief. But, if one considers the real pathology of a real encephalitis, there is no drug that reaches the spot. Rest and time will do more than anything else.

HEALTHY INDICATIONS IN GUBERNATORIAL ADDRESSES

On January 3, 1923, Governor R. A. Nestos delivered his message to the North Dakota State Legislature. Literally tucked away in an obscure corner of the message was this admirable boost for a State Department of Health, so sorely needed in North Dakota:

Closely related to this report [Children's Code Commission] and to the proposed rearrangement of the regulatory measures of our state is the question of the conservation and promotion of the health of our people, and I sincerely hope that you will give to this problem your serious consideration in order that our state may take its place among the best in the Union in legislation and administration designed to promote the conservation of the people's health, the control and elimination of communicable diseases, and the spreading of the

gospel of good health among all of the people of our state. An appropriation to enable the state to take advantage of the Sheppard-Towner Act should be made.

Almost simultaneously Governor Alfred E. Smith, of New York, in an article, "Goals of Government," in the January 1, 1923, number of *The Survey*, expressed the opinion that an efficient State Health Department is a distinct governmental need. Said Governor Smith:

To carry out the functions of the State in relation to its dependent charges, a humane program for the proper development of our splendid system of institutions and increasing the facilities of the State Health Department must go forward. While such a program has to be viewed in the light of the financial resources of the State, doing justice in its fullest measure to our institutional charges on the basis of a carefully planned program that without extravagance still gives proper care, will never be a cause of complaint on the part of the tax-payers. The highest efficiency of our state hospital and the Health Department is a goal worth working for.

These independent observations by the governors of two great states upon health needs are of peculiar interest to public health workers. In North Dakota a bill will be introduced in the legislative assembly, making provision for a living, functioning, and result-producing State Department of Health. In reaching a decision as to the justification for such an organization the legislators may well be guided by the advice of Governors Nestos and Smith.

CORRESPONDENCE

WITHIN THE LAW

TO THE EDITOR:

Progress, it seems, has an unwitting way of outgrowing the statutes. This is certainly true in relation to the granting of Minnesota's State medical licenses. The development of medical science in the past fifteen years, and particularly that in the State of Minnesota, has taken place by leaps and bounds, until Minnesota with its medical opportunities now looms up as the medical mecca of the world. In Minnesota the present legal requirements for a medical license, as it has been in the past years, is that the candidate shall have attended a medical school for four years. If the candidate passes the examination he is given a state license, which admits him to all the rights and privileges of a phy-

sician and surgeon. An M. D. degree is not required on the part of the candidate for a state license, nor is even mention made of an internship or its equivalent. In short, the legal requirements are most meager,—a mere jest as compared to the hard-earned medical degree. Any medical student wishing to take advantage of this inadequate legislation obtains the same legal protection and sanction by means of his license as does the candidate who completes all the requirements for his medical degree. The senior medical student is permitted to write the Minnesota State Medical examination during the first part of June, while about two weeks later he completes his final senior medical examinations. He may fail in some of his senior examinations, but may pass the State Medical examination. His license makes this same person, in the eyes of the law, as fit a candidate for the practice of medicine as the student who has passed both his final medical and state examinations; completed his internship; and finally been awarded his M. D. degree. On the other hand, a senior medical student may not write the State Medical examination until he has completed his medical work; served his internship; and, finally, been awarded his M. D. degree. He may then write the Minnesota State Medical examination, but may fail. Such a man, in the eyes of the law, is less fitted for the practice of his profession than the man who has obtained his state license, but not his M. D. degree. The candidate with the state license and not his M. D. degree has the full protection of the law, while he with the M. D. degree and no state license is barred from the practice of medicine.

Before I was permitted to write the North Dakota State medical examination I had to show my collegiate, medical, and internship credentials, while no inquiry was made regarding my Minnesota State license. Isn't such a requirement of a more admirable standard? Should not Minnesota, with its world-famed medical facilities, come up to such a standard of requirement of its candidates for the State Medical examination?

J. J. HEIMARK, M. D., (Minnesota, 1920.)
 Fargo, N. D., Jan. 20, 1923.

ANSWER BY THE EDITOR

On the face of it this statement of our correspondent is that Minnesota long ago adopted, and still maintains, low requirements for license to practice medicine in the state; while, on the contrary, no other State in the Union has adopted more rigid

requirements, and this fact is familiar to all who have taken or know anything about our examinations.

It is true that the law does not demand a diploma. It does, however, demand the full term of four years at a medical school, and expressly states "at a medical school recognized by the Board." The Board also demands of graduates of 1912 and thereafter, in addition to the four-year high school course, two years in a college of arts and sciences recognized by the Board.

The standards of the Board have always been of the highest, and are recognized by all of the Boards of the United States; and the educational requirements are left entirely in the hands of the Board.

It has been the custom to permit examination to the seniors of the University of Minnesota Medical School at the June examination, who have been certified to the Board by the proper University authorities as having fulfilled the requirements and recommendation that examination be granted. This is for the accommodation of the applicants, as, under the law, the examination takes place the first Tuesday in June, and no further examination is held until the first Tuesday in October.

The standards have been kept up to the highest and recognized by the National Board of Examiners, and have never under any circumstances been lowered.

In the thirty-five years since the passage of the law, it has worked perfectly, and the provision of the law giving the Board the power of recognizing schools has been a lever which has been used in a number of cases to force a number of schools to a higher grade.

MEDICAL CONDITIONS IN VIENNA

TO THE EDITOR:

In regard to conditions and work in Vienna, here are the main things I have found in my experience in November and December, 1922: Living expenses have been gradually on the increase for some months, and it is the same with every thing you want to buy in Vienna. In spite of this, however, everything costs only about one-half to two-thirds of what we pay in Minneapolis.

One receives 70,000 kronen for an American dollar. The exchange rate has been fairly stable for some time, fluctuating a few hundred kronen around the 70,000 mark.

At the hotel Hammerand or the Regina, both very near the Krankenhaus, one can get a good room for 45,000 to 60,000 kronen per night, if one stays a week or longer. At some of the restaurants a good meal can be had for 25,000

kronen. At the hotels a good meal comes higher, about 35,000 to 45,000 kronen. Butter is very scarce and expensive. Milk is seldom served, as most places have only enough to serve with coffee. If one stays at a pension (boarding house) he can live for considerably less.

Most Americans are under the impression that there is extreme suffering in Germany and Austria. It is true that there is suffering, and hardship in some instances, but this is not a general condition in either Germany or Austria. The average American doctor who is in Vienna is amused every time he reads of money donated to the poor of Austria. Many of them feel the more we do for them the less they will do for themselves.

The American Medical Association of Vienna is well organized. The life membership fee \$5.00, and monthly dues \$1.00. Courses are posted in the rooms of the Association at No. 21 Spitalgasse. There is plenty of excellent work to be had in all branches at all times. With one or two exceptions courses are given in English. The professors' charges for teaching range from \$3.00 to \$5.00 per hour. Classes are generally limited, depending on the kind of course. Operative work on the cadaver is limited to two men as a rule, and costs \$3.00 per hour. The two men, therefore, share the expense. Many courses are limited only to 10 or 15 men, and then the expense to each man is cut proportionately.

Endoscopy costs \$5.00 per hour for two men. As a rule the men there are pleased with the work in spite of living conditions not being as good as before the war. Americans are well liked in Vienna. When I left there were only about 80 men there, and half of these were doing eye, ear, nose, and throat work.

One hears stories about work in Berlin and Prague being better in some subjects than at Vienna; but Vienna is still the mecca for postgraduate work in Europe. The future of Vienna for postgraduate work depends on American doctors. Discouraging stories keep many away. The work, the material, and the teachers are there. While living and general expenses are higher than they used to be they are considerably less than in the United States.

Yours truly,

ARCHIBALD W. HOWE, M. D.
Minneapolis, Jan. 25, 1923.

BOOK NOTICES

THE SURGICAL CLINICS OF NORTH AMERICA, (Issued Serially, one number every other month). Volume II Number IV (Boston Number, August 1922) 270 pages, with 107 Illustrations. Per Clinic Year (February 1922 to December 1922). Paper \$12.00 net; Cloth \$16.00 net. Philadelphia and London: W. B. Saunders Company.

The present number is full of surgical advice. Mistakes in surgical procedure are frankly admitted by various authors. Finally we are told how to avoid these errors in technic, etc., cases are cited in detail; history, examination, and treatment. Many clear-cut illustrations serve to explain the text. Such subjects as "Certain Phases of Surgery of the Hand," "Knee Lesions and Operations Based on 100 Personal Cases," and "Acute Pancreatitis" are but a few of the most interesting list tabulated in the index.

—E. DEWITT SIMPSON, M. D.

NEWS ITEMS

Dr. S. R. Walker has moved from Mitchell, S. D., to Armour, S. D.

Dr. Henry Takacs has moved from Taylor, N. D., to Warm Springs, Mont.

Dr. Baldwin Borreson, of Bemidji, was married last month to Miss Alice Graves, of Duluth.

Dr. Frank Lynam, of Duluth, has resumed practice after several months' absence from his work.

Dr. C. L. Scofield, of Benson, was re-elected president of the Minnesota State Board of Health last month.

The North Dakota State Medical Association will hold its next annual meeting in Grand Forks on May 31 and June 1.

Dr. Maurice W. McInerney, of Minneapolis, was married last month to Miss Elizabeth Marshman, also of Minneapolis.

Dr. Morton T. Johnson, who has been studying in Europe since August 1, will return home the latter part of this month.

Dr. C. R. Sanborn has moved from Bemidji to Minneapolis, and has offices in Suite 500, Physicians' and Surgeons' Building.

North Dakota has one lone physician in its legislative halls this winter, Dr. W. H. Porter, Senator from Cavalier County.

Dr. K. A. Zetlitz, of Sioux Falls, S. D., was elected a director of the Sioux Falls Lutheran Hospital of that city last month.

Dr. L. M. Boyd has been appointed health officer of Alexandria to succeed Dr. R. E. Swanson, who recently moved to Minneapolis.

Dr. L. R. Critchfield, of Kenmare, N. D., will spend the year 1923 in postgraduate work in pediatrics at the Children's Memorial Hospital of Chicago.

The new addition to St. Joseph's Hospital, of Brainerd, which will increase the bed capacity from 40 to 65, will be ready for occupancy on the 15th inst.

Dr. A. D. Haskell, of Alexandria, head of the committee of the Kiwanis Club, which is working for a community hospital, has made a favorable report to the Club on the project.

Dr. Asa W. Daniels, who was one of the early pioneer physicians of Minnesota, practicing many years in St. Peter, celebrated his 94th birthday in Pomona, Calif., on Jan. 15.

Dr. P. A. Nestos, of Minot, N. D., has gone to Europe for study. He will spend most of his time in the surgical clinics at Vienna, Paris and London. Dr. Nestos was accompanied by his wife.

Dr. Archibald W. Howe, of Minneapolis, has returned from Europe where he went to do eye and ear work in Vienna. A letter from him on the conditions in Vienna will be found on another page.

Two Government experts, Drs. Clark and Culp, who have been examining the trachoma situation in Minnesota, have reported to the State Board of Health that the disease is a menace to the State.

Dr. Samuel George White, who formerly practiced in Minot, Leeds, and Ambrose, N. D., recently died at Hodgeville, Sask., at the age of 45. Dr. White was a graduate of Laval University of Quebec.

Dr. Frederick H. K. Schaaf, of Minneapolis, announces his withdrawal from the Nicollet Clinic. He will limit his practice to internal medicine and has offices at 601-606 Donaldson Building.

Dr. John Haskins, of Morgan, has taken over the practice of the late Dr. J. G. Phillips at Northfield. Dr. Haskins graduated from the Medical School of the University of Minnesota in the class of '16.

The Davison Hospital building of Willmar has been remodeled and redecored, and new apparatus has been purchased. The hospital will be

conducted by Drs. P. C. Davison, E. H. Frost, and R. J. Hodapp.

The City and County Hospital of St. Paul is asking for \$450,000 for an addition to the hospital to provide 300 more beds. A request from Dr. Ancker for funds to meet an urgent need cannot be easily denied.

Dr. Virgil G. Schwartz, of Minneapolis, who is now in Vienna doing special eye, ear, nose and throat work, will soon go to Budapest, Hamburg, Berlin, Paris, and London, returning to Minneapolis in the spring or summer.

The Graceville Hospital is making an addition to its building to increase the hospital capacity by ten beds. This hospital has paid its stockholders a ten per cent annual dividend since its establishment, in 1914, with the exception of one year.

The Harvey Hospital at Jamestown, N. D., has been closed by the Clinic that conducted it. This Clinic is composed of Drs. Golseth, Holte, Titzell, and Morsman. The action seems permanent as the hospital laboratory apparatus is offered for sale.

At the annual meeting of the Nicollet-LeSueur County Medical Society the following officers were elected: President, Dr. F. W. Behmler, Lafayette; vice-president, Dr. Erickson, LeSueur; secretary, Dr. J. E. LeClerc, LeSueur; treasurer, Dr. F. P. Strathern, St. Peter.

Dr. F. E. Harrington, Health Commissioner of Minneapolis, appeared before the Board of Education last month to urge that every pupil in the public schools be given proper physical exercises and health education. The subject was referred to the Superintendent of Schools for investigation and a report.

Dr. Myron O. Henry, who graduated from the Medical School of the University of Minnesota, class of '20, has become associated with Dr. Emil Geist, of Minneapolis. Dr. Henry has just completed a two-year course of postgraduate work with Dr. Lovett in the Massachusetts General and the Children's Hospitals of Boston.

The Community Hospital of Richmond, with a capacity of eight beds, has had a daily patronage of five patients for the past fourteen months under the management of Dr. E. K. Pfaff. It has paid all expenses, in addition to paying over fifteen hundred dollars for improvements. It is maintained in first-class form, employing two nurses, a cook, a laundress, and a janitor. This shows that a community hospital can be made to pay.

At its annual meeting in Pierre, S. D., last month, the South Dakota Historical Society unveiled a portrait of Dr. Leonard C. Mead in commemoration of his service to the State during his many years' labor as superintendent of the State Hospital for Insane at Yankton. Dr. Mead made an international reputation by his psychopathic work at Yankton.

The following physicians were licensed last week to practice in North Dakota: Drs. William E. G. Lancaster, Abercrombie; Joel C. Swanson, Clifford; Kenneth K. Kinney, Beach; Arthur L. Jacobson, Rugby; Lewis Gryte, Crystal; Otto M. Husted, Marmarth; John L. Lee, Wahpeton; Robert W. Henderson, Bismarck; Henry D. Benwell, Winnipec, Man.

The Chiropractors of Minneapolis have declared war on the medical examining bill which is sponsored by the Minnesota State Medical Association. The nub of the objection is that the bill requires some education of the man who may hereafter practice medicine or a cult in Minnesota. The bill is called by the opposition "class legislation," while it is designed only for the education of a class.

A tuberculosis clinic was given in Sioux Falls, S. D., on Jan. 15 to 17, at which several well-known specialists appeared. They were Dr. Peck, head of the Iowa Tuberculosis Association; Dr. Woodworth, of the Custer (S. D.) Sanitarium; and Dr. Katz, of the National Tuberculosis Association. These experts were assisted by the following local men: Drs. R. W. Mullen, W. E. Donahue, E. I. Perkins, and J. B. Gregg.

St. Paul Clinic Week, in its third annual meeting from January 9 to 12, clearly demonstrated the value of such an annual gathering. The attendance was good, and the interest manifested by the visiting physicians showed their appreciation of the vast amount of work required to maintain the high standard of the scientific programs through four days, in addition to entertainments for both visiting physicians and their wives.

Dr. I. G. Wilttrout, of Oslo, is experimenting with a new form of vehicle. He purchased of the Government an air plane, cut off its wings, and substituted skis for its wheels. The machine will go 40 miles an hour and jump low fences with snow on the ground; but it will turn over so often that it is uncomfortable. It has served Dr. Wilttrout in his field work, in northern Minnesota, to make calls which could hardly be made in any other way.

Three bills in the interest of public health were introduced in the North Dakota Senate last week. The principal bill provides for the reorganization of the State Board of Health, making it modern and effective by giving it both the power and sufficient funds to do something. Another bill provides for the acceptance of and action under the Sheppard-Towner bill; another provides for a preventive sanatorium for children with, or threatened with, tuberculosis.

A correspondent writes as follows: "Among the news items of the October 1, 1922, issue of THE JOURNAL-LANCET there was mention of an article, "Climate," written by Dr. James Grassick, editor of the *Pennant*, which is the organ of the North Dakota Anti-Tuberculosis Association. After setting forth the exceptional advantages of North Dakota climate for both the sick and the well, Dr. Grassick concludes, "Ye canna beat it." Dr. Grassick has just left North Dakota for his annual pilgrimage to California.

The seventh annual clinic session of the American Congress on Internal Medicine will be held in the amphitheatres, wards, and laboratories of the various institutions concerned with medical teaching at Philadelphia, Pa., beginning Monday, April 2, 1923. Practitioners and laboratory workers interested in the progress of scientific, clinical and research medicine are invited to take advantage of the opportunities afforded by this session. Address enquiries to the Secretary, Sydney R. Miller, President, Baltimore, Md.

Physicians visiting Minneapolis will always receive a cordial welcome to the staff meetings of the Lymanhurst School for Tuberculous Children, which is a public school and is attracting wide attention by its methods. Its staff is composed of voluntary workers, and all are specialists of high attainments. At the meeting on Feb. 13, Dr. H. Longstreet Taylor, Supt. of the Pokegama Sanatorium and Chief of the Tuberculosis Service of the St. Paul City and County Hospital, will speak of "The Tuberculosis Crusade in Minnesota." Subsequent programs will be given in later issues of THE JOURNAL-LANCET.

We were in error in stating in our last issue that the controversy between members of the Brown-Redwood County Medical Society and the Minnesota State Medical Association was settled in a recent ruling by the Supreme Court, the Association being upheld. The action was in the District Court of Ramsey County, and an appeal to the Supreme Court may be taken. A correspondent informs us that all reports concerning

this controversy are wrong, and he tells us "the truth, the whole truth, and nothing but the truth" about it, and then adds: "This is not for publication." We are therefore compelled, by newspaper ethics, to suppress "the truth."

FOR SALE

On account of closing hospital, we offer for sale Scanlon-Morris, high pressure, steam sterilizers,—one for instruments, one for utensils, hot and cold water and autoclave, in battery form on pedestals. One "White Line" porcelain top, operating-table with attachments, One Gendron, rubber-tired, invalid chair with two-piece, divided, adjustable leg rest and with propeller.

These are all high class and the best of their kind, in excellent condition and will be sold at the right price. Address, Box 556, Jamestown, N. D.

PHYSICIAN WANTED

Good territory and splendid opportunity for a doctor who wants to make good. For particulars write the Dent Commercial Club, Dent, Minn.

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An experienced x-ray technician, thoroughly familiar with bone-work and who can give the highest city references, desires work in this line. She is also a registered nurse. Address 322, care of this office.

POSITION WANTED

By a young woman who has taken two years of nurse's study and work in a hospital and has had two years in a doctor's office. Will begin work at \$15.00 a week. Address 317, care of this office.

OPTICAL TRIAL CASE WANTED

I desire to buy an optical trial case. It must be subject to examination. Quote price. Address J. F. Brenckle, M. D., Kulm, North Dakota.

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By a woman who has had two and a half years' experience in a large clinic. Will work with a dentist, an eye, ear, nose and throat man, or a surgeon, preferably in the Twin Cities. Address 315, care of this office.

NURSE FOR HOSPITAL WANTED

A small up-to-date hospital in a South Dakota town wants a nurse who can give anesthetics or act as surgical nurse. German-speaking preferred, but not necessary. Enclose your photograph and state your age and year of graduation. Town of 1200, with five churches, Catholics predominating. Salary, \$100 a month and maintenance. Address 318, care of this office.

POSITION AS TRAVELING COMPANION WANTED

By a practical nurse you can give the highest references. Address 325, care of this office.

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By a woman experienced in anesthesia and laboratory work, and can keep books. Has had two years city office experience. Last position was as superintendent of a hospital. Address 324, care of this office.

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PATHOGENIC PTOSIS OF THE RIGHT COLON*

BY E. P. QUAIN, M.D.

BISMARCK, NORTH DAKOTA

The intestinal mesentery undergoes a twisting movement in early fetal life, during which movement the right colon, for example, the cecum, the ascending colon, and nearly half of the transverse colon, travel from left to right across the duodenum and toward the right kidney. According to most of our text-books the normal location for the hepatic flexure is in front of the right kidney and near the right border of the liver. It is a fact, however, revealed by fluoroscopic examination and by surgical inspection, that the hepatic flexure in very many individuals has failed to rotate sufficiently far to the right to become fixed by the phrenocolic ligament in the classic situation just mentioned.

For the purpose of determining the position of the hepatic flexure in healthy individuals a series of fluoroscopic examinations with barium meal was carried out by my associate, Dr. V. J. LaRose, on twenty-five undergraduate nurses, all with normal gastro-intestinal functions. The interesting findings were that more than half of them had an abnormally low right colon. Two of these young women who had never suffered from constipation or other abdominal symptoms, had the hepatic flexure very near the anterior superior spine of the ilium and the cecum resting in the pelvis.

While many individuals may go through life without serious consequence from an abnormal

descensus of the right colon, others are not so fortunate. Given an individual with a certain degree of congenital coloptosis which does not cause any marked disturbance during childhood, then add to this individual during early manhood or womanhood the hard stress of physical toil without sufficient rest, irregular habits in dietetic and physiologic demands, poor health from any cause, and repeated child-bearing (for the majority of the patients are women), and symptoms and complications are very likely to attend the ptosis.

In order that the fetal colon may rotate in a semicircle about the upper abdomen, it is necessary for it to have a fairly long mesentery. If the embryonic mesocolon fails to reach to the right border of the liver, or if by some premature agglutinating process it is hampered in its rotation, then the hepatic flexure and the entire right colon assume an abnormally low position. When this takes place the cecum and ascending colon retain their mesentery, and, instead of becoming agglutinated to the muscles of the back, they are permitted to hang more or less loosely on this mesentery. In many individuals it is found that the agglutination and fixation of the hepatic flexure has taken place almost normally, while the cecum and ascending colon are still freely movable on their mesentery. When there has been complete failure of hepatic flexure fixation, the entire right colon hangs from a continuation of the ileac mesentery extending upward and fusing with that of the

*Presented at the forty-first annual meeting of the South Dakota State Medical Association, Huron, S. D., May 17 and 18, 1922.

transverse colon, and the weight or downward pull of the entire right colon is exerted from the root of this mesentery, which is attached in close relation with the duodenum, pancreas, bile ducts, and solar plexus.

It would seem that whenever Mother Nature neglects to follow out her usual plan of fixing the colon to the right flank in early embryonic life, she makes an attempt to repair her shortcomings by introducing certain ligamentous bands to prevent, or at least to limit, the hypermobility. It is hard to find any better explanation for the appearance of the pericolic bands and membranes. Their development at the places and in the directions where they are aiding most effectively to affix an abnormally movable segment of the colon, seems to have something purposeful in it. The evolutionary reason for these abnormal structures, as stated by Lane, Coffey, and others, is to me quite evident. Unfortunately, this delayed attempt at fixation is not efficient, and, moreover, it very often leads to distorted function and production of symptoms of various kinds and severity.

The pericolic bands or membranes of most importance in the study of coloptosis are as follows:

1. A modified phrenocolic ligament, which attaches the hepatic flexure to the under-surface of the liver, to the posterior peritoneum, to the kidney capsule, or to the peritoneum of the right flank.

2. A membrane from the lateral abdominal wall extending obliquely down over the ascending colon, the so-called Jackson's membrane. Its purpose is evidently to lift and fix the ascending colon and cecum when these are abnormally mobile on their mesentery. Severing this membrane causes an increased mobility and descent of the cecum. Colopexy causes it to relax. Neither of these membranes are present in those who are born with a normally affixed right colon.

3. A membrane, often multiple, running from the right half of the transverse colon and its mesentery upwards to become attached to the second portion of the duodenum, gall-bladder, gastrohepatic ligament, or under-surface of the liver. In cases of midline or general visceroptosis this supporting band is often reinforced by a second membrane formation which holds the duodenum toward the liver.

For the successful management of a given case of coloptosis it is necessary that we have a clear understanding, not only about the con-

genital origin, the progress, and the complications, but also concerning the various types and degrees of the lesion. The classification given by Duval, in his discussion of the anatomic pathology of fecal stasis in the right colon, is in harmony with my own observations. He gives the following general types:

1. Simple mobile cecocolon, in which only the cecum and the lower segments of the ascending colon are hypermobile on a mesentery, but in which the hepatic flexure is fixed in the normal, or nearly normal position on the posterior abdominal wall. A pericolic membrane, varying in size, is present on the ascending colon in practically every case. The cecum is thin, distended with gas, and always containing more or less stagnant liquid feces. The symptoms resemble those of our classic conception of "chronic appendicitis."

2. Complete right coloptosis, in which the whole right colon hangs by a mesentery, and without direct attachment to the posterior abdominal wall. Pericolic membranes are much in evidence, but they neither fix the bowel to the back nor prevent the hypermobility. If the membranes are severed the entire mesentery comes plainly into view. Symptoms are referred toward the epigastrium and are easily mistaken for evidence of duodenal or biliary disease. The right kidney may be found descended, attached to and closely following the hepatic flexure.

3. Infection of the colonic wall. Several degrees of colitis, mucous and parietal, as well as pericolitis, are recognized. Duval subdivides the condition into three different types. In mucous colitis there is an edema of the mucous membrane with areas of ecchymosis and necrosis. The lymphatic glands are large and soft. In parietal colitis the whole bowel wall is thickened. Lymphatic involvement is evident throughout the retroperitoneal space. Inflammatory adhesions appear, which in course of time cover the whole segment involved. They restrict, retract, and fix the previously hypermobile colon. The adhesions may involve the omentum, the transverse colon, and other neighboring organs in the upper abdomen or pelvis. From the old retracting adhesions, as well as from the absorbed infection, secondary disease may follow, in the gall-bladder, stomach, duodenum, pancreas, or kidney. Stenosis and obstruction in the colon itself are a frequent result from the network of fibers. Constipation is intensified and alternates

with diarrhea of cecal origin. During this stage a secondary anemia is present, with a decrease of polymorphonuclear cells and an increase in lymphocytes. The skin turns a darker tint from a mild hemolytic jaundice. The patient's general health, both physical and mental, is definitely below par. An intermittent elevation of temperature is present, during which time *B. coli* may be found both in the urine and in the blood.

Many conditions in a patient's life help to increase the congenital hypermobility and abnormal descent of the colon. The most active malfactors in this respect are the following: occupations which require standing upright during a large part of the working hours; any intervening illness which causes disappearance of fat from the body in general and from the mesentery and retroperitoneal space in particular; frequently repeated child-bearing by attenuating and weakening the anterior abdominal muscles, thereby giving more room for descent into the lower abdomen; insufficient food; physical and mental strains; and, in short, every condition which tends to deteriorate the normal tone and human wellbeing.

Most of the symptoms induced by coloptosis are due to the dragging on the mesentery or pericolic membranes, and to the constant fecal stasis. The symptoms are many and multiform, but may be assembled into three general groups,—pain, constipation, and intoxication.

The pain is of two types, that produced in the immediate vicinity of the colon and that produced by dragging on other organs. The former is a chronic discomfort or pain in the right abdomen, often present since childhood. It may be constant, or present only periodically. It is aggravated from occupations requiring much standing, heavy work, and foods which cause fermentation and intestinal distension. It is relieved by rest, and especially when lying on the right side. It disappears temporarily after a thorough evacuation of the colon. This local pain often comes on acutely, in attacks, and may be associated with emesis and some rigidity of the abdominal wall; but the attack is never very severe, and it passes away gradually in a day or so. There is rarely any elevation of temperature, and leucocytosis is absent. A diagnosis of appendicitis is usually made, and the appendix is not infrequently removed either in one of the acute attacks, or, more frequently, on a supposition that a "chronic appendix"

causes the pain. Appendectomy relieves the symptoms by the enforcement of a week or two of absolute rest and by the dietetic and occupational care which is practiced for a time following the operation, but after the patient resumes his usual mode of living, the old symptoms recur in most cases.

Pain is produced at a distance by the dragging on the mesentery. In those instances where the mesentery at the hepatic flexure has become more or less attached to the right kidney, this organ is apt to become dislodged and to follow the colon downward. Pain and other symptoms due to the kidney ptosis are then invoked.

When the entire right colon is free and hanging by its mesentery, traction is exerted across the second and third portions of the duodenum. The pulling effect is emphasized by the firmly fixed position of the colica media artery running within the mesentery and by the supracolic membranes which have been mentioned. The variety of symptoms that may be produced in gall-bladder, duodenum, and stomach, is enough to cause serious confusion in the diagnosis of cholecystitis and duodenal or gastric ulcer. The success of treatment, medical or surgical, directed to these organs, will depend in no small measure on the recognition and management of this pathologic factor.

The pericolic membranes are very important agents in causing pain, as well as other symptoms. The membrane producing pain most frequently is perhaps the one located on the outer surface of the ascending colon. I have found it present only in the presence of a mesocolon. When this membrane is attached to the parietal peritoneum over a very small area, it is capable of causing quite acute pain. After colofixation, which takes the tension off the membrane, the pain disappears. The smaller the sensitive peritoneal area involved in a membrane or adhesion, the harder the pain. Wide and extensive adhesions cause less discomfort because the dragging effect is distributed over many, instead of a few nerve endings.

Constipation is an early and persistent symptom of coloptosis. It should be differentiated into two types, that due to a retardation in the left colon and that due to stasis in the right. The former does not cause, as a rule, very serious consequences. The drying fecal masses contain almost no living bacteria or toxins, and many individuals live in good health with very infrequent evacuations. Constipation due to delay in

the right colon is much more harmful. Cecal contents are always liquid, and contain innumerable bacteria, some of which are pathogenic. Incompletely digested and absorbed food products are always present in the cecum to feed the bacteria and to produce a continuous supply of toxins. In the course of time the cecal wall becomes more and more distended and atonic and never evacuates except from overflow. The mucous membrane loses its protecting function, and toxins and even bacteria enter and find their way to the lymphatics and thence to the general circulation. An albuminous exudate demonstrated in the feces shows a serious degeneration of the mucous membrane. Some patients are apt to have spells of diarrhea alternating with their constipation, which means that the left colon is sensitive to the irritating overflow from the right. In others the left colon may have learned to absorb the water from the overflow and to exercise regular defecation, thus helping to conceal the defection of the right.

Intoxication, or absorption of pathogenic products from the ptosed, paralytic, and helpless cecum, causes a lymphangitis and lymphadenitis in the mesocolon. The enlarged lymph glands are clustered along the blood vessels and may involve more distant regions near the aorta. The local infection travels through the bowel wall, and then the peritoneum reacts by establishing a new set of membranes, inflammatory adhesions. The effect of these adhesions, often in combination with the evolutionary membranes, is to produce various degrees of obstruction to the passage of the intestinal contents. Absorption of toxins lays foundation for a long list of constitutional symptoms, including dizziness, headaches, nausea, malaise, asthenia, mental depression, and, in some instances, chronic mental disease.

It is possible to form a fairly true estimate as to the location of the cecum and hepatic flexure by inspection, palpation, and percussion. In patients with thin abdominal walls the fingers can easily make out a cecum mobile in its changing situations, depending on the posture of the body. However, no semblance of guesswork needs to be entertained in making a diagnosis since the *x*-ray visualizes exactly the conditions present. By means of fluoroscopic examination we can determine the position of the colon, as well as the other parts of the gastro-intestinal tract; the presence and location of stasis, dilations and obstructions; and the degree of mo-

bility of the organs. We shall not attempt to discuss the various forms of *x*-ray technic required to obtain the fullest amount of diagnostic information.

TREATMENT

The success of treatment for well-marked coloptosis will be proportionate to the intelligence and co-operation rendered by the patient. In the medical treatment of the disease it is almost impossible to obtain any satisfactory results at all in those who are too ignorant to grasp the meaning of the various requirements. In the care of the surgical patients it is necessary that instructions be followed out understandingly for a certain length of time after operation, depending on the patient's age. The younger the patient subjected to colofixation the more certain and rapid is the cure.

It is, therefore, best that all patients at first be given a course of medical treatment, partly because some of the milder cases will be much improved and partly because they all need to learn in detail how to manage their own conditions or to keep up post-operative treatment. For best results it is required that the patient go to bed in a hospital for two or more weeks. The patient is placed in Trendelenburg posture on an incline of at least 30°. This is maintained with intervals of rest for several hours each day. It is kept up for an hour after each meal. So far as possible the patient should not raise his shoulders from the bed at any time. An enema is given at least once a day and on the bedpan. Meats and albuminous foods are avoided. The diet is made up chiefly from vegetables, carbohydrates, and fruits. This is to retard the putrefactive bacteria and to aid the fermentative flora in the cecum. Lactose in liberal amounts is of definite value for this purpose, since it passes almost unchanged through the small intestine.

The Trendelenburg posture gives the patient several distinct benefits. All the viscera, including the ptosed colon, sink toward the epigastrium, making a movement opposite to that which produced the symptoms. The right colon empties itself more easily. Visceral circulation is restored to areas which have been indifferently supplied with blood in the erect posture. The dragging on the duodenum, stomach, and bile ducts is relieved. The pulling and irritation on the solar plexus and sympathetic nervous system is removed. The relief from sympathetic nerve

irritation is a circumstance which we believe to be of very great importance. It is our belief that this is a greater factor in producing neurasthenia in those who have visceroptosis than is the absorption of intestinal toxins.

It is interesting to watch the favorable progress in a patient who has suffered definite symptoms from coloptosis, after two to four weeks application of this treatment. The abdominal pain and distress are relieved or gone. Bowel movements are obtained more easily. The nervous and mental tension has given place to a feeling of rest and well-being. Symptoms of toxemia have disappeared. The appetite is improved, the blood findings approach normal, and the body-weight increases several pounds.

The next problem is to prevent the colon from resuming its original malposition when the patient is allowed to leave the bed. For this purpose a binder or corset with a pad is so adjusted that the lower abdominal cavity will become reduced in size and thus have less space into which to invite the ptosed organs by gravity. That a pad properly made and applied can do this effectively is proven by many patients who have learned that they become uncomfortable whenever they try to go without it. On leaving the hospital the patients are instructed to lie down in the Trendelenburg posture for at least twenty minutes after each meal. This posture must be used after retiring and before applying the pad each time. They are also taught how to make use of the knee-chest posture if the other more cumbersome position is impractical at any time. This may also be used after going to bed at night and while putting on the pad and binder.

While many patients learn to carry on their daily work in comfort by the method described, the majority are improved only temporarily while under medical regime. For more lasting relief it is necessary to resort to surgery. By keeping in mind the gradations of pathologic anatomy, the indications for the various types of operations are fairly simple. When the colonic wall has become infected and thickened and pronounced lymphadenitis and multiple adhesions are present, no operation short of right colectomy will cure the patient. Right colectomy should not be considered too formidable a procedure for these patients in view of what it has to offer. With proper technic the operative risk is very small.

In the presence of cecum mobile of mild de-

gree a fixation of the caput coli to the root of the mesoappendix should always be made after appendectomy. It is my conviction that this fixation of the cecum, incidental, accidental, or intentional, has much more to do with the relief from symptoms after operation for so-called "chronic appendicitis" than the removal of the appendix itself. It is also my firm conviction that, if a cecum mobile is present and not fixed when the appendix is removed for so-called "chronic appendicitis," the symptoms of "chronic appendicitis" will recur within a few weeks after the operation.

When the cecum and the ascending colon are both ptosed and hypermobile on a mesentery a more radical fixation to the psoas muscle is made. An incision is made through the posterior peritoneum opposite the normal location for the cecum and the cecum is sutured to the muscle with two or three chromic catguts. When a psoas minor muscle is present, which is the case in nearly half the patients, then the sutures should be placed in it.

When most of the ascending colon is free and involved in the hypermobility, a second peritoneal incision is made somewhat higher, over the edge of the psoas, and two other chromic sutures are introduced. A very solid fixation is obtained by placing the sutures in the posterior longitudinal line of the colon, but this is likely to cause considerable backache in the first few weeks after operation and may involve a risk of too firm a fixation in some cases. All that is necessary is to pass the needle through the subperitoneal tissues at the margin of the mesocolon. It will do no harm if some of the smaller blood vessels to the colon be included in the suture. They add firmness to the fixation. It need not be stated that care must be exercised that the larger arterioles be not damaged. The bowel mucosa must not be pricked with the needle, or infection is sure to follow the operation.

When there is a complete right coloptosis, a still higher fixation should be made at a point representing the hepatic flexure. It is not possible to do this to the back muscles because the kidney, with its blood vessels and the ureter, are in the way. Our practice is to open the posterior peritoneum and pass two or three sutures through the areolar tissue in front of the kidney. If there is only a small amount of fat present the muscles near the twelfth rib are easily reached at this point. If there is an abun-

dance of fat it has seemed best not to pass these sutures deeply under the peritoneum, but to be satisfied with a broad peritoneal attachment under the liver.

When the right kidney is definitely ptosed with the colon, the fatty capsule is split over the dorsum and peeled loose from the kidney. The tuft of fat thus freed externally, but attached in front of the kidney pelvis, is gathered together with two or three chromic catguts and sutured firmly to the quadratus lumborum muscle. This forms a "shelf" upon which the kidney rests and is a much better procedure than all attempts to "anchor" the kidney itself. The shelf blocks the way for all future chances of recurrence of the kidney ptosis. When this technic for kidney fixation is called for, the colon is sutured into the newly made kidney shelf. A rubber cigarette drain provides an outlet for the inevitable oozing which will follow the kidney operation.

Approaches to the fields of operation are obtained either through a double split-muscle incision or through a transverse opening of the abdominal wall. (The principles and technic of these incisions were described by the author in the *Archives of Surgery*, November, 1920, under the title "Abdominal Incisions.")

After the adoption of the technic of colofixation, as described above, the results obtained from the surgical treatment of coloptosis have been very satisfactory in our experience. Since my attention had first been attracted to visceroptosis, some twelve years ago, several methods of surgical treatment for coloptosis have been tried out.

Suspension of the transverse colon to the anterior abdominal wall, as recommended by Rovsing, Coffey, and others, did not prove satisfactory for the treatment of this type of ptosis, although the method undoubtedly is of distinct service in certain midline ptoses of an acquired nature. In some patients new symptoms developed after operation, such as epigastric pain and interference with gastric and colonic functions; moreover, it gave no relief to a ptosed cecum. Various types of colorrhaphy and peritoneal "pexies" were also employed. From these the best results were obtained from a shortening of the longitudinal bands of the ascending colon, provided the sutures were so placed that the weight of the cecum was transferred from a pain-producing pericolic membrane to the ascending colon above the membrane. Suturing

of the cecum or its mesentery to the posterior peritoneum externally to the colon, while both pain and constipation might be temporarily relieved, was almost invariably followed by recurrence of cecoptosis and symptoms. We have re-operated on a number of patients after previous colorrhaphies; and from the findings at operation it was evident that a ptosed colon will in course of time overcome and undo any attempt at fixation that is based on peritoneo-peritoneal adhesions.

Eleven colectomies, eight of the right colon and three total excisions, have been made because of colitis due to ptosis and stasis. The only patient who died after operation for coloptosis was in the case of a right colectomy in which a septic retroperitoneal infection began a few days after operation and eventually caused death. This was a tragic lesson, teaching the danger of opening lymphatics behind an infected colon without proper provision for drainage. One patient, who suffered from melancholia before the operation, was not improved mentally, although the abdominal symptoms were evidently much improved. One patient operated on two months ago went through a severe attack of influenza and bronchopneumonia immediately after operation and is still under treatment for fecal fistula and bronchial infection. The remaining eight patients are practically well.

The technic of incision through the posterior peritoneum and fixation directly to the muscles of the back has been employed up to date on over 70 patients. Personal re-examinations and answers to letters of inquiry have given us post-operative information from 52 of those who were operated on three months ago or more. It should be stated that the symptom complexes of these varied in severity from those we formerly associated with "chronic appendicitis" and constipation to more aggravated forms of renal, biliary, and duodenal complications. Ceco-psoas, or colopsoas, fixation for simple mobile cecocolon was made on 36 of the 52 patients. Fixation of the entire right colon was done in the other 16. Because of complications from coloptosis, 9 nephropexies, 5 duodenojejunostomies, and 4 cholecystectomies were made in conjunction with colofixation. Eleven had submitted to previous unsuccessful operation, or operations, aimed at the cure of "chronic appendicitis," cholecystitis, and duodenal ulcer.

The following is a brief summary of the results following colofixation: Twenty-two, or 61

per cent, of the 36 who had cecofixation and colopsoas fixation are free from all previous symptoms, and 12, or 75 per cent, of the 16 with complete colofixation are symptom-free. The majority of the balance, about one-third of the total number, named constipation as the symptom which had not been entirely overcome by the operation. Four complained of occasional back-ache, and 3 had some colicky abdominal pains. More or less relief from previous symptoms was acknowledged by all but 3, who stated frankly that they had received no benefit from the operation. Not the least satisfactory were the results in those patients who were relieved from symptoms in other organs,—kidney, gall-bladder, and duodenum,—and in whom the most radical and multiple interventions had been undertaken.

It will be noted that the lowest percentage of cures was found after the more simple surgical procedures. It was natural that the surgeon, traveling on a poorly blazed surgical trail in the beginning of this method of treatment, should hesitate before employing the more radical forms of technic, and the result was that many patients did not receive surgery in proportion to the degree of the lesion. In the light of more experience we know that failure to excise an infected or paralyzed colonic segment has been the cause of persisting constipation and other symptoms in several patients. It is improbable that a chronically over-distended and atonic cecum can regain its tone and function from any change in its position. Microscopic sections made from the stretched out longitudinal bands of such a cecum show degeneration of muscle fibers even in the absence of gross evidence of bowel wall infection.

It must be admitted that the test of time has not been of sufficient duration to make an assertion as to the permanency of cure following colofixation by the method described. However, a number of patients formerly chronically ill, who have been free from previous symptoms and capable of a full enjoyment of work and play during more than two years following the operation, have given an assurance which amply justifies confidence for the future and a continued application of the treatment.

The following are some of the conclusions arrived at in the course of our studies and personal observations of this whole subject:

1. Coloptosis is a very common anatomic abnormality.

2. Comparatively few of those who are coloptotic suffer serious symptoms as a consequence, but the incidence is nevertheless much greater than we formerly supposed.

3. Some of the effects of coloptosis are translated to other abdominal organs which may then give rise to a new set of symptoms based entirely on the complication and obscuring the original and chief cause.

4. Medical treatment gives relief in most cases and should be given thorough trial in all cases, but its ability to cure is doubtful in any case.

5. Surgical treatment is as successful in these lesions as in many other so-called surgical diseases, and promises better results as experience accumulates.

6. "Chronic appendicitis" is an infrequent disease, and the term should be restricted to those comparatively few instances in which there actually is a chronic lesion of the appendix.

DISCUSSION

DR. T. F. RIGGS (Pierre): Dr. Quain's paper has been most interesting and instructive to me, and I am sure it must have been to all of you. We appreciate the kind of work which his paper represents, and we must appreciate also that this paper is in accordance with his usual high standard of work.

Of the various enteroptoses, Dr. Quain has presented one of a group occasionally classified under the head of ostium abdominale genitalis, and he particularly calls attention to the abnormally mobile right colon, which is the cause of the ptosis, and, through traction, it causes stagnation, which results in pain and in the toxemias of various kinds.

Dr. Quain has sketched the congenital causes of coloptosis, and he has touched briefly on the development of the abnormal pericolic membranes and bands. He mentioned that the most important of these are associated with the development of symptoms referable to the pathogenic coloptoses. He has also discussed the classification of the anatomic pathology of fecal stasis in a very clear and comprehensive manner, and he has outlined the necessity of thorough clinical study if we are to save ourselves and our patients from unnecessary and useless surgery on so-called chronic appendices. I understand from what has been said that there is no such a thing as chronic appendicitis; that practitioners have been studying coloptoses.

In the treatment Dr. Quain has given us, the medical aspects for cases of pathogenic coloptosis, and has given us on the surgical side a rational and relatively simple treatment for the correction of the condition. I think his paper is really a great step in advance. I am sure we have all seen cases of coloptosis that as ignorant as we are, have been recognized as something abnormal

with the right colon and the ascending colon and cecum, and we all have been trying to find some way of fixing that part of the anatomy. Dr. Quain's suggestion,—that is, he has outlined also the necessary steps in the various degrees of coloptosis, and that in the face of chronic infection resection is advisable. I think these steps are a marked advance.

I deeply appreciate the opportunity of hearing Dr. Quain's paper and of seeing his illustrations.

DR. DONALD MACRAE (Council Bluffs, Iowa): I wish to compliment Dr. Quain on his paper. I think most of us know Dr. Quain and what he can do, but there was a good deal in his paper that went over my head, and I want to see him do what he has described. A lot of these cases undergo gastro-enterostomies without permanent relief.

I want to get a little clearer idea in regard to chronic appendicitis. I cannot go home from this meeting believing that there is no such thing as chronic appendicitis. A great many years ago I found I was tying up kidneys on an average of three a week. I have not done such an operation now for ten years. Then came the Coffey operation of tying up the transverse colon, etc. Each man advocating the above was undoubtedly sincere, and each found many followers. Where are they now?

Dr. Quain's paper and his method of treatment advocated may be a great advance; however, most of the rank and file should go slow in accepting his plan until others equally capable have given the stamp of approval. Dr. Quain is an enthusiast, and every man would like to see Dr. Quain do what he has outlined. I do not believe I could pull it off in all these cases. I am a believer in the removal of parts of the ascending and transverse colons and in doing anastomosis in this class of cases, and I have had some excellent results.

But I especially want to talk about the appendix. There is no doubt, as the doctor says, a lot of operations are done for chronic appendicitis when a part of the pathology involves the appendix and a part the colon. However, I do not think we should say there is no such thing as chronic appendicitis, because we know very well that a patient who has had one attack of appendicitis is apt to have another. Perhaps he will have two or three attacks a year, and in that event we know there is something wrong with the appendix. We certainly have chronic appendicitis, and lots of cases are operated on for appendicitis that are not appendicitis, the same as gastric ulcers are operated on that are not gastric ulcers. It is a question of diagnosis.

The results obtained by Dr. Quain in this class of cases, are certainly astonishing, and I sincerely hope the doctor has found the solution of this complex problem, which to date defeated the past endeavors of our most distinguished surgeons.

DR. QUAIN (closing): It would seem at first as if this subject complicates the problems of diagnosis in the abdomen, but a closer study of the questions involved will bring us to quite a contrary conviction. It will help us to diagnose and treat successfully many cases with baffling symptoms which we formerly ascribed to other causes and which were not relieved because we did not realize their origin. It is certain that many patients with symptoms resembling cholecystitis and duodenal ulcer are relieved from proper management of a ptosed colon and often without radical surgery.

I did not say that there is no such thing as "chronic" appendicitis. A recurrent acute appendicitis, an appendix located behind the cecum, or an appendix adherent to some part of the peritoneum—all these may be called chronic appendicitis if you so desire. But there is a chronic appendicitis—often so diagnosed and operated on—which is based entirely on the presence of pain near the appendiceal region, and at operation shows no abnormality whatsoever in the appendix. This is the type I object to, and the type of "appendicitis" which is relieved only by elevation of the colon. We have seen several proofs as to this contention, and the following case is one in point:

A school girl had suffered from numerous attacks of pain in the right abdomen. The trouble was frequent and severe enough to cause her to lose a year in high school because of her many absences from classes. In some of her attacks, lasting two to three days, she vomited, but she had no other symptom outside of the chronic dull pain. "Chronic appendicitis" was diagnosed, and her appendix was removed. The appendix was found to be normal, but a note was made of a marked "cecum mobile" at the time of operation. She was free from pain for a month or so after the operation, then the old pain recurred exactly as before. Like most patients in that unfortunate situation she had to suffer along for some time with a diagnosis of "neurasthenia."

About a year after this appendectomy our eyes had been opened somewhat, and the diagnosis was changed to coloptosis. She was sent to the hospital, and a ceco-fixation was made. Our experience had not yet reached the entire scope of the complete right coloptosis present. The operation this time relieved the pain completely, and she continued her school studies and home work entirely free from evidence of "neurasthenia." One day she fell down the cellar steps and struck hard enough to cause her to faint away. After this fall the old pain in the right abdomen again appeared, and it was not materially different from that of her original so-called "chronic appendicitis." She was again sent to the hospital where x-ray examinations showed the entire right colon ptosed to a pronounced degree. A complete coloptosis was now made, and she has been free from symptoms since—about six months ago.

AN EPIDEMIC OF BACILLUS DYSENTERIAE (FLEXNER) INFECTION AT ROCHESTER, MINNESOTA, SUMMER, 1921*

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ROCHESTER, MINNESOTA

During the summer of 1921 there occurred at Rochester, Minnesota, and at other points in the Northwest, an extensive epidemic of diarrhea and dysentery. Many of the earlier and milder cases were passed over as the usual upsets of summer, and many of those affected did not seek medical relief. These early untreated cases were undoubtedly factors in the later spread of the disease, and thus rendered epidemiologic investigation exceedingly difficult and uncertain.

From August 13 to September 1, 1921, the hospitals reported a number of cases of severe diarrhea among medical and surgical patients. At this time the true nature of the infection was discovered, and the previous existence of many mild cases was revealed. Measures were instituted at once to check the spread of the disease and to trace its source, if possible. In general, the program followed included:

1. Daily reports of all new and old cases of diarrhea from all the hospitals were sent to one of the Sections on Medicine, and patients were visited by a member of the staff.

2. From all such cases specimens of stools were cultured.

3. All the cases were isolated with precautions similar to those employed in typhoid.

4. An order was given requiring all persons handling food to wear rubber gloves until the completion of the survey.

5. All doctors, nurses, and hospital employees were questioned with regard to present and past intestinal trouble, and cultures were made from all suspects.

6. The milk supply was investigated.

7. Attempts were made to trace the source of the infection in each case.

One hundred forty cases were observed in the various hospitals and in the Clinic, from forty-five of which the Flexner bacillus of dysentery was isolated. There were other cases in Roches-

ter, but they are not included in this report. (Table 1.)

Nineteen of the forty-five patients were males and twenty-six were females. In eighteen the dysentery was primary, in eight it was a complication with a medical disease, and in nineteen it occurred postoperatively. Twenty-four of the patients developed the dysentery outside of hospitals, four after being in the hospital less than three days, and seventeen after being in more than three days.

DISTRIBUTION OF CASES

Patients in hospitals, twenty-nine; nurses, six; hospital employees, three; Clinic employees, one; physicians, two, and Clinic patients not hospitalized, four.

Table 1 shows that the majority of the positive cases occurred between August 13 and August 18, which at first might suggest simultaneous widespread infection. However, the cases reported in the first few days include not only the recent cases, but also all of the previous active cases disclosed by the investigation.

Checked according to the date of onset of symptoms, the aspect changes and the distribution is entirely different.

Cases		Cases	
April	1	August 12	1
June	2	August 13	3
July	5	August 14	4
August 1	2	August 15	2
August 2	2	August 16	4
August 3	2	August 17	0
August 4	0	August 18	0
August 5	0	August 19	0
August 6	1	August 20	1
August 7	5	August 21	0
August 8	1	August 22	0
August 9	2	August 23	1
August 10	2	August 24	1
August 11	1	Date unknown.....	2
		Total	45

*The work was conducted under the direction of Dr. A. H. Logan, Section of Medicine.

TABLE 1. OCCURRENCE AND DISTRIBUTION OF DIARRHEA AND DYSENTERY CASES

Hospitals*	Patients							Nurses				Physicians	Maids				Clinic employees		Clinic cases		Referred cases		Total																
	1	2	3	4	5	6	7	1	2	3	4		2	3	4	Reported	Positive	Reported	Positive	Reported	Positive	Reported	Positive	Reported	Positive														
Date, 1921	Reported	Positive	Reported	Positive	Reported	Positive	Reported	Positive	Reported	Positive	Reported	Positive	Reported	Positive	Reported	Positive	Reported	Positive	Reported	Positive	Reported	Positive	Reported	Positive	Reported	Positive													
8	4	3						1	1																	5	4												
Prior to 8-15 exclusive of above	10	6	7	1	4		1	1																		24	10												
8-15	2	2	7	3								1	1													12	7												
8-16	5	2	2	1						8	5				2	2									2	19	10												
8-17	2	2	2						1																	5	2												
8-18			1	1																					1	1	2	2											
8-19	2				1	1	1																		2	1	1	12	1										
8-20	1		3																								1	5											
8-22			3		2			1	1		2														2			1	12	1									
8-23	1		1		2																									4									
8-24	3	1		4	1					1	1														1		1	1	11	3									
8-25				1		1	1																				1			4									
8-26				1																										1									
8-27				2																										2									
8-29				2			1		1																					4									
8-30				3				1																				4			8								
Dates unknown	5	2	1			2	1																					2	2	10	5								
Total	38	18	31	6	14	1	5	2	3	0	5	2	1	0	12	5	0	0	1	1	1	1	0	2	2	2	2	2	1	0	2	6	1	8	2	8	2	140	45

* 1, St. Mary's; 2, Colonial; 3, Stanley; 4, Olmsted; 5, Worrell; 6, Isolation; 7, Curie.

CLINICAL ASPECTS

Clinically, the cases varied widely, and other factors in the patient's general condition may have been partially responsible for the degree of severity in any given case. Roughly, the cases may be divided into four groups:

Group 1 included four severe cases, with acute fulminating onset, in which weakness, general aching, abdominal cramps, tenesmus, fever ranging from 99° to 104°, and rapid dehydration were symptoms. The profuse diarrhea became a true dysentery in a day or two. Prostration was marked and the patients were forced to bed, the process lasting from five to seven days.

Group 2 included nine cases with acute onset. Cramps, tenesmus, slight fever, and free purging watery stools, with or without blood, were noted. The condition was severe for a day or two, then improvement began. The patients were weak, but able to be around or at work after the first twenty-four to forty-eight hours, if the case was primary.

Group 3 included twenty-eight mild cases. The patient had slight looseness of bowels (one

to six movements daily), slight cramps, and watery or semiformal stools, with little or no blood, for a period of days or weeks. The condition was steady or intermittent. If the case was primary, the patient, although pale and below par, was up and around or at work.

Group 4 represents four carriers in whom no symptoms were present at the time of examination. These patients may have had any of the previous types of desentery one to three months before. Specimens of stool were cultured because of the history. Carriers are probably more common than is usually realized and may be a potent factor in the spread of the disease.

TABLE II. DISTRIBUTION OF SYMPTOMS

	Present Cases	Absent Cases	No Record Cases
Cramps	28	6	11
Fever	22	8	15
Tenesmus	20	8	17
Blood	11	13	21
Mucus	8	6	31
Herpes	8	7	30

Fever was not usually high (98° to 101°), although in a few instances it was 103° to 104°. In certain cases there were other causes for increased temperature. Less common symptoms were headache, general malaise, generalized body aching (usually spoken of by patients as a "grippe feeling" and probably responsible for the popular name of "summer or intestinal flu,") nausea, anorexia, and vomiting. One case, in the six to eight hours before the onset of diarrhea presented mild signs of meningeal irritation including a positive Brudzinski sign.

Proctoscopic examination, recorded in one or two cases, revealed only acutely irritated mucosa. Many other conditions capable of producing diarrhea were encountered, and, curiously enough, in several cases in which an apparent cause was present to explain the symptoms, the dysentery organism was isolated.

The most important of these causes are: *endameba histolytica* infection, chronic ulcerative colitis, pernicious anemia and other achlorhydrias, medical ulcer management (magnesium oxid), catharsis, goiter (exophthalmic and toxic adenomas), carcinoma of the lower bowel (primary and secondary), pancreatic and acholic diarrheas, Röntgen-ray and radium treatments, proctoclysis, and rectal irrigations, uremia and renal insufficiency, diarrhea following gastro-enterostomy or polyanastomosis, peritonitis, transplantation of ureters into bowel, tuberculosis of bowel, gall-bladder attacks, and history of diarrhea with previous spells, aspirin and history of diarrhea from it before, fresh fruit and vegetables, and change of drinking water.

The differential diagnosis of some of these conditions, on clinical grounds alone, was difficult or impossible. The laboratory offered the most certain means.

The number of stools daily varied greatly,—from thirty to forty in the severest cases to two or three in the mild ones, the average being about six. The average duration of diarrhea, exclusive of the unusually prolonged cases, was seven and seven-tenths days with a range of two to fourteen days, depending on the time treatment was begun. Ten of forty-five, however, ran more than ten days; and of these, six ran an unusually long course, (nineteen, nineteen, twenty-seven, thirty, sixty, and seventy-nine days), and must be classified as subacute and chronic cases. All of these developed earlier in the summer, were

not reported and, in most instances, untreated until they were revealed by the general outbreak.

LABORATORY TESTS

All stools were sent to Dr. Sanford's laboratory, plated on endo-agar, and incubated for twenty-four hours. From these plates saline suspensions were made of all suspicious colonies, and with them agglutination tests were made with a known polyvalent dysentery serum. No positive reports were given unless agglutination was present in dilutions of 1 : 100 or above. On this evidence cases were handled temporarily as positives, although subsequent isolations in pure culture and checks by fermentation were carried through. During the epidemic, no organism of the dysentery group other than the Flexner type were found. From the laboratory point of view, certain facts are important:

1. The delicacy of the organism renders it difficult of isolation from a fecal stool. The chances of success are considerably greater if culture is made from a particle of mucus, pus, or blood, and it is not unusual under such circumstances, to find practically no other organism on the plate. In the case of the four carriers, isolations were made, of necessity, from liquid specimens obtained by saline catharsis. This is the chief difficulty in the location of carriers.

2. The unreliability of a single stool test as a proof of a negative case was demonstrated. At times during the height of the epidemic, with the laboratory overworked, such a report, if another manifest cause for the diarrhea was noted, had to be accepted, unless the condition persisted. Two or three instances later proved even this to be unsafe. A specific case is as follows:

A nurse, repeatedly negative for *bacillus dysenteriae* and ameba, yet had a history and persistent symptoms suggestive of the infection, and subsequently three patients under her care were found positive. On circumstantial evidence alone, classification as a missed case might be justified.

3. Cultures should be made from fresh stool specimens. Delay in transmission of specimens from hospital to the laboratory may in some cases have accounted for negative reports in positive cases. This also rendered routine examination for amebæ impractical, though special means were used if such were suspected.

TREATMENT

Treatment during the epidemic was of two general types, symptomatic and specific.

Symptomatic.—If no contra-indications were present, as in the recent postoperative cases, a preliminary cathartic, preferably a saline, was attended by very good results. Castor oil and other cathartics were used in certain cases, but gave no better results and were usually more distressing to the patient. In some of the milder cases a cathartic alone was sufficient to clear up symptoms. In others, abstinence from food for twenty-four hours, dietary control, bismuth, pargoric, powdered opium, and various diarrhea mixtures were used. In most cases such measures were sufficient to control the process. Rest in bed seemed advisable if the disease was at all severe. In some cases replacement of fluid by hypodermoclysis was indicated.

Specific.—At the outbreak of the epidemic, a horse that had been prepared previously for other experimental work by repeated injections of Shiga and Flexner types of *bacillus dysenteriae*, whose serum was of sufficiently high titer to be of value in treatment (1280 Flexner, 640 Shiga), was bled and the serum, unconcentrated, used therapeutically. To save time the first was used without preservative and filtered through a Birkfeldt filter to insure sterility. The second contained a small amount of cresol; its sterility was checked by culture. No difference in reactions was observed between the two lots.

Serum was used both subcutaneously and intravenously, in total dosage from 20 to 120 c.c., usually with a preliminary dose of 20 to 40 c.c., repeated in twenty-four to forty-eight hours if the diarrhea was not controlled. In the majority of cases 40 c.c. was sufficient and was considered best for the first injection. Besides the routine questioning with regard to previous serum injection and known sensitization, a test injection, at first subcutaneous, but, with later cases, intradermal, was made; and then thirty to sixty minutes later (twenty to thirty minutes before the therapeutic dose), a 0.5 c.c. desensitizing dose with atropine (1/50 gr.) was given.

RESULTS OF SERUM TREATMENT

Serum was given in twenty-seven cases representing all four groups, with consistently good results. In one of the severest primary cases, the first injection (20 c.c.) was followed by

marked lessening of the cramps and tenesmus, and the stools were reduced to half the number. A second injection of 20 c.c. reduced the number to two or three in the next twelve hours. In other cases results were slower, and repeated injections up to a total of 120 c.c. were necessary. A chronic case of nine weeks' duration was cleared up promptly by 20 c.c., with no recurrence reported in five months. Two doses of 40 c.c. given in another chronic, but not severe, case of eleven weeks' duration, resulted in a negative report. Eight days after the first dose, the patient died from other causes, and necropsy revealed a negative bowel except for small submucous and subserous areas of coagulated lymph. Twenty to forty cubic centimeters in carriers seemed sufficient to bring negative reports. No fatalities with dysentery as a factor occurred after the use of the serum was started.

Because of the distressing secondary effects of the horse serum itself, in spite of the good results obtained, it would seem justifiable to reserve specific treatment for severe cases, such as those showing a tendency toward a protracted course, those occurring as a complication in postoperative or medical cases, or in debilitated patients, in whom the additional load might turn the tide against them. If, as in the case of diphtheria antitoxin, a certain fraction of the serum bearing the antibody were determined, and a concentrated rather than a whole serum used, this objectionable factor might be greatly reduced or even eliminated.

Immediate Reactions.—In one case, considered negative from the subcutaneous test, and with no previous history of serum injection or sensitization, there developed within fifteen minutes following the subcutaneous injection of 40 c.c. into the axilla, a violent, alarming reaction with headache, nausea, tightness and sense of constriction in the throat and chest, difficulty in breathing and generalized giant urticaria with edema of lids, lips, and tongue. Prompt injection of 15 min. of epinephrin relieved this somewhat, and a second injection a few minutes later caused it rapidly to recede. A recurrence of like severity about an hour later also quickly responded to epinephrin. After a five day period of freedom, the urticaria returned, nearly as severe as before, and recurred every one to three hours for seven days. Curiously enough the husband of this patient, a physician, had had a similar reaction following the administration of antistreptococcal serum a few months before.

This was the only primary reaction in the dysentery series, although about the same time, 11 c.c. of the serum given in twenty minutes intravenously in a case of chronic ulcerative colitis (Case A182,110) caused a similar, although less severe, reaction. This patient had been given horse serum nine months before in an attempt to control severe intestinal hemorrhage, and had then suffered a late reaction (serum sickness). She reacted positively to the intradermal test with a 1:10 dilution of serum. Attempted desensitization by increasing, small, subcutaneous doses of serum a few hours before and 0.5 c.c. intravenously with 1/50 gr. atropin twenty minutes before the final injection, did not prevent a reaction. The same procedure twenty-four hours later gave a reaction after 7 c.c. in twenty minutes had been given. Serum in all cases was used undiluted at room temperature.

Four of the dysentery group had had serum (antitoxin) two to eleven years before, but all were negative to subcutaneous test, and no immediate reactions resulted. Following such reactions it seemed safer always to give the first dose intravenously, very slowly, with epinephrin and atropin at hand, as the injection could then be stopped at once in event of reaction, with the minimum of serum given.

Late Reactions.—Of the twenty-seven patients who received serum, twenty-three (85 per cent) sooner or later developed a later reaction or serum sickness of greater or less severity. One died from peritonitis following erosion and perforation of a carcinoma of the bladder seven days after the serum had been given. Two were negative eight days, and one fourteen days, following injection, at which time they left town and could not subsequently be traced.

The time of development of symptoms following administration varied from one to sixteen days, on the average six to seven days, and lasted one to nine days with a five day average. In this small series, no consistent relation between amount of serum and either time of development, duration, or severity of symptoms, was observed.

Accelerated Reactions.—Two of the most severe reactions, of two to three days' duration only, occurred in patients who had received 20 c.c. of serum, but who had been given antitoxin one and a half to three years before. The other two who had had antitoxin had less severe late reactions which lasted longer and recurred after a two to three day remission. All of these occur-

red in from one to five days after injection of serum, and composed four of the eight cases below the average time of development. They might well be classified as accelerated reactions. These late reactions to the serum treatment consisted essentially of an urticaria of intensity varying from a few scattered wheals to giant patches about 10 cm. across, or even a confluent mass covering almost the entire surface of the body. These patches occurred from three-fourths to several hours apart, causing the mildest discomfort to the most intense misery from the pruritus. Headache, general aching and joint pains, slight tightness of chest, edema of lids, lips, and tongue, and occasionally slight frequency of urination were also noted. In some instances it might well be said that the "cure was worse than the disease."

TREATMENT OF SERUM SICKNESS

Treatment of the serum sickness varied with the individual case; saline catharsis, sodium bicarbonate to alkalization, and sodium bicarbonate solution, powder or paste locally for pruritus, were sufficient in certain mild cases. In others, salicylates for headache and joint pains and calamine lotion, or other preparation with menthol or phenol as a base, were necessary.

Epinephrin (3 to 10 min. of 1:1000 solution) hypodermatically, repeated according to the occasion, in some cases every three-fourths to one hour, proved best for the relief of the pruritus, causing it to disappear in a few moments and the wheals to fade a few minutes later. Dosage should be held to the minimum capable of giving relief, as some patients are troubled by a giddiness and numbness and tingling of the fingers following its administration. In a few instances it was necessary as a last resort to overcome distress and give rest by the use of morphine and its derivatives.

COMPLICATIONS

In December, 1921, one local patient, (Case A379770), who began about August 15, to have abdominal cramps, tenesmus, and diarrhea, six to eight times daily, later with blood and mucus, was seen at the Clinic. Symptoms continued intermittently until she reported in December. On examination she was found to have ulcerative proctitis of typical strawberry type. Cultures from the ulcerated areas were then negative for *bacillus dysenteriae*. Whether this was a complication or a separate disease remains a question.

FATALITIES

In a series of 140 cases, there were fifteen deaths from all causes, and in six of these *bacillus dysenteriae* was isolated either before death from stools, or postmortem from culture of the intestinal wall.

From the cases not proved to be dysentery, five showed at necropsy ulcerative lesions in small or large bowel, or in both.

CASES

1. CASE A177781.—Miss R. Tuberculous enteritis, and peritonitis without diarrhoea.

2. CASE A366596.—Mr. F. Acute enteritis. Negative to culture. Patient died of general peritonitis and ileus following operation for a ruptured gangrenous appendix.

3. CASE A64525.—Mr. W. Acute ulcerative enteritis with eight small ulcers in jejunum and ileum. No cultures recorded. The patient died of general peritonitis with gangrenous caecum, following operation for a ruptured gangrenous appendix.

4. CASE A364742.—Mr. C. Acute ulcerative colitis and multiple diverticulitis. Negative to culture. The patient died from renal insufficiency. Advanced arteriosclerosis and arteriosclerotic kidneys with diffuse nephritis. The blood urea was 226. Cholecystectomy was performed.

5. CASE A367930.—Mrs. G. Acute enteritis. No cultures recorded. Operation for obstructive jaundice. Biliary cirrhosis found. Delayed coagulation time with constant postoperative oozing. Subacute cholangitis. Acute and chronic nephritis.

Other fatalities, negative to culture and examined at postmortem were the following:

1. CASE A366571.—Mr. A. Carcinoma of prostate involving rectum.

2. CASE A157462.—Mrs. B. Obstructive jaundice with stones in the common and hepatic ducts.

3. CASE A366956.—Mrs. McK. Syphilitic cirrhosis, jaundice, ascites, hydrothorax, portal thrombosis.

4. CASE A366477.—Mr. K. Carcinoma of bladder, resected; gangrenous cystitis; pyelonephritis.

In six cases dysentery was or had been present.

1. CASE A275773.—Baby S., aged two and one-half years, died fourteen days after onset and three days after isolation of organism. One specimen of ascaris passed. At necropsy acute pseudomembranous ileocolitis, acute toxic nephritis, and hemorrhagic pneumonia were revealed. In this case death occurred from dysentery before the epidemic and the use of serum.

2. CASE A365598.—Mrs. McL., aged sixty-nine years, died four days after a gastro-enterostomy to relieve the obstruction of a pyloric carcinoma. Metastasis was present. Diarrhoea of two days' duration, not severe. The culture at necropsy was positive. Acute pseudomembranous enteritis and colitis, carcinoma of the pylorus with metastasis,

bronchopneumonia, and advanced arteriosclerosis were revealed.

Dysentery in this case was a questionable factor as a cause of death, occurring before the epidemic and the use of serum.

3. CASE A366232.—Mrs. B., aged sixty years, died eight days after a Polya operation for obstructing carcinoma of the stomach. There was mild diarrhoea for four days. Cultures at necropsy were positive. Acute pseudomembranous enteritis, gastric carcinoma (resected), metastasis, advanced arteriosclerosis and arteriosclerotic kidneys were found.

Dysentery in this case was probably a factor in death; the patient died before the epidemic and the use of the serum.

4. CASE A362427.—Mr. O., aged forty-nine years, died eleven days after a plastic closure of a large postoperative ventral hernia. There was severe diarrhoea, twelve to fourteen daily movements for six days, prior to death. The stool findings were positive. The patient died of renal insufficiency and was in uremia for some time before death. Blood urea, 198 to 270 mg. Creatinin, 7 mg. for each 100 c. c. Necropsy was refused.

Dysentery was probably a factor in this case. The patient died at the beginning of the epidemic and had no serum.

5. CASE A359208.—Mr. McC., aged seventy-three years, died two months after a suprapubic cystotomy for the removal of a vesical calculus. The stool findings were positive August 15, 1921; they were negative prior to death. At necropsy were revealed fibro-adenoma of the prostate, periprostatic abscess, and bronchopneumonia. Bowel examination, negative, except for small submucous and subserous areas of coagulated lymph.

Dysentery was not a factor in this case. The patient received 40 c.c. of serum August 16, and again August 17, and the stool examination was negative August 24, two days prior to death.

6. CASE A367648.—Mr. L., aged fifty-nine years, died of peritonitis, following the perforation of carcinoma of the bladder. Diarrhoea was never severe. The stool examination was positive. At necropsy general peritonitis following erosion and perforation of carcinoma of the bladder were found; also hydronephrosis and pyonephrosis, with arteriosclerotic kidneys. Examination of the bowel was negative.

Dysentery was not a factor in this case. The patient had received 80 c.c. of serum in the week before death.

It may therefore be considered that dysentery was responsible for one death, probably contributory in two, questionable in one, and not a factor in two.

EPIDEMIOLOGY

Attempts to trace the origin of the epidemic were for the most part unsatisfactory as far as conclusive evidence is concerned. Several points are, however, of interest.

It is generally admitted that dysentery epidemics are not water-borne, and in this epidemic water does not seem a probable factor, as both the city and hospital supplies are obtained from deep wells, amply protected from outside contamination.

Flies might possibly have been a factor, although in a city or hospital with modern sanitary facilities, the opportunities for their acquiring fecal contamination are slight. In the outbreaks in small town and country districts, they were undoubtedly important.

Direct contact and carriers undoubtedly occurred, but transmission from one person to another through the medium of contaminated food seems the more probable means.

Milk, which is always under suspicion in gastro-intestinal outbreaks, at first gave evidence which seemed convincing, but on more careful study this was not borne out. At the onset of the epidemic, milk samples from all the dairies supplying the city were cultured. From one the Flexner organism was isolated. Further investigation of this dairy by Dr. Bleifus, local health officer, revealed a mild diarrhea among the members of the family who helped in the care of the milk. Of five of the milkers and handlers, two boys gave positive cultures. Although this dairy may have accounted for some cases in the city, its milk, unpasteurized, was supplied to only a relatively small part of the city (forty to fifty families) and to none of the hospitals or hotels, and hence cannot be held responsible. The possibility of other contaminated milk supplies, undetected, still remains.

Food contamination is the logical method of spreading disease and probably was a factor of greater importance than can be proved, but with diarrhea and dysentery appearing nearly simultaneously in four hospitals, not connected, with independent help, kitchens, managements, and food supply, such contamination would have to be widespread and from many separate sources.

Although the exact incubation period of the disease is not definitely known, certain experimental work and occasional accidental contaminations would seem to indicate that it is quite short, probably a matter of two or three days. Working on this basis, twenty-four cases developed outside of the hospital, four in an uncertain group, when in the hospital from one to three days, and seventeen when resident more than

three days. St. Mary's Hospital had fourteen, the Colonial two, and the Stanley one of these.

RESULTS OF INVESTIGATIONS

St. Mary's Hospital kitchen force.....	30	
	Cases	Positive
Diarrhea at time.....	0	0
Diarrhea past two weeks (slight).....	2	0
Diarrhea past two years (slight).....	2	0
Sisters and nurses.....		140
Diarrhea at time.....	1	1
Diarrhea past two weeks.....	4	1
Diarrhea past year.....	10	3

Resident physicians (21) all with negative histories.

Positive cultures were obtained from two special nurses, two on group duty, one on dressings.

Nurse 1, on special duty, developed diarrhea July 24, and showed positive cultures, August 17, although symptomless then. Her patient (Case A362427) developed symptoms August 9, and showed positive cultures August 15.

Nurse 2, group system, developed diarrhea August 12 and cultures were positive August 17. Three of her patients developed diarrhea August 11, 15, and 15, respectively.

Nurse 3, group system, developed diarrhea August 7. Positive culture was found August 17. Her patient's diarrhea began August 14. Culture was positive August 15.

Nurse 4, on special duty, had diarrhea for three days in April; positive cultures were found August 17. Her patient had no trouble.

Nurse 5, a student in the dressing-room attending all patients on the floor; no cases were traceable to her. All patients on the floor developed diarrhea.

Nurse 6, a student on general duty, had diarrhea July 31 which continued intermittently through August. Two stools were negative on culture and negative for ameba. Three of her patients developed diarrhea, and cultures were positive in August.

In St. Mary's Hospital the cases were not concentrated on one floor or wing, but were more or less distributed.

Colonial Hospital kitchen force.....	30	
	Cases	Positive
Diarrhea at time.....	0	0
Diarrhea past two weeks.....	2	2
Diarrhea past year.....	1	0
Nurses	77	
Diarrhea at time.....	0	0
Diarrhea past two weeks.....	0	0
Diarrhea past year.....	2	0

Resident physicians were all negative.

The two patients developing trouble were on the same floor, but in different wings.

Stanley Hospital force.....	25	
	Cases	Positive
Diarrhea at time.....	0	0
Diarrhea past two weeks.....	3	0
Diarrhea past year.....	1	0
Nurses	24	
Diarrhea at time.....	2	1
Diarrhea past two weeks.....	0	0
Diarrhea past year.....	0	0

The nurse with the positive culture was on duty on the second floor. Later one patient on this floor was found to have positive culture.

Olmsted Hospital: One maid here was found to have positive cultures. The two patients with positive cultures in this hospital had had symptoms prior to admission.

CARRIERS

In dysentery, carriers, although not commonly found because of the difficulties mentioned, are probably more common than is generally realized. Four were observed in this series. The return to civil life of men, some of them possibly carriers, from camps, both here and abroad, where diarrhea and dysentery outbreaks were not rare, may explain in a measure at least, the reappearance of this disease in the Northwest after years of comparative immunity.

SUMMARY AND CONCLUSIONS

1. In a series of 140 cases from a local epidemic of diarrhea and dysentery, *bacillus dysenteriae* (Flexner) was isolated from forty-five.

Forty-two of these developed locally and three elsewhere.—seventeen in residents and twenty-five in transients. Many other cases occurred around the town, not under clinic care and therefore not included here.

2. Cases varied greatly in severity, the majority being less severe than the dysentery commonly described. Its occurrence as a complication in medical and surgical cases, at times made it of much more serious consequence than it would have been otherwise.

3. Differential diagnosis from a number of other conditions, is, especially in mild cases, difficult or impossible. The laboratory is the most certain means.

4. Six cases of subacute and chronic dysentery were observed, running a course from three to eleven weeks. Four carriers were found, with positive stools and a history of trouble three to twelve weeks previous to the test.

5. Both symptomatic and specific therapy were used. Serum was very effective, but its use should be restricted to selected cases because of unpleasant reactions.

6. One contaminated milk supply was found. It was not a factor in this series, but was probably responsible for some cases in the city.

7. There were fifteen deaths from the diarrhea in the series of 140; fourteen of these came to necropsy. Five, who gave negative cultures, had ulcerations in either the large or small bowel, different from the lesions reported in positive cases, and with other conditions present which might account for it. Four showed no bowel lesions. Six positive cases were fatal, of these dysentery may be considered as responsible in one, contributory in two, a questionable factor in one, and not a factor in two.

8. The epidemic was not local. Proved cases were discovered from a neighboring locality in Minnesota, and from Oklahoma and Indiana, and similar trouble, not proved to be dysentery, occurred in other sections of Minnesota, Iowa and South Dakota.

INDICATIONS FOR CHOLECYSTENTEROSTOMY

By R. L. MURDY, M.D.

ABERDEEN, SOUTH DAKOTA

Cholecystenterostomy and choledocho-enterostomy are operations used to anastomose the gall-bladder or ducts to some part of the intestinal canal, usually to the duodenum. In that event, it is described technically as *cholecystoduodenostomy* or *choledochoduodenostomy*, as the case may be. However, the anastomosis can be made to the stomach, the jejunum, or the colon, but, for obvious physiological reasons, the stoma should be established between the gall-bladder or ducts and the duodenum when conditions will permit.

It is a method often referred to by surgeons in certain emergency surgery of gall-bladder and bile ducts, and is described by most text-books on surgery, but seldom given much space or consideration, and is passed over as a method of slight value and very limited application.

This attitude is to be regretted. Frequent reference to it in recent literature indicates that, more and more, men are finding the method to be of unusual value and adaptable to a large number of conditions aside from emergency cases. What we need, therefore, in this connection, is a clear-cut and definite determination of the indications.

There is so much to be said about conditions amenable to treatment by this method that a full discussion of them would be impossible in a paper devoted to the indications, but enough may be said to indicate the rationality of the method.

My experience suggests a much wider application of this method than indicated by most text-books and writers. I shall, therefore, discuss the indications from this broader viewpoint. It seems timely and important to obtain a full understanding of its applicability to all the conditions associated with biliary stasis and inflammation of the pancreas and perverted function, namely, pancreatitis and diabetes in the young.

The big thing that I especially wish to emphasize in this paper is the application of this method to the treatment of diabetes in the young, and the rationality of the treatment.

In interstitial pancreatitis with hardening of the head of the pancreas and obstruction of the ducts, it has proven to be a method of ready relief and given brilliant results. The literature of the gall-bladder and pancreas is replete with such cases, and many of them have been miserably treated in the past. Interstitial pancreatitis with

obstruction has often been diagnosed as cancer, and makeshift method of treatment has been employed until the true condition was revealed by drainage.

If we add to the more obvious conditions which produce stasis, the remote and less understood and often unrecognized conditions, and consider the sequence which follows, the multiplicity of organs involved, and the pathological processes initiated or exaggerated, they will suggest a wide field wherein the established principle of drainage is indicated, *biliary drainage* or cholecystenterostomy.

We are familiar with the gross and obvious lesions which produce biliary obstruction, such as gall-stones, tumors, pancreatitis, anomalies of the ducts, kinks of the ducts, etc.; but we have not followed the remote effects to a conclusion. We can appreciate an ascending infection in a case of urethral stricture and auto-intoxication in a case of intestinal stasis, but do we fully appreciate stasis in one of the most important secretory organs in the body, that is, the liver? If we did, we would lessen the number of cholecystectomies in conditions that are featured by bacterial invasion, inflammation, and stasis.

In this connection I may suggest a discussion of the anomalies of the common duct in its lower third and include defects of the pancreatic ducts as having a direct bearing on the function of the pancreas and the inflammatory diseases which frequently occur in this region.

So much has been said about the anomalies of the cystic, hepatic, and common ducts and their frequent injury in operations on the bile tract, that we have overlooked the chain of events initiated by defects, deformities, and obstruction of the ducts in the region of the pancreas.

We know experimentally that bile forced up the duct of Wirsung into the pancreas will set up a pancreatitis, yet we have seldom deduced the theory that obstruction in this part of the duct is a frequent source of pancreatitis, and diversion of the biliary secretions through a properly placed anastomosis is the rational treatment of this condition.

All surgeons of experience have had numerous examples of obstruction of the common duct due to inflammatory diseases and other benign con-

ditions, and can appreciate the conditions fully, yet we have not followed the remote possibilities of obstruction in this region to a conclusion, nor have we followed remote processes which have been initiated by stasis, such, for instance, as cholangitis, hepatitis, pancreatitis, and ultimately infection and its sequence in one instance and diabetes in another.

When we realize that the balance between health and disease is a very narrow one under many conditions, and that the highly specialized function of some of the organs is much more delicate than the function of the body as a whole, and, therefore, may be thrown out of balance with ease—such, for instance, as the sugar metabolism of the body—we may conclude that stasis is one of the principle causes of diabetes.

If a little indiscretion in diet is sufficient to produce a definite amount of sugar in the urine and blood, we can well understand that slight or gross impairment of the ducts and gland may lead to a well-established diabetic syndrome.

In case the ravages of infection produced by obstruction is expended on the liver cells and biliary cirrhosis supervenes, may we not expect a certain amount of hypertension?

Our knowledge of obstructive conditions in the alimentary canal, due to developmental defects, such, for instance, as visceroptosis and anomalies of the mesenteric vessels in certain types of individuals, is quite complete; yet we have not applied this information to kinks in the bile tract, and many cases of visceroptosis have a high degree of obstruction in the bile ducts associated with distention of the gall-bladder and ducts and suffer almost constant pain as a consequence. Errors in diagnosis are very common in this connection, and irrational treatment is frequently instituted.

The incidence of obstructive lesions, such as stricture following stones impacted in the ducts and the ampulla of Vater, is common.

Benign tumors, cysts, malignant tumors, defective ducts, anomalies of the pancreatic ducts and pancreatitis are a frequent cause of obstruction. Inflammatory conditions in neighboring organs extending by contiguity of tissue to the ducts and producing obstruction have been noted, as in gastric and duodenal ulcer.

Cholecystenterostomy or choledoch-enterostomy should be substituted for all cases where we have been doing a cholecystostomy, for it offers better drainage and at the same time con-

ducts the bile into the duodenum, where it will serve its natural physiological purpose. It is a distinct double advantage in these cases, as it is correct physiologically and the drainage is more positive than through the abdominal wall—more lasting and permits of closure of the abdominal wound.

Cholecystenterostomy is indicated in cases of infection of the biliary tract or cholangitis where it does not yield promptly to medical treatment. It is indicated in distention of the gall-bladder and bile ducts, and where the gall-bladder is not easily emptied, and it is also indicated in all obstructive lesions of the common and cystic ducts which can not be easily and safely removed, also preliminary to more radical measures in case of stones impacted in the lower third of the common duct with a patient in bad condition.

Cholecystenterostomy should be substituted for cholecystectomy in the following cases:

1. Where we ordinarily do a cholecystectomy for an infected gall-bladder without stones.
2. Where we ordinarily do a cholecystectomy in cholangitis, with or without stones.

It is the operation of choice in obstruction due to benign tumors, malignant tumors, pancreatitis, inflammation in surrounding organs, ulcer in the duodenum, and anomalies and defects in the pancreatic portion of the common duct when the obstruction can not be easily and safely removed.

The departures from the usual indications which I wish to stress are in diabetes in the young with signs of obstruction, and hypertension in the wound with signs of gall-duct infection.

The preparatory treatment for cholecystenterostomy should receive the most careful consideration, as many of these cases where it is most frequently indicated, are bad operative risks, due to sepsis, jaundice, or neglect.

Palliative measures should be instituted in all acute cases until the acute stage is well past, unless there is a perforation with a beginning peritonitis; and in that event exploration should be made at once.

Sepsis should be treated by the best known means at our command.

Jaundiced patients should be prepared by rest and forcing the water carbohydrate and calcium as carried out at the Mayo Clinic, Rochester, Minn. See the Mayo Number of the Surgical Clinics of North America, 1922.

The operation should be made as simple as possible; and accessibility and freedom from

trauma should be the main considerations, as it will be indicated many times with the patient and tissues in a bad condition. It can be done with a very few stitches, or with tubes if necessary.

If the gall-bladder comes in contact with the duodenum readily and the tissues will permit it, the usual method of anastomosis should be carried out in a simple manner, two running stitches of chromic catgut being sufficient. The stoma should not be over an inch, and much less will function.

Large-sized rubber tubes can be employed in the event of friable tissues that will not hold stitches for a satisfactory anastomosis. Two of my most brilliant results were in such cases, and the results have been lasting. In one of my series the tube was still in place months after operation, as shown by the *x*-ray, and the patient was in perfect condition.

In the event that the gall-bladder is shrunken or has been removed at a previous operation and

can not be coaptated to the duodenum, the method first employed in Heidelberg, of inserting a tube in the distended bile duct above and the duodenum below and suturing the duodenum and omentum over the entire length of the tube, will be satisfactory. It will carry the patient over an emergency, and will be permanent in some cases.

A small stoma has the advantage of maintaining much of the normal function of the gall-bladder, and lessens the liability of an ascending infection from the duodenum. This is largely a theoretical objection, as experience shows few cases of ascending infection and the other side of the argument is a positive clearing of the bile tract infection by good drainage. Any point on the duodenum that is accessible is entirely satisfactory for anastomosis, and, in the event of duodenal ulcer, it is an advantage to have it high.

In case the gall-bladder is distended it should be emptied with a trocar and canula, preceding the operation. The operation will be facilitated by the use of small semicircular clamps.

CHRONIC DIARRHEAS IN CHILDHOOD*

BY ROOD TAYLOR, M.D.

Children's Clinic of Minneapolis, Abbott Hospital
MINNEAPOLIS

Chronic or recurrent diarrhea is a symptom common to various affections of childhood. Certain of these diarrheas have received extensive attention individually; but as a group they have been given little consideration—so little consideration in fact that one searches the literature in vain for a summary of causes or an outline for differential diagnosis. One year ago I presented before the Clinical Club of Minneapolis a classification of the chronic diarrheas which occur in children of the Northwestern states. I wish to present this classification before this society, together with a short discussion of various underlying conditions.

1. Chronic enterocolitis.

The sequel of acute (usually ulcerative) enterocolitis.

2. Chronic intestinal indigestion. Due to:

(a) Retarded development of the digestive system.

(b) Parenteral infections, for example, infected

adenoids, middle-ear abscesses, suppurative cervical adenitis, pertussis, tuberculosis.

(c) Mal-feeding.

3. Intestinal parasites.

(a) Ameba histolytica.

(b) Lamblia intestinalis.

Chronic enterocolitis is more frequently encountered in charitable than in private practice. The diagnosis is usually easily made. There is a history of a preceding acute, bloody diarrhea, and the stools contain excessive mucus, pus cells, and, frequently, blood. One must exclude other causes for the presence of mucus, blood and pus in the stools. Such conditions are tuberculous ulcers, rectal polypi, and certain intestinal parasites. These patients frequently become cachectic; purpuric eruptions occur, and pneumonia and nephritis are common complications. Treatment must be supportive,—milk and milk products, farinaceous food, orange juice, fluid, rest, sunshine, fresh air, and warmth. We have had no experience with enterostomy and irrigations of the colon. The mortality is high; but recovery can take place after months of illness.

*Presented before the Hennepin County Medical Society, November 6, 1922.

Chronic intestinal indigestion occurs frequently in early childhood. The cardinal symptom is the passage of excessive amounts of fecal material. The causes are, first, retarded development of the digestive system; second, infections outside the alimentary tract, and third, malfeeding.

Let us consider these three causes in more detail. First, retarded development of the digestive system: We consider that this is present when in otherwise normal babies the administration of cereals and vegetables, beginning at the age of seven months, is followed by symptoms of indigestion. A chronic indigestion occurs in these exceptional children when they are fed according to the usual rule and not according to their digestive ability. The infections which most frequently impair the child's digestive power are those of the pharynx and middle ear. An acute diarrhea due to parenteral infection of this sort may be the precursor of the indigestion, or the infection may be of a more chronic type,—chronic otitis media, pulmonary tuberculosis, chronically infected adenoids, chronic suppurative nontuberculous adenitis. All these have shown themselves in causative connection with chronic indigestion. As regards the third cause, malfeeding, the range of foods which the normal child can digest is so great that malfeeding alone seldom serves as a principal factor.

Chronic intestinal indigestion exists in two types. In the first there is an intolerance for carbohydrate. Diarrhea occurs when cellulose or starch or sugar approach their usual proportion in the diet. When these are omitted, the child improves. As a rule, this type is fairly mild.

In the second type, we find, not only intolerance for carbohydrate, but also a markedly lowered tolerance for fat, gastric achlorhydria, defective hepatic function, muscular weakness, and a disturbance of growth amounting in many cases to infantilism. This is the disorder originally described by Gee as "celiac disease," and later re-discovered as the infantilism of Herter. In this type the stools are characteristic, being voluminous and foul or rancid unless fat is altogether excluded from the dietary.

Diarrhea is the prominent symptom in both types. It is usually not profuse. The usual rule is for occasional attacks of severe diarrhea to supervene on a chronic daily basis of four or five mushy or foul, gray stools. Pus and blood are not present in these stools except as occa-

sionally there is a complicating enterocolitis. In the history as first obtained, there is often no statement as to diarrhea. This means only that the parents become accustomed to it and attach more importance to some secondary symptom such for example as muscular weakness or delayed growth.

Treatment must be considered under three heads:

First. The child needs rational discipline and control. His environment should be healthy and happy. He is fortunate if his mother be both intelligent and nervously stable; otherwise he must temporarily be treated in a hospital.

Second. Complicating or causative infections must be cared for. The opening of a chronic otitic abscess, and the removal of infected adenoids have entirely relieved the indigestion in certain of my cases.

Third. The diet must be suited to the child's capacity.

In the milder cases avoidance of excessive carbohydrate may suffice. In more severe cases it is necessary to limit the diet to milk, milk curd, lean meat, egg yolk, and orange juice. In the type known as celiac disease, in which we have always found gastric achlorhydria and defective biliary secretion, it is theoretically indicated and practically necessary to give some form of acid in order to stimulate the secretions of the digestive glands discharging into the upper bowel. We have accomplished this by using soured milk, lactic acid milk. This must be skimmed, as these patients tolerate only minimal amounts of fat. They usually digest milk protein well, and we add to each quart of the skimmed sour milk the curd of from one to three quarts of skimmed milk. Their tolerance for carbohydrate is also much impaired. We have had our best results when we have made our carbohydrate addition in the shape of Blue Label Karo corn syrup. Of this we have been able to give an amount equal to from 5 to 7 per cent of the skimmed lactic acid milk. On this mixture then of skimmed lactic acid milk, added skimmed milk curd, and 5 to 7 per cent of Karo corn syrup, plus orange juice, we have had good results in every case, getting good gains in weight, increases in height, cessation of diarrhea, and, what is perhaps most remarkable of all, we have continued this feeding in certain cases for over a year without the development of anemia. The amounts given have varied with the age of the child, from 32 to 50

ounces per day. If the child's intestine has become distended and weak, the temporary use of an abdominal supporter and of liquid petrolatum are of definite service in guarding against retention of fecal accumulations. In the severe types of chronic intestinal indigestion, treatment is sometimes necessary for two or three years. Relapses are prone to occur after periods of apparent complete recovery.

The ameba *histolytica* must be borne in mind in all cases of enteritis. In certain cases it has produced incontinence, as well as diarrhea. One may not find the ameba until he has examined specimens of mucopus obtained through the proctoscope. Emetine hydrochloride hypodermically is usually specific. We have been able to give dosages as high as $\frac{1}{4}$ gr. three times daily without producing abdominal pain or nausea. We have begun with small doses, $\frac{1}{20}$ gr., and increased gradually. A colitis may persist for some months after the death of the ameba.

Lambliia intestinalis, a flagellate which makes its home high up in the intestine, is occasionally met with. It produces watery, squirty stools, usually fewer than six daily. Unfortunately, no drug has yet been found which will cause these parasites to disappear permanently. We have used thymol and methylene blue by mouth getting relief of symptoms for several weeks; but the parasite always recurs. Arsphenamin injections have likewise been employed, however, with indifferent results. We have usually found this parasite present in other members of the family besides the patient. It apparently does not always produce symptoms.

In concluding this sketch of chronic diarrhea in childhood, I would like to make a point relative to the diagnosis of chronic diarrhea in general. One must be on his guard not to confuse it with incontinence nor with fecal impaction and channeling.

HYSTERICAL CONVULSION RELIEVED BY PSYCHOTHERAPY

BY FRANS L. NORIN, M.D.

ROSEAU, MINNESOTA

One day an elderly woman came to my office, stating that she had a young woman friend, aged 18, who was having convulsions with increasing frequency, and that the young woman had consulted numerous physicians without relief or without even a diagnosis. Her health was good between attacks, and the causative history was negative.

I requested her to bring the patient to the office, which she did. I found her well nourished, with rosy cheeks, etc. In a few minutes the left half of her face turned white. On being apprised of its appearance, she stated that a convulsion was coming on. I assured her that it was a great mistake on her part, as my patients were never permitted to have convulsions in my office, but she declared that she had had one in her last doctor's office. I answered, "That may be so, but

I do not permit my patients to have convulsions in my office. I will explain how I avoid it, so you will understand. I stop them by means of a red-hot iron, which I stick into the back, and when it strikes the back-bone the convulsions stop."

A few minutes after I had given this solemn explanation, the former rosy color returned to her cheek. I asked about the oncoming convulsion, but she said it was all gone.

I then informed her that by prescribing a wonderful medicine, which cured convulsions, I would stop hers forever, and that she had had her last one.

A year later, I afterwards learned, one threatened her, but when she was told that I would be sent for, it stopped at once.

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DEATH OF THE MINNESOTA
MEDICAL BILL

We regret to inform our readers that the medical bill presented to the present Minnesota legislative body met with such tremendous opposition from the various healing cults that it was fatally strangled in the committee, the vote standing ten to two against its passage. Someone had the temerity, however, to revive it for the time being, and succeeded in introducing it to the House of Representatives, where it was gleefully, joyfully, and adequately killed by a large majority. And it is said that at the presentation of the bill in the House many of the members of the House arose from their luxurious chairs and told of the many miraculous escapes they had had from disease and perhaps death, and they ascribed their cures to some of the outlying cults. So it is quite evident that the majority of the legislative committee thought they could get along without doctors, that what they needed was rubbers, not necessarily meaning rubbers on their feet, but "rubbers" for their backs.

Something has gone wrong with the medical profession and its politicians, and the last failure is probably due to a lack of thorough and complete organization among the medical men. We say it with regret, but we think there has been

a great deal of indifference among many of the medical men as to the introduction and success of this bill. The dentists of the state secured what legislation they wanted two years ago. They had a very definitely organized committee who early in the year preceding the meeting of the legislature got into touch with all of the dentists, and all the candidates and members that were elected to the Senate and House. They found out definitely what their views were on dental problems. They knew exactly when the legislature convened how many votes they could count on. Then they went to the committee who had charge of the bill, secured their co-operation by dint of hard work and personal explanatory views, and after matters were once understood the committee passed the bill without much opposition. That was what the Minnesota State Medical Association tried to do, but it had an entirely different legislature to work with, and it is evident that the organization was not sufficiently strong to overcome the opposition that was put up. It may safely be said that the chiropractors were more or less responsible for the defeat of this bill, for they secured the interest and activity of almost every other allied cult that has to do with the human body. They even called in the barbers, the manicurists, the hair-dressers, the optometrists, the masseurs, and the chiropodists, by telling them that unless they opposed the passage of this bill they would all be subject to the same examination that the medical student is required to take.

However, the defeat was an honorable one, even if the medical men were powerless. They are not down-hearted, they are simply delayed; and it is hoped that after a constant effort (we say effort with peculiar emphasis) to educate the public, an almost unheard of and uphill endeavor. In two years from now a similar bill can be introduced and successfully passed. Perhaps, too, by that time these various political factions will be better balanced, and, perhaps, too, the people will have had enough of the sloppy way of dealing with the sick. It might be wise to add that this sometimes includes doctors who do not give full value, or, at least, make a reasonable effort for reasonable compensation.

Now that the autopsy has been performed on the medical bill it is well to keep in mind that there is another bill to be considered before the legislature known as the osteopathic bill,

which gives the osteopath practically all the liberty and license that medical men have at the present time. It permits them to give anesthetics, any kind of drugs, and to perform surgical operations. Would it not be wise to see to it that the osteopathic bill meets with the same violent death that followed the treatment of the medical-practice bill, for it seems quite evident that the people do not want any further instructions in the healing art.

THE PSYCHOPATHIC AND UNIVERSITY HOSPITALS

There seems to be some anxiety on the part of the University and its followers that the appropriations committee are not sufficiently informed about the need of a psychopathic hospital and the enlargement of the present University Hospital. If the time has ever arrived for the physicians of the state to do a little missionary work it is now. This cannot be done frantically or without some cohesion among all concerned. There is no question whatever but that both of these hospitals should be financed by the present legislature, and, although the appropriations are perhaps in the molding now, the time for concerted work is before the bill is finally brought out by the committee. There is an evident tendency on the part of the legislators to cut to the nail, thus establishing a record for economy. But all of us know there is no economy in not properly caring for the sick.

The needs for the psychopathic hospital have been presented to every doctor before, but the principal necessities are the care for the cases of temporary mental aberration and the teaching facilities which it would bring for the benefit of the medical student. There is little enough known by the profession of the care and type of mental diseases, and the more the knowledge is disseminated the better the position the medical profession will be in. This is an appeal to all our Minnesota readers, medical and otherwise, to get in touch with their representatives and senators. They do not understand the needs of the sick, as a rule. For instance, as has been said above, the killing of the medical bill was due largely to a lack of understanding by the legislators; and it was impossible to explain the bill to them in a public meeting, for the opposition was so well organized that the medical men had very little opportunity. Consequently, the only remedy left now is to save the state from

a too rigid economy and for each doctor to take up the question personally with his representative and explain to him the chief needs for a psychopathic hospital and the ultimate needs for a larger University hospital. It is evident that our present medical status is rather chaotic, because Minnesota has been easy in her admission of healers and has been negligent about the elimination and prosecution of the unfit in the healing art. Then, too, the people like tomfoolery, and they certainly are getting enough of it. But whatever argument is brought to bear, let it be focused on one or two important points, showing the need of a psychopathic hospital, the relief of the acute case, and the necessity of clinical material for the better instruction of the medical students.

THE ADDICT AND HIS MOONSHINE RELATION

Something is stirring Congress, and anyone who knows much about what this means will appreciate at once that it requires some heroic effort to stir up this honorable body. In the first place Washington was tremendously shocked to know that within its city walls there were boot-leggers. But why should they be so surprised? The men in Washington like to drink, quietly and secretly, and to drink just such poisonous substances as other people throughout the country drink. In their efforts, however, to find an excuse for investigation, they created the impression that the whole thing was due to the liquor that was transported by the embassies and was boot-legged out by some confidential butler or someone else who had access to the embassy liquor,—all this in spite of the fact that Dr. Murray Butler came out with the very decided statement that prohibition had done more harm to this country than any other issue. From such a learned and well-known educator this statement was rather unexpected, and yet his arguments were forceful and, to his mind at least, conclusive.

Minnesota has attempted recently to redeem her reputation and the Federal courts have sent hundreds of boot-leggers to jail or have fined them and admonished them. Yet, somehow, the persistent chase of the liquor man goes on. It is very much like killing a fly,—there is always another one to take its place. Like the old epigram, "Never run after a woman or a street-car; there will be another one along in a minute," so

it is with the boot-legger, and so it seems destined to be. But when one gets down to the actual conditions, the peddling of this moonshine stuff is a matter of distributing poison. None of it can be good, consequently it must do harm; and the results seen by the physician in the man who tries to drink liquor of unknown origin can be demonstrated in any hospital in the city. Unfortunately, a good many of these cases suffer from nerves or mental disturbance, and the effect upon the nervous system is like that of an insidious drug. The effect is delayed for a time, and then gradually increases in intensity until the victim becomes moribund, falls into a state of coma, or stupor at least, with poor resistance and sometimes doubtful recovery. It is rather singular that so few of these moonshine drinkers die. They must have a powerful gastro-intestinal resistance, or they must be pickled in alcohol, which prevents them from absorbing the requisite amount of poison to kill.

The only real remedy for liquor drinkers seems to be to take the pledge, and take it seriously and solemnly by a signed and sealed document before a priest or civic authority. So far as we know, that is the only safe and sane remedy. Persuasion, influence, and reform methods are insignificant. And as many children have now begun to imbibe it is high time that the parents looked after their growing offspring, from fourteen years of age and up, and secured their pledge early in life, and see to it that it is kept.

The narcotic problem is equally serious, and it is now probable that many of the crimes that are committed all over the country are done by people who stimulate themselves or suppress their higher consciousness by the taking of drugs. Morphine, cocaine, and heroin are still being used. It has been stated that more than a million ounces of morphine were imported into this country in 1922. That must mean that there are from one million to two million addicts who take some sort of a benumbing drug,—one that demoralizes their state of mind, subdues their fear, and prompts them to the highwaymen's methods. Of course, many of them rob and steal to get money to buy drugs with, and when they begin they are obliged to repeat their crime, for morphine and other narcotics are retailed by the peddler at enormous prices. It must be rather discouraging to some of these highwaymen and growing addicts to have to pay

out so much money for their intoxicating drugs. This, of course, is only a part of the drug demoralization, and it is now being recognized in congress, and an effort is being made to hold an antinarcotic week all over the world. This effort, if it is precipitated, will do no good; even if it is promulgated by a widespread intensiveness under organized leadership and carried into every meeting-place, not only churches but clubs and near-clubs, and halls where people congregate, it will not reach the man who needs the instruction, advice, and example.

DR. RICHARD J. HILL



1853—1923

THE JOURNAL-LANCET voices the sentiments of the medical profession of Minnesota and elsewhere when it records with keen regret the death of Dr. Richard J. Hill, of Minneapolis. He knew most of the men in the state and was on cordial terms with them, for he had the happy faculty of making friends and retaining them. Everyone who knew Dr. Hill not only loved him

but respected him. His views on medical matters, his opinions, and his advice were always carefully considered. He was probably one of the earliest members of the Hennepin County Medical Society, and he was usually in active service in not only the local but the state organizations, and for many years he was on the Council of the State Medical Association. There, too, he will be missed, for he knew what it meant to the other members to have with him a mental record of past events of what was just and right in medical matters.

His father, Dr. Nathan B. Hill, was one of the pioneer physicians of Minneapolis, consequently Dr. Richard Hill gained much of his information and knowledge from his association with older and trained men. He had been president of the Minnesota State Association, of the Hennepin County Medical Society, and of the Minnesota Academy of Medicine. For many years he was identified with the Great Northern Railway as chief surgeon for the territory around Minneapolis. He was known, too, as a trustworthy and reliable expert on the witness stand, where he was called, not only for the road of which he was chief surgeon, but on other cases in which he had only a medical interest. He never stooped to anything that was mean or little, and even though he left something open for the other side he was true in his testimony.

Dr. Hill was born in Gilbert County, North Carolina, in 1853, consequently was approximately seventy years old. He came to Minneapolis with his parents in 1861 and most of his life was spent in this city with the exception of the three or four years that he was in the regular army in Arizona. He received his education in the public and high schools of Minneapolis, and his medical training at Jefferson Medical College, Philadelphia. He leaves behind him a wife, a son, and a daughter. He is a brother of the well known Samuel Hill of Seattle, Washington.

Dr. Hill was a Quaker, and had the gentle and conservative manner of the Quaker.

It may not be pertinent, always, to talk of a man's last illness, but the editor feels sure that his friends will understand that Dr. Hill's life in the army, in the West, was due largely to the fact that he had a suspected area in his lung. But he made a good recovery and was well, practically well, during his entire period of practice in Minneapolis. Last summer, however, he was afflicted with some sinus trouble in his nasal

passage, which was cleared out; and he told his friends that he never had felt better in his life. But this seemed to be only a short-lived improvement. A pulmonary infection developed into a condition which required a thoracotomy, but the progress of the disease was not checked, and his power of resistance was so lessened that he succumbed to the effect of his lesion.

Dr. Hill was always a friend of THE JOURNAL-LANCET, although his friendship was not so narrow but what he could include other journals and other organizations, for he was equally affable and yet just to everyone. We greatly deplore his departure from our medical circles, and his death from every angle.

PATERNALISM IN MEDICINE

Dr. George E. Vincent, Ex-President of the University of Minnesota, in a recent address before a medical organization in St. Louis, expressed the opinion that in the near future doctors, like lawyers, will be employed and a retainer fee paid them to keep people well rather than to take care of them after they are sick. Everyone who has read anything about this bromidic statement knows that it is an old Chinese idea to pay the doctor to keep the patient well; but Vincent forgot the rest of it,—namely, that in many instances if the doctor did not cure the patient he was executed after the patient's death. This may be all right in some instances, but as a general practice it is much to be condemned. And to the editor it seems utterly absurd to advocate paternalism in our present state of mind and also in our present state of unrest, and also considering the numerous healing cults that are speeding through the country, grafting on the credulous and exploiting theories wholly beyond the limits of any imaginable scientific attainment. It is heartily to be hoped if paternalism in medicine does come to this country that Ex-President Vincent will not be an official of the Government.

NEWS ITEMS

Dr. R. G. Nelson has moved from Troy, Idaho, to Cut Bank, Montana.

Dr. W. B. McMurtrie, of Marble, was married last month to Miss Helen E. Thompson, of Minneapolis.

Dr. O. E. Stewart has moved from Albert Lea to Bemidji, and has become associated with Dr. E. H. Marcum, of that city.

Dr. Richard J. Hill, of Minneapolis, died on February 2 at the age of 70. An appreciation of Dr. Hill appears in our editorial pages.

The Park Region District and County Medical Society met in Fergus Falls on January 31. Several new members joined the Society, and an excellent program was enjoyed by all.

A plan is on foot to erect a new General Hospital for Minneapolis on the University Campus. This is, indeed, an excellent scheme where certain promise of usefulness assures its success.

Dr. Herman C. Radke has moved from New Ulm to Chisholm, and has joined the Staff of the Rood Hospital. Dr. Radke is a recent graduate of the Medical School of the University of Minnesota.

Dr. A. T. Laird, of the Nopeming State Tuberculosis Sanatorium of St. Louis County, was elected last week the first president of the Minnesota Occupational Therapy Association, which met in Minneapolis.

Dr. James H. Fonger, of Gary, S. D., died last week at the age of 47. Dr. Fonger was a graduate of the Medical School of the University of Minnesota, class of '00. He belonged to several national fraternal organizations.

Dr. W. H. Fritsche, of New Ulm, the son of Dr. L. A. Fritsche, also of that city, died last month at the age of 27. He was a graduate of Marquette University School of Medicine, of Milwaukee, Wis., class of '19.

Duluth will have a Health Week (February 18 to 24, inclusive) directed by six local health organizations. All the schools, churches, and clubs of the city will be visited by the workers to proclaim that "Health is Wealth," the motto of the Week.

Dr. Donald B. Armstrong, assistant secretary of the National Tuberculosis Association, was in Minneapolis last month to study in conference with the Hennepin County Tuberculosis Association the health needs of the city with special reference to tuberculosis.

Several distinguished scientists, including Dr. S. B. Wolbach, of the Harvard Medical School and Dr. H. Noguchi, of the Rockefeller Institute,

have been working at Hamilton, Mont., on the origin and cure of spotted fever. The work will be continued throughout this winter.

We are glad to inform our readers and the many friends of Dr. J. W. Bell, who is now in San Antonio, that he is improving very rapidly and expects to be back at his work on the first day of April. Further announcement as to his progress will be made later.

"How to See California" is an interesting 8-page pamphlet which every physician who expects to attend the June meeting of the A. M. A. in San Francisco should read. A postal addressed to the "California Convention Headquarters," San Francisco, will secure one.

Dr. Robert Earl, of St. Paul, Chairman of the Board of Directors of the Northwest Baptist Association, has been elected chairman of the committee which will endeavor to raise \$500,000 for a great Baptist hospital building to be erected in the Midway district of the Twin Cities.

The new Wadena Methodist Hospital is to have a handsome and commodious building of which the architect is E. H. Malm, of Brainerd. The building will be three-stories high, with a full basement; and it will be 40x78 in size with two wings 24x24 each. It will be built with brick facing.

A regular meeting of the Huron Medical Society was held at the Marvin Hughitt Hotel Huron, S. D., Thursday evening, February 1, 1923. Papers were read on "Infant Feeding and Its Relation to Teeth," by Dr. W. F. R. Whorton, and "A Resume of the Sioux Valley Meeting," by Dr. H. D. Sewell.

The Minnesota Public Health Journal, published twice a month for a number of years by the Minnesota Public Health Association, is succeeded by the *Northwestern Health Journal*, a monthly publication, whose first issue will soon appear. It is not a journal for medical men so much as for laymen and lay public health workers.

Dr. David C. Steele, of Fairmount, N. D., died on January 27 at the age of 43. Dr. Steele was a business man before he took up medicine. He taught school for a long time and was also president of a bank for some years. He graduated from the College of Physicians and Surgeons of Keokuk, Iowa, and did postgraduate work in Chicago.

The medical bill before the Minnesota legislature which was supported by the State Medical Association has been disastrously defeated in the committee and by the House. It was known as the basic science bill, so called. It required of all applicants for license to practice in Minnesota a knowledge of physiology, anatomy, and pathology. They are not necessary!

The health authorities of Duluth propose that St. Louis County build or buy a hospital in which to quarantine persons afflicted with social diseases. Dr. Fahey, the Duluth Director of Public Health, says this course has been rendered necessary by the decision of the State Attorney-General that such persons cannot be committed to penal institutions, as they have been in the past.

The Upper Mississippi Valley Medical Society held its annual meeting at Brainerd last month, and elected the following officers for the current year: President, Dr. M. E. Withrow, International Falls; vice-president, Dr. W. P. Gerber, Brainerd; second vice-president, Dr. B. F. Van Valkenberg, Long Prairie; third vice-president, Dr. W. W. Will, Bertha; secretary-treasurer, Dr. G. A. Badeaux, Brainerd.

The McCloud County Medical Society has been revived after several years of inactivity. At a meeting held at Hutchinson on January 25, proper resolves were made, and officers were elected as follows: President, Dr. W. B. Schmidt, Glencoe; vice-president, Dr. P. E. Sheppard, Hutchinson; secretary-treasurer, Dr. D. L. Axilrod, Hutchinson. The next meeting will be held in April.

Owing to the misinterpretation of a letter received in our office, we put the Harvey Hospital, whose discontinuance was mentioned in our last issue, in Jamestown, instead of Harvey, and we also connected it erroneously with the Jamestown Clinic. This hospital was conducted by Dr. Frank C. Titzell, until he joined the Clinic of Jamestown, which is now composed of Drs. G. Golseth, Willis C. Nolte, Frank C. Titzell, and Charles F. Morsman.

Dr. Richard G. DePuy, of Jamestown, N. D., died on the 4th inst., after a brief illness, at the age of 68. Dr. DePuy graduated from both the academic and medical colleges of the University of Michigan, and located in Jamestown in 1882. He was soon recognized as one of the leading citizens and physicians of the State. He took an active part in both business and

medical matters, and was also prominent in social and fraternal circles.

The February meeting of the Consulting Staff of the Lymanhurst School for Tuberculous Children, Minneapolis, will be held on the 27th inst. at 8:00 p. m. at the School. The following papers will be presented: "Educational Problems in the Special School," by Miss Katherine Young, Principal of Lymanhurst; and "A Study of the Gastro-intestinal Tract of 250 Children in the Lymanhurst School," by C. B. Wright, M. D. Physicians are cordially invited to attend the meetings of the Staff.

The American Public Health Association, at its annual meeting last month, voted to call its active professional members "Fellows"; and the following Twin City members were elected Fellows: Dr. J. A. Chesley, Dr. Oriana McDaniel, Miss E. M. Wade, and Mr. H. A. Whittaker (engineer), all of the State Board of Health; Dr. L. D. Bristol, Professor of Preventive Medicine, University of Minnesota; and Drs. F. E. Harrington and William F. Reasner, respectively Health Commissioner and Assistant Health Commissioner of Minneapolis.

The Stutsman County Medical Society has twenty-one active members, and all of them have paid their dues for 1923. Three new members were taken into the Society in the fall, and one, Dr. Earl, has recently moved to San Pedro, Calif., where he is doing eye, ear, nose, and throat work. Dr. R. G. De Puy has been lost by death, as recorded above. At the last annual meeting the following officers were elected: President, Dr. A. W. Guest; vice-president, Dr. Francis Peake; secretary-treasurer, Dr. C. C. Cowin; delegate, Dr. Gustave Golseth; alternate, Dr. W. A. Gerrish; censor, Dr. C. F. Morsman.

The physicians and business men of San Francisco, Calif., have formed an organization to make the annual meeting of the A. M. A. in San Francisco, on June 25-29, a memorable one. Now is the time to begin to seek information about the meeting, about the state, about the climate, about everything that is worth knowing; and all this information and any other desired can be obtained from Dr. W. E. Musgrave, Chairman of the Committee on Arrangements, 806-809 Balboa Bldg., San Francisco. Such a visit, if well planned by seeking information, will give a man and his wife about ten times as much profit and interest as one without preparation.

The Sioux Valley Eye and Ear Academy, composed of about 100 specialists from Iowa, Nebraska, and South Dakota, held its tenth annual meeting at Sioux City, Iowa, on January 24, with an attendance of over 40 members. A splendid program was presented, and Dr. J. G. Parson, the alleged father of the Academy, told of its founding and its history. This sketch will be published soon in THE JOURNAL-LANCET. The following officers were elected for 1923: President, Dr. J. B. Naftzger, Sioux City, Iowa; vice-president, Dr. S. A. Keller, Sioux Falls, S. D.; secretary-treasurer, Dr. L. N. Grosvenor, Huron, S. D. The next semi-annual meeting will be held at Omaha, Neb., July 9, 1923.

A real, live annual meeting of the Sheyenne Valley Medical Society was held at Valley City, N. D., on the evening of January 15, with a good attendance. After a splendid banquet a resolution was adopted commending the efforts to provide an adequate State Department of Health and recommending a reasonable appropriation by the State. The Secretary was instructed to fix a date on which Dr. H. E. French, of the State Department of Public Health, and Dr. Robert Olesen, Acting Director of the Division of Preventable Diseases, might appear before the Society and the people of Valley City in open meeting. Many interesting clinical cases were discussed. The following officers were elected for the ensuing year: President, Dr. S. A. Zimmerman; vice-president, Dr. F. L. Wicks; secretary-treasurer, Dr. Will H. Moore, all of Valley City; delegate, Dr. E. A. Pray; alternate, Dr. S. A. Zimmerman, both of Valley City; censors: Dr. C. E. Spicer, Valley City; Dr. M. D. Westley, Cooperstown, and Dr. E. B. Crosby, Oriska.—Will H. Moore, M. D., Secretary, Sheyenne Valley Medical Society.

POSITION AS TRAVELING COMPANION WANTED

By a practical nurse you can give the highest references. Address 325, care of this office.

PRACTICE FOR SALE

I will transfer my practice in a Minnesota town of 600 population with large contributing territory to the purchaser of my equipment. Price reasonable. Worth investigation. Everything ready, and new man can begin work at once. Address 326, care of this office.

FOR SALE

On account of closing hospital, we offer for sale Scanlon-Morris, high pressure, steam sterilizers,—one for instruments, one for utensils, hot and cold water and autoclave, in battery form on pedestals. One "White Line" porcelain top, operating-table with attachments, One Gendron, rubber-tired, invalid chair with two-piece, divided, adjustable leg rest and with propeller.

These are all high class and the best of their kind, in excellent condition and will be sold at the right price. Address, Box 556, Jamestown, N. D.

PHYSICIAN WANTED

Good territory and splendid opportunity for a doctor who wants to make good. For particulars write the Dent Commercial Club, Dent, Minn.

POSITION WANTED by X-RAY TECHNICIAN

An experienced x-ray technician, thoroughly familiar with bone-work and who can give the highest city references, desires work in this line. She is also a registered nurse. Address 322, care of this office.

POSITION WANTED

By a young woman who has taken two years of nurse's study and work in a hospital and has had two years in a doctor's office. Will begin work at \$15.00 a week. Address 317, care of this office.

OPTICAL TRIAL CASE WANTED

I desire to buy an optical trial case. It must be subject to examination. Quote price. Address J. F. Brenckle, M. D., Kulm, North Dakota.

POSITION AS SURGICAL ASSISTANT WANTED

By a woman who has had two and a half years' experience in a large clinic. Will work with a dentist, an eye, ear, nose and throat man, or a surgeon, preferably in the Twin Cities. Address 315, care of this office.

NURSE FOR HOSPITAL WANTED

A small up-to-date hospital in a South Dakota town wants a nurse who can give anesthetics or act as surgical nurse. German-speaking preferred, but not necessary. Enclose your photograph and state your age and year of graduation. Town of 1200, with five churches, Catholics predominating. Salary, \$100 a month and maintenance. Address 318, care of this office.

POSITION AS SURGICAL NURSE WANTED

By a woman experienced in anesthesia and laboratory work, and can keep books. Has had two years city office experience. Last position was as superintendent of a hospital. Address 324, care of this office.

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THE OBJECTS AND OPPORTUNITIES OF THE HENNEPIN COUNTY MEDICAL SOCIETY: THE PRESIDENT'S ADDRESS*

BY A. E. BENJAMIN, M.D.

MINNEAPOLIS

It is an honor to be elected President of a scientific body as large as the Hennepin County Medical Society. This fact I have appreciated, and I have valued also the spirit of good-will and co-operation of the members of this organization during my term of service.

To the members of the various committees I am deeply grateful, for it has been by their loyalty and sincere desire to help that some things have been accomplished during the past year. Working closely with these members I have learned to know them intimately and shall always cherish pleasant recollections of the many conferences in which considerable constructive work has been attempted.

Pleasant as my task has been in serving you, endeavoring to bring about a closer relationship between all organizations working for the health of the public, and interesting the newspapers in our point of view and in demonstrating to the public a desire to serve them, I am, nevertheless, pleased to pass the honor on to my successor, with whom I trust you will co-operate in the same spirit that you have worked with me.

The duty of the executive officer is to give time and energy to the Society in preparing the programs so that they will be helpful and interesting. That there is much for the President of this organization to do, all who have acted in that capacity well know. It is not easy to

perform all the duties connected with the office if one recognizes the interests and needs of the profession and the welfare of the community which this Society serves.

One of the difficult tasks of the President is that to which I have come tonight. If there had not been sixty-six presidents of this organization preceding me, my task might be an easier one. There are many of you who have heard several former presidents address this Society and can recall much that was said. Realizing this, I have found the selection of an appropriate subject not a simple matter.

The officers should carry out, as far as possible, the principles and purposes for which the Society was organized. Therefore, it became my duty to help realize some of the aims and purposes as set forth in the Constitution. The founders of the Society were guided by the spirit of the Father of Medicine and wrote into our Constitution the ideals and principles which have governed all true followers of Æsculapius. We are here to help perfect the work they began. We must have a vision of what the ideal should be, for "visualization is the secret of achievement."

The dreams of James Watt, Fulton, Edison, Bell, and Marconi culminated in the wonderful achievements and inventions so necessary for the complex life of the people of to-day. The beneficent results of the dreams of many of the heroes and statesmen in ages past, and of the

*Presented before the Hennepin County Medical Society, January 8, 1923.

great Washington and Lincoln of more recent times, have been realized by succeeding generations. Visions of a healthier and happier race must have spurred Edward Jenner, Koch, Pasteur, Carroll and Reed, and many others in their work to determine the causes and prevention of disease.

My guidance for the work carried out during the year and the inspiration for this paper were obtained from Article II of the Constitution of the Society, which reads: "The object of the Society shall be the cultivation of good fellowship and scientific research among its members; the advancement of medical education and the unity of the profession as a factor in the interests of the community." The objects of the Society, then, should be as follows:

1. Good fellowship.
2. Scientific research among its members.
3. Advancement of medical education.
4. Unity of the profession as a factor in the interests of the community.

It is mainly under these four headings that my remarks will be made.

How literally I have carried out these purposes, you, as members, are to judge.

I was guided also in my plans for the year by the suggestions of past presidents and the replies to a questionnaire sent out early in the year. If the programs and the work performed have not been entirely satisfactory, you should assume some of the responsibility because you indicated what you wanted in these replies. Much has been left undone because of lack of time, as a year is far too short to carry out all of the good suggestions.

These four purposes mean much, and, if an organization lives up to them, its members will have to be energetic and alert, and will have to take an interest in things other than simply reading and discussing papers.

As regards the unity of the profession as a factor in the community, as set forth in our Constitution, we have not fulfilled our contract. Virtually, it is a command, and there should be a determination on our part to obey if we are to keep faith with those who, years before many of us were born, outlined these purposes so that the honor and esteem of this, the greatest and noblest of the professions, might survive.

I. GOOD FELLOWSHIP

No officer of an organization can accomplish much if there is not *esprit de corps* among its members. There must be team-work, as well as

an individual desire on the part of each member to do his share and co-operate in all matters that are for the advancement of the science of medicine and for the good of the public.

Dr. Head, in his annual address last year, said: "A bond of sympathy, a spirit of scientific unity binds us together."

All progress is at first mental, and he who has a vision and a desire to achieve the ultimate will have a greater incentive to accomplish the purpose in mind. We should each do our best in whatsoever we undertake that is worth while. We should be satisfied with nothing less.

The Hennepin County Medical Society should harbor no drones; they should all be workers. In fact no man makes a real success of the practice of medicine who habitually shirks his duty.

There have been more committees appointed perhaps this year than in any previous year because there seemed to be more work. It has been my function to meet with several of these committees. The business has always been conducted in an expeditious manner. Our differences were settled by sound arguments and reason so that a unanimous opinion was easily arrived at. This friendly spirit has made the work of your President much easier, and considerable has been accomplished, I am persuaded, even in the short time of a president's term of office.

Our organization is like an edifice that takes years to complete. The foundation was laid deep and wide, and each succeeding president with the help of each member should add something to this structure. "We build as we think and do."

Each year's growth should be sound and of such material as will stand the test of time and the weight of the succeeding years of accumulated scientific knowledge, plans, and policies. Where we can add any re-inforcement by extraordinary efforts, this should be done. We should remember that what we do to-day is history to-morrow.

The glory of nations and the power of individuals have for ages past been represented by enduring structures and monuments of stone and marble for future generations to look upon and remember. It is well that it is so. It is possible for our profession in Minneapolis so to build that the present and future generations will recognize the work that we have performed for the benefit of mankind. And to the end that a more materialistic and definite impression may

be made upon them, it would be well for the profession soon to erect some substantial monument in the way of a building for the future home of our Society.

II. SCIENTIFIC RESEARCH

During the year invitations have been extended to all members of the Society to report individual work or special cases.

Several have already taken advantage of this and have presented matters of interest to the Society. Others are on the program for next year. More encouragement for this kind of work should be offered. It should be understood that any member who has carried out any careful scientific experiments or made any special observations upon any unusual cases, or has discovered any special preventive treatment of any disease, should bring these matters to the attention of the program committee and be given a chance to present them to the Society.

It is by stimulating an interest in such matters that we all will be more mentally awake and will keep more accurate case-histories and records. No better program can be presented than full reports of hospital cases with discussions and friendly criticisms.

Members should be encouraged also to report cases treated at residences. They should study such cases more in detail, taking careful case-histories, and report them before the Society, with all laboratory and pathological, and, in cases of death, the post-mortem findings.

Dr. Farr, in his address, asked, "are we doing all we can to bring out of our members the best that is in them; and are our members giving to this Society their best efforts?"

Case-reports before societies, with constructive criticism, develop the young men and make them more careful and painstaking, with the result that they become strong, positive men in our profession.

New theories may be offered on account of these careful observations. Thus will our medical knowledge grow; and each one here has the opportunity of adding to that knowledge.

III. ADVANCEMENT OF MEDICAL EDUCATION

a. *The Medical School and the Hennepin County Medical Society.*—As the Hennepin County Medical Society is composed of general practitioners and specialists, directly concerned about the health of the public and coming into

intimate contact with the people, we feel that this Society is in a position to offer many suggestions of value in regard to the needs of the public and, in a measure, to suggest what changes should be made to meet these demands by the graduate.

We trust that in the future all medical schools will willingly seek advice of reputable medical organizations holding in view the idea of teaching what the physicians who are in actual practice feel necessary for the welfare of the communities.

Lewellys F. Barker, Hugh Cabot, and others believe that medical schools should have more part-time clinical teachers who have attained success in their special field. The contact of students with men who have become eminent through their service in hospital and private practice acts as a stimulus to the beginner. Barker also believes that many of our schools are deficient in that they do not teach dietotherapy, mechanotherapy, and hydrotherapy.

Some modification of medical education, particularly requirements for specialists, must be made to meet the demands of the public if we are to fulfill the desires and needs of many people who have not made the corresponding scientific advancement with medicine. The field of medicine has been made so broad by discoveries that it has become a very complex profession, the scope and meaning of which cannot be grasped by the average citizen. With some it has become a business consisting of expert laboratory technicians, special nurses, and helpers. The test-tube, microscope, x-ray apparatus, and all sorts of appliances and instruments are utilized as an aid to diagnosis and treatment, all of which is often confusing to the patient and astounds or even frightens the timid one. This equipment, including elaborate office furnishings, means an outlay of much money. It also requires a broader and even special education on the part of the physician in order to understand and manipulate the various appliances.

Perhaps there are some physicians who, being thus thoroughly equipped, endeavor to make them pay, or, wishing to learn the use of all of the appliances and possibly to make an impression, employ them in the diagnosis of the case, with much added expense attached to the bill. The effect may be that the patient is dissatisfied with the bill and with the treatment.

We should recognize that our patients must be satisfied with the service and the fee, or they

will seek some less learned healer who may, by bold, positive, and convincing statements (according to the Coué theory), get results in many cases, especially in imaginary complaints. The patient is ordinarily not concerned so much about the *methods* for a diagnosis, but wants to know what is the matter and whether he can be helped.

These modern methods cannot and should not entirely displace the careful clinical history and observation, nor supplant the influence of kindness, interest, and judgment of the physician, whose personality and words of encouragement are important elements in the restoration of health.

And as Wilbur has said, "we must frankly recognize the fact that as a profession we are thought of too much in terms of drugs and the knife." Richard Cabot says, "regular medicine has traditionally and habitually shown a disregard of the mental side."

"Routine procedures," according to Riggs, "can be standardized, but standardization and science will only take a doctor half way to his goal. Medical judgment and personality are the crux of the whole matter. If a man has all else and not these, it is as nothing."

There are many patients coming to physicians who would get well if given good sound medical advice, have their infected teeth or tonsils removed, or be given physiotherapy treatments and words of encouragement.

b. *The Specialist and the General Practitioner*.—You who heard Dr. Frank M. Pottenger in his address before this Society will remember what stress he placed upon the influence of words of encouragement and a satisfied patient in the treatment of tuberculosis, also he believed that a general practitioner would do better with these cases than to have them treated by numerous specialists.

Dr. Martin Fischer says, "the world is seeking, as of old, doctors with a kindness, a tolerance, and a large understanding, the skill of hand and skill of mind and resourcefulness of past generations."

There is a crying demand on the part of the public and the press for the return of the "family doctor." Many articles have been written in lay and medical journals setting forth the reasons. As one has stated, "the old-time doctor was the father-confessor of the people." Some one must take his place. The irregular healers,

realizing their opportunity, are in many instances filling this demand.

Human beings like sympathy and some one with whom they can talk and in whom they can confide. They want friendship and a kindly interest shown in their trouble when sick; they want encouragement and positive assurances that they will recover. The ignorant healer or the shrewd and dishonest quack, coming in direct contact with the patients, gives them this assurance, which in itself often so quiets their minds that they get rest and gain strength, and Nature completes the cure.

We cannot forsake these simple folk. There are many districts in parts of the United States absolutely without a scientific doctor. We are establishing medical missionaries in foreign countries, but deserting our own people. Commissioner Briggs, of New York, says there are some parts of that state where there is no physician within twenty-five or thirty miles. There is one town in Minnesota of 1,500 inhabitants where there is only one old doctor to look after the people in the town and surrounding country. It is our duty to supply such a community with an educated, well-trained doctor, but one also with a kindly soul and the personality of a Wm. McClure, a Hunter, or an Osler.

The *Denver Times* wants the old-time general practitioner restored. It says, "specialization has run riot in medicine during the last ten years, and it is time for the old family doctor to return; the physician who was not only well-grounded in medical knowledge and trained in the school of varied experience, but possessed of common sense and genuine human sympathy."

The *Hartford Times* is for the specialist and general practitioner, too. It says, "the old-time family physician often knew more about the human soul than does the learned specialist of to-day and was able to boom his patient back to health by sheer force of personality."

Dr. Ray Lyman Wilbur, President-elect of the A. M. A. has said, "the student granted his degree means handling the ordinary problems of general practice. This is certainly necessary before he can safely be trusted to advance in any special field."

THE SOLUTION

"Our remedies oft in ourselves do lie." Would it not be wise and proper, therefore, to give all graduates in medicine a fairly liberal knowledge

of the art, and teach them to be general practitioners first and require that each one engage in general practice at least five years (including the hospital internship) before taking up any special line of practice, after which time a post-graduate course of one or two years in one or more special lines could be given, fitting them for that special line of work which they wish to follow, a degree being given and a certificate to that effect? We would then have more physicians with the humanitarian spirit and fewer narrow specialists. Dr. Head said in his address last year, "the young man in medicine should start out his professional career with one object in view,—to serve his fellow men."

With the broader knowledge of the many ills of the various organs of the body, the future specialist would be able to forge the connecting link in the chain of symptoms and not attribute these symptoms to a displaced uterus, an error in refraction, chronic appendicitis, or mental aberration, depending upon the viewpoint of the specialist. At any rate we must, in many instances, make a diagnosis and give the proper treatment at a less expense. Physicians with a wider clinical experience can do this, thus saving the patient much unnecessary time and money.

It would seem better to graduate more doctors if the public is suffering from the want of proper medical advice, even though many of these might be inferior to the average doctor of to-day.

There should be a moral standard, as well as an intellectual one, for the graduate. An honest, kind, sympathetic family doctor with less special skill is much to be preferred to the dishonest or ignorant healer. There is a greater demand in the highly civilized country for doctors and those who profess to know about disease. People consult them more even though they be untrustworthy; but how are the people to know? We must supply the demand and also show them the difference, by furnishing the people with general practitioners, instead of ignorant healers. The cases that cannot be treated properly will be referred by the conscientious doctor to the specialist elsewhere, instead of being passed by one healer to another one with supposedly greater healing powers.

When the physician has thus served his apprenticeship as a family doctor and desires to become a specialist in time, he may have a recent graduate follow in his footsteps. No better foundation for a specialist could be desired.

There would be less necessity for enacting new medical laws; we could compete with the healers on more equal terms; the public would soon recognize that the trained, educated, and scientific physician, with these added graces of kindness, sympathy, and honesty of purpose, is superior to them; and fewer, in time, would be the followers of these false prophets.

MEDICAL LAWS

The people, however, are entitled to protection by laws until they have learned that acute appendicitis, typhoid fever, tuberculosis, diphtheria, and smallpox are not amenable to suggestive therapeutics or adjustments of the spinal vertebræ. These laws should be equally as drastic as any blue-sky laws that now protect the people's investments. We should, therefore, all aid in the enactment of the bill that is to be introduced in the Legislature of Minnesota that has for its purpose eventually the elimination of the ignorant healer.

IV. THE UNITY OF THE PROFESSION AS A FACTOR IN THE INTERESTS OF THE COMMUNITY

Our records show that the Hennepin County Medical Society was organized in 1855 and that it was incorporated in 1869. A copy of the By-laws that was filed at that time is herewith attached, having been obtained from the Secretary of State just a few days ago.

HENNEPIN COUNTY MEDICAL SOCIETY

1. This Society shall be called the Hennepin County Medical Society, and the place of meeting shall be in the city of Minneapolis.

2. It shall constantly have in view the cultivation and the advancement of medical science and literature; the association of the medical profession for the purpose of mutual recognition and fellowship, and the maintenance of union, harmony and good government among its members, thereby promoting the interests, honor and usefulness of the profession.

3. Its members shall be regular practitioners of medicine and surgery, possessing a regular medical education and diploma from some regular medical school.

4. Candidates for admission shall be proposed by two members and balloted for at the next subsequent meeting, one negative in five to exclude the candidate.

5. The officers shall consist of a president, vice-president, secretary, and librarian, to be elected annually, upon the second Saturday in May.

For the current year, 1869-1870, the officers chosen by the Society are as follows:

A. E. Ames, M.D.,	- - -	President
N. B. Hill, M.D.,	- - -	Vice-President
W. F. Hutchinson, M.D.,	- - -	Secretary
O. J. Evans, M.D.,	- - -	Librarian

A. E. Ames, President

N. B. Hill, Vice-President

A true copy. W. F. Hutchinson, M.D., Secretary.

Filed May 21, 1869, at 2 o'clock p. m.

H. C. Rogers,
Secretary of State.

Some of the pioneer physicians who are still alive and members of this Society have stated that there was much rivalry, jealousy, and mistrust among the physicians in the early days. It took the profession many years to learn that that spirit was detrimental to themselves, created distrust with the public, and retarded their development. But added years mellowed the disposition of the older members. They began to realize how short is the span of life, and how unnecessary is the feeling of jealousy, rivalry, and dislike for one another. It has had a sobering influence upon the younger members and has helped to promulgate a spirit of fraternalism and a desire to help one another.

To-day there is little of that spirit manifest. Years of association and commingling and exchanging of ideas among the members (made more possible of late by frequent meetings, luncheons, etc.) have brought us closer together and to a realization that we are all brothers working for a common end,—the relief of suffering humanity and the attempt to eradicate disease.

An organization such as the Hennepin County Medical Society can accomplish much more by each member boosting every other deserving, conscientious member.

The public should have such confidence in our Society that we will be appealed to for guidance in health matters, and any legislative measure that is proposed, or any municipal ordinance suggested by us, will be endorsed.

A QUESTIONNAIRE

At the beginning of my term I sent out a questionnaire, and the replies to it were important factors in the further unification of the profession in the interest of the public, in that these replies enabled us to choose for discussion important topics therein indicated.

The replies were very interesting and demonstrated that there are men in our organization who, while not taking a conspicuous part in its affairs, yet are vitally interested in the scientific

side of the profession, and that others are deeply concerned about the future of medicine.

The reading of these answers would be very enlightening. From them I have gained a better knowledge of the spirit of the profession than I ever had before. So many good suggestions were contained in these answers that we regret that the time allotted for the carrying out of the work permitted only a small portion of them being acted upon. Many were concerned about—

1. Cults and their control.
2. State medicine.
3. Group medicine.
4. Commercialism.
5. Medical legislation.
6. The 18th Amendment.
7. Venereal disease.
8. Public instruction.
9. The general practitioner.
10. The specialist.
11. Contract practice.
12. Home life.
13. Public health clinics.
14. Health insurance.
15. City charter.
16. Excessive cost of medical education.
17. State institutions for the treatment of mental and bodily disease.
18. Standardization of fees.
19. Duties and privileges of the Visiting Nurses Association.
20. Unlicensed practitioners.
21. Free speech and loyalty.
22. Minneapolis as a medical center, etc.

It is interesting to note what the profession desired in the way of scientific programs, and the list herewith given is in the order of the number of replies:

1. Carcinoma: its early diagnosis and treatment.
2. Goiter.
3. United States Public Health Society and our State and local body: its limit and relation to the practitioner.
4. Communicable diseases and their control.
5. Endocrinology.
6. Tuberculosis.
7. Syphilis: its diagnosis, treatment and results.
8. Gastric and duodenal ulcer, results of medical and surgical treatment.
9. Hypertension.
10. Radium and X-ray: status of therapy.

11. Focal infections.
12. Our public schools and health work in them.
13. The ex-soldier and the medical problems connected therewith.
14. The University Medical School: its needs and future development.
15. Diabetes and nephritis.
16. Venereal disease.
17. Blindness and deafness and their prevention.

A number of other topics were suggested, too numerous to be included here.

From these replies we learn that physicians are interested in public affairs or in subjects which concern the practice of medicine in a direct or indirect manner. We should interest ourselves in these public questions. We are a part of the body politic, and we should and must inform ourselves about matters which, sooner or later, will be a menace to our city, state, and nation.

Another activity in which we engaged was the problem of expert testimony as it applies to the physician.

You will recall the joint special meeting we had with the Hennepin County Bar Association. This was the outcome of numerous conferences with their committee to arrange, if possible, some common and acceptable plan of action relative to this matter. After much discussion by the attorneys and physicians a set of resolutions was passed, and finally a declaration was signed by a great many of our members volunteering to testify on a commission, when called upon to do so, in medicolegal cases, until a law was passed which made it more or less obligatory for physicians to testify in that manner.

The following resolutions were passed at a special joint meeting of the Hennepin County Bar Association and the Hennepin County Medical Society on May 6, 1922:

1. WHEREAS, there is evidence of a growing dissatisfaction with the present method of adducing expert medical opinion offered in the trial of civil and criminal actions, and

2. WHEREAS, such dissatisfaction is due very largely to the heavy burden upon litigants for expert advice; the prolonging of trial work; and the uncertainty of outcome and difficulty of settlement due to the irreconcilable conflict in the testimony on the opposing sides of the case; and

3. WHEREAS, this situation has developed to such an extent that comment by the trial courts and also the courts of last resort, and by others having

knowledge of the facts, is taking on a character tending to cast reflection upon the skill and integrity of the members of the medical profession and legal profession, and

4. WHEREAS, with a view of correcting this situation in so far as may be practicable, a joint Committee of the physicians and the lawyers has been making a study of this subject for the purpose of working out and proposing some concrete plan or method to be used in connection with trial court work as a means to remove as far as possible this dissatisfaction.

5. NOW, THEREFORE, BE IT RESOLVED by the members of the Hennepin County Bar Association and by the members of the Hennepin County Medical Society in joint meeting assembled on May 6, 1922, that all physicians competent to qualify as expert witnesses upon the various subjects of controversy in litigation, shall be named annually by the Hennepin County Medical Society from which number, any trial judge, or any one or more of the litigants in any suit, may select a commission of three or more physicians to conduct a joint examination for the purpose of furnishing expert testimony relating thereto,

6. PROVIDED, HOWEVER, that any selection and appointment of any such commission by the Court shall be made only upon stipulation of the litigants, and in any case where the litigants cannot agree upon the three names, each side may select one physician with provision that the two physicians so selected may select a third.

7. BE IT FURTHER RESOLVED that the compensation for any services rendered in making any such examination, or giving expert testimony concerning same, shall be based upon a schedule to be designated by resolutions of the Medical Society and in no case shall the physicians who make such examinations, or give any such testimony, be permitted to know from what source their compensation is derived, such compensation to be payable through the Clerk of the District Court, or if that is not practicable, then through some trustee.

8. BE IT FURTHER RESOLVED that it is the intention by this procedure to abolish the established relation of paid employee between any litigant and the physician or physicians giving such testimony in order to secure as far as possible impartial and unprejudiced testimony.

9. BE IT FURTHER RESOLVED that any physician giving testimony in any case under this arrangement shall be subject to cross examination under the usual rules by any one or more of the litigants in the case.

While we all realize that because we have passed such resolutions and signed such a declaration, we perhaps would not often be called upon to testify in such a manner until such a law is passed, we do know, however, that we have put ourselves right before the public and the legal profession by placing our stamp of dis-

approval upon the unscrupulous so-called expert witness.

We have indicated a desire to change the ordinary unsatisfactory system into one that is in keeping with the dignity and honor of the profession.

We have also aided the other profession involved in putting the stamp of disapproval upon the more or less unjust methods resorted to by many of their ranks endeavoring to win the case rather than to obtain justice. Both professions have indicated a desire for some legislation to correct the past methods. For this purpose the following blank prepared for the signature of all who were willing to help in this cause:

HENNEPIN COUNTY MEDICAL SOCIETY EXPERT
CERTIFICATE AND DECLARATION

The present method of obtaining expert medical opinion is unsatisfactory. I, therefore, believe that the plan as outlined in the resolutions passed at the joint meeting of the Hennepin County Bar and the Hennepin County Medical Societies on May 6, 1922, should be followed until some law is enacted that will make it possible for all expert medical opinion to be given by a neutral commission.

I will be willing, under the resolutions adopted by the two societies to act as a member of a neutral commission on expert testimony in the trial of civil and criminal actions.

Of the divisions of practice hereinafter specified, I am qualified to act as an expert in the ones checked:

1. General medicine.
2. General surgery.
3. Orthopedies.
4. X-ray and radium.
5. Eye and ear.
6. Nose and throat.
7. Nervous and mental.
8. Pediatrics.
9. Skin and venereal.
10. Genito-urinary.
11. Obstetrics.
12. Gynecology.
13. Anatomy.
14. Physiology.
15. Pathology.
16. Bacteriology.
17. Chemistry.

I hereby promise to carefully examine and scientifically investigate any case for which I am selected to testify as one of a commission of experts; to give expert opinion only in such branches as I have named, after consultation with other members of the commission; and to give an impartial report or opinion, if cross-examined, according to the best of my scientific knowledge and belief.

(Signed)

In the declarations made by the signers of the blanks indicating the special line of work each physician is best fitted to act in as an expert, we have voluntarily examined our own qualifications and have agreed to act as experts only in such branches as we feel we are trained in and capable of giving an up-to-date scientific opinion in. Therefore, even when we testify in the ordinary way we will be less likely to qualify as an expert in the line that we are not competent to act in.

These joint resolutions have been widely commented upon by men and journals and have created a desire elsewhere for a change in expert medical testimony.

There is one phase of this question which perhaps few of you have thought much about, namely, Should we be able by this means or by legislation to deliver all of our expert testimony to a judge or jury by a common commission for plaintiff and defendant, how many malpractice suits do you suppose would be brought to trial?

Also more ordinary medicolegal cases would be settled out of court, and less expense would be incurred for the county.

So it behooves each and every one of us to make use of this voluntary form of commission testimony when possible.

THE 18TH AMENDMENT

This is matter of such importance that it is covered by amendment to the constitution of the United States, and about which fifteen governors of states met in Washington (as they did recently) to consult with the Chief Executive, and one which vitally concerns our profession and the nation, and is a matter of sufficient importance to be considered by our Society. The President asked that these governors of states co-operate with the "dry" agents in enforcing the law to the fullest extent.

When the present law was framed and passed, Congress and the people of this country had sufficient confidence in our profession to believe that we would not abuse the privileges *granted to us alone* by that law, namely, of prescribing liquor; therefore we should realize our responsibility and not betray that trust or allow that confidence to be destroyed.

Attorney General H. M. Daugherty has asked recently that "every resident of the United States live the life of a 100 per cent American and dedicate himself to the strict observance of the laws of his country."

When we recognize that, opposed to the en-

enforcement of the prohibition act, there are the ex-saloon keepers and brewery interest and many of the criminal classes of this country, we cannot afford to have any suspicion cast upon the medical profession that we are not doing our part in enforcing the law or that we are aiding any of the classes mentioned.

We may not be in sympathy with the law but we must strictly observe it and encourage others to do so; for, if we Americans disregard any of the laws of our country, we set an example to the foreigner or the newly made citizen which in time will work disaster to our Government.

"We must cease to regard the law as a joke," says United States District Attorney Lafayette French, "and good people must cease breaking the law. If it is not a good law we may then earlier determine that question and have it changed in the regular way." He also states that "physicians must help in its enforcement and refuse to give prescriptions for imaginary ills."

When it is necessary to prescribe liquor in a case in which it would be of benefit we should know that only that person uses it, and we should prescribe no more than is sufficient for that patient's needs.

Furthermore, the evil consequences of a pint or more of whiskey obtained by a ruse and supplied to a small company of young men and girls, we, as physicians, know too well, and that thought must be kept in mind when we are asked to write a prescription for intoxicating liquor. We may also render the person obtaining this prescription subject to arrest at times when the liquor is discovered in his possession. We should be very careful how we exercise our privilege under these circumstances, otherwise the profession will receive much of the blame for the moral wrecks that are the outcome of this business.

MINNEAPOLIS DISPENSARIES AND PUBLIC CLINICS

We should, as an organization, take an active part in the scientific management of all local dispensaries and public clinics. When a community, hospital, or organization desires to start a dispensary in the city, it should be determined by the advice and counsel of the Division of Health of Minneapolis and by the Hennepin County Medical Society.

Would it not be a very good plan if we could arrange for a voluntary group of younger members of our Society to take charge of all dispensary work in the city with a co-operative system

and amalgamation, as it were, of all dispensaries, with a rotating form of service so that all members who desire to spend some time at this work could get the training and experience that work of this sort would give them. It would be very instructive and would have a tendency to keep the doctors up to date and busy. There would be less criticism as all would have a chance to help. There would be less imposition upon the doctors, and only deserving people would be treated, as we could have an interchange of records and list of patients. The social service and charitable organizations of the city, working with us, would correct some of the objections to our present system. Certain uniform rules and regulations could be used in each dispensary, with less overlapping of work. Physicians could choose their special line of work and perhaps the time of service, so that these dispensaries could be open all day, and evenings if necessary.

Teaching dispensaries could select special volunteers for work in these places. Other dispensaries and clinics would be manned by the other group of volunteers.

THE RELATIONS OF THE HOSPITAL TO THE PROFESSION AND THE PUBLIC

This topic was well covered at a meeting at which Dr. Walter List, of the General Hospital, presented the hospital side of this relationship. In the past there has been more or less lack of co-operation on the part of hospital boards and the profession. Since this meeting, the hospitals of Minneapolis have been more disposed to follow the advice and suggestions of physicians, and the physicians have been more willing to co-operate with the hospitals in matters of common interest.

1. *Music for the Patients.*—We have had one meeting in which proper music was suggested for the sick and convalescent. In the future we hope more hospitals will be careful in regard to the talent selected and the character of the selection. The Thursday Musical promises to co-operate in this matter with the hospitals and the doctors in supplying suitable music for the sick.

2. *Books for the Hospital Patients.*—The matter of books furnished the sick at hospitals was considered by Miss Gratia Countryman at one of our meetings, and a plan now is being worked out to have the hospitals furnished with special books which make suitable reading for the sick as a possible aid to recovery. From

these lists patients or physicians may select the ones most suitable for the needs of the particular individuals.

3. *Art and Medicine*.—The matter of art in relation to medicine was considered by Dudley Crafts Watson in one of our noon-day meetings. No doubt there are many patients who could be improved in health by a study of mural decorations in the hospitals while lying in bed during their sickness and convalescence, and possibly a latent talent would be developed thereby. Some day we hope that, through our art clubs, there will be furnished at a nominal cost mural decorations for our hospitals.

THE PUBLIC PRESS AND THE PROFESSION

Perhaps no more interesting meeting of the year was held than the one in which the public and the press were invited to take part. The outcome of this meeting has been the close and friendly co-operation of the daily papers in the city in the matter of scientific medicine and medical news.

A few quotations from the men who took part in that meeting are as follows:

DR. W. A. JONES (for the profession): It is time for the doctor to enter into an alliance with the press to inform the public of the advances made in medicine.

WINTHROP CHAMBERLAIN (for the press): There would seem to be no good reason why the relation between them (the press and the medical profession) should not be friendly and co-operative. * * * The achievements of the Profession, its discoveries and inventions, the fruits of its research and its sacrifices, not only are matters of legitimate news, but are means for the education of the public. * * * The Press is the chief, if not the only, medium through which the layman may keep up with the progress of medical science, may let into his mind the enlightenment that will banish superstition and prejudice. * * * It is an omen of good import when the Hennepin County Medical Society undertakes to inquire into the relation we have been considering, for such an inquiry indicates a purpose to improve that relation.

REV. PHILLIPS E. OSGOOD (for the Public): Must not the medical profession presently, in some corporate fashion, take careful thought of a program of public education not only as to the true function of the doctor, but also in the axioms of preventive medicine?

PUBLICITY

We to whom it is given to know the cause and prevention of disease, suffering, and death, are derelict in our duty if we do not let the

people know how some of these ailments may be avoided. By proper public instruction and publicity as an organization, and not as individuals, and by co-operating with other organizations, many lives could be saved each year.

THE PUBLICITY AND EDUCATIONAL COMMITTEE

Under the work of the Publicity and Educational Committee, with the idea of co-operating with the public press, a number of meetings have been held with different members of the staffs of newspapers so that a system has been inaugurated of obtaining interesting news items upon scientific subjects for the newspapers in story form.

The *Minneapolis Journal* has stated that in a short time it is to publish a story of the pioneer days in medicine in Minneapolis and a history of the Hennepin County Medical Society as related to those times. Could we ask for better or more cordial relationship?

A preacher in one of the St. Louis churches said, "To educate the public opinion is a painful duty, but is one that must be faced, and each of the great professions has its allotted task in keeping the public well informed on the subject on which it can speak with authority."

Dr. de Schweinitz regards the benefits of medicine as belonging to the community and not to the doctors.

If we are to educate the people so that they will be able to differentiate between the honest, educated physician and the ignorant healer or quack and to value their bodies to the degree that they will take no advice from persons who are unqualified to act as advisers in health matters, we must establish some plan which is workable for that purpose.

It has been the intention to encourage members of the Publicity Committee to write popular short articles or stories or to give items of news along medical lines and have them published, if possible, under the stamp of the Hennepin County Medical Society. Every member of this organization is invited to contribute such articles or items and submit them to the Educational and Publicity Committee for review with the idea of getting them into the newspapers.

Dean Lyon of our Medical School says, "Medical science is the heritage of all people, and not of the medical profession alone."

With this plan of co-operation with all inter-

ested associations and the lay press it would not be many years before the irregular practitioner would be seeking other fields for a livelihood.

RADIO PUBLICITY BY THE HENNEPIN COUNTY MEDICAL SOCIETY

The Society is undertaking to assist in the dissemination of medical news by radio. We have frustrated, by timely suggestions to our radio stations, the broadcasting of news by the various cults.

This matter must be followed up by the Publicity Committee as the radio will be of tremendous value and importance in the future in getting the right information to the public.

THE ECONOMIC AND COMMERCIAL VALUE OF OUR SOCIETY

The economic and commercial value of the members of the Hennepin County Medical Society to Minneapolis has not been estimated that we know of. Questionnaires have been sent out to members of our organization and to the hospitals in an attempt to determine in a measure just what value our Society is to Minneapolis, in a business way. Perhaps some men who are opposed to physicians in general, might be persuaded that we are of some value if it could be put in dollars and cents.

THE HENNEPIN COUNTY MEDICAL SOCIETY AND ITS RELATION TO SOCIAL WORKERS

There is one vital question which concerns the profession very much. It is the danger of overworking the social service idea.

Physicians as a class are better able to decide where charity should begin and end than perhaps any other class or profession. By being closely associated with these lay organizations we may safely guide them and perhaps prevent much unnecessary charitable services or expenditure of funds.

We all believe in social service work and encourage it, but occasionally we see a worker who, from his close association with these constantly poor, dependent, and irresponsible ones, becomes too socialistically inclined, and too often he cannot see that many of them are poor and dependent because they are careless, indifferent, and inefficient, instead of being taught to work, earn and save rather than be pauperized, as I firmly believe we are doing with many of our people. This we must do unless we are willing

to socialize medicine or invite State medicine for the majority of the public.

A recent editorial published in the *Minneapolis Journal* should be read by all. I shall quote only a part of it. Under the heading "Should Doctors be Socialized"? it says, "Some economists foresee a day when doctors and nurses will be employees of the state, just as teachers are now, and when hospitals and clinics will be public institutions, much as schools are now. * * * Poor people now get medical and hospital service free, while the well-to-do pay high for it. But the great middle class go without such service when they can, and often when they need it, just because of expense. * * * The danger of socializing the medical and nursing professions would seem to be too great to justify the move. A sounder basis and one more logical is to graduate the costs of sickness to the patient's ability to pay. In so far as hospitals and physicians can do this, they will make their socialization unnecessary."

We should teach health; but also thrift and proper responsibility to the community and a pride in being independent, for often it is a disgrace to be dependent, just as much as some day perhaps it may be considered a disgrace to be sick, especially with a preventable disease.

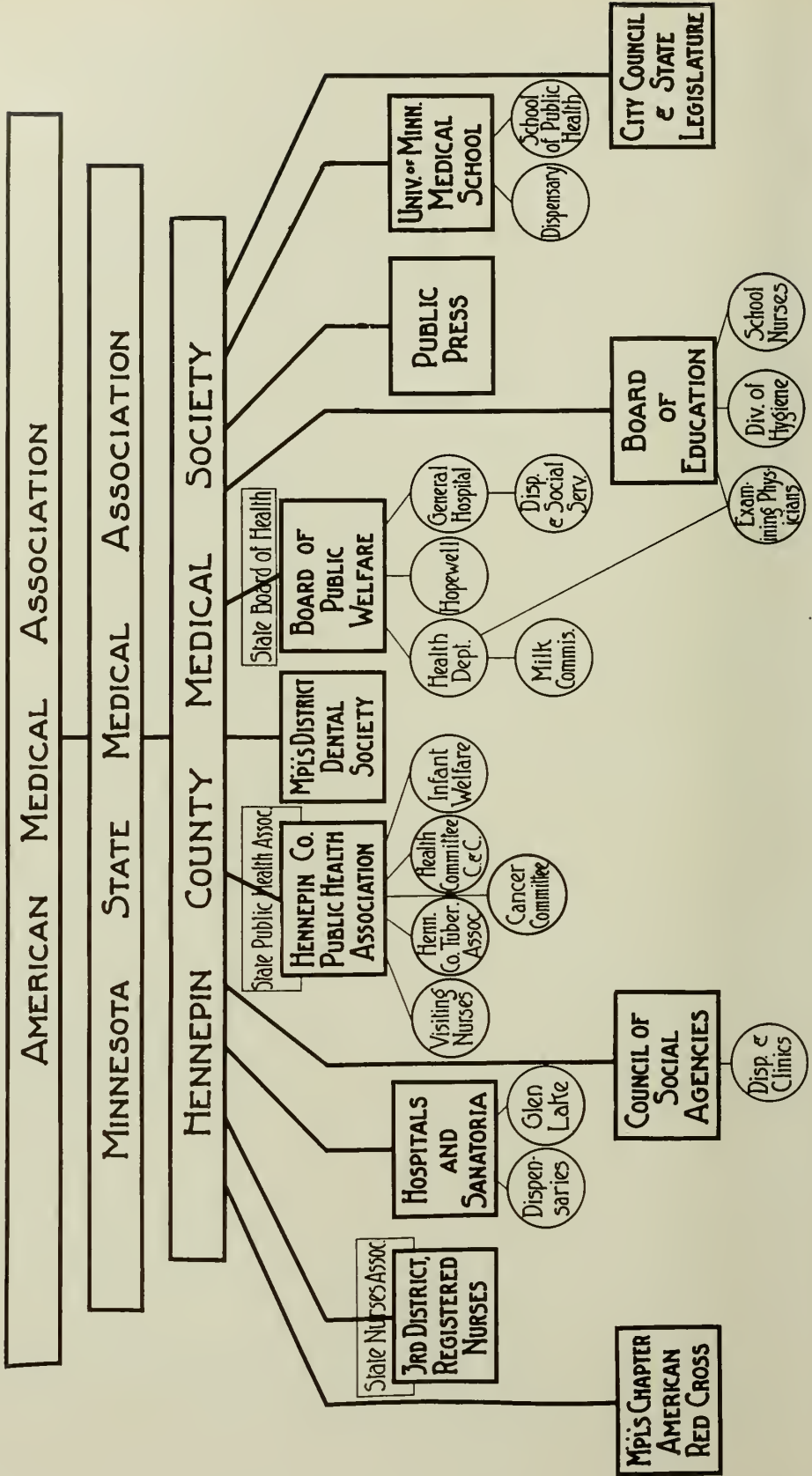
With the prevailing wages in this country and the demand for efficient labor there is little excuse for much poverty and dependence.

Wilbur says that "the doctor of the future must know group psychology; he must know something of the social organizations and economic life"; also, "physicians should make contact with other professional, welfare, civic, and commercial groups."

Dr. J. G. Cross said in his address before this Society, "It behooves us, whose everyday work makes us familiar, as no other class, with all social conditions, to take an active part in these questions which affect the public no less than ourselves."

By this close contact, association, and direction of social service affairs we can indirectly control the scientific part of all health associations, and at the same time try by all legitimate means to lessen the need of the too generous and prodigal distribution of medical charity that now exists.

To that end the accompanying graph has been prepared, showing a scheme of co-operation that seems a logical and possible solution of the problem.



During the year past we have tried to complete this co-operative scheme, and I think the physicians, as well as the unselfish individuals interested in these organizations, are pleased because it shares the responsibility of the work with them. It is a responsibility and a trust not to be shirked or despised. We can help. We are the ones who know and should be the ones most interested.

The year has been a busy one, and I must say far too short to finish some of the attempted constructive plans begun. I trust, however, what constructive plans begun. I trust, however, what of good has been started may be carried on to completion by my successors. I, therefore, gladly surrender the executive office to the one whom you have selected as your president for the coming year, and I wish him well and all success in all additional constructive work he may undertake.

A PRESENTATION

(EDITORIAL NOTE.—At the close of Dr. Benjamin's address he presented to the Society a framed copy of the Oath of Hippocrates with a few words of explanation.)

There hangs on the walls of the Harvard Medical Library a beautifully printed copy of the Oath of Hippocrates. The Librarian stated that each member of the 1921 graduating class received a copy to hang in his office when he began practice.

There is much in this oath that we can admire to-day, written as it was 450 B.C. when the world had not reached its present state of civilization and when men did not have many examples of moral lives nor the incentives to be upright and honest.

From that time there has been handed down to the profession the spirit of brotherhood and fellowship of men of science.

This is so beautifully expressed in the old oath that the Hennepin County Medical Society should have a copy hanging on its walls where we may all study its meaning, all frequently read it.

While in Boston last summer I saw a copy of this oath and have since succeeded in procuring a duplicate of the same.

It gives me pleasure to present a framed copy to this Society, over which I have had the honor of presiding during the past year, as a memento of my esteem and regard for its members.

May it serve as a bond of friendship between us, and as a permanent guide to the duties we owe the profession, the public, and one another.

THE OATH OF HIPPOCRATES

I swear by Apollo the physician, and Æsculapius, and Health, and All-heal, and all the gods and goddesses, that, according to my ability and judgment, I will keep this Oath and this stipulation—to reckon him who taught me this Art equally dear to me as my parents, to share my substance with him, and relieve his necessities if required; to look upon his offspring in the same footing as my own brothers, and to teach them this art, if they wish to learn it, without fee or stipulation; and that by precept, lecture, and every other mode of instruction, I will impart a knowledge of the Art to my own sons, and those of my teachers, and to disciples bound by a stipulation and oath according to the law of medicine, but to none others. I will follow that system of regimen which, according to my ability and judgment, I consider for the benefit of my patients, and abstain from whatever is deleterious and mischievous. I will give no deadly medicine to any one if asked, nor suggest any such counsel; and in like manner I will not give to a woman a pessary to produce abortion. With purity and with holiness I will pass my life and practice my Art. I will not cut persons labouring under the stone, but will leave this to be done by men who are practitioners of this work. Into whatever houses I enter, I will go into them for the benefit of the sick, and will abstain from every voluntary act of mischief and corruption; and, further, from the seduction of females or males, of freemen and slaves. Whatever, in connection with my professional practice, or not in connection with it, I see or hear, in the life of men, which ought not to be spoken of abroad, I will not divulge, as reckoning that all such should be kept secret. While I continue to keep this Oath unviolated, may it be granted to me to enjoy life and the practice of the art, respected by all men, in all times! But should I trespass and violate this Oath, may the reverse be my lot!

TUBERCULOSIS IN CHILDHOOD*

By F. M. POTTENGER, A.M., M.D., LL.D., F.A.C.P.

MONROVIA, CALIFORNIA

Tuberculosis is not inherited; but soon after birth the child begins to come into contact with tubercle bacilli which are scattered widely and met under many circumstances. During the early years most children become infected. By the time they are fifteen years of age nearly all of the poor city dwellers and a large, though somewhat smaller, percentage of the well-to do, and of those who dwell in the country, are infected.

Tuberculosis is most common among the poor because they huddle more closely together, thus affording greater opportunity for contact, and also because they possess a lower state of nutrition, and therefore are less resistant.

The sources of contagion are as follows:

1. Some person who is suffering from open tuberculosis and expectorating tubercle bacilli.
2. Dairy cattle suffering from tuberculosis.

Little children should not be allowed to play in rooms occupied by patients suffering from open tuberculosis, where bacilli are being coughed up. While the danger is largely removed if the patient lives in the open air, covers the mouth while coughing, disposes carefully of all expectoration, and destroys or disinfects soiled handkerchiefs and pieces of clothing; yet, even under these circumstances, it is not wise for children during the first two or three years of life to spend much time in a room occupied by a coughing tuberculous patient; and they should never be allowed to play on the floor or on the patient's bed, or to come in contact with the patient's soiled clothing.

Childhood is the time when most infection occurs. In the first place, the little child is not as resistant to tuberculosis, or for that matter to any other infectious disease, as it is after it is older and has been brought into contact with the disease-producing germs for a long period of time and developed an immunity. Again, the child lives on or near the floor, which is the most contaminated of any part of the room; and its habits of putting its fingers and other soiled or infected things into its mouth, greatly increase the opportunity of becoming infected. This is also the period when most milk is consumed, and consequently the time of greatest danger from this source of infection.

Dust from the floors, walls, and ceilings of rooms occupied by patients with advanced tuberculosis has been examined for tubercle bacilli; and this has shown that most all infection is confined to the floors and the lower two feet of the walls. This is the environment in which the child spends its early years, and it is self-evident that, if there is an open case of tuberculosis in the room occupied by a child, the danger of infection will be great.

Evidence of the greater danger in families with open tuberculosis is shown as follows: A greater proportion of children living in such families become infected before a given age than of those living in nontuberculous families; a greater proportion of them die of active tuberculosis during their early years; and a greater number break down later of active clinical tuberculosis. This is largely due to the fact that the child associating intimately with open tuberculosis is infected with many bacilli, and the severity of the disease depends very much upon the number of bacilli which cause the infection.

The danger from dairy herds is also a great one. It has been estimated that 8 to 10 per cent of all deaths from tuberculosis are of bovine origin and are transmitted through milk. This probably fails to show the true proportion of bovine infection. Studies of infection in large numbers of children have shown that a large percentage are infected by bacilli of the bovine type. The fact that we find the bovine bacillus rarely in adults, but often in children (particularly since we now believe that the infection in childhood is the direct cause of the disease in adults), makes it appear probable that the bovine bacillus, after growing in the human body for many years, assumes the type of the human bacillus in adapting itself to the human tissues. This assumption is extremely probable from knowledge of the habits of bacteria; therefore there may be a much larger percentage of tuberculosis depending upon our dairy herds than we have been thinking. The danger is so great that steps for eradication of tuberculosis from dairy herds should be taken and pushed to success; and, until such has been accomplished, children should be fed on milk from cattle known to be free from tuberculosis, or upon milk which has been pasteurized.

*Author's abstract of an address given by invitation before The Consulting Medical Staff of the Lymanhurst School for Tuberculous Children, Minneapolis, November 14, 1922.

These early infections in childhood have assumed an added importance in recent years, since we have learned that the tuberculosis in adults is traceable to the infection in childhood. Bacilli may remain in the tissues, practically harmless, for years, and then become active and cause a severe active tuberculosis.

While only a small proportion of those children who are infected in early life develop active tuberculosis at once, yet this early infection is serious because it may interfere with the growth and development of the child; and, further, it is now recognized as the cause of adult tuberculosis. Therefore, measures should be adopted which will reduce the danger of infection to a minimum, and cause whatever infection occurs to be produced with few instead of many bacilli. This would be a great advantage to the child because it would overcome the infection more readily; and, any infection, overcome or held in check, creates within the child an increased resistance or immunity to tuberculosis.

The first tuberculous infection in childhood affects the lymph glands. This is probably responsible for the fact that the disease is usually held in check, for the lymphatic system furnishes the child with its strongest defense during its early years; and bacilli, when they once settle in the lymphatic glands, are often prevented from multiplying and usually prevented, for the time being at least, from escaping to and infecting new tissues.

This infection in the lymph glands usually becomes quiescent, but not until it has gradually accustomed the body cells to the poisons produced by the bacilli, and raised their resistance or immunity to further attacks of bacilli.

Regardless of this increased resistance, the bacilli sooner or later in a large number of cases gain entrance to the blood stream and are carried to other parts of the body, where they produce other foci of disease.

If the bacilli scatter at once in the young child miliary tuberculosis or tuberculous meningitis (either form of the disease is almost always fatal) is apt to occur. At any age circulating bacilli may be deposited in vertebræ, causing the disease which results in "hunchback," or in a joint like the hip, producing "hip disease"; or they may be carried to the lung and produce an early infection of that organ.

One must not always expect the effects of a tuberculous infection to be evident at once. It does not always produce a disease such as I have

mentioned above. Sometimes the bacilli are held in check in the lymph glands about the root of the lung, where they multiply, yet fail to break out into the blood stream or to reach the adjacent tissue. If they extend to the lung, they may fail to cause a rapid invasion of the tissue. Often, even when bacilli do not scatter to form new foci, the poisons from the bacilli escape into the blood stream and are carried to all parts of the body, the special harmful effect of which is exerted on the nervous system. Toxins injure the nerves, and thus make the children irritable, and interfere with their growth and development. Children who do not develop properly, particularly if there has been open tuberculosis in the family, should be examined for tuberculous infection. All such children are not suffering from tuberculosis, but enough of them are to cause the disease to be thought of.

Another common condition, which is often due to an active tuberculous infection of the lymphatic glands at the root of the lung, is a "tendency to colds" or "bronchitis." These children are usually examined and operated on for enlarged tonsils and adenoids. They may be relieved in part, but often the symptoms continue. Such children should be examined for enlarged bronchial and tracheal glands, as well as for enlarged tonsils and adenoids.

Children who have active tuberculosis offer chances of overcoming their disease in accordance with its location and severity, and according to the age of the patient. The older the child the better its chances for recovery.

All of the more chronic types of this disease, such as those of the bones, joints, glands, and lungs, offer excellent chances for relief. Children suffering from these types of the disease should be put under proper treatment, preferably in a sanatorium, at once on the diagnosis being made, and this should be continued until a result is obtained; and those in whom the disease is only suspected, should be watched and placed in preventoria or special schools, if of school age.

Tuberculosis in childhood demands most careful consideration. If the problem were attacked in earnest at this age period, tuberculosis among adults would become a less serious question.

The campaign for the prevention of tuberculosis among children is a campaign for clean hygienic living. It embraces such subjects as personal cleanliness; adequate wage for the parents; economic living; hygienic homes and workshops; public parks and playgrounds; open-air

and special schools; and a pure milk supply.

I am greatly impressed with Lymanhurst. An institution such as this, manned by earnest workers, such as you have on your staff, and supported whole-heartedly by people who need its services, cannot help making a reduction in the amount of

tuberculosis in the community which it serves. I would bespeak for Lymanhurst the hearty support of the medical profession, the earnest cooperation of the people of Minneapolis, and the patronage of those who have children needing its benefits.

TEN YEARS OLD*

By J. G. PARSONS, M. D.
SIOUX FALLS, S. D.

The pleasant task of felicitating one upon the occasion of a birthday does not usually belong so much to parents as to friends. In this instance, however, I have been commanded by our efficient secretary to make a few remarks as the "Father of the Organization." It flatters my vanity to be able to acquiesce, for here the question of paternity is something that might well be shared in the pride of the health, achievements, and vitality of the offspring after ten years of substantial growth. For, really, it is no mean source of pride to any of us who are fellows of the Sioux Valley Eye and Ear Academy that we have developed from a meager beginning to a membership of over one hundred, and that we are recognized throughout the country as being one of the live societies in our special field.

The medical profession of that part of the Northwest which comprises the adjacent sections of Iowa, Nebraska, South Dakota, and Minnesota, grouping naturally together, has for over twenty years maintained a live, independent medical society known as the Sioux Valley Medical Association. I count it a great honor to have been a president of this society, whose meetings I have seldom missed.

However, while there have always been in attendance at its meetings members of our special guild, obviously the programs could not be overloaded with ophthalmology and otolaryngology; so that it was for a number of years quite the custom for the eye and ear men to lunch together in small groups, talk over topics of interest on the hotel lounge, thus keeping in touch with each other in a desultory manner.

Having proposed the advisability of organizing the specialists in this territory to several colleagues, I assumed the task of sending out some letters inviting them to meet at the time of the session of the Sioux Valley Medical Association

in Sioux Falls on July 22, 1913. On this occasion there assembled at my office the following men:

F. E. Franchere, of Sioux City, Iowa.
H. H. Frudenberg, of Madison, S. D.
L. G. Hill, of Watertown, S. D.
S. A. Keller, of Sioux Falls, S. D.
H. J. G. Koobs, of Scotland, S. D.
F. I. Putnam, of Sioux Falls, S. D.
F. H. Roost, of Sioux City, Iowa.
J. G. Parsons, of Sioux Falls, S. D.
L. N. Grosvenor, of Huron, S. D.

A tentative name for the organization had been "ready made," and insignia sketched, suggestive of the membership in the four adjoining states, and we proceeded to the organization of "The Northwestern Oph-Lar-Rhin-Otic Society."

This somewhat "highfalutin" name was later changed to the one now in use: The Sioux Valley Eye and Ear Academy.

The following officers were elected:

President, J. G. Parsons.
Vice-President, L. N. Grosvenor.
Secretary, F. E. Franchere.
Treasurer, S. A. Keller.
Censors, L. G. Hill, H. H. Frudenberg, H. J. G. Koobs.

The following papers were presented:

The Sluder Operation, F. I. Putnam, Sioux Falls.
The Blood-Clot Dressing in Masteoidectomy, J. G. Parsons.

It was voted to hold meetings in connection with the Sioux Valley Medical Association, alternating between Sioux Falls, S. D., and Sioux City, Iowa.

Subsequent meetings were held at these places with no change in the personnel of the officers until January, 1915, when the following officers were elected: President, L. N. Grosvenor; Secretary, F. H. Roost. In July 1916, the summer meeting was held at Omaha, since which time

*Presented at the banquet of the Sioux Valley Eye & Ear Academy, January 24, 1923.

meetings have alternated, summer and winter, between Sioux City and Omaha.

At this time L. N. Grosvenor was elected Secretary, which office he has since filled with an efficiency to which is largely due the increase in membership which has steadily marked its growth.

In 1918 the "Fellowship Pledge" was adopted, and all members were required to accept it. A special and clearly cut feature of this pledge was that directed against the commercializing of the profession by the splitting of fees "in spirit or in fact."

The membership at the present writing (January 1, 1923) is 102. There are, besides, 13 honorary members, who have come to us from distant medical centers to favor us with papers from time to time.

The average attendance during the period since 1916 has been approximately 35, excepting during the World War when one meeting was omitted, owing to the absence of a large number of the members in the service.

It is interesting to note that not only were there a goodly number of our members in the service, but that the character of the services rendered by them was such that they gained recognition that has substantially added to the honor of this Academy.

The programs have been of uniformly high standard, and the discussions most helpful. There has been a spirit of good fellowship and friendliness evident which has not failed to impress visitors from the outside.

The appearance of papers from our programs

in special literature has reflected credit upon us all, and has commanded the respect of members of our guild throughout the country. Attendance upon the meetings of the various national organizations by our members has been noticeable. In fact, it is doubtful if there is a society of a local nature that has a larger proportion of its members actively identified with the national academies and the A. M. A. sections.

We may well "point with pride" to the fact that "we are on the map."

The Omaha meetings have always been exceedingly profitable to those in attendance because of the interest taken among the fellows in Omaha in giving clinics, not to mention their well-known hospitality to visiting members.

So much for retrospect in which the "parental pride" of the writer has found opportunity to express itself, and that without fear of being assailed by any who know the facts.

May I now venture to predict as to the future a continued expression of loyalty among our fellows to the highest and noblest ideals of the profession to which we belong, a continued striving on the part of each to do his share toward making our gatherings full of profitable interest, and that the younger members will take up gladly the task of "carrying on," which is so necessary to a continuation of our work on the high plane on which it now rests. May I also venture the hope that those of our fellows "of riper years" who have given so freely of their wisdom and kindly counsel may long continue to be with us, a source of constant inspiration and worthy of our earnest emulation.

PROCEEDINGS OF THE MINNESOTA ACADEMY OF MEDICINE

MEETING OF JANUARY 17, 1923

Dr. H. Longstreet Taylor presiding

Dr. Geo. Douglas Head reported a case of pernicious anemia showing very remarkable forms of nucleated red blood cells.

Mrs. A., aged 28, married, children, was seen by Dr. Christian Hegge, May 3, 1922, with a very high grade form of anemia. The patient had given birth to a child seven months prior to the time I saw her. The childbirth had been without complications. Some weeks later she had an attack of la grippe, but recovered from this without complications. Prior to the birth of her child she had been told that her blood was poor, but no blood examinations had been made. About two months prior to the time of her examination she developed fever, weakness, and prostration, became bedridden, the skin

and the mucous membranes became pale. She did not lose weight. Blood examination was made at that time, showing red-blood cells 1,200,000, leucocytes 3,500, hemoglobin 25 per cent, color index 1.1.

The patient had been in the hospital three weeks at the time I saw her, running a continuous temperature, with marked exhaustion and weakness. On examination, the patient presented a well-nourished appearance, but an extremely waxy white color. Temperature, 105°. Mucous membranes very pale. Many old decayed teeth. Physical examination negative outside of the enlarged liver, reaching almost to the transverse umbilical line. Spleen was markedly enlarged, reaching to the costal margin. There were retinal hemorrhages in both eyes and one or two dime-sized purpuric spots in the skin of either

leg. No enlargement of lymph glands. No tenderness in the bones. The blood examination at the time this smear was made showed red-blood cells 730,000, white cells 3,400, hemoglobin 17 per cent, with large numbers of nucleated red cells in the blood, which are well illustrated by this beautiful water-color drawing.

The water-color drawing which I here present shows a remarkable picture of normal megaloblasts, the megaloblasts showing karyokenetic figures, some of them in the diaster stage, others showing a dividing nucleus with three nuclear bodies, megaloblasts with nuclei undergoing pyknotic changes, some of the cells showing as many as six to eight round nuclear fragments, the like of which I have not previously seen in the examination of a very large number of smears of the blood of patients with pernicious anemia. It is particularly to these latter cells with the marked fragmentation and division of the nucleus that I wish to call your attention. It is for this reason that I have presented the water-color drawing for your inspection.

The patient lived only two days after I saw her and the diagnosis of pernicious anemia was made.

I would like to inquire whether or not, in the experience of the members here, a very active fragmentation of the nuclei has any prognostic significance in cases of pernicious anemia. I have an idea that where one finds rather active breaking down processes in the nuclei as shown by fragmentation of the nuclei. Those cases as a rule run a very rapid downhill course.

Dr. A. Schwyzer reported the following case:

The case which I want to report is a woman who, about fifteen years ago, had an acute peritoneal attack—a tumor of the right ovary, partly cystic and partly dermoid, and that was removed. Since last summer she began to feel below par. She came to me a short time ago presenting a tumor developing in the splenic area; it felt just like the spleen or kidney, and the blood picture was of secondary anemia. Catheterization showed that the tumor was the kidney. On examination with sodium we found a dilated ureter, and the pelvis was branched all through the tumor. On the right side we could insert the catheter only 3 cm., but no urine came, while from the catheter which was inserted into the left side, that is, the tumor kidney, the urine came very profusely; but not a drop of urine from the other side, which was thought to be the healthy side. So we could not operate.

She was catheterized again on the healthy side, and the second time we could not get in further than 3 cm. either. We injected the right kidney pelvis, though the catheter would enter only a very short distance, and we obtained a beautiful normal pyelogram. The kidney was normal in shape, but there was no urine, so we took a very small catheter and got it in, but still got no urine. We examined the left side again, and it was working overtime.

While we were letting the patient rest for a few days and were figuring what to do, she started to have pain and passed some blood and clots, which were casts of the left ureter. It has looked, on ac-

count of the profuse secretion, as though we were dealing with a benign condition. Furthermore, hypernephroma would hardly give us this branching of the pelvis. Naturally we did not dare to remove the one functioning kidney. The bleeding came about five days later, so it did not come from the catheterization. The patient suffered severely from pain.

We then tried radium, and within about thirty-six hours the bleeding stopped and it has not returned. That was five or six days ago. What else should be done with the case I do not know.

We put the radium over the tumor area very well filtered by 2 mm. of lead, 1 mm. of brass, and 0.5 mm. of silver. She had 2,700 milligram hours.

DISCUSSION

Dr. R. E. Farr: I think we have all had the experience in catheterizing to find that one or the other side would fail to secrete even though we got the catheter in. I believe in those cases it would be well to give indigocarmin hypodermically and watch the spurts from that side without the ureteral catheter.

Dr. A. Schwyzer: I am quite sure there was no urine from that side on three sittings. The permeability of the catheters was tested every time before and after insertion. Furthermore, we felt that perhaps the urine did go along the side of the catheter, so I used the Harris segregator, which makes two pouches of the bladder, but still not a drop of urine came from the right side, while the left kidney worked very freely.

Dr. F. W. Schlutz reported the following case:

The case I wish to report tonight concerns a little girl eight years old. She was brought to the office for a general examination and for a nervous disorder.

A peculiar posture of the child was one of the most striking things observed. A cursory examination of the chest and palpation seemed to reveal a complete absence of both clavicles. This was confirmed by x-ray examination.

The general examination of the child showed no other unusual abnormalities. Outside of the nervous state and a moderate insomnia, she was in pretty fair condition. The general body development was good. Her weight was 49.5 pounds. The tissues had a fairly good tone. All the internal organs, including the heart, showed a normal condition.

She is under the care of an orthodontist for malocclusion. The chest deformity, which was really considerable, had never been noticed before or considered abnormal. The mother states that the child is capable of all forms of exercise, in fact takes gymnasium work at the school, and has never complained of any discomfort or inability to perform the usual tasks or forms of exercise or play that children of her age engage in. I have personally never seen a case just like it before.

Dr. H. B. Zimmerman reported a case of suppurating appendicitis.

This case is interesting only because of the unusual circumstances that made the diagnosis confusing. The patient was a man about 55 years of age, rather obese, and had an umbilical hernia about the size of an orange. He was observed by a competent physician the day before I saw him. At this time the diagnosis was made of a strangulated umbilical hernia. The history was that the night before the patient was taken with violent abdominal pain, with vomiting, and the hernia was irreducible. He refused to go to the hospital at this time, so ice-bags were applied over the hernia, and I saw him the next day. Up to this time the patient had no fever, and his pulse was practically normal. When I saw him his abdomen was very much distended, and he was still vomiting large quantities of brownish fluid. He was in great pain, but the pain was constant, not colicky in character. The hernia was still irreducible and he was not passing any gas by rectum. The leucocyte count was about 10,000 and the differential count practically normal.

I presumed that the patient had a strangulated umbilical hernia, and at operation made an incision in such a manner as to expose the neck of the sac. On opening the sac we found it to contain only omentum. This omentum, although it was matted together and congested, was not strangulated, and could easily be reduced. The condition of the hernia muscles on either side, so exposing the peritoneum, would not sufficiently explain his symptoms; therefore the abdomen was opened by incising the rectus. The intestines were diffusely inflamed and covered with a fibrinous exudate. The abdomen was explored, and, upon exploring the right lower quadrant, purulent fluid escaped, and with some difficulty a gangrenous appendix was delivered into the wound. The wound was closed by incising the upper over the lower flaps. The patient made a slow but perfect recovery. This is the only case of a really inflamed appendix with a diffuse peritonitis that I have ever seen that did not have fever.

DISCUSSION

Dr. Herbert Jones: I would like to ask if it is a good procedure to take out the appendix without drainage in gangrenous appendicitis?

Dr. Zimmerman: I did not want to bring up that discussion. I believe that in cases of peritonitis wherein the reaction to the infection is

diffuse throughout the peritoneal cavity and where there is no apparent effort on the part of the peritoneum to wall off or localize the infection, then, after carefully removing all necrotic tissue, such as a gangrenous appendix, the abdomen is best securely closed without any drain into the peritoneal cavity.

Dr. R. E. Farr: I would like to ask how sure the doctor is that there never was any rise of temperature in this case. Could he be positive of that? Also, I would like to ask about the advisability of x-raying cases of intestinal obstruction with the transverse plate and also directly through without the use of barium, as suggested by Case.

Dr. Zimmerman: The temperature in two days was taken from four to five times at varying intervals. The last time, immediately before operation, it was taken by rectum. This work of Case's is new to me, I did not feel competent to properly interpret such pictures, but I believe that it will come to be a valuable diagnostic agent.

Dr. Frank Burch read a paper entitled "Intraocular Sarcoma" and showed several lantern slides.

DISCUSSION

Dr. Brown: I would like to ask Dr. Burch if he doesn't feel, in the diagnosis of these cases and especially those anterior to the equator, that transillumination gives a picture that gives a clue to the diagnosis.

Dr. Burch: I have been very much disappointed in transillumination in the diagnosis of these tumors. In only one of these five cases has this been of much value; and that case was a patient 77 years of age who had glaucoma. In that case I felt positive that transillumination aided diagnosis. The only place that transillumination is of value is when the growths are anterior to the equator.

Dr. A. Schwyzer: What is the prognosis in general?

Dr. Burch: The prognosis is as I gave it here--about 50 per cent in cases where there are no metastases. Collins observed 79 cases in a period of twenty-nine months, and he found the recurrences were about 50 per cent. The case that I mentioned had a metastasis in the liver after five years. I found her accidentally in the hospital wards.

HARRY P. RITCHIE, M. D.
Secretary.

THE
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THE EVOLUTION CONTEST

The various sects, creeds, and newspapers are enjoying a riotous time in discussing evolution, and every time an evolutionist puts his head up some anti-evolutionist throws a brick at it. A very interesting account of this evolutionary discussion has been printed in the *Literary Digest*, and to the writer's mind the whole thing has been thoroughly summed up by one clergyman who says that the whole matter is a tempest in a teapot. By that he means, we presume, that the package of tea has been put in a strainer and the strainer dipped in a teapot, and boiling water has been poured over it. The tea represents evolution, the boiling water the antagonists, and out of this comes a mixture which is more or less fit to drink,—not acceptable to some, but highly acceptable to others.

One difficult phase of a discussion of evolution is that most of the antagonists believe in the biblical explanation that God made man after his own image. But when you come to question the time the first image was made it does not satisfy one as to time or space. And it may be, for the present discussion and because of its biblical backing, that the first of the human race developed a few thousand years before Christ. When, however, evolution is discussed from a geological point of view we find a good many mystifying things, and

geologists tell us that the world is millions of years old and probably was inhabited by a race of some kind in prehistoric times. It seems fair to assume that in some instances we are the lineal descendants of the ape, and, the editor believes, every physician has seen the apeman in his original mental garb. That a great many of our patients "make monkeys of themselves" there is no question. They disregard everything that is decent, moral, or ethical, and they conduct themselves in public like the average monkey confined in a cage in the zoo. Yet scientists tell us that the brain of the ape and the brain of the monkey are quite like the human brain,—underdeveloped in some instances, thus accounting for the defectives, and overdeveloped in others, perhaps accounting for the belligerents. From a purely technical point of view the writer does not see how anyone can discuss evolution or anti-evolution on anything based on facts except that the principles which guide the evolutionists are more or less substantiated by the research experts in geology and the evidence found in areas excavated in the old lands and in the new for that matter,—which seem to prove that a process of development has gone on from a biochemical standpoint. This makes it very difficult to understand why the evolutionary theory is not a perfectly good one and not inconsistent with many of the teachings of the Bible. Certainly there is nothing irreligious about the theory of evolution. Rather it should create a more profound belief in some divine guidance than detract from it.

Then, too, why is it necessary to stir up the minds of students by one lot of theorists and not let them have both sides properly placed before them so that they may eventually decide for themselves on this wonderful but very much unenlightened theory. To discuss it from one point of view alone, to prevent its being taught in schools and universities, is simply to make an uncertain matter worse. The man who believes in science is the man who is broadest in his outlook. The man who is brought up to believe something that is narrow and undeveloped is the one who becomes an anti-evolutionist, and he refuses to permit his mind to expand or grasp a new scientific theory.

The editor recently read a book called "In the Morning of Time," that is extremely interesting. The time of the story began as far back as any historical theory can extend,—at least it showed a portion of this earth, presumably this earth,

with its gigantic animal life and its low man-tribe in which there was more or less intermingling between the higher grade of apes and the lower grade of man. Why not assume that some of these lower grade so-called humans began to inform themselves or learn by experience some of the things that were essential to their welfare, and protection,—the self-preservation theory which is imbedded in us all?

The writer feels that he may stir up something of a hornet's nest in even suggesting this, but his main idea is to speculate on the why of so much opposition, so much turmoil, so much concern in the study of evolution and its branches.

MINNEAPOLIS CLINIC WEEK

Minneapolis Clinic Week this year begins on April seventeenth, and is preceded on April sixteenth by a meeting of the Northwest Section of the American College of Surgeons. This matter has been long under discussion, and it has taken some time to arrange the proper dates, as it is difficult to get men here from distant parts of the country except at a time convenient to them. The College of Surgeons will meet in Minneapolis on Monday (time and place to be announced later) and will hold an all-day session and will conduct an open meeting in the evening for the public. This will include all their business sessions and their scientific program as well. On Tuesday morning the clinics will open in all of the hospitals in Minneapolis; and the men who come here to attend the meeting of the College of Surgeons will attend the clinics, and Tuesday afternoon they will supply speakers for the afternoon program. This insures a good start for Clinic Week, and already the machinery has been put in motion to arrange the details relating to the hospitals and the clinicians who are to participate.

On Tuesday evening the Hennepin County Medical Society will hold its annual banquet, and here again we have the advantage of the presence of men from outside who will contribute to whatever program may be determined upon. The clinics will extend over the dates including the 17th, 18th, 19th, and 20th of April, so as to give the men from out-of-town ample time to get home for the week-end and plenty of time to attend the opening session which will be of special interest.

Minneapolis has not failed, so far, to offer suitable clinical and teaching material, and it

proposes this year to do everything possible to make the week beginning April sixteenth a lively and instructive one. Heretofore we have been able to send out preliminary programs. This will be done as usual, but not until a later date, that is, they will be gotten out in ample time so that the men will know something about the tentative program in which they are to participate.

The advertising of the clinics comes largely through its previous efforts, and we are expecting that the attendance will be within the normal limits. We do not expect as large an attendance as we have had heretofore because of the prevailing conditions, but will prepare for the usual number.

One outstanding feature of Minneapolis Clinic Week has been the liberty which has been given to the visitor, that is, there has been no attempt to encroach upon his time to such a degree that he becomes fagged with medical work. He will have ample time for recreation and amusement, together with what we can present to him in the way of medical interest. We propose to do as we have done before, to make it convenient for the visitor to reach the clinics with the least possible delay, so that he will not feel obliged to travel all over the city to attend clinics. The work at the larger hospitals will be the feature of Clinic Week, where the greatest number of clinics can be given at one time and where the men who present surgical or medical material are at home in the hospital and can present their cases in the most satisfactory manner.

GLEN LAKE SANATORIUM

Glen Lake Sanatorium, which is located just outside of Minneapolis and is for the care of tuberculous patients in Hennepin County, has recently been under criticism in a bill presented to the legislature proposing to abolish the Sanatorium Board and to vest its powers and duties in the Board of County Commissions. An open meeting was held in the Mayor's reception-rooms on Wednesday evening, February 7, at which the proponents and opponents of the bill were heard. There was a good attendance. The principal proponent of the bill was Mr. Ferrin, of the Board of County Commissioners. The opponents of the bill consisted of a member of the Sanatorium Commission, represented by Joseph Kingman, and one of the Board of Coun-

ty Commissioners, Mr. Waddell. Then, too, Dr. Robinson Bosworth, Secretary of the State Tuberculosis Association, was present and cited statistics showing the cost of construction and the relative merits of Glen Lake Sanatorium and other sanatoria throughout the country. The chief bone of contention seemed to be that the County Commissioners believe that the Sanatorium should take in more people now on the waiting-list, that is, it should be constructed in a way which would accommodate the largest number of patients. They made a good deal of this point; but they did not know, at the time, that all patients on the waiting-list were registered and were under the direct supervision of some tuberculosis society so that they were not neglected in any way.

There has been a long waiting-list in every county and state all over the country for the reason that at first the tuberculous patient hesitated about going to a tuberculosis hospital; but when he found he could get better care and more expert medical and professional attention he soon clamored for admission, with the result that all tuberculosis sanatoria are now crowded and have waiting-lists beyond their capacity. This applies as well to the schools for retarded children in Minneapolis, and doubtless elsewhere, which are crowded and have waiting-lists far exceeding the waiting-list in Minneapolis of tuberculous patients. So far every hospital of this type and every school of this kind have a corresponding list of people who are anxious to be admitted. The same thing applies to our state institutions. All of the state hospitals for the insane are overcrowded. All of the special schools are overcrowded, particularly the school for defectives at Faribault, where they have nearly one thousand waiting for admission. These things, of course, cannot be helped, for it is impossible to build institutions of this kind without considerable time elapsing and without the expenditure of a great deal of money.

The suggestion made by the County Commissioners was that temporary buildings be erected to accommodate the overflow, but this has been tried out in almost every state where they have up-to-date tuberculosis sanatoria, and it has been practically abandoned as being unsatisfactory and not meeting the situation.

The question of the erection of a hospital at so much per bed was discussed; and Mr.

A. A. Rahn, who is not only a builder but is familiar with building supplies and materials of all kinds, announced in very authoritative tones that he had followed the construction and building of the Glen Lake Sanatorium, that he was interested in the Shriners' Hospital, which is located on the east bank of the Mississippi River, and said the difference was about two thousand dollars per bed; that the Glen Lake Sanatorium had been built for about two thousand dollars a bed, or less, while the Shriners' Hospital would cost about four thousand dollars a bed. Other statistics were given out showing that the cost of hospital construction has increased almost 100 per cent, and the Miller Hospital of St. Paul was cited as an example of the cost of the modern hospital; there the estimated cost was seven thousand dollars per bed. This, of course, includes everything in the construction of a hospital in its various details. Consequently, the proponents of the bill had very little to offer as to the cost of construction, probably because they did not know anything about it. The reason they gave for attempting to maintain or control the Glen Lake Sanatorium was that they were responsible for the selling of bonds which were provided by legislative action, and consequently they were entitled to the responsibility of the construction and maintenance of the sanatorium. They admitted, however, that the present commission, which is composed of Mr. Joseph Kingman, Mr. Edward C. Gale, and Dr. S. Marx White, all of whom are under bonds and all of whom have given their services, had learned after long years of experience what to do in hospital construction, maintenance, and management. The evidence produced by the opponents of the bill evidently outweighed that presented by Mr. Ferrin, of the Board of County Commissioners. Mr. Waddell very frankly said that as far as he was concerned he would not know what to do with Glen Lake Sanatorium if it came under the direction of the Board, and he opposed the bill and urged, as others did, that the present commission be retained. This, in the end, will be found more satisfactory and cheaper than a sudden change in management.

Another point which should have been brought up in debate is the fact that the estate of the Christian family, who have always been interested in the care of tuberculosis patients, furnished money to build the Thomas Hospital, in Minne-

apolis, and turned it over to Fairview Hospital, later, for management. Further, that they have contributed \$160,000 for the erection of a Children's Building on the Glen Lake Sanatorium grounds. This in itself is a very important reason why the management should not be changed, for they contributed this because they felt that the Commission would ably handle the situation, and they felt that their investment would be protected. Then, too, there are many other people who might increase the plant by voluntary contributions of buildings. In the East people of means have a different idea about contributing their money. They give very largely and very generously to hospitals of all sorts. But the people of the West are very slow in adopting this plan of giving. So far, large contributions to the hospitals of Minneapolis have been made by only three or four people: The Christian family, as mentioned heretofore; Mr. W. H. Dunwoody, who built the Abbott Hospital; and Mr. T. B. Janney, who built the Children's Pavilion adjoining the Abbott Hospital site. No one as yet has contributed a sufficient sum to the University for hospital purposes, and all are waiting and hoping daily that some liberal-minded individual will eventually construct or endow a hospital building on the medical campus.

The point of this editorial is that every man who is interested in the success of the Glen Lake Sanatorium, and who knows from what he has learned that it is one of the best in the country and is conducted under the best law for the protection of the tuberculous patient, should contribute in his own way information and suggestions that will prevent the passage of the proposed bill in the legislature.

BOOK NOTICES

SURGICAL AND MECHANICAL TREATMENT OF PERIPHERAL NERVES. By Byron Stookey, M.D., Associate in Neurology, Columbia University; Assistant Professor of Neurosurgery, New York Post-Graduate Medical School and Hospital. With a chapter on Nerve Degeneration and Regeneration by G. Carl Huber, M.D., Professor of Anatomy, University of Michigan. Octavo volume of 475 pages with 217 illustrations, 8 in colors and 20 charts. Philadelphia and London: W. B. Saunders Company, 1922. Cloth, \$10.00 net.

The neurosurgeon's training must include familiarity with gross and microscopic anatomy, function, pathology, and symptomatology, as well as the

principles of surgical technic. This book convinces one that the preparation of the text shows due regard to all these requirements.

During the war the lack of adequate text-books relating to nerve injuries was keenly felt. Dr. Stookey's book will find a ready reception by the neurologists, as well as by the neurosurgeons.

The text is classified under headings of "Anatomy," "Nerve Degeneration and Regeneration," "Methods of Nerve Repair," "Surgical Principles and Technique," "Mechanical Treatment," and special treatises on the important peripheral nerve groups.

—J. C. MICHAEL, M.D.

APPLIED CHEMISTRY. An Elementary Text-Book for Secondary Schools. By Fredus N. Peters, Ph.D., Instructor in Chemistry in the Central High School, Kansas City, Mo. Cloth. Pp. 451 with 72 illustrations; reference tables and glossary. St. Louis: C. V. Mosby Co., 1922, Price, \$3.50.

This book easily comes up to the author's specifications. It presents the subject in an interesting, readable manner, calculated to catch and hold the attention of the beginner in chemistry. The application of chemical facts relative to events in our life, and bearing on health and happiness, is well presented. Questions appended to each chapter are thoughtfully designed to emphasize the salient points. The book is printed on good quality paper with many helpful illustrations.

A. W. D.

NEWS ITEMS

Dr. Herman J. Kooiker has moved from Doon, Iowa, to Hills, Minn.

Dr. R. E. Spinks has moved from Middle River to Newberry, Mich.

Dr. Erle B. Crosby has moved from Oriska, N. D., to Valley City, N. D.

Dr. C. L. Carman, of St. Paul has gone to Europe for postgraduate work.

Dr. F. A. Dunsmoor, of Minneapolis, is spending a few weeks in Cuba and Florida.

Dr. Guy Campbell, of Plentywood, Mont., has formed a partnership with his father at Melrose, Minn.

The St. Louis County Medical Society at Duluth is raising money for physicians in Russia.

Dr. T. A. Clifton has moved from Isanti to Chatfield where he will be associated with Dr. Halloran.

The Shriners' Hospital for Crippled Children in the Twin Cities will open next week for the admission of patients.

Dr. John H. Rishmiller of Minneapolis, Chief Surgeon of the Soo Railroad, is spending several weeks at Seabreeze, Florida.

Dr. J. J. Sippy, of Helena, Mont., has resigned his position on the Montana State Board of Health, and gone to Stockton, Calif., to become health officer.

Dr. Hazel Bonness, of the Minnesota State Board of Health, has been appointed chief of the Division of Child Welfare of the Montana Board of Health.

Small quantities of insulin, the new treatment for diabetes, are being made in Toronto and at the University of Minnesota. The Mayo Clinic is experimenting with its use.

Dr. A. F. Kilbourne, superintendent of the State Hospital for Insane at Rochester, was highly praised for his efficient work in the last biennial report of the State Board of Visitors.

Dr. H. G. Lampson, of Duluth, has been appointed by the County Board full-time health officer of St. Louis County contingent upon an appropriation from the Rockefeller Foundation.

Dr. C. K. Maytum, of the Mayo Clinic, is caring for the practice of his father, who is in the South Dakota Senate. At the adjournment of the session, Dr. Maytum will return to the Clinic.

Dr. John M. Conroy has resigned his position on the staff of the Nopeming (Minnesota) State Tuberculosis Sanatorium to become resident physician of the Tri-County Pure Air Sanatorium at Salmo, Wis.

Dr. H. M. Bracken, head of Veterans' Hospital No. 68, Minneapolis, has been transferred to the Veterans' Hospital at Atlanta, Georgia. A banquet at the Minneapolis Club was tendered to Dr. Bracken last month by members of the staff.

Twenty-five physicians in Minnesota have had their permits to prescribe liquor revoked for abuse of the privilege. It is reported that of nearly 5,000 prescriptions filled in Minneapolis 50 per cent of them were issued to fictitious names.

Dr. Rufus J. Cassel, of Mt. Vernon, Wash., died the last of January at the age of 49. Dr. Cassel graduated from the Medical School of the University of Minnesota with the class of '01, and had practiced over twenty years in Mt. Vernon.

Dr. Arthur M. Eastman, of Minneapolis, died last week at the age of 68. Dr. Eastman was a graduate of the Hahnemann Medical College of Philadelphia, class of '79, and had practiced in Minneapolis about 40 years. He was very prominent in Homeopathic medical circles in Minnesota.

Dr. Milton J. Rosenau, of the Harvard Medical School will give the annual address of the Alpha Omega Alpha Honorary Medical Fraternity in Minneapolis on March 7, at 8 p. m. in the Anatomy Amphitheater on the University Campus. His subject is "Food Poisoning." The public is invited.

It is now felt that the campaign to raise \$350,000 for an addition to St. Luke's Hospital of St. Paul will be a complete success. It is the purpose of the hospital managers to provide the best hospital accommodation for people of moderate means.

Minneapolis Clinic Week will be held this year on the 18th, 19th, and 20th of April, preceded on the 17th by an all-day meeting of the Northwest Section of the American College of Surgeons. Both meetings are noticed in our editorial columns.

February 11 to 18 was designated as "Hospital Book Week" in Minneapolis, when the donation of books for a hospital book service was begun. The Public Library will have charge of the service, which will be extended to all the hospitals in the city.

Warren County (Minn.) organized a Board of Infant and Maternity Hygiene last month. Dr. G. S. Wattam, of Warren, was elected president, and Dr. H. M. Blegen, of Warren, was made secretary. The Board will work under the Sheppard Towner Act.

Dr. Charles L. Clark, of St. Paul, died last week at the age of 66. Dr. Clark graduated from Columbia University College of Physicians in the class of '78. He was deputy coroner of St. Paul for nine years, and had practiced at White Bear for thirty years.

The Northwestern District Medical Society of North Dakota held its annual meeting last month at Minot, when the following officers were elected: President, Dr. R. W. Pence, Minot; vice-president, Dr. C. J. King, Columbus; secretary-treasurer, Dr. George C. Hanson, Minot; delegates, Dr. Andrew Carr and Dr. Hanson.

The North Dakota State Board of Health announces that Miss Edith L. Olson, of Minneapolis, has been appointed Field Advisory Nurse in the Division of Child Hygiene and Public Health Nursing. Miss Olson will assist Dr. Louisa E. Boutelle, director of the Division, in carrying out the infant and maternal hygiene program.

Dr. Charles E. Dampier, of Crookston, died last week at the age of 69. Dr. Dampier was a graduate of the University of Michigan Medical School, class of '78. He began practice in Crookston soon after graduation and practiced there for forty years. Dr. Dampier was prominent in the medical activities of the state, and was for many years a Councilor of the State Association.

The twenty-fifth annual banquet of the Psi Chapter of the Alpha Kappa Kappa medical fraternity was given in Minneapolis last week, with an attendance of about 40 active members and 60 alumni. Dr. Charles B. Lenont acted as toastmaster, and speeches were made by Drs. Braasch, of Rochester, and Drs. Geist and Irvine, of Minneapolis; and impromptu talks were given by other members. Dr. R. O. Beard, of the University, was on the program, but was absent because of illness.

The March meetings of the Lymanhurst Consulting Medical Staff, Minneapolis, will be held on the 13th and 27th. At the former meeting Dr. E. S. Mariette, superintendent and medical director of the Glen Lake Sanatorium, will speak on "Extrapleural Thoracoplasty." At the latter meeting Drs. R. G. Allison and R. W. Morse will speak on "Bronchiectasis in Childhood"; and Dr. H. Lippman will speak on "The Social Service Aspects of the Lymanhurst Outpatient Service." All physicians are invited to these meetings, which are held at the School.

The Swedish Hospital of Minneapolis celebrated its twenty-fifth anniversary on the 28th ultimo. The Hospital opened in 1898 with a capacity of 25 beds; it now has a capacity of nearly 250 beds. It cared for 238 patients during its first year, and for 6,053 during the past year. Twenty-three nationalities and eighteen religious bodies were represented in the patients of the past year. Supt. Wm. Mills reports the present value of the hospital equipment at nearly a half million dollars. Nearly 70,000

patients have been in the hospital during the twenty-five years of its existence.

PRACTICE FOR SALE

I will transfer my practice in a Minnesota town of 600 population with large contributing territory to the purchaser of my equipment. Price reasonable. Worth investigation. Everything ready, and new man can begin work at once. Address 326, care of this office.

FOR SALE

On account of closing hospital, we offer for sale Scanlon-Morris, high pressure, steam sterilizers,—one for instruments, one for utensils, hot and cold water and autoclave, in battery form on pedestals. One "White Line" porcelain top, operating-table with attachments, One Gendron, rubber-tired, invalid chair with two-piece, divided, adjustable leg rest and with propeller.

These are all high class and the best of their kind, in excellent condition and will be sold at the right price. Address, Box 556, Jamestown, N. D.

PHYSICIAN WANTED

Good territory and splendid opportunity for a doctor who wants to make good. For particulars write the Dent Commercial Club, Dent, Minn.

POSITION WANTED by X-RAY TECHNICIAN

An experienced x-ray technician, thoroughly familiar with bone-work and who can give the highest city references, desires work in this line. She is also a registered nurse. Address 322, care of this office.

POSITION AS SURGICAL NURSE WANTED

By a woman experienced in anesthesia and laboratory work, and can keep books. Has had two years city office experience. Last position was as superintendent of a hospital. Address 324, care of this office.

ASSISTANT PHYSICIAN WANTED

Assistant physician to do general practice, mining contract work, Minnesota. Small hospital. Have five other assistants. Must be graduate of Class A college and have had hospital experience, and be reliable as a man and a physician. Salary \$250.00 to start. Early increase to right man. Give full information in first letter, with photo. Address 328, care of this office.

MINNESOTA PRACTICE FOR SALE

Practice in a good town 30 miles from Minneapolis, in a prosperous dairy community, with excellent collections. The town of 1,200 inhabitants is on a beautiful lake, and the roads are unexcelled. Will make the best terms to a good man. Address 327, care this office.

PHYSICIANS LICENSED AT THE JANUARY (1923) EXAMINATION TO PRACTICE IN MINNESOTA

UPON EXAMINATION

Name	Where and When Graduated	Address
Ahrens, Richard S.	U. of Minn., M.B., 1922	St. Luke's Hospital, St. Paul, Minn.
Anderson, Carl Edwin	U. of Minn., M.B., 1922	Swedish Hospital, Minneapolis Minn.
Anderson, Walfred	U. of Minn., M.B., 1922	Swedish Hospital, Minneapolis Minn.
Ball, Fred E., Jr.	U. of Minn., M.B., 1922	St. Luke's Hospital, Chicago, Ill.
Bueermann, Winfred H.	Columbia, U., M.D., 1921	Rochester, Minn.
Eckman, Philip Franklin	U. of Minn., M.B., 1922	Moorhead, Minn.
Gillespie, Malcolm G.	U. of Minn., M.B., 1922	St. Mary's Hospital, Duluth Minn.
Gingold, Benj. A.	U. of Minn., M.B., 1922	General Hospital, Minneapolis, Minn.
Hammargren, August F.	U. of Minn., M.B., 1922	Minneapolis, 1624 8th St. S. E.
Hiniker, Louis P.	U. of Minn., M.B., 1922	Hastings, Minn.
Kepler, Helen Mackeen	U. of Minn., M.B., 1922	741 Huron St. S. E., Minneapolis
Kernkamp, Ralph	U. of Minn., M.B., 1922	U. S. Veterans' Hospital, Minneapolis
Latchford, Jas. Kyran	U. of Toronto, M.B., 1921	Rochester, Minn.
Lewis, David Joseph	U. of Minn., M.B., 1922	320 16th Ave. So., Minneapolis, Minn.
Lindberg, Alfred L.	U. of Minn., M.B., 1922	St. Peter, Minn.
Mitchell, Abbott Blunt	U. of Minn., M.B., 1922	Oshkosh, Wis., (312 Elm St.)
Moyer, Ralph Edward	U. of Minn., M.B., 1922	Asbury Hospital, Minneapolis, Minn.
Nagel, Harold David	U. of Minn., M.B., 1922	General Hospital, Minneapolis, Minn.
Paulson, Geo. A.	U. of Minn., M.B., 1922	1624 8th St. S. E., Minneapolis, Minn.
Reineke, Harold Geo.	U. of Minn., M.B., 1922	N. P. Hospital, St. Paul, Minn.
Richardson, Fredk. S.	U. of Minn., M.B., 1922	25 Sidney Place, S. E., Minneapolis
Smith, Elton Henry	U. of Minn., M.B., 1922	519 Wash. Ave. S. E., Minneapolis
Sugg, Cullen E.	U. of Mich., M.D., 1922	1515 Charles St., St. Paul
Taylor, Jos. Hume	U. of Mich., M.D., 1922	University Hospital, Minneapolis
Wetherby, Macnider	U. of Minn., M.B., 1922	1940 Sheridan Ave. S., Minneapolis
Wilson, Rolland H.	U. of Minn., M.B., 1922	Dakota, Minn.

THROUGH RECIPROCITY

Blakey, Adam Roy	Rush, M.D., 1921	Athletic Club, Minneapolis, Minn.
Brennan, Arthur Wm.	St. Louis U., M.D., 1911	Cold Springs, Minn.
Farisy, Arthur Thos.	Rush, M.D., 1920	Fairfax, Minn.
Gipner, John Fredk.	U. of Mich., M.D., 1921	208 Walnut St. S. E., Minneapolis
Hager, Benj. Harry	Rush, M.D., 1917	Rochester, Minn.
Harding, Donnan Beuter	U. of Ia., M.D., 1920	Rochester, Minn.
Hatch, Walter E.	N. W., M.D., 1907	311 N. J. Bldg., Duluth, Minn.
Howard, Wm. Henry	Hah. Chicago, M.D., 1915	137 N. Fairview Ave., St. Paul
Palmer, Clinton Foster	Rush, M.D., 1921	Albert Lea, Minn.
Peterman, Mynie Gustav	Wash. U., M.D., 1920	Rochester, Minn.

UPON NATIONAL BOARD CREDENTIALS

Kilgore, Allen Malone	Rush, M.D., 1918	Rochester, Minn.
Potter, James Craig	Johns Hopkins, M.D., 1921	Rochester, Minn.

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STUDY OF MINNEAPOLIS HEALTH FACILITIES AND THE RELATION OF A COMMUNITY HEALTH PROGRAM TO THE HENNEPIN COUNTY MEDICAL SOCIETY*

BY MABEL S. ULRICH, M.D.

Executive Secretary, Hennepin County Public Health Association; Chairman of the Public Health
Committee, Board of Public Welfare.

MINNEAPOLIS

PART I

The Hennepin County Public Health Association about nine months ago underwent a process of reorganization and announced its avowed aim for the future of not alone co-ordinating all existing health agencies, but also of developing in the community an efficient health service in such lines of health work as had not yet been undertaken.

In order to outline a program which should attempt to meet the most immediate needs of the community, it was necessary that a clear picture be obtained of all the health work now in existence. Such was the motive which impelled the following study.

In 1900 the population of Minneapolis was 202,718, In 1922 it has increased to 425,000. In a city which has grown so rapidly as this, we should expect to find that its development in health work, as in other directions, had been uneven and would show a lack of symmetry (an asymmetry perfectly symbolized by the architecture of the General Hospital). It is, therefore, not surprising that in certain highly specialized fields we found an unusual degree of efficiency, whereas in other equally import-

ant fields, scarcely a beginning had been attempted.

The data here presented represent no effort at a comprehensive survey. There may be, probably there are, occasional inaccuracies. Some of the figures here recorded may have shifted more or less in the time which was consumed by the study. But in the main I believe the study provides a fairly comprehensive bird's-eye view of the situation, from which it is possible to deduct interesting and suggestive information.

THE HOSPITAL SITUATION

Perhaps there is no better index of a community's response to health needs than the number of hospital beds available to its citizens.

In Minneapolis we have in all 2,409 hospital beds. These are listed as follows:

General Hospital (including Hopewell and Lymanhurst)	685
Private hospitals.....	1,530
University Hospital.....	194

Total 2,409

This number does not include the 261 beds at Glen Lake, which are available for Minneapolis patients.

An extraordinary diversity of opinion exists in the minds of hospital men as to what number of beds per thousand population can be

*Presented before Hennepin County Medical Society, February 5, 1923.

fairly considered adequate to the needs of a community. And it is clear why this should be so, when we consider how greatly the needs of communities must differ in the extent of the adjacent territory their hospitals must serve, in their climates, their industries, and their average standards of living. Therefore, when we state that Minneapolis has approximately 5.64 beds per 1,000 persons, while New York provides 5 per thousand, and Boston only 4.83, before we congratulate ourselves we must take into consideration the added fact that in Minneapolis a large proportion of the patients occupying hospital beds at any one time are from outside of the city.

As a matter of fact, it is not necessary to prove our underhospitalization: it is the common experience of every physician. Especially is our shortage evident in the number of free and medium-priced beds.

Should we be faced with an epidemic to-day, the General Hospital could by no possible effort meet the emergency.

We have no hospital at all for the care of convalescents, none for "chronic" patients, and no private hospital for the care of contagious diseases. These are such obvious needs that they require no further comment.

CONTAGIOUS DISEASES

It is commonly agreed that every community should have available for the common contagious diseases, exclusive of tuberculosis and venereal diseases, at least one bed for every 2,000 persons. For contagious-disease patients we have in Minneapolis one bed for every 2,537 population, including 20 beds which may be used for patients with venereal diseases.

If the number of hospital beds is an index of the community's awareness of its health need, the degree to which the medical fraternity report their contagious diseases is surely an indication of the physicians' appreciation of their responsibility. A study of the reports from the health office for the past few months shows a slow but steady improvement. That reporting is still far from satisfactory in tuberculosis, pneumonia, whooping-cough, measles, and mumps, a comparison of the number of deaths with the number reported will readily show. Influenza and pneumonia are scarcely reported at all, although the reporting of both is required by law and if carried out would be of great value to our city administration.

OUTPATIENT SERVICE

There are in operation 10 dispensaries and clinics. The largest of these are the official dispensaries at the General Hospital and the University. Wells Memorial and Margaret Barry are the only other dispensaries which have a general service. The others, all located in the settlements, namely, Unity House, Pillsbury, Northeast Neighborhood, and Talmud Torah, confine their clinic work to prenatal, infant welfare, preschool and dentistry. Wells Memorial supports a night clinic for venereal diseases. The South Town Children's Clinic does very successful work in prenatal, infant welfare and nutritional work, and has one of the largest dental clinics for children in the city.

The approximate number of visits paid these dispensaries annually is as follows:

General Hospital.....	53,293
University Dispensary, (includes some St. Paul patients as well).....	36,474
Wells Memorial.....	13,613
Northeast Neighborhood House.....	5,195
Margaret Barry.....	3,133
Talmud Torah.....	3,913
South Town Clinic.....	10,221
Unity House.....	5,327
Pillsbury House.....	3,875
Lymanhurst.....	1,707

There would seem to have been practically no attempt to locate dispensaries according to health needs, except in so far as certain settlement houses meet a neighborhood situation. Those dispensaries which offer general service are often so far removed from the residences of patients requiring help as to be almost inaccessible. On the other hand, the number of patients attending the General Hospital Dispensary has increased so rapidly as to far exceed the space available, giving rise to situations which result inevitably in grave and justifiable dissatisfaction on the part of both physicians and patients.

Moreover, it has been increasingly difficult to obtain either a sufficient number of physicians or a regularity of attendance which will guarantee properly conducted clinics. The problem has become much more acute since the war, and it is interesting to note that these same difficulties are complained of more and more in all sections of the country. All the indications seem to point toward the paying of a just fee to physicians for their services, thus making it possible to insure regular attendance.

Recommendations: The General Hospital should establish sub-dispensaries in at least four districts. These sub-dispensaries, through the co-operation of the Health Department and voluntary agencies, could become health centers where such educational clinics as prenatal, pre-school, infant welfare, could be established; there the Visiting Nurse Association could maintain their sub-stations, and the local welfare agencies find office space. If our city physicians could be put on full time at adequate salaries, they might be the chiefs of their district centers. Cleveland, under its Health Department, operates health centers on a somewhat similar plan with great success.

Before this can hope to be accomplished, however, a great advantage would be gained if a dispensary committee could be formed immediately and steps taken to provide a medical rotating service for each of the dispensaries, all of which should be used for teaching purposes. Better laboratory facilities should also be provided. Last year Wells Memorial turned away hundreds of cases, mostly in medicine, because of their inability to provide physicians.

CITY PHYSICIANS

The city sick poor when they require a physician in their homes are free to call upon the three city physicians who for some reason or other are included in the Division of Hospitals of the Welfare Board. Each of these men has his own district, and the limits of the district are determined upon a basis of the number of cases coming in. In 1922 there were made 3,096 home calls and 2,896 accident calls. Each man devotes approximately one-fourth of each day to this work.

One cannot but be impressed with the unsatisfactory nature of this service to the city. In the first place three men in a city of this size can not begin to meet the need. It would require four full-time physicians to handle this work as it should be handled, and as the General Hospital Superintendent, Dr. List, would like to see it handled.

Even more fundamental from the point of view of organization and administration is the need of recognizing this type of work as *relief* work, rather than as either a public health measure or a problem for the hospital. It seems clear that it should be tied up with other "relief" of the city and be supplemented by an adequate social service department. About 50 per cent

of all the calls come to the physicians from volunteer agencies and have doubtless been carefully "investigated" and are "followed up" by case workers; but for the remaining 50 per cent there is practically no social help available. Such a reorganization has already been suggested to the Board of Public Welfare, and will be acted upon doubtless in the near future.

MEDICAL SOCIAL SERVICE

The idea and ideals of medical social service have been slow to permeate the medical profession in Minneapolis. The average physician regards medical social service either as a scheme for being kind to the patient or as an instrument to determine whether or not a patient should be permitted to receive free medical treatment. As a matter of fact, the real reason for medical social service is to assist in medical treatment, and it has little to do with either of the other conceptions. In our clinics there is no attempt to furnish medical social service except at the University and General Hospital Dispensaries. Both institutions are doing excellent work in this field, but both are seriously handicapped by inadequate forces and funds. In the other dispensaries such social service work as is conducted consists wholly in the attempt to determine the economic situation of the patient, although frequent home visits are made through case workers not connected with the clinic.

One is strongly tempted to discuss here at length the relation between the social worker and the physician. Much as there is to be said under this head, however, it must be reserved for another occasion. It is important though to emphasize the very real contribution which medical social service has to make to all clinic and out-patient work, and to indicate that Minneapolis has as yet not begun to use this service as it should.

CHILD HEALTH

In 1922 there were 9,543 births registered. This is 100 more than last year's figures. Two years ago the census showed that there were 90,182 children under sixteen years of age in Minneapolis. And yet there is no child hygiene work now carried on by the Health Department. The reason for this omission, is that the non-official agencies are carrying on this work in so excellent a manner that it has been thought wise by our health commissioner to reserve his

always limited funds for other health activities. The question arises, however, whether or not any health department can be fully meeting its public responsibility if it takes no official part in the advancement of child health work. This matter will be further considered a little later.

1. *Prenatal Work.*—The work being done in this field is carried on as far as funds will permit most efficiently by the combined efforts of the Visiting Nurses Association and the Infant Welfare Society. Out of 9,543 registered births 1,900 prenatal cases were visited in the homes. Prenatal clinics are conducted by the Infant Welfare Society at five dispensaries and settlement houses, and the Visiting Nurses follow these cases to the homes, where mothers are given such home care and instructions as are indicated.

2. *Maternity Care.*—Fifty-two per cent of the births in Minneapolis take place in institutions. This is a remarkable record and one not, I believe, exceeded by any other city. But this showing, excellent though it is, does not relieve us of the responsibility of having practically no nursing service available during confinement. I say practically none, because five months ago the Visiting Nurse Association offered a maternity service for a limited district east of the River. During this period they have attended 25 confinements, 20 of which paid the fee of \$5.00. The present situation whereby a woman may receive the most skilled nursing care both immediately before and immediately following her confinement, and during the delivery itself none whatsoever unless she can afford to pay the regular fee for such service, is not only untenable from the patient's viewpoint, but works a great hardship on the attending physician. The Visiting Nurse Association has long appreciated this great need, but lack of sufficient funds has made a city wide service impossible.

3. *Infant Welfare.*—The responsibility of the well baby in Minneapolis is taken over by the Infant Welfare Society. When the baby is sick it is turned over to the Visiting Nurses. The breast-feeding campaign inaugurated by Dr. Sedgwick and carried on by the Infant Welfare Society is too well known to require more than a mere reference here. But the fact that Minneapolis has won a national reputation for the high standard of its work through the Infant Welfare Society is not so generally known by our own physicians. The Society has added to

its breast-feeding propaganda, the teaching of the necessity of the regular supervision of every well baby by its physician.

In 1922 1803 babies attended five clinics. This figure is 415 less than last year owing to the greater care exercised in excluding those parents who were financially able to go to private physicians.*

The popularity of this work is attested to by hundreds of mothers, and its value is proven by the steady decrease each year in infant mortality. But here again the number of nurses, and therefore the amount of instruction given, is definitely limited by the restricted funds of the Infant Welfare Society.

4. *Preschool Work.*—The only work done for this age group is that undertaken by the Infant Welfare Society, which holds only four clinics per month. Two of their clinics are general in character, and two are restricted to child training. The latter are highly interesting and have been inaugurated as the result of a growing appreciation of the relation between a child's health and his mental and physical habit reaction. Students from the Home Economics Department of the State University attend the clinics, make home visits on these children, and help the mother and child to carry out the doctor's suggestions.

This preschool period is the most neglected of any in the life of the Minneapolis child. There is no doubt whatever that far more work in habit formation, in nutrition, and in the pre-

*"Report of survey of 100 cases discharged from Infant Welfare Clinics because the nurse felt the income of the family was enough to provide for this care by private physicians:

The purpose was to find out how many of these 100 cases have consulted private physicians regularly as advised by the nurse.

Type of wage earner included professional men, such as dentists, teachers, ministers, experienced business men, and department managers, salesmen, bank tellers, skilled mechanics and tradesmen.

Salaries ranged from \$125.00 per month with one child to \$350.00 per month with four children. Salaries alone cannot be taken as an estimate as the number of children and expenses of the family will vary with every family.

The result showed that 38 mothers are consulting private physicians regularly. Of the 38, 17 are consulting a family physician, 21 are consulting a pediatrician, 62 are not consulting any doctor.

Special points brought out by the study were that 67 mothers said that they had a family doctor, 26 had none, and 7 were doubtful. (By family doctor we mean a regular physician to whom the family would turn in case of illness.) 13 cases plainly showed the need of special care other than that received from the family doctor. 8 showed that the family physician did not care to co-operate with the clinic doctor if the mother was referred to him. 5 mothers frankly said they wished to go to a pediatrician, but did not like to offend the family doctor. 3 mothers went a few times and said they found it too expensive. 3 felt they must make payments on home and furniture and could not afford it."

vention of physical defects should be carried on through the ages of from two to six by private physicians, clinics and homes.

5. *The School Age.*—There are 72,000 grade public school children, 86 grade schools and 52 school nurses. This is the highest percentage of nurses reported anywhere in the country with only two or three exceptions. Seven school physicians make the physical examinations, each physician having twelve schools. These men are required to give one hour a day, and the work consists practically of nose, throat, teeth, and eye examinations. An eye clinic is supported by the Board of Education for cases which require more detailed examination. For special classes a full-time physician is employed, and this man likewise examines all labor permits.

An effort is made to examine every child on entrance, all kindergarten children, and those children in the first grade who are found to have defects. The next examination usually occurs in the fifth grade, and the final one in the eighth. There are no physicians in the high schools. In five out of the seven junior high schools, nurses are employed for inspection. The parochial schools employ a Director of Hygiene and have five or six nurses. In cases of epidemics the Hygiene Department of the Board of Education is called upon to make cultures and to advise generally.

There are three dental clinics supported by the Board of Education employing three dentists and six nurses. Last year 6,026 children were treated in these clinics.

Recently a heart clinic for school children has been opened at Lymanhurst. It has been estimated that 2 per cent of all children have some form of heart disease. Obviously, it is impossible to detect more than a small number of these by means of the superficial examination now permitted; however, those cases which are brought to the attention of the physicians are referred to the Lymanhurst Clinic.

6. *Tuberculosis.*—140 school children are adequately cared for at Lymanhurst. This admirable plant has been so fully described on previous occasions that no further description need be entered upon here.

Recommendations: In order to protect the school child adequately and to insure his becoming a healthy citizen, many more physicians are required. Even better would be the results if all school physicians should be put on full

time with adequate salaries. There would seem to be no reason why Lymanhurst could not be more extensively used on Saturdays and after school hours as a clearing house for children who require more complete examination than can be given in school. Children obviously below par can easily be segregated by careful inspection, and the permission of their parents could doubtless be obtained for careful study and diagnosis at the Lymanhurst clinic.

TUBERCULOSIS

For the care of tuberculous patients Minneapolis makes a very fair showing as compared with other cities, although it is clear that a vast amount of work remains still to be done if the problem is to be permanently solved. The number of beds available for tuberculous patients is as follows:

Glen Lake.....	261
Hopewell	130
Lymanhurst	20
Thomas	56

Total 467

All cases are reported to the Health Department where the nurse detailed for that purpose places those desiring to enter Glen Lake or Hopewell on a waiting list in the order indicated by the public health or individual emergency. There are at present approximately 234 patients on this combined waiting list. The popularity of Hopewell is steadily increasing owing to the marked improvement of conditions there, and it is not an uncommon occurrence for patients who have registered their desire to go to Glen Lake, to refuse to make the change from Hopewell when a vacancy made transference possible. A full-time man as director of the tuberculosis work in Hopewell will shortly be appointed by the Welfare Board.

The death rate in Hennepin County from tuberculosis has been cut to nearly one-half what it was in 1911. This is probably due largely to the increase in the number of beds available and to persistent education as to the importance of early treatment. In 1922 the number of deaths from tuberculosis was 25 less than the deaths in 1921.

The outstanding work of the Hennepin County Tuberculosis Association has been the selling of Christmas Seals. By this means the Association received \$28,480 last year. During the campaign all possible publicity is given to the

tuberculosis need, and opportunity for educational work is thus presented. At the suggestion of Dr. Donald Armstrong, of Framingham fame, a more ambitious program may be undertaken by the association for the future.

VENEREAL DISEASES

The impetus given to the control of venereal diseases during the war under the wise direction of the State Board of Health, has carried over to the present day, and the control of these diseases has become a permanent feature of our community health work. Unfortunately, however, there has been little indication of a public appreciation of the value of the work, and until more public interest is shown and more public money is available it will be impossible for this work to progress to the point where it will contribute an appreciable gain to the health and well-being of Minneapolis. The only beds available for venereal cases are the 20 at the General Hospital, already referred to.

Night clinics are held at the University Hospital, the General Hospital, and Wells Memorial Dispensary. All these evening clinics are pay clinics, although, of course, they are by no means self-supporting. At the University Dispensary physicians are paid \$55 per month for two clinics per week of two hours each. Patients pay 50 cents for gonorrhoea, 50 cents for mercury, and \$1.00 for salvarsan. Last year the number of treatments given at the evening clinics, were as follows:

University Dispensary.....	8,356
General Hospital.....	9,521
Wells Memorial.....	1,292

In the Health Department a nurse who has had social service training investigates and "handles" the women who come to court and to the workhouse, as well as to the dispensary, and, whenever possible, makes home visits.

Recommendations: It must be obvious to anyone that venereal disease control depends for its success in large measure upon the continued treatments of discovered cases, and that such treatments must be in direct ratio to the number and quality of social workers who round up recalcitrant disease carriers. Therefore, more social workers is one of the first needs in this work.

At once, however, we meet the difficulty that even when "rounded up" there is no place provided where infected girls may live while under

treatment. Boarding homes refuse them, and even if hospital beds were available, they are usually able to be at work; yet it is for the sake of the public even more than of their own safety, that they should be kept under observation. Until we establish some place which will meet these conditions our social work and clinics can be only partly effective.

MENTAL HYGIENE

Very little work of any significance is being done in this field with the exception of a limited number of intelligence tests given to subnormal school children. The only beds available for psychiatric cases are those which Dr. List offers for teaching purposes as often as he finds it possible so to do. There is a pressing need of a psychiatric hospital and psychiatric clinics, especially for children.

HEART DISEASE PREVENTION

Work has scarcely begun in this line of activity. In view of the large percentage of medical cases at the General Hospital which show broken-down compensation, and in view of the fact that about 90 per cent of these are repeaters, there can be no doubt that we should start at once upon an educational campaign along these lines.

CANCER PREVENTION

"Cancer Week" has stimulated an increased interest in this significant field, and the outlook for a permanent cancer clinic is favorable.

DENTAL HYGIENE

Work in dental hygiene in Minneapolis compares favorably with that of any other city in the United States. With the co-operation of the Public Health Association and the General Hospital a plan for taking care of plate-work, prophylaxis, and small repairs has been devised and is meeting widespread approval. The dental clinic at the General Hospital with its full-time dental interne, together with its complete equipment, merits universal admiration. Seventy dentists of the Minneapolis District Dental Society have volunteered to do such work as is referred to them from the office of the Public Health Association either at no cost whatever or at a sliding scale of prices determined by the economic situation of the patient. Since all of these cases are protégés of the various agencies, and no one is cared for except when

recommended by the agencies, it is comparatively simple to avoid giving reduced rates except when these are strictly indicated.

Aside from the General Hospital, the University, and the school clinics there are four dental clinics, situated, respectively, at Unity, North-east Neighborhood, Talmud Torah, and South Town Children's Clinic. Most of the work done is on children and is of a prophylactic nature.

HEALTH EDUCATION

There is an appreciable lack of organized health education in Minneapolis. There can be no doubt that, in order to cover the field properly, a special department of health education should be established for all health work, and an organized campaign, consisting of lectures, distribution of printed matter, newspaper articles, motion pictures, etc., should be inaugurated. This might fittingly be supervised by the Health Department and carried on with the financial help and through the machinery of all other agencies.

The Hennepin County Public Health Association had hoped to carry on such a program since funds were lacking for this work in the Health Department. The Budget and Distribution Committee, however, felt that they were not justified in making allowance for this work from the Community Fund.

PUBLIC HEALTH NURSING

Minneapolis makes a very creditable showing in the quality and amount of public health nursing carried on by both official and non-official agencies, as indicated by the following figures:

School nurses.....	57
Health Dept. nurses.....	13
Visiting Nurses.....	27
Infant Welfare.....	15
Industrial nurses.....	15

Total 127

There has been developed a fine spirit of co-operation in this field between all agencies; and duplication of work is now practically impossible.

The Visiting Nurses Association does all the bedside work which is done in the city, and to them are referred by the other agencies all cases which need this type of care.. They have a charge of \$1.00 for calls for all those who can pay this rate (others pay what they can), and

more and more they are extending their service to patients who by no means are to be placed in the "charity class." At this same rate they do a great deal of work for the Metropolitan Life Insurance Company in the factories, etc. Activities largely instructive in character are also undertaken by this agency.

In order to demonstrate the advantages and disadvantages of a generalized nursing plan, whereby one nurse and one alone enters the home for every type of work, a demonstration suggested by the Hennepin County Public Health Association, is now under way in the Sixth Ward. Although the experience is too limited as yet to enable us to predict its outcome, everyone is agreed as to the interest of the experiment. The chief problem of generalized nursing is the avoidance of a sacrifice of the high standards of work possible when each nurse is a specialist in only one field. Whether the same standard of work can be maintained by means of adequate supervision is a question for the demonstration to determine.

PART II

COST OF HEALTH WORK IN MINNEAPOLIS

The following figures are taken from the 1923 budgets as already approved:

Division of Public Health - - -	\$112,000.00
(27.3 cts. per capita)	
Board of Education-Hygiene Dept. 142,117.00	
(7,200 children—\$1.76 per capita)	
Lymanhurst (exclusive of Board of Education) - - - - -	51,000.00
General Hospital and Hopewell -	613,000.00
Glen Lake - - - - -	250,700.00
Health Agencies listed and budgeted as such—supported by Community Fund - - - - -	146,189.39
Total	\$1,315,006.39

It is impossible to determine the amount expended by settlement clinics,—sick relief of the Family Welfare Society, Bethany Home, Salvation Army Home,—since in none of these agencies is this phase of activity budgeted independently. We find a considerable amount of health work not listed as such which should be considered in our total estimate,—as for example examinations at the Y.M.C.A., the Y.W.C.A., Girl and Boy Scouts, Knights of Columbus. We must also include the cost of the Minneapolis patients who receive health help at the University Dispensary and Hospital. Although this is

met by the State Treasury, it, nevertheless, is spent in Minneapolis for Minneapolis poor and should be added.

If we total all these it would not seem an extravagant guess to place the annual expenditure for all kinds of health work carried on in Minneapolis at approximately \$1,500,000.* This is an enormous sum of money and yet the field is by no means well covered. There still exist deserts of inactivity, such as the fields of industrial and mental hygiene, and in no one field of health work can it be said that it even approaches 100 per cent efficiency.

THE ADMINISTERERS OF THE MONEY

The official agencies entrusted with the expenditures are the Board of Public Welfare for the General Hospital and Health Department; the County Sanatorium Commission for Glen Lake Sanatorium, and the Board of Education (Department of Hygiene) for the school work.

The non-official agencies can be conservatively estimated as expending about one-sixth of the whole. Their work and funds are directed and administered by boards made up of laymen with no technical training together with a sprinkling of medical men, who act usually in an advisory capacity. My own personal impression is that the funds of these groups are handled invariably with absolute honesty. There is no innate reason, however, why with a dishonest executive secretary records and accounts could not be juggled. The Budget and Distribution Committee of the Community Fund has a subcommittee on health budgets which endeavors to analyze and passes upon the budgets of the respective health agencies. There is no limit to the generosity of the men who serve on these committees when it comes to the giving of their time and energy, but the difficulties of these committees are very great. With a personnel of business men who are trained in nowise to evaluate the relative health needs of the community, they are further hampered by the natural resistance of agencies to any cuts in their own estimates of their needs, and the desirability of avoiding antagonisms which might result in the collapse of the Community Fund.

WHAT NEXT?

The common experience of all welfare workers goes to show that the better they are organized

the more they find to do, and the larger the sum required to meet the ever-growing community needs. What then must be expected of the future? It would seem to me that we are presented with a choice of three courses of action. First, upon investigation, we might decide that there does not exist the economic need which would warrant this expenditure. If this be true we should reduce at once the service proffered. Second, we might ask ourselves if this money is actually being expended to the greatest advantage to all concerned, or whether there might not be a means devised whereby with but little increase in the amount spent, larger returns could be obtained. Third, we may continue to operate as we have begun as long as the public remains comparatively passive.

This last suggestion merely pushes forward the day of reckoning and therefore may be disregarded in this inquiry.

THE ECONOMIC NEED

Does the economic condition in Minneapolis truly warrant the expenditure of one and one-half million dollars in health each year? This is a question which can scarcely be accurately determined. That there are thousands of persons who habitually or temporarily must be assisted over financial difficulties is proven by the analysis of the reports of any of our welfare agencies.

In the Confidential Exchange from 25,000 to 30,000 families are being helped by various agencies. In the Family Welfare Society last year 16,021 families were cared for at a cost of \$77,079.52.

It is estimated that from 2 to 3 per cent of the sum total of the population are sick at one time (these figures exclude such minor illnesses as do not cause incapacity). If we take the smaller percentage for Minneapolis about 8,000 persons are sick in bed every day. Social workers hold that 75 per cent of their relief problems arise from physical disabilities of some nature.

All that we can justly infer from these statements is that a large number of persons residing in Minneapolis are unable to provide the needed care entailed by the illnesses of themselves and their families. Worthy or unworthy, when they are sick they must be helped if only for the protection of the rest of us.

(I cannot leave the question of economic need without at least a slight reference to those who are in the next plane of economic being. I refer

*It must be remembered, however, that this figure is a guess and does not claim to be an exact estimate.

to the small salaried clerk, professional person, teacher, etc., whose education has been such as to lead him to know the necessity of good medical service, but whose purse cannot meet the price of the expert whom he feels alone could benefit the one he cares for.)

Before we take up the question as to whether or not our health work could be carried on more economically and effectively than at present, let us consider for a moment the origin and significance of the Volunteer Agency.

THE VOLUNTEER HEALTH AGENCY

Volunteer agencies in general are the outgrowth of philanthropy and are supported and nurtured for the most part by philanthropists, who are the great menders and patchers of society. They express the tenderness and pity of man and represent the effort on the part of fortunate individuals to rationalize the inequalities so obvious in our complex civilization. Out of this philanthropic impulse have grown our Health Department, free hospitals, etc.

But the demand for health protection has grown more rapidly than has the education of the public for adequate official budgets. The primary reason for the existence of the voluntary health agency as it exists to-day is the imperfect provision of facilities for our official health agencies. More and more throughout the country is the work of these agencies being taken over to be supported by direct taxation. That there are still hundreds of them in existence is due largely to—

1. Distrust of the relationship between health work and politics (insecurity of administration; the uncertain tenure of office of the health commissioner; danger of lowering standards of work through civil service appointments).

2. The desire of certain groups to demonstrate to the community at large the need of certain types of work not hitherto undertaken by the municipality. (For example, it was the Woman's Club which first undertook the examination of school children.)

No one values more highly than do I the contributions made by volunteer agencies and the laymen in the health field. Without lay interest and lay help we freely admit our public health program would be far behind its present status. The point I wish here to emphasize is one repeatedly reiterated by our health agencies themselves, namely, that eventually all volunteer

health work should be turned over to official hands. The question I now raise is, could not all health and relief work be carried on to-day with more health and life-saving results if the volunteer agencies, having so successfully demonstrated the need, would now relinquish their funds and their authority to duly delegated persons or boards—municipal authorities—who would be held as directly responsible for expenditures and policies as is the health commissioner?

The volunteer agency could then confine its attention to the demonstration of new work and to the interpreting of all health work to the public. That such a step would mean a saving of thousands of dollars could, I think, be easily demonstrated.* That it would prove a popular one to the general public I fully believe—a faith which I think is justified by the growing confidence manifest in Minneapolis in its municipal boards—and the equally manifest growing distrust in philanthropic enterprises everywhere throughout the country as evidenced in the general decline in all Community Funds.

I am not yet prepared to offer a plan whereby this move could be equably consummated. At this time I am merely urging your most careful consideration of the step as the most reasonable and logical yet offered for the solution of a very real economic problem.

That many objections will be raised to such a plan is preordained; but, as I see it, all the objections might equally well be raised against democracy itself. A benevolent autocracy has its good points, but somehow we feel that even if we muddle along slowly with our democratic methods, in the long run we travel a more satisfactory course.

PART III

PHYSICIANS AND A HEALTH PROGRAM

Despite the fact that men trained in the medical profession have contributed more in the last half century to the cause of humanity than have all the inventors, statesmen, and philanthropists combined, the charge is repeatedly made that the physician is lacking in public spirit and in an adequate appreciation of social welfare. Paradoxical as this may sound, the charge is often warranted. The interest of the busy practitioner has, perforce, been through his training and his

*In 1922 the Department of Hygiene of the Board of Education took care of the teeth of 6,026 children at the cost of \$11,000, or \$1.82 per child.

daily experience concentrated upon the physical ills of one human organism, and, if too often he loses sight of the great social forces which underlie bodily and mental health, we should not be surprised. Like the philanthropist, he too is often the Good Samaritan who in his desire to help the stricken traveller wholly forgets that the unguarded roadway invites hundreds of predatory prowlers. To be sure, his immediate duty is clearly that of first aid, and often he claims this to be his sole duty. More and more, however, the responsibility of the prevention of bacterial onslaught is being forced upon him and he disregards and avoids this added burden only at the risk of losing the community's respect.

We have become used to the idea of a certain amount of group-protection. Typhoid-free water, clean milk, drained swamps, and the destruction of lice and rats—these are old stories of sanitary engineering which no longer occasion comment. That we as physicians can with equal success eliminate scarlet fever, diphtheria, and many other scourges will doubtless be proven in another generation or two. But few of us yet realize that prevention should be applied as truly to the heart disease, Bright's, and arteriosclerosis of the individual, as it has been to the yellow fever and typhus of entire countries. We may as well accept the fact that, although from an impersonal scientific viewpoint the keeping of people well may be less interesting than the making of them well, nevertheless, it is the "medical practice" which is going to prove to be the most hopeful and most lucrative of the future.

Already the success of the Infant Welfare Society has encouraged more than one physician to train his mothers to bring their well babies regularly to his office. Far more men could do the same at a profit to their bank accounts and to the babies' health. Regular prenatal visits should of course be the recognized procedure in every maternity case. And of the highest importance is it that physicians should begin to train their "families" to the custom of presenting themselves at regular intervals for thorough physical examinations. The dentists have shown us how easily this type of education can be assimilated by the lay public. A concentrated action on the part of physicians would bring appreciable results in a few month's time, and it is impossible to estimate the amount of saving in pain, health, and money the habit once established would mean to the people of Minneapolis.

THE MEDICAL SOCIETY AND THE PUBLIC

If prevention is indeed the next act in the drama of medicine, then it seems to me it follows that the relation between the lay public and organized medical men represented by the medical societies must grow constantly closer and more sympathetic. No longer can our medical societies exist solely for scientific and social comradeship. There are to be solved many questions which are of equal importance to laymen and physicians and which will present far less opportunity for misunderstanding if they are worked out together. All problems of education obviously come under this head; but likewise do the questions of hospitalization, the location and number of clinics, the possibility of a sliding scale of prices for given work, the ever-pressing problem of supplying adequate medical help for the great number of small salaried persons who scorn charity, but who recognize trained service. Personally, I am convinced if we should take into our confidence these people who are directly concerned, we and they would receive much help, and incidentally all talk of a "doctors' trust" would die soon of inanition.

Already our Hennepin County Medical Society has shown its appreciation of the growing importance of these new issues in its appointment of a public health committee. This study of the existing situation in Minneapolis has been presented to you tonight largely with the hope that with these facts as a basis, this committee will see its way to the drawing up of a broad community program and the statement of a policy for health work in Minneapolis which the Society having studied and endorsed, will present to the community as the one authorized and recommended by the physicians of the city in the development of Minneapolis. There are at present several movements on foot for the co-ordination of clubs and interested citizens that they may work toward a plan of city development which shall look forward to a municipality of one million persons. Already with comparatively little effort it has been possible to obtain united action for a great auditorium. Is it not a legitimate function of the Hennepin County Medical Society to convince the public that an economical far-seeing health program which leaves no field of disease prevention uncovered is the surest foundation upon which to build our Better Minneapolis?

SUMMARY

PART III

PART I

A study of Minneapolis' health facilities presents a creditable showing in many regards. Nevertheless the municipality, as soon as possible, should provide more hospital beds in practically all services; a convalescent hospital and one for chronics; more rooms and more physicians for dispensary service; carefully planned sub-dispensaries; a mental hygiene clinic; a closer relationship between city physicians, dispensary, and relief department (including social service).*

Through the Health Department, the city should provide funds for maternity nursing and infant welfare. It should also establish a division of industrial hygiene and one of health education.†

The Venereal Disease control work is inadequate and must remain so until the city provides a place other than the workhouse for the quarantining of patients and where infected persons may be kept under observation while treated.

For children of school age are indicated more school physicians; medical inspection in parochial and other private schools; and more thorough examination and follow-up of all who are below par.

Other and immediate needs are the more conscientious reporting of reportable diseases; a private hospital for contagious diseases; more low and medium-priced beds in private hospitals; chest clinics for the early detection of tuberculosis cases; active campaigns for the reduction of both cancer and heart disease; and a citywide maternity service.

PART II

Minneapolis expends approximately one and a half million dollars annually in health work. The question is raised whether the time has not arrived when the municipality should take over the work now being done by volunteer agencies, releasing these agencies for new health demonstrations and education.

*As is generally known, the Board of Public Welfare has now under advisement plans for a new General Hospital in which all these improvements will undoubtedly be made. Such criticism as our General Hospital yet merits arises almost wholly from the fact that the city has far outgrown its present plant.

†Minneapolis is far behind the standards of health work in the field of industrial hygiene. There is not one full-time industrial physician employed to-day and practically no work at all of this nature now carried on. The City Health Commissioner has repeatedly and unsuccessfully attempted to get funds for this purpose.

The physician and medical society have been too detached in the past from the various community health and welfare efforts. The increasing knowledge and skill demanded of physicians make specialization inevitable and raise the cost of expert service beyond the means of the every-day person. It is essential that the private physician train the individual, the medical society the public to an organized campaign of prevention of illness. The Medical Society should at the present time prepare and sponsor a well worked out community health program, looking toward the future development and growth of the city and should begin to educate the public at once to a recognition of the significance and the saving involved by such a plan.

The bugaboos of socialized medicine, of quack practitioners, of the social case workers' invasion into the field, to-day threaten to "rattle" the medical men all over the country. But, after all, are we not unduly disturbed? We freely admit that as individuals we make mistakes which cost us sometimes the trust and respect of the public, but, nevertheless, we know that our profession is pledged first of all to scientific truth in the fight against pain and disease; therefore, although its followers may at times make unjustified inferences which further investigations refute, we know that its course must be in the main straight onward to the evolution of a better humanity. We, of all groups, can afford to plan and to work calmly.

DISCUSSION

DR. C. B. WRIGHT: I am very much interested in this paper, for it gives this Society an idea of the tremendous amount of medical work that is being done by doctors, mostly through the direction of lay agencies. I believe that it very definitely indicates one thing, and that is that it is time the doctors took more interest through official channels. We are doing most of the work through the various health organizations. We ought to find out how much of this work is necessary, whether it is properly directed and whether, in increasing this work, we are unnecessarily pauperizing an additional number of individuals. There is one thing that lay organizations do not take into consideration, and that is the question as to whether or not the doctor should receive any compensation for his work. I believe it is just as necessary for the people who can pay to pay for their medical care as to pay for their coal or bread. We are all in sympathy with public health work. We are desirous of improving living conditions and we must all take more interest in all work in the direction of Public

Health and Preventive Medicine. At present there are two classes of people who get the best medical attention,—the man with nothing, and the man who can buy all the refinements of medical attention. There is a great middle class who do not get the medical attention they should have. One of the greatest difficulties in taking care of the middle class individual is the tremendous expense of hospital care. The doctors take care of the patients for absolutely no fees, and the patients pay the hospital and nurses large fees. I recall one patient who paid the doctor nothing and paid the nurse and hospital \$900.00. If cheaper accommodations in hospitals were provided this condition could be alleviated to a large extent.

The Public health organizations minister to the community and not to the individual. A doctor constantly treating individuals is prone to lose sight of the community point of view. He must think of him not only as a patient, but he must think of how that patient fits into the public health scheme of the city. Our greatest need from the hospital standpoint is the need of a pay contagion hospital and also some provisions for cases in the county and outside the city limits must be made.

DR. F. E. HARRINGTON: I am interested in the official agencies. I do not want to stack up for myself or for my associates a lot more work, for the public health field is a large field, but I do feel that if a lot of those agencies could combine their work under one head, a great deal more might be accomplished more advantageously. I have been greatly interested in the Society's viewpoint and their contact with health work. A committee was appointed, and I am still looking to the Society to establish the link between the official agencies and the people. The official agency cannot be the mode of treatment; that comes back to the physician.

I refer especially to the clinics, where probably as many physicians as you can count on one hand are giving many hours a week, while there are dozens, or perhaps hundreds, that would give time if the thing could be rotated, with benefit to the patient and the credit to the association.

I have in mind that new phase of goitre prevention by the administration of iodine salts. That cannot be done without the endorsement of the Hennepin County Medical Society, also the prevention of diphtheria by toxin-antitoxin, and that cannot be done by any official organization except the Hennepin County Medical Society.

The Society through its committee has been of tremendous aid to the Health Department in the inspection of hospitals, health homes, and in regard to their applications for license. No one can be a better judge. As an official agency we are dependent entirely upon the physician to bring about the proper contact between the official agencies and the people in the proper manner.

DR. HUGO HARTIG: I think we have all been impressed by Dr. Ulrich's paper with the enormous amount of money that is being spent in this city for relief work by both official and non-official or-

ganizations. It is surprising what a small interest is taken by this Society as a body in the expenditure of that money. A large percentage of this huge sum is spent by non-official organizations which are not responsible to any one except their own boards of directors for the use they make of this money. These organizations, as a general thing, are founded by philanthropically inclined persons who have had some misfortune in their own family or immediate circle of acquaintances and who are therefore sympathetic towards others who are suffering from a similar misfortune and are less able financially to bear the burden of this particular misfortune. They do a great work in alleviating suffering and lightening the burden of the unfortunates, but they seldom strike at the root of an evil as do the officially constituted bodies.

I will take for an example the work that was being done for widowed or abandoned mothers. Before the State took a hand these unfortunate mothers were being cared for after a fashion by unofficial agencies, and much good was undoubtedly done. But since the passage of the Mother's Pension Bill when it became the duty of the State to take care of these women we find that the laws for abandoning wife and children became much stricter, and the husband and father does not find it nearly so easy to avoid his responsibility. For this reason the total amount of relief work that is necessary has been diminished to a minimum.

Another instance: There was a time when a great deal of money was needed for the relief of men injured during the course of their employment and to provide for their families. Since compensation laws have gone into effect all this has been done away with. A disability sustained while employed at any industry is a direct charge against that industry and should not make that workman an object of charity. The law has made it obligatory for employers to carry insurance upon their employees, so that when one of them becomes disabled he and his family are provided for. Now employers are the most ardent advocates of these laws and of all "safety first" and accident prevention instruction and devices.

The point I would like to bring to the attention of this Society is whether it might not be a great deal wiser if all public health and all public relief work were administered by officials responsible to all the people rather than the multitude of organizations as we now have them. All the people are asked to pay into the Community Fund as regularly as they are asked to pay taxes, and yet they have nothing to say about how that money is to be used. We, as an organization, have not interested ourselves sufficiently in the past to find out how it is used, and I hope that in the future we will make our influence felt in this vitally important matter.

DR. R. T. LA VAKE: I would like to say as a delegate from this Society to the meeting of the Social Agencies the other evening, that it is very impressive to hear of the work that is being done by these social workers. Dr. Ulrich's paper is very suggestive. In the dispensary work, for example,

there were two or three interesting suggestions. The question of having places to house girls while under treatment for venereal disease, is a big question. It is rather disconcerting to see a girl in a venereal clinic one day and the next day handing out spoons in a restaurant.

The question of proper nursing is a big problem. If Dr. List had enough nurses he might be able to do it. You put some nurses out in a family where there is not all the equipment of the hospital, and they go all to pieces.

The figures quoted by Dr. Ulrich are very interesting, as for instance, the cost price per capita for the care given patients. It is wonderful to think that you could take care of the people for \$1.76 each.

That evening at the meeting of the Council of Social Agencies, which I attended, was one of the most illuminating I have spent in a long time.

DR. A. E. BENJAMIN: It is certainly time that the Hennepin County Medical Society is doing something to correlate all health work that is being done in the city. Last year I took the opportunity to write to the chairman of the Budget and Distribution Committee fund. He at once appointed me as a delegate on that committee, and Dr. Adair now has that opportunity as president of this Society. We do have a representative and we do have something to say about how the funds shall be distributed in the future, and we feel that from now on they will consider more in detail the need of certain organizations of which we have knowledge. In fact the physicians of Minneapolis are better acquainted with the people who require charity than are the members of any other body.

One thing about the dispensaries that exist in the city: I think we should organize all the young men who are beginning practice into volunteer groups and have them distributed throughout the city manning the various dispensaries.

I do not believe in pauperizing the people. With present wages we are giving too much to charity. Perhaps every physician should reduce his prices and take these patients into his office rather than to have them go to pay clinics or have them treated for nothing.

DR. ULRICH (in closing): One thing that has not been brought out in the discussion, which, I had hoped would be, is that the mere fact that a man is a member of the Hennepin County Medical Society does not mean that he is able to evaluate the relative health needs of a community. More people are dying to-day from heart disease and cancer than from tuberculosis, yet in Minneapolis nothing is being done toward the prevention of either of these diseases. Think of the large sums that are being spent in tuberculosis work. Do not think that I want to reduce the money that is being spent in tuberculosis. I merely wish to point out the fact that there are other fields or branches of work that are perhaps just as important, and yet they are being now ignored.

There should be a committee that is able to work out a program including cancer control, industrial hygiene, etc., and apportion this work, thus gradually working toward the ideal of a well-rounded health plan for the entire city. Then we could appear before the Budget and Distribution Committee of the Community Fund with some accurate knowledge. There is no one to-day, so far as I know, who can say just how much should fairly be given to each branch of health work. If anyone is particularly interested in any branch of the work, he appears before the Committee and gets the money, irrespective of its relation to other fields of activity.

DR. WRIGHT: The Hennepin Public Health and Hospital Committee has now been divided into a number of sub-committees, such as the Nutrition Committee, the Health Department Committee, and the Cancer Committee, the T. B. Committee, Dispensaries and Welfare Committee, Preventive Medicine Committee, and the Hospital Committee. There are so many practical problems of importance to the health of the community,—such as the dissemination of tuberculosis by nurse-maids, the smoke nuisance, and the prevention of respiratory diseases, the handling of food by infected persons, the ventilation of public meeting places, heating problems, housing problems, etc.,—it is hard to decide where to begin, but we must begin.

THE MEDICAL PRACTITIONER AND THE AMERICAN SOCIETY FOR THE CONTROL OF CANCER*

By J. E. RUSH, M.D.

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NEW YORK CITY, NEW YORK

Among the most important public health problems confronting the medical profession to-day is that of cancer control. It is possible to make a division of public health movements into several groups, depending on the amount of educational

work which must be carried out before the program can be successful. In one group we find such diseases as typhoid fever, malaria, and yellow fever, which may be controlled simply by educating a few individuals who possess the necessary power in a community to place the program in operation after they have been shown

*Presented before the Hennepin County Medical Society during "Cancer Week."

the desirability of such a procedure. This type of activity is relatively simple because it depends upon the education of a few individuals. Unfortunately, the diseases that can be controlled in this manner are among those which usually do not exact from the populace the greatest economic toll.

Another group of diseases may be effectively dealt with through police power, and here again we depend on the education of a few members of any given community. For the most part the diseases which may be controlled by this means we refer to as "communicable," and usually they can be very effectively dealt with by placarding, isolation, and quarantine.

There is another group of diseases which are not communicable and in which the education of but a few members of the community is not sufficient to affect the mortality rate. Here we find cancer, which depends for its ultimate control upon the education of every single adult of the community, with reference to the early signs and symptoms of the disease, for only in its early stages is cancer curable. With the present attitude of the public to seek medical advice only when they are aware of distressing symptoms, they must be told that early cancer is usually painless and that proper treatment cannot be instituted until they have sought the advice of a physician.

The medical profession is interested in all types of medicine, whether preventive or curative. As a matter of fact, there really is no hard and fast line of demarcation between preventive and curative procedures, any more than there is a dividing line between the metals and the non-metals. The medical profession is interested in all problems of public welfare, but when it comes to matters concerning public health they are the only ones who, through tradition and training, are capable of handling the problems which present themselves for solution. It is the only profession at the present time that is engaged in real preventive medicine, and it is the profession of election for this type of work. Usually public health movements have been initiated by the medical profession, but in many instances the work has passed into the hands of the laity because the members of the medical profession have been preoccupied with other important problems.

What we have said with regard to the attitude of the medical profession towards public health work clearly emphasizes the need of control by the medical profession of all public health movements. The profession is particularly interested

in the problem of cancer control, not only because it is of great humanitarian interest, but because of the further fact that cancer is one of those conditions in which it has been clearly demonstrated that the medical profession is the only one capable of offering a solution. While sanitary engineers, epidemiologists, and others may be of great value in the conduct of specific public health movements, their training and experience do not make them capable of helping in cancer control. The slogan of the American Society for the Control of Cancer, that "Early cancer is curable if you will but consult your medical practitioner in time," again clearly emphasizes that the physician is the only one capable of reducing the mortality from cancer.

Another interesting feature of the movement for cancer control is that the establishment of diagnostic clinics during National Cancer Week is of some educational value to certain members of the medical fraternity because important points of differential diagnosis between early carcinoma of tongue, for example, and primary luetic ulcer, are demonstrated. The cancer movement in this respect is one of the few that attempts to repay the physician for the great effort he has expended in its behalf.

It has been claimed by some of the unthinking individuals among the laity that preventive and curative medicine are diametrically opposed. They do not realize that there is, in the last analysis, but little difference between preventive and curative measures. For example, all physicians take blood pressures and make urine analyses during the course of a pregnancy, and not by the wildest stretch of the imagination can this be interpreted as a curative measure,—it is a preventive measure, pure and simple.

Through various educational movements which are now being conducted to instruct the public with regard to conditions which are definitely preventable, the great mass of the people are gradually coming to realize that the physician must be looked upon as a teacher and advisor, rather than one who is to be consulted only when symptoms of a diseased condition have manifested themselves. The physician, too, realizes that this teaching attitude is appreciated by the public, for by this means he is able to prevent premature deaths among his clientele. Not only does he spare the patient in question for future usefulness, but, more important, he does not divorce the rest of the members of that particular family. The physician realizes that the most appreciative patient is one who, through early

advice and proper instruction, has been saved from untold suffering and an untimely death.

All health movements, if properly managed and ethically controlled by the medical profession, will not only eliminate certain objectionable features present in some of them as now conducted by the laity (who have no appreciation of medical ethics), but such activities will help consolidate the medical profession against the ever-increasing influence of the cults. It is true that we as a profession do not heartily approve of certain public health movements now in progress, because they do not conform to our ethical code. If they were controlled by the medical profession this objection would be removed.

It must be realized that the cults never would have existed had the medical profession taken a definite stand against them, but, realizing that "Imitation is the sincerest flattery," we have allowed them to go on,—to exploit the public until even the great mass of the people have recognized the lack of sincerity which prompted the various movements.

The proper extension of these ideas relative to organization in order to control public health problems contains within it the answer to the proponents of that most preposterous type of activity known as "State medicine."

The organization for cancer control is dependent upon the activities of the medical profession; and, therefore, the units upon which the organization is built are the State and County Medical Societies. The whole movement has been endorsed and approved by practically all national, sectional, state, and local medical and surgical bodies, because it is entirely controlled by the profession itself. In the perfected organization for cancer control, we have the groundwork to handle other problems of a public health nature, be they ones already in existence or future ventures. By proper organization, too, we shall be in a stronger position to abort detrimental legislation, whether directed at us or to legalize the ignorant cults. A public health problem directed solely by physicians will do more properly to organize the medical profession than any other type of activity.

It has been pointed out that if we do not seriously consider the "scientific attainments" of the cults, then every preventable death is a reflection on us. It has been claimed that the fact that the patient did not come early enough to us for examination and advice is no excuse; that we, as the only logical profession engaged in the practice of the healing art should have the undivided confidence of the public to such an extent that they

will report to us what are very trivial matters and thus give us opportunity to institute proper procedures in time. In the vernacular of the street, it has been suggested that we should "sell ourselves to the public," which, in other words, means that there is at the present time a great need of ethical publicity on the part of the profession. It really seems that this would increase, to a very great extent, our usefulness to the community in which we practice. If this is true, then no physician can be so busy that he cannot devote a small amount of time to help in the campaign for cancer education, because, by so helping, he is not only advancing his own usefulness to his community, but is of the greatest value to his medical brothers and to his profession.

A few members of the laity have explained what they have interpreted as apathy on the part of certain of the medical profession toward preventive medicine, by emphasizing the fact that preventive medicine was diametrically opposed to curative measures. We of the medical profession realize the fallacy of this. Let us consider an analogy from the field of engineering. Suppose that ten engineers were bidding on a contract to construct a road between two adjacent cities. Only one could be successful, but would the others put obstacles in the way to prevent him from completing his task? The answer is apparent. They would not; for they would realize that when the public had seen the value of this road they would demand similar ones in all other directions, and hence the other engineers would have an opportunity to build some of them. I realize that the above example compares a business conducted purely for monetary return to a profession which interests itself chiefly with humanitarian efforts, but the very few of the public who believe that all persons are actuated by ulterior motives should be answered. The good roads analogy applies directly to medicine, for the medical practitioner realizes that each time the public is convinced that it is unnecessary for them to suffer with various ailments they demand the removal of others which heretofore they patiently tolerated. An example may illustrate this point:

A friend of mine who for many years was almost an invalid from recurrent attacks of what was then diagnosed as "inflammation of the bowel" and for which, at that time, there was no known cure, was simply forced to allow a condition to exist which undermined his health and lowered his efficiency. At the present time, be-

cause of the knowledge of the laity concerning chronic appendicitis, he would know that an operation requiring him to be at a hospital for but two short weeks would give him complete relief, and enable him to resume his life's work at a greatly increased efficiency.

Our medical ethics instituted at the time of Hippocrates admit of no change; but our interpretation of them may be broadened to meet the changing conditions, especially those which have

been brought about during the past two or three decades. It may be necessary to change our ideas regarding proper non-personal publicity for the medical profession as a whole and for our state and county societies. In this connection I am reminded of the story of the young color-bearer at Gettysburg who had advanced somewhat ahead of the lines, and when ordered back to his position by his commanding officer replied, "Bring the line up to the flag."

GENERAL PARALYSIS*

BY A. W. GUEST, M.D.

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General paralysis is a disease which is characterized by a chronic and progressive mental and physical deterioration resulting in a paralytic condition of the entire body.

The subject we have under discussion to-night, we might say, is a disease that is characterized by a chronic and progressive mental and physical deterioration resulting in a paralytic condition of the entire body.

To begin with, it is to be noted that the pathological processes incident to this disease are found in the brain and the membranes covering it. The psychic manifestations of this disease are many and varied. It is most surprising to note the different characteristics that these symptoms take on. The characteristics we notice in many cases are those of hysteria, mania, melancholia, persecutory ideas, grandiose ideas, and paranoid trends.

The cause of this disease has been conclusively established within the past sixteen years to be syphilis, having been made clear by the isolation of the organism known as the spirocheta pallida, which causes the disease. General paralysis is also known by other names; as, dementia paralytica, general paresis, parietic dementia, creeping paralysis, and softening of the brain, the last two terms being those used by the laity.

In considering the history of general paralysis, we first should consider the history of syphilis itself. Columbus returned from America with great discoveries. His sailors brought back from the island of Haiti a disease which has

left its imprint upon the world, and which may never be eradicated. If it is eradicated, it will require the utmost effort on the part of scientific men, and the co-operation of all the forces in society. This work has been well started by our Government and by our States. We want this work to go on, and the public can be of tremendous help in the control of this particular disease,—syphilis.

This disease brought back to the then civilized world by the sailors of Columbus spread rapidly, especially along the routes of travel and trade. Spreading rapidly as it did, it reached every port in the then civilized world. The disease spread with virulent rapidity, as is always the case when a new infection is planted on a new soil. Syphilis at first in many instances proved rapidly fatal, but this is not the condition at the present time, as now a certain amount of immunity has been established, and it has become a slow and insidious disease, producing chronic and lingering illnesses.

The disease at that time was known by several names; as, the Spanish disease, the Portuguese disease, the French disease; but later it received the name of syphilis, by which it has been known since. In the course of time and after many, many years had elapsed, general paralysis came to be recognized as a distinct disease. The first writings on general paralysis have been attributed to the pen of the noted physician M. Bayle, who wrote a number of articles from 1822 to 1826. M. Calmiel, in 1826, contributed comprehensively on this subject. In 1843 our own celebrated American psychiatrist, Dr. Luther Bell, also wrote on general paralysis. Many

*Presented before the Stutsman County Medical Society at its January, 1923, Meeting.

of the early writers recognized that general paralysis was of syphilitic origin, while others contended that it was a disease which might have been caused by overwork, worry, and alcoholism; and, again, others thought that it was a combination of syphilis with these other factors. These contentions continued over many years. However, the causation of syphilis was clearly proved in 1905, when Schaudinn and Hoffmann, through the efforts of some of the most brilliant research work that has ever been known to science, discovered the organism of syphilis, to which they gave the name of *spirocheta pallida*.

Ehrlich, in Germany, immediately set about with great concentration and effort to find some remedy which would eradicate this disease from the human system. In 1909 he discovered "salvarsan," an arsenical preparation, commonly known as "606." These discoveries were corroborated by many other investigators, as was, also, the definite fact that the *spirocheta pallida* was the organism causing this disease. Noguchi, working in the research laboratories of the Rockefeller Institute, in New York City, was able, in 1911, to reproduce this disease in animals from cultures which he had grown in the laboratory. In 1913 he made another very brilliant discovery, which was finding the *spirocheta pallida* in the brains of patients who had died from general paralysis. He also found this same organism in the spinal cords of persons suffering from locomotor ataxia. Other investigators soon afterward were able to isolate the organism in the brain tissues of living individuals suffering from general paralysis. These wonderful discoveries have proved conclusively that general paralysis is caused by syphilis and by syphilis alone.

In considering the forms of general paralysis we might consider it from three standpoints: First, that of the prodromal stage; second, that of the stage of the fully established disease; third, that of the terminal stage.

The prodromal stage is frequently of several months' or years' duration. The symptoms are frequently of a neurasthenic or hysterical type, with vague pains, digestive disorders, sleeplessness, irritability, ophthalmic migraine, etc. Many of these patients appreciate that they are ill and appeal to the physician for relief. These symptoms coupled with others, such as faults of memory, carelessness in dress, forgetfulness, restlessness, lack of concentration, beginning

impairment of speech, jerky tremors of the lips, tongue, and lower jaw, with general bodily tremors, impairment of the pupillary reflex to light and attacks of syncope, lack of interest in business affairs, help to indicate the seriousness of the disease, which is becoming progressively more apparent. It is a noteworthy fact that the families of these patients frequently do not realize the gravity of the situation and attribute the changes to overwork, worry, or alcoholism.

When the disease is thoroughly established, we have a clearer picture. We notice in this picture three very marked types, and many variations from these three main types: the grandiose type, with which we are all more or less familiar, the melancholy type, and the demented type. There are possibly more of the first type than others. In fact, the physician in thinking or speaking of general paralysis usually refers to this type. These patients imagine they are kings and queens; that they own the world. They are great inventors, the most wonderful inventors that the world has ever known. The other day a patient on the ward told me that he would build within twenty-four hours a garage that would cover the entire world. Some express the idea that they are worth billions of dollars. One said he had a carload of diamonds, which he would distribute among his friends; another had a million children; and another claimed he was the strongest man in the world. I have in mind a patient who was committed to this institution over a year ago who stated that he owned several brick blocks in Fargo, several sections of land in the valley; in fact, he was the richest man in the world, seemingly the happiest man in the world. This type of patient always expresses a feeling of well-being, usually says he feels "fine," smiles, and is very happy.

The melancholy type presents a condition of marked mental depression, and often expresses delusions of a morbid character and frequently weeps.

In the demented type we find a different condition; a condition of mental apathy with dementia is most apparent. They take little or no interest in their surroundings and show a marked lack of ideas, thoughts, and emotions. They sit or stand quietly about and say little or nothing. They show a marked weakness of mentality. A very marked muscular weakness is also noted in these cases.

In disturbed cases of general paralysis we often find some of the most violent and dangerous characteristics. It is these patients who so often resort to violent and dangerous acts, exhibit violent outbursts, and now and then severely injure others or are themselves seriously injured in our institutions. They have lost their reasoning power and judgment and are not amenable to control. Serious accidents with this class of patients can be avoided only through the most careful care and management. There is another feature about the violent and impulsive type of patients which has always impressed itself upon me; that is their tendency to struggle and fight never knowing when to stop. Irritability is a very marked characteristic in this type.

We find that the best treatment of these disturbed cases is to put them to bed, as they are very likely to get into trouble with others about them. We instruct our nurses to have plenty of help always when in a struggle with these patients, in order to avoid injury.

Other very important symptoms are noted; such as the change in the pupillary reaction to light; sluggishness of the pupil is common; and the entire loss of the pupillary reaction is most frequent. This last condition is known as the Argyll Robertson pupil. The circular outline of the pupil is noted. If the pupil presents an irregular outline, it is then a most important indication of this disease.

Tremors are very important. Jerking tremors of the lips, lower jaw, and tongue are very characteristic; also marked tremors of the fingers, hands, or arms. We often see patients who tremble like a leaf, the tremors being general in character. The paretic speech when present is most significant, and takes on the character of the stuttering and stammering, slurring speech of a drunken man, and when once heard is never forgotten.

The pathology of this disease may be described as a diffuse meningo-encephalitis. Degenerative and inflammatory changes due to the presence of the spirocheta pallida are found especially in the cortex of the brain and the membranes covering it. Decrease in the weight of the brain is noted with a decrease in the size of the convolution and a widening of sulci. There are also increased fluid in the subdural space, degeneration of the cortical cells, and adherence of the pia mater to the brain sub-

stance; and distention of the brain ventricles with serum and thickened and granulated appendula.

The diagnosis of general paralysis, or paresis, is often quite difficult. One of the recent aids is a well-marked lymphocytosis, which will serve to differentiate this disease from the so-called vesanias or functional psychoses, but not of course from other conditions in which the meninges are seriously involved. The Wassermann test will be positive in both blood serum and cerebrospinal fluid and will show an increase of globulin. The principal diseases for which this disease may be mistaken at the clinical level, especially in the early stages, are tabes, acquired neurasthenia, alcoholism, brain tumor, cerebral syphilis, disseminated sclerosis, the functional psychoses, epilepsy, and arteriosclerotic dementia. The presence of the underlying dementia, in a person of middle age should make us at once suspicious and, if to this condition the physical signs can be added, a diagnosis can be made with certainty. The most important differentia, however, are the serological findings, namely, the presence of the four reactions

From tabes dorsalis the differentiation is not so easy, and in fact there remain a few cases where it is impossible, and we must wait for the development of further symptoms. This is due to the fact that in their early stages the physical and serological signs may be identical in the two diseases. When, however, we observe a case in which the tabetic signs are somewhat atypical with, for instance, preservation of knee-jerks or marked ataxia of the arms, we may be suspicious of paresis, and if with this condition we find associated evidences of mental disturbance a tentative diagnosis is in order.

In differentiating general paralysis clinically from acquired neurasthenia, the general mental attitude of the patient is of great significance. Whereas the neurasthenic is given to exaggerating his ills, to constantly complaining of his aches and pains, and keeps close observation of every change of symptoms, the paretic is usually indifferent or, on the contrary, may consult a physician under protest and in the firm belief of the uselessness of so doing as he feels so well. This is not invariable, as I have seen paretics well advanced in the disease who were much concerned over their condition. The contrary state of mind is more common. In addi-

tion to this, there is in neurasthenia no dementia, no disturbance of speech or writing, no history of seizures, the tendon reflexes are equal and not abolished, the pupils equal, respond to light and accommodation and are more apt to be dilated, while in general paralysis they are frequently unequal and often very much contracted. The laboratory findings will of course be conclusive.

From alcoholism the diagnosis is often not so easy. The deterioration of the chronic alcoholic has much in common with the dementia of general paralysis. Here again we must turn to the physical signs and note carefully the historic facts. Following a long debauch, however, symptoms may arise which, in the absence of a history, would warrant a diagnosis of general paralysis,—the so-called alcoholic pseudoparesis. These symptoms disappear, though, in a remarkable manner when the alcohol is withdrawn. The Wassermann might be positive in the blood serum, the patient having had syphilis, but would be negative in the fluid.

In toxic conditions generally sluggish reaction of the pupil to light is not uncommon, while the Argyll Robertson pupil may probably occur for a temporary period.

Symptoms occasionally develop in the course of brain tumor which closely resemble paresis. The diagnosis must be made on the pre-eminently focal character of the physical signs in the former disease, although paresis often presents very marked focal signs, especially early in its course. The serological findings usually will make this situation clear.

From disseminated sclerosis the differentiation is sometimes difficult. The combination of intention tremor, nystagmus, scanning speech, and spasticity however, will, usually leave little room for doubt, although some of these cases do ultimately develop typical signs of general paralysis. The laboratory findings may show the presence of syphilis, but not of metasyphilis.

From cerebral or cerebrospinal syphilis the diagnosis is again quite difficult. If the lesion is a gummatous meningitis the signs are rather of multiple lesions than a diffuse process. If, on the other hand, the disease affects principally the vessels, with resulting endarteritis obliterans, thrombosis, and softening, the symptoms are focal; and convulsions developing afterward constitute a true postapoplectic epilepsy. Disturbances of speech either are not present or,

if present, do not partake of the nature of a paretic disorder, but are true aphasias due to focal lesions. Palsies, if present, are permanent and nocturnal headaches common. The age of onset should be considered. Under thirty syphilis is more commonly found to be the cause of cerebral manifestations than general paralysis. It must not be forgotten that sluggish reaction to light and even the Argyll Robertson pupil may be found in cerebral syphilis.

The cerebrospinal fluid should be examined. It will show an increase in the cellular elements except occasionally if active antisiphilitic treatment has been pursued for some time. The differential will show an increase in lymphocytes plus phagocytes, macrophages, endothelial cells, and occasionally Kornchenzellen.

Plaut has called attention to a most important differential sign. He claims that only in the metasyphilitic disease (tabes and general paralysis) will the spinal fluid give a positive Wassermann reaction, while the blood serum reacts positively in all cases of syphilis. Experience has borne out this claim.

From the so-called functional psychoses a differential diagnosis may be difficult in the early stages, especially if there are marked emotional disorders or paranoid delusions. The presence of the physical signs of general paralysis associated with symptoms of dementia and the cytological examination of the cerebrospinal fluid will usually clear up the difficulty.

In the early stages, in those cases that have been ushered in by a paretic seizure, epilepsy may be suspected. The absence of the history of epilepsy should suggest general paralysis.

The diffusion of the destructive lesions in arteriosclerotic dementia is not infrequently responsible for a picture closely resembling general paralysis. This condition occurs much later in life, usually after the sixtieth year; there are evidences of advanced vascular disease, and the characteristic senile disorder of memory is generally present.

Course and Prognosis.—The disease may be said, in general, to be absolutely fatal, although an occasional alleged cure is reported, particularly with the recent intensive methods of treatment. Remissions quite frequently occur, so that the patient may be well enough to leave the hospital and remain away for weeks or even months. The fact that remissions occur should

never be forgotten in giving a prognosis to the relatives. The acute forms of the disease are rapidly fatal. The majority die in from eighteen months to three years, while in a certain few cases the disease process is very slow and may occupy many years.

Death usually occurs from some intercurrent affection,—pneumonia, cystitis, terminal infection, or from the disease itself, which leads to an extreme degree of emaciation and exhaustion.

The treatment we are pursuing at present is as follows: Every other week the patient is placed in a reclining posture on an operating-table and given, intravenously, 0.45 grams of neosalvarsan in 10 c.c. of distilled water; or, instead of this preparation, the 80 c.c. ampoule of arsphenamine is employed. On the intervening week a gelatinous solution of mercuric

bichloride is injected deep into the gluteal muscle. This solution contains $\frac{1}{4}$ grain of mercuric bichloride. Internally $\frac{1}{4}$ grain of the proto-iodide of mercury and ascending doses of a saturated solution of potassium iodide are administered three times daily. The iodide is pushed to the point of toleration in the beginning, and then gradually reduced until a point of comfortable tolerance is reached, at which point the medicine is continued. The usual tonic and stimulating baths are given daily, with an occasional electric cabinet eliminating sweat bath. The skin is thus kept in good condition, the patient is stimulated and refreshed and the danger of salivation is lessened. With the exception of a short period of rest following each treatment the patient is allowed full diet and a reasonable amount of exercise.

OBSTETRICS OF 1,000 CASES AS SEEN BY A COUNTRY PRACTITIONER*

BY AUGUST KUHLMANN, M.D.

MELROSE, MINNESOTA

In my seventeen years of practice I attended over 1,000 cases of confinements. This speaks for itself, showing that the people in the locality where I practice are not affected seriously by the gospel of birth-control. The reason perhaps is, that it is largely a Catholic community. The Catholic church in its dogmas is strongly against all teachings and practices of artificial birth-control, unless very vital reasons obtain.

All my cases of confinements have been home deliveries.

In this series of cases I had four cases delivered by aid of the forceps, as follows:

FORCEPS CASE 1.—A multipara, with five children. She had been in labor for two days, attended by a midwife. She showed marked varicosity, a flabby abdomen, and apparent uterine inertia.

From vaginal examination I found complete dilatation of the uterus, with an l.o.a presentation, but the pains were not strong enough to force the head to pass the pubic bone. Under anesthesia, with the aid of forceps, the child was delivered in ten minutes. A slight tear was repaired, and recovery was uneventful. Pituitrin was not given on account of the marked varicosity of the vulva and vagina, for fear of hemorrhage.

*Presented before the Southern Minnesota Medical Association at Mankato, December 5, 1922.

FORCEPS CASE 2.—A primipara of a highly neurotic type, with all the immediate excitable surroundings, such as the nervous mother, husband, sister-in-law, etc. During the last month before maturity I was called thirteen times at night. She was always complaining about the pressure symptoms and believing the event was coming off.

I found her in good condition with an l.o.a presentation. The husband and attendants always seemed to have more pains than the patient. Labor finally did start. After a day and a half of annoying watchful waiting and little sleep, when there was fair dilatation of the uterus, I gave pituitrin, an ampule in three doses at one-half hour intervals, and ether during the pains.

The surrounding attendants considered the case desperate and asked for consultation.

With the consultant we decided on immediate forceps delivery. He advised small light forceps. The forceps slipped, and a complete rectal tear was the result.

We applied stronger forceps, and the child was delivered and lives. The tear was immediately repaired, but turned out after a week to be unsuccessful. Two weeks later I called in a surgeon, but we had poor results. I lost the case.

Three months later another doctor operated, and still the fistula remained.

It is of importance to mention in this case that the woman did not develop fever during the whole course of the proceedings. She has had another child since, with a lacerated perineum, without trouble.

FORCEPS CASE 3 and 4.—For uterine inertia were delivered without trouble following.

In the series of one thousand cases I have had two cases of eclampsia, with all the annoying symptoms.

It is peculiar that both cases happened to come in the same year.

ECLAMPSIA CASE 1.—A primipara. She had marked albuminuria, convulsions, and hallucinations. The case was treated as usual with dieting, diuretics, sedatives, and sudorifics to encourage elimination in order to carry the woman to a full term.

The case became critical at seven and one-half months pregnancy. Labor was induced by rapid dilatation under ether anesthesia. The fingers and hand were used only for dilatation. A living child was delivered by podalic version. The child lived for one day.

It took three weeks with the care of two nurses to have the mother come out of her dreams. She has had two children since without trouble.

ECLAMPSIA CASE 2.—A multipara, thirty-eight years old; a neurasthenic, with eight children. She had convulsions and insane symptoms. At the sixth month of pregnancy she became uncontrollable, and a podalic version was done, using the fingers and hand only for dilating the uterus.

Under the usual treatment and the constant care of a nurse she recovered.

I have had placenta previa cases, as follows:

PLACENTA PREVIA CASE 1.—A primipara, at the sixth month of pregnancy. She had a severe hemorrhage, with no let up after giving a morphine and adrenalin injection.

I packed the vagina, but the hemorrhage continued. The pulse became critical. Under ether anesthesia the uterus was dilated with the fingers and hand, and a rapid podalic version was performed. A living child was born, but died the sixth day. The mother had an uneventful recovery.

PLACENTA PREVIA (marginalis) CASE 2.—A multipara, thirty-eight years old. I was called at the third month of pregnancy for severe hemorrhage. A morphine injection did not stop the hemorrhage. I packed the vagina, and the hemorrhage stopped. I ordered her to bed for a week. Hemorrhage returned at certain intervals, but it was readily checked by complete rest in bed for several days.

The woman was carried to a full term, and a dead child was born.

PLACENTA PREVIA CASE 3.—A multipara, aged thirty-five, with six children.

She had been feeling unusually well during pregnancy until a month before maturity. Under the advice of a midwife she remained in bed for three days, and bleeding stopped entirely. A week before maturity, while in the field husking corn, in a squatting position, she had another hemorrhage with some pressure symptoms. On examination I found enough dilation of the uterine cervix for two fingers to pass.

There was a boggy mass presenting itself, and I concluded it to be placental tissue, which could be pushed slightly sideways. The hemorrhage stopped after an injection of morphine and atropine. I remained all night

for labor pains to set in, but all pressure symptoms had stopped. I left her with instructions to stay in bed and, if pains or hemorrhage should start in again, to send for me immediately.

After a week she got real labor pains, and a normal delivery of a nine-pound boy was the result. The placenta showed plainly at the margin where it had been sunk into the uterine cervix.

In ante partum hemorrhages when interference is indicated podalic version is my choice—especially if a person is alone, because with a few dishes of an antiseptic solution and two or three sterilized gloves a person can keep clean.

In doing a podalic version where I got hold of one leg only I broke the femur of the infant twice; that is, the last femur flexed, by hooking my finger in the groin for the extraction of the child.

I do not like to do damage in the uterus, and it is sometimes difficult to get both feet to do the version, because there is not much time to be lost for checking hemorrhage.

I had no bad after-effects in either case of the broken legs. I put the leg in a hanging position with a pulley and weight, attached to a bee-hive or a store box, which is used for the infant's bed. The child can thus be nursed without taking the baby out of the bed. The bones heal readily in three to four weeks.

RUPTURE OF THE UTERUS (dead after 30 minutes)

Some years ago when pituitrin first came into use, it was advocated to give a full ampule for a dose. I had been using it in several cases where labor was slow and tedious with marked results. I considered it a great boon to save some sleep for the doctor and hurry up labor to get the woman out of her misery.

CASE 1.—A multipara, aged 40, with five children. She had profuse varicosity of the vulva and vaginal parts. There was a l.o.a presentation, with fair dilatation of the uterus.

The pains were coming slowly, and I injected an ampule dose into the abdominal muscles as I had done in previous cases. The pains came fine and strong. Just twenty-five minutes after the injection the child was born.

Right after the child was delivered a gurgling sound was heard, and the blood just shot out. I extracted the placenta and packed the uterus, but the woman died inside of thirty minutes. Since that time I have been very cautious with pituitrin and moderate the pains with ether.

POST-PARTUM HEMORRHAGE

CASE 1.—A multipara, aged 42, with seven children. A midwife case; adherent placenta. This was a hurry-up case, six miles out in the country, sixteen years ago. The woman had been bleeding profusely with a retained placenta. The woman insisted upon me giving an anes-

thetic. I gave chloroform and extracted the placenta. The uterus contracted well, the bleeding stopped, the patient rallied, and everything looked well when I left.

Just about two hours after I left her, I got another hurry-up call and when I arrived the woman had expired. She apparently had died of syncope.

The woman had been ailing all through her pregnancy. I did not treat her before. Whether I am right or wrong I have never given chloroform since.

PUERPERAL SEPSIS

I had two deaths of puerperal sepsis. Both deaths occurred in the year 1921, after the "flu."

Both cases were in unusually clean houses and clean surroundings, and all usual precautions were apparently observed.

SEPSIS CASE 1.—Multipara, aged 40, with eight children. The patient complained all through pregnancy of pain on the right side. Labor was more painful and tedious than in the previous births.

The child was born without the aid of instruments or unusual interference. Special care was taken regarding sepsis. She lost more blood than usual after the placenta was delivered, but nothing alarming. She felt fairly well up to the third day. She became chilled, had a high fever, and died the seventh day. She got two doses of antistreptococcal serum and the usual treatment for sepsis.

It may be of interest that a woman friend released from a small-pox quarantine had been visiting her regularly and she was still full of pocks and was peeling.

SEPSIS CASE 2.—A multipara, aged 38, with six children, lived in an unusually clean house. She had been ailing all through her pregnancy.

The child was born without trouble. She had a profuse hemorrhage before the expulsion of the placenta, which had to be taken away and proved to be adherent.

After giving one drachm of ergot and five minims of pituitrin, bleeding continued. I had to pack the vagina, and then bleeding stopped. For two days she felt fairly well. On the third day, in placing the baby from one side to the other, she got a severe pain in the side. The day following she passed a big clot of blood. I gave ergot, etc. Although she claimed she had no chill, she developed fever, and died the ninth day.

TRANSVERSE PRESENTATION.—A multipara with a large flabby abdomen. She always had a midwife, but, as usual, they sometimes get stuck. Three times I had to do a podalic version for a transverse presentation without any after-trouble to mother or child.

Once the midwife had delivered a child, but another followed (twins) with an arm and shoulder presentation. I could not return the child on account of the contracted uterus. The child was asphyxiated because the midwife had been pulling for quite a while on the arm to get the child. In this case I did a decapitation, with a curved Mayo scissor, close to the foramen magnum of the skull. I pushed the neck of the child between my two fingers as guards and cut through the neck close to the skull, then locked one finger into the os and extracted the head. I had no difficulty in extracting the body by the arm. Uneventful recovery of the mother followed.

MASTITIS

Prevention is the best treatment for sore nip-

ples, keeping the chest covered up warm. I tell the patient to wear a proper night-gown which also covers the chest and breasts. If there is an inflammation I have the patient put on ichthyol ointment, well covered with cotton, and have the milk pumped out every two hours and give a good laxative.

I had to open and drain in four cases but all the patients got well.

NAUSEA AND VOMITING

I never had to terminate labor for nausea and vomiting. Two patients looked almost hopeless, but after persistent treatment for a month they became normal. The worst case of nausea and vomiting was a primipara at the second month of pregnancy. She could not keep anything down. I tried cerium oxalate, adrenalin, nux vomica, alkalies, morphine, atropine and cocaine. I washed out the stomach, gave enemata and douches, and painted the cervix with cocaine solution. We tried malted milk, predigested food, and butter-milk, but nothing would stay on the stomach. Tincture of iodine in five-drop doses, three times a day, checked her for a week. For a whole week I gave her nothing by mouth—not even water, only nutrient enemata.

The woman was in a hysterical condition and the case became desperate. She and her husband had shortly moved here from Missouri. I advised her to go home to her folks when she was able to do so. The next day they had their automobile ready, and they made the trip in three days, without any trouble. She had not eaten anything by mouth the week before their trip.

This was a psychic case. Later I got a card announcing the birth of a boy.

The other case had lost thirty pounds within a month, but regained the loss rapidly later.

TWINS

In this series there were eight pairs of twins, and two children were lost. One perhaps could have been saved if help could have been there in time. (A midwife case.)

TRIPLETS

I had one case—three girls of seven pounds each. All were attached to one placenta. The mother nursed all three on the breast for two weeks. There was no particular trouble.

A MONSTER

One case—a girl, illegitimate. The mass delivered looked more like a dog than a human figure. I did not get the name of the father.

INTRA-UTERINE DEATH

Three cases. All were carried past maturity. No particular trouble to the mothers. Labor was induced in two cases. One child showed a good crop of small-pox. The mother had had small-pox about the sixth month of pregnancy. Labor started spontaneously.

MENINGOCELE

Three cases. All were born alive. One died the first week, the other in the second week, and the third lived up to the fourth week. In the last one I advised an operation, but the parents objected.

ICTERUS

In one family three children died of icterus the first week after birth, apparently healthy looking at birth. The first born in the family lives.

CLOSED ANUS

One case. I wanted to operate the next morning, but a weak child had died at night.

ROUTINE

I

1. Wash up.
2. Sterilize gloves and scissors.
3. Wash vulva with a lysol or iodine solution.
4. Clip off abundance of pubic hair.
5. Wash again with a lysol solution.
6. Make a vaginal examination with sterile gloves; then an external abdominal examination.
7. Order a light meal for the patient and cheer her up.
8. Prepare bed with newspapers.
9. Keep all trouble away from the patient, and if there is any prepare for it in a quiet orderly manner.

II

1. Wait for pains. Do not hurry!
2. Have ergot, gloves, and pituitrin ready.
3. In some cases I keep my hand over the uterus to watch contraction.
4. If pains come I instruct the patient to press down steadily by aiding with mild pressure of my hand above and mild traction with other hand on the cord.
5. Ergot—clean up—and quiet patient.

CONCLUSIONS

1. To be sterile and clean is the first essential in obstetrics. I never make a vaginal examination without sterilized gloves.

2. Watchful waiting—patience and good judgment is the second essential.

3. Although we country practitioners would like to have better facilities, to have the patient

in the hospital instead of in the home, it will remain an economical problem. Naturally most of the women want to stay at home because the home is her kingdom, and the average family can not afford the hospital fees.

4. Since we doctors get all the abnormal cases of the midwives the doctors get the credit for their patients, signing the death certificates.

Therefore, for a true conclusion of the maternal death-rate, we must figure in the normal cases of the midwives, which, with mine I figure 1,500.

Henceforth, the maternal death-rate of four cases in 1,500 would show me a frank maternal death-rate of three in 1,000. (This would have been below two in 1,000 if I had not had the fatal years of 1920 and 1921, after the "flu.")

FOR SALE AND WANT ITEMS

YOUNG PHYSICIAN WANTED

A physician in one of the larger cities in Minnesota desires another assistant for general practice, a recent graduate preferred. Will pay \$200 a month to begin on, and the right man will receive rapid advancement. Address 330, care of this office.

PRACTICE FOR SALE IN WESTERN NORTH DAKOTA

General practice; \$6,000 cash last year without surgery; large territory thickly settled; dairying, farming, lignite mining, German settlement, city of 900, high school, churches, etc. One competitor. Office outfit complete, rent nominal, nine room modern residence completely furnished. Total \$8,500, will take \$5,000 cash, and balance terms. Leaving on account of health. Address 329, care of this office.

PRACTICE FOR SALE

I will transfer my practice in a Minnesota town of 600 population with large contributing territory to the purchaser of my equipment. Price reasonable. Worth investigation. Everything ready, and new man can begin work at once. Address 326, care of this office.

ASSISTANT PHYSICIAN WANTED

Assistant physician to do general practice, mining contract work, Minnesota. Small hospital. Have five other assistants. Must be graduate of Class A college and have had hospital experience, and be reliable as a man and a physician. Salary \$250.00 to start. Early increase to right man. Give full information in first letter, with photo. Address 328, care of this office.

MINNESOTA PRACTICE FOR SALE

Practice in a good town 30 miles from Minneapolis, in a prosperous dairy community, with excellent collections. The town of 1,200 inhabitants is on a beautiful lake, and the roads are unexcelled. Practice for sale for price of residence and office. Will make the best terms to a good man. Address 327, care this office.

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MINNEAPOLIS CLINIC WEEK

THE JOURNAL-LANCET again calls attention to the clinics which are being prepared for Clinic Week, beginning April seventeenth and lasting through April twentieth. Will you also keep in mind the fact that the Minnesota Section of the American College of Surgeons meets on the preceding day, April sixteenth, and that its sessions will cover the entire day and will be followed by an open meeting in the evening, the program of which will be given in our issue of April first.

Each hospital is now preparing to outline its clinical program and we hope in the next issue to be able to present to you a tentative program at least, although one readily understands how difficult it is at times to anticipate by more than two weeks what a surgeon or a physician may have to offer.

The general headquarters will be, as usual, at Hotel Radisson, and it would be wise for all visitors to make reservations as early as possible. We have there all the rooms we need for our various meetings and exhibits, and the proprietors of the Radisson have given us a great deal of space and material assistance in our work. Each afternoon program will be an unusually good one, we hope, from the fact that it is to be a dry clinic, thus giving the clinician an opportunity to offer all sorts of things which are

commonly seen by practitioners everywhere.

The only evening meeting, aside from the night of Monday, April sixteenth, when the American College of Surgeons will hold their public meeting, is the Hennepin County Medical Society banquet, attendance upon which is optional; but the Hennepin County Medical Society will be very glad to have the visitors participate if they choose to do so. If anyone desires to see some special work and will write to the secretary, Dr. G. Elmer Strout, 910 Donaldson Building, perhaps something definite can be arranged.

THE TRANSFER OF DR. HENRY M. BRACKEN

THE JOURNAL-LANCET records its sincere regrets at the departure of Dr. Bracken from Minneapolis and from the state of Minnesota. For twenty-two years Dr. Bracken was secretary of the State Board of Health, and probably has done more to call attention to public health matters in Minnesota than any other living man. Upon his retirement from the secretaryship, he was immediately offered the superintendency of the Government Hospital No. 68, formerly the old Asbury Hospital in Minneapolis. Upon his assuming authority he asked the Government, as a special favor, to permit him to choose his own staff, which the Government did, but it has not granted the same privilege in any other hospital of this kind. He chose carefully and created a staff of men in the various departments of medicine and surgery and the specialties that has been frequently complimented.

Dr. Bracken's superintendency of the hospital extended over a wide field, and he ran it as a Government business. He ran it so well that he was occasionally criticized for his so-called penuriousness; that is, he attempted to save money for the Government,—a rather unprecedented situation. Then after reducing the per capita cost of the patients to such a standard as only two other hospitals (and those neuropsychiatric hospitals) have attained, comments began to break out, emanating partly from the patients and partly from members of the staff.

Dr. Bracken has been under fire and criticism so often that one would think he was immune to such attacks, but this particular situation was one that Dr. Bracken coveted, and he was very anxious to make a record, which he actually did. He was criticized as a rigid disciplinarian, but

those of us who have had to deal with the returned soldier, who is frequently a neuropsychiatric, know the necessity of very strict discipline. And yet some of these men were allowed many liberties, too many in fact, until they thought they owned the hospital, that they could go and come as they pleased, ignore the rules and break them whenever they could, and then damn the superintendent for his interference. The situation became acute on this account and could easily be traced to a few members of the staff and to a comparatively few of the patients. Yet it created enough furor and indignation so that eventually the comments reached Washington, and an inspector, two inspectors in fact, came out here to investigate the situation. And in the instance of the Government inspector he returned a clean bill of health, as it were, relieving Dr. Bracken of any anxiety, and assuring him that everything was being conducted as it should be, perfectly satisfactory to the Government. Then the Veteran's Bureau sent an inspector out. So far his report has not been made known, but it may be inferred that he listened to some of the reports and perhaps was overinfluenced by some of the complainers; and in order to quiet the situation, Dr. Bracken was transferred to Atlanta, Ga.; and yet it is known that all of the regular staff officers, with one exception, paid him the compliment of giving him a farewell dinner, and he was very much extolled for his work, and complimented on his ability as an officer and as a disciplinarian. It is supposed now, from what we learned through the underground radio, that the Government intends to make this a military hospital, and may appoint a strictly military staff of commissioned officers. If this be true, the hospital will probably not be kept up to its present standard. This is the great misfortune of doing business under a rapidly changing Government. Colonel Forbes, who was formerly at the head of the hospitals, etc., has resigned, or has probably been thrown out, and so it goes. One never knows whether a man is to be kept in his position one year or one month. But the editor of THE JOURNAL-LANCET wants to go on record as saying that Dr. Bracken has always been an efficient man. He has had wide experience, and he is what a good many men are not, a thoroughly honorable and honest worker. Any man who goes into the superintendency of a hospital of this kind and has to deal with the varied types of men

should have the support of every member of his household, but this was not done in Dr. Bracken's case, hence his transfer and hence the regret that has been previously expressed.

DR. ASA W. DANIELS

The press records the death of Dr. Asa W. Daniels at Pomona, California, on February twenty-seventh, in his ninety-fourth year. The editor has every reason to remember him with the keenest appreciation, because Dr. Daniels was the man who brought him into the world; and the two families, while they lived together in St. Peter, Minnesota, were on cordial terms of intimacy. The fact was that Dr. Daniels knew most everyone, and everyone knew Dr. Daniels, in that region. He was the most dignified, up-standing, and aristocratic man in the medical profession of his day, and yet he was cordial, humorous, and gentle with everyone. He enjoyed the humor of his medical practice and saw the various phases of life from an accurate angle. It was amusing, sometimes, to hear the old settlers who came in to St. Peter call him by his first name,—this great dignitarian; but he enjoyed it tremendously—this familiarity—and thought nothing of it except from its humorous side.

He was a man of singular intuitive instincts which were developed by his long and varied experience. He could make a very accurate diagnosis, and both his therapy and his treatment were always direct and satisfactory. With many other men who relied upon their own judgment for things and in times of emergency he was extremely resourceful and he did for the patients what other men would not have dared to do. He knew when to take a chance because he knew it was life or death for the patient. One instance will show his judgment. An old patient of his was suffering from a strangulated hernia, and several men in the Twin Cities had attempted to reduce it, but unsuccessfully, and yet they were the best men in the country at that time. The woman pleaded that Dr. Daniels be sent for; he took in the situation at a glance (he had done the same thing before) and he literally put his entire weight on the protrusion, which slipped back in through the ring and into place without the slightest damage—simply because he knew how.

In the earlier days, or rather when Dr. Daniels

first moved to St. Peter, and that was seventy years ago, and he came when there was practically nothing there, he joined the Indian service, where he was able to minister to both Indian and white man. He showed by his heroism, his bravery, and his indifference to danger that he had no fear. And the Indians recognized in him a man of great personality, and they used to look upon him with awe and call him the big medicine man; and so he was throughout his many years of practice. During the Indian outbreak at Ft. Ridgley, he, with Dr. Ayers of Le Sueur and Dr. Mayo, the father of the present Drs. Mayo, went to New Ulm and cared for the wounded and dying of both factions. And when the town was evacuated Dr. Daniels brought sixty wounded to St. Peter, where he established a hospital for their care.

Dr. Daniels moved to California in 1900, and spent the greater part of the time since then in Pomona, at the same time keeping up his interest in private and civic welfare, for he was a man whose advice was sought for on many subjects. Of course many of his old friends were gone when his remains arrived at St. Peter for burial, but there were enough left to recall with sorrow for his loss the services Dr. Daniels had rendered the town and his State and country. There be few like him, and no one can ever take his place.

DR. JULIUS PARKER SEDGWICK

Dr. Julius Parker Sedgwick was born on the twenty-seventh of May, 1876, in Wrightstown, Wisconsin. He received a part of his education, however, at the University of Nebraska, receiving his B.S. degree there, and was graduated in medicine from Rush Medical College, Chicago, in 1899. He served his internship in the Alexian Brothers Hospital, Chicago, in 1899 and 1900, and was an assistant physician at the Fabiola Hospital, Eveleth, Minnesota, from 1901 to 1904. After this he studied in the University of Berlin, and came to Minneapolis to practice in 1905. He served the University of Minnesota in various capacities in the early part of his career, both in research and in special lines of therapy and pharmacology. He soon afterwards became an instructor in pediatrics, and was made head professor of the department in 1915. In 1917 Dr. Sedgwick was commissioned major in the Medical Reserve Corps, and with a staff of

several specialists and aides, together with fifteen nurses, he established a center at Toul, France, working out a health program for children and mothers who lived in the war zone for three years. This bureau was started by him and maintained by others after his return to the United States in 1918.

Dr. Sedgwick was a fine student and had an organizing faculty that was tremendous in its scope. No one man had as much to do with putting pediatrics on a high plane in Minneapolis, in the state or in the country, as Dr. Sedgwick, and he made Minneapolis the center of his special line of investigation. He was indefatigable in his work, and was the head of the department at the University, as well as head of the Children's Clinic which was organized at Abbott Hospital, where he had associated with him Dr. F. C. Rodda, Dr. N. O. Pearce, and Dr. Rood Taylor. His work was so valued that he was made a consulting hygienist on pediatrics to the Surgeon-General of the U. S. Public Health Service. This honor was given him not only for what he had done here but because of his work abroad and on account of his investigation and his instruction in breast-feeding. He was wholesome, a delightful friend and companion, and seemed ready at all times to give his services and fit himself into any place that needed a man of his qualifications.

Dr. Sedgwick had not been well for a long time, and prior to his journey to France he had been advised by his friends and his physician not to undertake the work, because he had high blood pressure and evidently some other cardiovascular disorder. But he went in spite of the warnings, and soon after his return to this country he had a slight hemiplegia with aphasia. Since then he has not been well, although he persisted in teaching and did teach until within some months, when he was finally stricken again and was unable to leave his home. He will be very much missed by the University medical men and by his many medical friends throughout the country.

DR. ARTHUR F. EASTMAN

Minneapolis has lost another physician in the death of Dr. Arthur F. Eastman, who died of pneumonia at his home in Minneapolis on February 24, 1923. Dr. Eastman formerly lived in St. Paul, but moved to Minneapolis some years ago. He was one of the prominent home-

opathic physicians in the Twin Cities, but, like many of them nowadays, he accepted a broader theory of his method of practice. He was very popular, very genial, and very full of life.

DR. CHARLES E. DAMPIER

Dr. Charles E. Dampier died at his home at Crookston on February 20, 1923. He was sixty-nine years old and had lived and practiced in Crookston for forty years.

Dr. Dampier was a man who was well-known throughout the state and particularly in the Minnesota State Medical Association. He had been for many years a Councilor of the Minnesota State Medical Association, and consequently had been brought into contact with his fellows in the advisory board and was known as a prominent man in Minnesota medicine.

He was one of the courteous old-school men who took great pleasure in helping his fellow-men, and he was one of the type, too, who believed in simplicity, not only in medicine, but in ethics. He was a jovial host, a friendly neighbor, and a skillful physician. He had three brothers, one of whom is Dr. H. G. Dampier, of St. Paul.

With the removal of Dr. Richard J. Hill and Dr. Charles Dampier, the members of the Minnesota State Medical Association must feel that two strong characters have been taken away, and that it will be very difficult to fill their places.

NEWS ITEMS

Dr. J. C. Vetter has moved from Letcher, S. D., to Omaha, Nebr.

Dr. Louisa E. Boutelle has moved from Clear Lake, S. D., to Grand Forks, N. D.

Dr. O. F. Seifert, of New Ulm, has returned from postgraduate work in Europe.

The Southern Minnesota Medical Society will hold its mid-summer meeting in Faribault on June 11.

Dr. Julius Johnson, of Minneapolis, has completed a course of postgraduate work at Harvard, and resumed his practice.

It is reported that St. Thomas, N. D., has no physician for the first time in its history. At one time four physicians practiced in St. Thomas.

Over thirty cases of encephalitis, or sleeping sickness, have been reported this year in Minnesota. The disease has appeared mostly in a dozen counties.

The six eminent Japanese medical men who are soon to visit America as the guests of the Rockefeller Foundation will be at Rochester on April 28 to May 2, inclusive.

The young girl who was treated in the City Hospital of St. Paul with insulin for diabetes died last month after hope of her recovery had arisen from the use of this new drug.

On "Hospital Day," May 12, the Duluth hospitals will entertain visitors by giving them an opportunity to see the work of a big hospital, and it will be the graduation day of the nurses training-school of St. Mary's Hospital.

Dr. E. W. Hammes, of Hampton, Minn., writes us that he is about to retire from the active practice of medicine, and that he has a complete file of THE LANCET for twenty-five years, which he will be glad to dispose of.

Drs. J. A. Watson, John S. Macnie, W. E. Patterson, and E. S. Strout, all specialists of Minneapolis, have formed an eye, ear, nose, and throat clinic, and will move into a new building at 74 Eleventh St. South within a week or ten days.

The Huron (S. D.) Medical Society held a monthly meeting on March 1, when Dr. W. O. Leach made several case reports, and Dr. L. N. Grosvenor presented a paper on "Eyes and Home Brew," which was a review of a paper by Dr. J. A. Downing, of Des Moines, Iowa.

St. Paul has started a health drive for reducing still further the present comparatively low death-rate among babies. In 1910 one out of every eight babies born in St. Paul died; in 1922 only one in twenty-one died. The aim is to reduce the rate to one in twenty-five.

The Presbyterian Church of the United States requests us to announce that a physician, a nurse, and a hospital housekeeper are wanted to do work in the Presbyterian medical missions in Alaska. For information address Mr. Walter I. Clarke, Witherspoon Building, Philadelphia, Pa.

The South Dakota Legislature contained a strong "no-appropriation" bloc whose members were pledged to economy, even if the fires went out. Needed money for the School for Feeble-Minded at Redfield, for the State Tuberculosis Sanatorium, at Custer, and for other institutions, was denied.

A recent item or two in this column seemed to confuse some of our readers as to the personnel of the Jamestown (N.D.) Clinic. It is as follows: surgeons,—Drs. A. H. Movius, W. W. Wood, P. G. Artz, and W. A. Gerrish; internal medicine,—Dr. F. O. Woodward; eye, ear, nose and throat,—Dr. C. C. Cowin.

Duluth is one of the most active cities in the country in public health work. Its tuberculosis sanatorium at Nopeming, its city hospital, its commercial and other social clubs, its able County (St. Louis) Medical Society, and its women's clubs, and different health officials are strenuously engaged in public health work.

Dr. B. F. Simon, health officer of St. Paul, states that the City's bacteriologist, Mr. Herman Schoberg, was about ready to announce that he had isolated the influenza germ when the Rockefeller Institute announced its isolation in its laboratory. Mr. Schoberg hopes soon to announce the isolation of the scarlet fever germ.

Dr. Walter R. Ramsey, child specialist, of St. Paul, has taken charge of a department on the care of children in *The Farmer's Wife*, of that city, and will be the paper's Consulting Health Editor. As this journal reaches about 750,000 families every month in all parts of the country, the great opportunity for usefulness to the two or three million children of the doctor's new household becomes apparent.

The Committee of Arrangements for the California meeting of the A. M. A. are ready to send to all who expect to attend the meeting details of the most desirable side-trips to be made before or after the convention. This and all other information of the meeting may be obtained by addressing California Convention Headquarters, San Francisco, Calif.

Dr. A. W. Daniels, a pioneer physician of Minnesota, died on March 1, at the age of 94 at Pomona, Calif. When Dr. Daniels left St. Peter for California twenty years ago he had been longer in continuous practice than any other physician in Minnesota. He came to Minnesota as a Government physician in the Indian service direct from Boston, where he graduated in med-

icine. He was the father of Dr. J. W. Daniels, of St. Peter.

The course in "Preventive Medicine" given by the University of Minnesota is proving very popular. It is for both men and women, and it opens up for its graduates a large field of usefulness and good wages. It is under the direction of Dr. H. S. Diehl, who will gladly furnish full information to any person desiring it. All Northwestern physicians should know of this work in order to be able to inform young men and women of this fine opening for them.

Dr. Julius Parker Sedgwick, head of the Department of Pediatrics of the University of Minnesota, died last month at the age of 47, after a long-continued illness. Dr. Sedgwick was born in Wisconsin and educated in Nebraska, graduating from the University of Nebraska in 1896. He came to Eveleth, Minn., as assistant physician in the Fabiola Hospital in 1901, and to Minneapolis in 1905. He soon joined the faculty of the University Medical School and attained eminence as an instructor in pediatrics. He joined the Medical Reserve Corps in the World War, and was sent to France by the Red Cross in 1917, and took charge of the work at Toul. A memorial to Dr. Sedgwick by the faculty of the Medical School will be found on another page.

The Shriners' Hospital, of the Twin Cities, for crippled children was opened last Sunday when several thousand visitors inspected the buildings. The staff of the Hospital is composed of the following Twin City specialists: Dr. Wallace H. Cole, of St. Paul, chief surgeon; Dr. Charles A. Reed, Minneapolis, associate chief surgeon; Dr. Paul W. Giessler and Dr. Iver Selleseth, of Minneapolis, attending orthopedists; Dr. A. R. Colvin and Dr. C. C. Chatterton, of St. Paul, consulting orthopedists; Dr. Frederick A. Olson, of Minneapolis and Dr. H. B. Zimmerman, of St. Paul, attending surgeons; Dr. Frederick C. Rodda, of Minneapolis, and Dr. James T. Christenson, of St. Paul, attending pediatricians; Dr. T. A. Peppard, of Minneapolis, and Dr. H. G. Wood, of St. Paul, attending physicians; Dr. Angus W. Morrison, of Minneapolis, and Dr. C. Eugene Riggs, of St. Paul, attending neurologists; Dr. Fred J. Pratt, of Minneapolis, and Dr. Merritt W. Wheeler, of St. Paul, attending otolaryngologists and ophthalmologists; Dr. Paul B. Cook, of St. Paul, attending dermatologist; and Dr. Margaret Warwick, of St. Paul, consulting pathologist.

(For for sale and want items see page 149)

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SYMPOSIUM ON THYROID DISEASE*

BY

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CLASSIFICATION OF DISEASES OF THE THYROID

BY E. T. BELL, M.D.

Department of Pathology, University of Minnesota.

MINNEAPOLIS

The following is the recognized classification of the diseases of the thyroid:

Inflammations.

Acute thyroiditis.

Chronic thyroiditis.

Strumitis.

Tuberculosis.

Endemic cretinism (usually an enlarged thyroid).

Myxedema.

Spontaneous (acquired—atrophy of thyroid).

Congenital—aplasia of thyroid.

Postoperative.

From radiation.

Colloid goiter.

With hypothyroidism.

With normal metabolic rate.

With hyperthyroidism (rare).

Adenomatous goiter.

Nontoxic adenoma.

Toxic adenoma (hyperthyroidism).

Diffuse hyperplastic goiter.

(Graves' disease).

Carcinoma of the thyroid.

THE ETIOLOGY OF THYROID DISEASES

BY HENRY L. ULRICH, M.D.

MINNEAPOLIS

Thyroid diseases may be divided into two great groups: endemic goiter and thyrotoxicoses. The etiological evidence for endemic goiter has assumed a definite direction. From the mass of data one can safely assume that the main etiological factor is the supply and distribution of iodine in the world, and, as a corollary to this, its utilization by the body. Generally speaking, the curve of incidence of the disease is in inverse ratio to the supply of iodine. This fact stands out stronger than any others which relate themselves to it such as carnivorous or herbivorous food factors, modified water factors, unsanitary conditions, and periodicity of the disease in some localities.

*Presented before the Hennepin County Medical Society, December 12, 1922.

The protean manifestations of thyrotoxicosis have led to many theories of pathogenesis. The earlier hypotheses may be briefly mentioned:*

1. The detoxication theory assumed that the gland had lost its function of destroying noxious elements of metabolism or infection. This is a generalization which has been attributed, without warrant, to every gland of internal secretion.

2. The toxic hypothesis is based on the idea that some noxious element in the water supply is the causative agent. The argument is similar to that on which the etiology of endemic goiter is assumed. This idea has been disproved by a simple evidence of surgery.

3. The infectious hypothesis which arose in the early days of the development of bacteriology has been disproven by the thousand negative cultures from thyroids removed at operation.

4. The neurogenic theory: The older clinicians regarded exophthalmic goiter as an affection of the whole nervous system. This idea diverged into the bulbar or central nervous system theory, ably championed by Sattler and Leube, and the peripheral theory, the disease having its origin in the vegetative system, supported by Eppinger and Hiss, Falta, etc. Wilson supplied pathological and Cannon physiological evidence for this view. Surgery again has relegated these ideas to the discard.

5. The thyrogenic hypothesis: Thyrotoxicosis has supervened on emotional, physical, and postinfectious exhaustion; likewise has followed acute infections of the thyroid, chronic focal infections, as well as intestinal toxemia (whatever that may mean). These items, however, are mere initial factors, the pathogenesis of the disease centers in the gland itself.

In the thyrogenic hypothesis again we have a splitting up of opinion into two camps: one which considers that the symptoms are due to a hypersecretion of normal hormone (thyroxin); and the other, which holds that the intoxication is due to a dysfunctional or pathological activity of the gland. Since 1884 the hypersecretion idea has held sway. Rehn, Moebius, Kocher, Kraus, Falta, Wilson, and Plummer have advanced this idea. The main argument for this theory are (1) the evidence of hyperplasia in the gland; (2) the relief or cure by thyroidectomy; (3) experimental production of hyper-

thyroidism in man by thyroid medication; (4) increase of symptoms of thyrotoxicosis on exhibition of thyroid preparations; (5) the contrast of symptoms and signs of hyperthyroidism and hypothyroidism, as well as the variations in metabolic rates. All these have been, and can be, refuted on clinical, physiological, and pathological grounds.

The dysfunctional theory is based on broader pathological and clinical reasoning. Some of the arguments for this hypothesis are (1) occurrence of thyrotoxicosis in families exhibiting tendencies to goiter and hypothyroidism; (2) the etiological relationship of endemic goiter to thyrotoxicosis, developing usually after a period averaging sixteen years; (3) the infectious origin following acute thyroiditis; the insult to an organ after an infection is more likely to leave it in an exhausted or dysfunctional state, rather than hyperactive; (+) pathological reasoning. Hyperplasia is not necessarily evidence of hyperfunction; there is a disproportion of hyperplasia to symptoms; and, on broader lines still, all goiters are but an evidence of a reaction to toxic, nervous, or exhaustive states. And this reaction is in different proportions: 1st it may be hyperplastic; 2nd it may be recessive with recovery or colloid state; 3rd it may be exhaustive, or prematurely atrophic. Depending on how far the reaction goes we have the different clinical entities: in the hyperplastic we have thyrotoxicosis, in the recessive we have the endemic goiter, in the exhaustive we have the hypo—or myxedematous stage. "The pathological processes are then essentially the same in all thyroid diseases, aside from the malignant."

From this theory the adjunct hypothesis of the secretion of an abnormal hormone in thyrotoxicosis is evolved. The normal hormone is a synthesis of inorganic iodine and other substances related to indol-amino-acid or tryptophane. One or more of the intermediate substances in this synthesis may be toxic. This hypothesis demands the isolation of this toxic substance and the reproduction of thyroid disease by its exhibition. Kendall is at work on this part of the problem at the present.

Standing out in the fog of discussion is this central idea: around the need of iodine by the body, its supply and distribution, and the chemistry of its utilization by the thyroid, healthy or diseased, hangs the incidence of endemic goiter thyrotoxicosis and myxedema.

*The balance of this review, with the exception of the conclusion, is a brief abstract of Dr. Nelson W. Janney's article in *Endocrinology* of September and the unpublished December number.

CONCLUSION

The etiology of thyrotoxicosis is still a theoretical nebulus. Three thoughts stand out which can be used as central ideas of etiology:

1. Initial cause or exciting stimulus is usually some emotional, physical, nervous, shock or exhaustion, bacterial invasion of the gland or elsewhere, acute or chronic, and toxemias (intestinal).
2. Factor in the gland itself, possibly a susceptibility congenital or acquired, such glands include all variants from normal to abnormal anatomical states.
3. Iodine metabolism, which merely adds the possible factor of disturbed physiology.

There are only two definite illustrations which fit with these three ideas:

1. Thyrotoxicosis following acute thyroiditis, that is, infection in the gland itself.
2. Thyrotoxicosis following endemic goiter, that is, some factor in the gland itself plus iodine metabolism prepared the fabric for thyrotoxicosis.

THE INCIDENCE AND PREVENTION OF THYROID DISEASE IN CHILDREN

By N. O. PEARCE, M.D.

MINNEAPOLIS

In a discussion of the incidence of goiter in children one is immediately confronted with a lack of definiteness in the clinical literature as to what is a normal and what is an abnormal thyroid. Great variation may be found in the size of the thyroid gland during childhood without any clinical evidence of thyroid disease. However, it is a well-established fact that, geographically speaking, in regions where there is a large percentage of thyroid enlargement in the population, there is likewise a higher incidence of thyroid disease. Many authorities consider that any thyroid that is easily palpable before the age of puberty is abnormal. Everyone recognizes the tendency toward physiological enlargement of the gland at the approach of puberty in both sexes, it being more pronounced in the female.

For many years certain sections of Europe have been recognized as goiter regions, but no very comprehensive study of the geographical distribution of thyroid enlargement in the United

States is available with the exception of the work done by the Army physicians during the recent examination of recruits. This survey, while very inadequate, bears out the already well-known fact that the tendency for the thyroid gland to enlarge is much greater in some areas than in others. It will be noted that the areas bordering salt water are uniformly low in percentage with a general tendency toward an increase inland and a very high percentage in the region of the Great Lakes. Some studies show that the tendency toward enlarged thyroid grows progressively greater in the Mississippi Valley as one advances from the mouth to the head waters of the Mississippi River. Some knowledge of the incidence of goiter in the Great Lakes region may be gathered from the recent work of Dr. Levin, of Lake Linden, Mich., in which he found 1,146 goiters in 1783 persons. Enlargement of the thyroid was found in 22 per cent of children examined under one year of age, the percentage advancing rapidly toward puberty, in both sexes it being much more steady in the female. The percentage of total goiters in the period from 10 to 15 years was 94 in girls, while that of the boys averaged about 68 per cent. In families with four or more children, the family record being complete, it was found that the presence of goiter in both parents resulted in many goiters among the children. Adenoma in both parents, especially in the father, meant adenoma in the children. The familial influence in simple goiter was four times as great in the mother as in the father. There is no doubt that mothers with large exuberant goiters give birth to a considerable percentage of children with enlarged thyroids; however, the tendency in the new-born is for the enlargement to disappear, without treatment, within the first two weeks of life. We assume that the percentage of goiter found by Levin is much greater than would be generally found in Minnesota, but we do recognize that there are a very large number of children in our immediate population with enlarged thyroid; however, the incidence of hyper and hypo-thyroidism clinically recognizable is not considerable.

Condeit, a French-Swiss physician, of Geneva, in 1832, made the first attempt at general prophylactic measures for the prevention of thyroid disease. He administered iodine to a considerable number of people with simple enlargement of the thyroid, which resulted in an arrest of the growth of the gland. His work was taken

up by the French government and applied to soldiers from goiterous regions with the result that many cases of hyperthyroidism developed, so the procedure was considered dangerous and was discarded. It was only taken up again as a prophylactic measure through the work of Marine at Akron, Ohio, in 1917-1919. He examined about 4,000 girls in the public schools from the 5th to the 12th grades and found only 43.5 per cent with normal thyroids, 41 per cent had slight enlargement, 6.3 per cent moderate, and 0.2 per cent were marked. Adenomas appeared in 1 per cent. These 4,000 children were divided into two groups without regard to thyroid enlargement. The first group was then given 2 gm. of sodium iodine, in 0.2 gm. doses for 10 consecutive school days in the spring and again in the autumn, while the other group remained untreated. When examined a year and a half later the most striking fact brought out was that not a pupil in whom the thyroid was normal and who took iodine showed any thyroid enlargement, while of those not taking the treatment 16 per cent showed definite enlargement. Marine believed that a distinct therapeutic effect was had, as the glands of 38 per cent of the pupils with slight enlargement decreased following the use of iodine. He concluded; (1) that simple goiter may be prevented on a large scale; (2) that the method used is practical and economical and can be recommended as a public health measure; (3) that 2 gms. of sodium iodine twice yearly is sufficient, and the danger of iodism or exophthalmic goiter from the use of such amounts is negligible. Since this work the giving of iodine in small amounts as a prophylactic measure has again been taken up in the goiterous regions of Switzerland and other European countries with what appear to be good results.

Different methods of administering the iodine have been proposed, such as the addition of iodized salts to common table salt for daily use on the table. As the prophylactic administration of iodine must cover a long period to obtain results it must be made simple and easily accessible, so some such method would be of great value provided the amount of iodine intake could be controlled.

BASAL METABOLISM IN CONNECTION WITH THYROID DISEASE

BY EDWIN L. GARDNER, M.D.

MINNEAPOLIS

Basal metabolism is the minimum amount of energy compatible with health put out by the body while at absolute rest. This energy is best expressed by heat units and may be calculated from the pulmonary gaseous exchange. Two types of apparatus are commonly used in the oxygen-absorption methods: (1) The expired air may be collected in a gasometer and examined by ordinary quantitative gas analysis methods. Any leakage of expired air in such a method, or incomplete absorption of oxygen will cause a basal metabolic reading slightly lower than it should be. (2) Another method is more commonly used where a small known amount of oxygen is enclosed in a gasometer and the patient rebreathes; the carbon dioxide is absorbed as it passes over soda lime or some other alkali, and the residue oxygen mixture directly measured. The latter procedure is easy and requires no gas analysis, but has a serious disadvantage in that the slightest leakage gives a markedly plus metabolic rate. In the first method fifty to one hundred liters of expired are collected, and slight errors do not appreciably affect the results. Basal metabolism estimation has come to stay, but it requires the same careful technic in its determination and intelligent interpretation of the results as any other laboratory procedure, the Wassermann test for example.

Thyroid function is only one, but a very important factor in influencing metabolism. The increased temperature of the body, increased appetite, increased nitrogen-elimination, increased pulmonary gaseous exchange, and loss of weight are all well-known clinical symptoms of increased thyroid function; the subnormal temperature, anorexia, decreased respiratory exchange, and gain in weight are common signs in myxedema.

The basal metabolic rate is a reliable index to the reaction of a patient to the thyrotoxic substance, and probably in most cases there is a quantitative relation, but it is very possible that some individuals react more vigorously to a small excess of the thyrotoxic substance than do others. Clinically the symptoms of hyperthyroidism often show periods of exacerbation or remission, and the metabolic rate runs a course more or less parallel to the clinical course. A

good night's rest or anything which produces nervous relaxation in the patient and amelioration of symptoms brings about a corresponding reduction of metabolism; sudden excitement and exhaustion will rapidly increase the rate. If in a patient for diagnosis, repeated normal basal metabolic rates are obtained over a period of several weeks, hyperthyroidism may be excluded. Many old cases of hyperthyroidism which have nearly "burned" out will show a normal rate or only slightly increased rates. Basal rates under plus 35 per cent are an indication for the greatest caution, and should always be repeated and interpreted in the light of the history and clinical findings. Menstruation may increase the rate in normal women 15 per cent or more and fever 10 per cent or more for each Fahrenheit degree of rise in temperature. The majority of actively hyperthyroid patients give rates above plus 35 per cent. Basal metabolism offers greatest aid in excluding hyperthyroidism as a cause for certain tachycardias, tremors, and that group of symptoms suggesting either some chronic infection, as early tuberculosis or hyperthyroidism.

BASAL METABOLISM AS AN INDICATION FOR SURGERY

A persistently normal metabolic rate is a contra-indication for surgery in a case of suspected hyperthyroidism. Either the patient has no hyperthyroidism or the disease has "burned out"; and no improvement, but probably harm, will be derived from resection of the thyroid gland.

A border-line case with a rate under plus 35 per cent should be very carefully studied, and very often observed for a long time unless the clinical signs are so definite that a mistake is unlikely.

The clinical signs most often are the deciding factor to determine when to operate. A patient with a high metabolic rate (of perhaps over plus 50 per cent) should have a rest before any operative procedure. However, many cases with a low rate will show the worse reaction. So much depends upon the personal equation in the operator and the condition of the patient's heart muscle. As a whole, the pulse is a safer guide than the basal metabolism in determining how much shall be done and when to do it. The metabolic rate offers a valuable aid, and the physician feels better to have both the pulse and the rates within limits of safety. The cases with a continuously high pulse and metabolic rate

should have simple procedure, such as ligation or radiation, if response to rest is not prompt and persistent.

Following any therapeutic procedure the basal metabolic rate is a valuable aid in interpreting the results of treatment.

No relation exists between the size of thyroid gland on the one hand and thyrotoxicemia and the basal metabolic rate on the other.

HYPOTHYROIDISM AND BASAL METABOLISM

A very large field exists for basal metabolic determinations in hypothyroid states. Myxedema and cretinism are easily recognized clinically, but treatment may be controlled by estimation of the basal rate at regular periods.

Minor thyroid deficiencies following thyroid or pelvic operations, repeated pregnancies, or infections and toxemias may be suspected from clinical signs, but can be proved only by the therapeutic test or basal metabolism studies. Recent studies have justified the use of iodine as an "alterative" by the last generation of physicians. These patients are often called *neurasthenics* and may be greatly helped by thyroid feeding. From this class of cases must be excluded those with malnutrition and asthenic conditions who persistently have low metabolic rates.

CONCLUSION

Estimation of basal metabolism is a valuable aid in the diagnosis and treatment of thyroid disease when properly done and interpreted in the light of the clinical history and findings.

THE RELATION OF A DISEASED THYROID TO OTHER DUCTLESS GLANDS

BY W. A. JONES, M.D.

MINNEAPOLIS

Speaking broadly and with our limited knowledge of the ductless gland which regulates or controls one or more of its fellows, this field is a choice one for speculation and for diagnosis. Chiefly on account of the prominence of the thyroid and the many writers on the subject of the thyroid and its functions, we look upon this gland as the one controlling force in the endocrine system. Physiologically speaking, this may not be entirely correct, but for practical purposes it gives us a lead whereby other glands can be linked in with the thyroid as a part of

the necessary mechanism and working of the internal secretions. The first, but perhaps the most, important gland in close association with the thyroid is the pituitary; and these, in turn, are intimately associated with the adrenals, the parathyroids, and the interstitial gland of the testicle and the corpus luteum. All of these glands and others not distinctly ductless (and here the liver and pancreas come in for consideration) are known as the *nutritive glands*. Part of them, the glands of the intestinal mucous membrane, the liver, pancreas, and adrenals, are substances taking part in nutrition. In the second place, the liver and parathyroids are looked upon as excretory products, while the glands of the testes and ovaries, the thyroid and pituitary, are substances taking part in morphogenesis. It must be remembered, too, that the glands which regulate or stimulate functions include those of the duodenojejunal mucous membrane, the adrenals, the myometrial glands (which represent the placenta and the fetus), and the thyroid, consequently it is shown by this classification that the thyroid occupies a prominent place among the nutritive glands and among the glands which regulate or stimulate the functions of the body. This leaves out of consideration the spleen and the bone-marrow, and yet, after all, these cells are a part of the internal secretory system. Note the accompanying chart completed by Dr. E. Gley.

While considering the thyroid, or any other ductless gland, with its insufficiency or its altered functioning we must not overlook the fact that there may be lesions of these various glands, such as tumors, inflammations, adenomata, and colloid growths; and we must also include among them infections, such as tuberculosis and syphilis, arteriosclerosis (which may in itself be wholly due to a glandular disturbance), and the various types of malignancy. It is, therefore, quite important that as far as possible all other disease, in the dysfunctioning of a gland, should be considered in the study of the thyroid and its associates. The thyroid seems to be in some way very intimately connected or associated with the glands of the generative system, and not infrequently the testicle or the ovary may be involved in a disorder of function; and the differentiation between the two glandular systems can be determined only by the introduction or administration of glandular substance. For illustration, the woman who has a complete hysterectomy (done during the early period of hyster-

ectomies) in which both ovaries are lost or removed, may for a time improve on thyroids, or, if there is no improvement under thyroids, she may thrive on corpus luteum or ovarian substance. This treatment sometimes proves that recoveries may occur from the administration of one or both of these organs, and yet the diagnosis of which organ is most important is undetermined. The association between the thyroid and the adrenals is also a very close one, and it is quite natural to assume that a disorder or disease of one or the other may produce symptoms of both, just as a disease of the thyroid or the pituitary may give confusing symptoms of one or the other, or both.

Each of the three outstanding glands,—namely, the thyroid, the pituitary, and the adrenals,—has a certain definite and gross disease which is characteristic. A disorder of the thyroid, a defect in its growth, may produce exophthalmic goiter or myxedema, Basedow's disease, and functional nervous disease. The outstanding disease for which the pituitary disorder is accountable is acromegalia, giantism, pituitary infantilism, adipose genitalia syndrome, or pituitary diabetes. The adrenals have for their outstanding and conspicuous disorder Addison's disease. This leads to the suggestion that these three glands may be simultaneously affected, producing a pluriglandular syndrome. That may be responsible for the obesity of the menopause. Dercum's disease, sclerodermia, certain types of senilism, or of genitodystrophic geroderma (which, translated freely, means the appearance of age in a young person,—where the skin is wrinkled as in old people). The dysfunctioning of any one of these glands cannot always be accurately determined on account of their intimate relationship and the interdependence of the functioning of all of them. For instance, we may have an insufficiency, an aberration, or a hyperfunctioning problem to deal with. The pathology of the thyroid, of the pituitary, and of the pancreas shows many examples of this problem. And here again, it is necessary to call attention to a possible luetic infection when the question of treatment arises.

One must always bear in mind the important factor of the nervous system, which may be classified as belonging to the emotional state or to some disturbance of the sympathetic nervous system, one more or less interdependent upon the other. It is well known that emotional dis-

I. Table of Internal Secretory Glands, Giving the Products Secreted, the Functional Correlations Depending on Them, and the Diseases or Disorders Resulting from the Inhibition or Alteration of these Organs and Their Secretions

	ORGAN	PRODUCTS SECRETED	PHYSIOLOGICAL ROLE OF PRODUCTS SECRETED	CORRELATIONS BETWEEN	DISEASES	
I Nutritive Glands (taking part in transformation of matter and elaboration of)	Substances taking part in nutrition	1. Glands of the intestinal mucous membrane	Plastic rôle Production of energy Plastic rôle Formation of glycoprotein or destruction of sugar	Intestine and tissues Liver and muscles Liver and blood	Diabetes through hepatic hypersecretion of sugar	
		2. Excretory products	Urea; phenylsulphates	Mobilization of sugar Transformation of toxic products into non-toxic (antitoxic function of the liver)	Pancreas and liver Adrenals and liver Liver and kidneys	Diabetes through suppression of pancreatic action Glycosuria through hyperadrenalineuria
		3. Substances taking part in morphogenesis	Interstitial gland of the testicle and corpus luteum Thyroid Hypophysis	Development of the genital tract and of the accessory genital glands, development of the skeleton Development of the sex glands Development of the skeleton	Thyroid and and Parathyroids Interstitial gland or corpus luteum and accessory genital glands, interstitial gland and osseous tissue Thyroid and osseous tissue Thyroid and brain Thyroid and testicles or ovaries Hypophysis and osseous tissue	Tetany through suppression of function. Infantilism of testicular origin. Arrest of development, cretinism, myxomatous conditions Acromegaly
II Glands serving to maintain the composition of the internal medium	Liver Choroid plexuses	Antithrombine Cerebro-spinal fluid	Coagulability of the blood Physical rôle, known Eliminative rôle (?)	Liver and blood	Hæmophilia through an excess of antithrombine	
III Glands which regulate or stimulate functions	Glands of the duodeno-jejunal mucous membrane Adrenals Mammary gland or placenta or fetus (?) Thyroid	Secretin Adrenalin A glandular substance A substance which excites metabolism (iodo-thyroglobulin?)	Pancreatic secretion Functions of the sympathetic nervous system Secretion of milk Nitrogenous and respiratory exchanges	Stomach, duodenum Adrenals and sympathetic nervous system Uterus, placenta or fetal organs and breasts Thyroid and tissues in general	Addison's disease Suprarenal insufficiency (?) Inhibition of nutrition because of lack of thyroid secretion	
Organs participating in nutrition or morphogenesis	NON-GLANDULAR Fatty bodies Spleen Thymus	ORGANS BUT WHICH Fats Tyrosinogenin	Production of Energy Development of the skeleton	FUNCTION AS ENDOCRINE GLANDS Spleen and pancreas Thymus and osseous tissue		

orders (particularly noted during the late war) have been verified in the development of exophthalmic goiter, due to the influence of severe emotions and fright; the disturbance of the menstruation, breast-feeding, and the internal secretions of the ovaries from emotional disturbances, as observed at Nancy, French Lorraine, in connection with the frequency of chlorosis during the years the town was bombarded. Such emotional disorders probably disturbed the functions of many glands, not only this great triad, but probably others as well. Then, too, we must begin more fully to appreciate the influence of the activity or lack of activity of the sympathetic nervous system. For years, and even at the present time, the sympathetic nervous system was not well understood; but it is known that it arises from two main sources, and that, first, it is influenced by brain activity or brain function, and, next, by spinal-cord activities. Yet, with all this kept in the foreground, the sympathetic system is a combination of many nervous systems which are still called and described under the name of the *sympathetic system*. Consequently, each ganglion within the trunk that is of sympathetic origin is practically independent of the one above or below it; and yet all may join together in creating a chaotic state of the glandular system, both in the thorax and in the abdomen. When one is in doubt, therefore, as to certain disturbed functions of the ductless glands, both emotions and the sympathetic nervous system must be analyzed before a definite selection of the gland involved can be made. For instance, an illustration of a syndrome that may involve other glands, here is the difference between hypothyroidism and hyperthyroidism: Under hypothyroidism we have dull expression, thyroid not appreciable in size, fall of hair with the eyebrow sign, tendency to obesity, hypodermia, dry skin, transitory edema, sleepiness and apathy, loss of appetite, and constipation; while hyperthyroidism has for its outstanding symptoms exophthalmia, brilliant eyes, hypertrophied thyroid, hypertrichosis, loss of weight, hyperdermia, waves of heat, tachycardia, moist skin, excessive secretion of sweat, insomnia, nervousity, irritability, and tendency to diarrhea.

THYROID DISEASE AND PREGNANCY

BY JENNINGS C. LITZENBERG, M.D.

MINNEAPOLIS

The relation of the thyroid gland to pregnancy is interesting, because in a large percentage of cases there is a normal physiological enlargement of that gland, because severe complications are not often met with, and, finally, because when these complications do become serious they are apt to be most alarming.

The physiological enlargement of the thyroid occurs, according to Seitz, in from 65 per cent to 90 per cent of all pregnant women. Rüksammen found physiological enlargement in 89.5 per cent in 718 cases; Lange in 108 of 133 cases; von Graef in 48.7 per cent of 664 cases. Women who have goiter before pregnancy nearly all show an increase of the goiter during pregnancy. This enlargement takes place later as a rule in multiparæ than in primiparæ, in the fifth month of the primipara, and in the sixth month of the multipara. The enlargement begins to recede immediately after delivery, continuing for weeks, but, as a rule, the gland never reaches quite a normal condition again. This enlargement takes place because of the physiological demand for increased oxidation. Seitz says that women who show no hyperplasia are more apt to have albuminuria and eclampsia. The physiological nature of this is attested by Lange, who showed that if one-fifth of the thyroid gland was removed, no ill effects would follow, but if the cats were pregnant albuminuria and nephritis supervened; but if the cats were given thyroid extract these symptoms disappeared.

These findings form the basis for thyroid therapy in toxemia, which, after all, has not given us the encouraging results that had been hoped for, probably because it is not the only factor entering into the situation.

The thyroid gland increases markedly during labor—so much so that it seems sometimes almost at the point of bursting. There may be marked dyspnea or cyanosis, but there is seldom need for intervention. In women with goiters of long standing the goiterous heart is always present. The danger of the goiter in pregnancy may be illustrated by the following patient who had inspiratory dyspnea, but who went through her labor without other complication. She was not allowed to bear down, and when dilatation was complete, was prepared for forceps delivery.

Light anesthesia only was given. Soon after the anesthesia was started her trachea collapsed with a sound like the snapping shut of a soft rubber tube when one sucks upon it. Her pupils were dilated, her pulse was extremely rapid and weak, and death was impending. Delivery was quickly completed, and a tube inserted into the trachea, and oxygen given. She soon began to breathe easily, felt fine, and went on to an uneventful recovery.

This case illustrates the sudden desperate condition that may arise in women with goiter. It also demonstrates the fact that anesthesia is dangerous in these cases. In addition to this, it shows the effect of pressure of the goiter upon the tracheal rings, making them so soft that the trachea could not withstand the labored breathing and the trachea collapsed as though having no support from the rings. This woman was advised on account of the size of the goiter to have it operated on before she again became pregnant. A year later she did become pregnant, and, remembering the advice, she reported for operation early in pregnancy. Her goiter was removed, and she went through this pregnancy and labor without any further complications.

Treatment.—Women with goiter who become pregnant should have active medical treatment begun early, because it often prevents excessive enlargement. The value of treatment if administered throughout pregnancy is illustrated in another case.

A woman who had had a goiter from early girlhood, and had one pregnancy during which her thyroid was excessively enlarged, lost her baby on account of dystocia, due to the large thyroid of the fetus, necessitating perforation of the head for delivery. Her mother and all of her sisters, two maternal aunts, and her grandmother all had goiters. In her second pregnancy iodine was administered throughout gestation. While the goiter enlarged somewhat it was not excessive, and the baby was born without a goiter. Of course, it is impossible to say that the treatment was the sole cause, but at least it is presumptive evidence.

Therapeutic abortion is seldom, if ever, justifiable. If severe goiter symptoms appear in one pregnancy surgery of the thyroid should be resorted to before a subsequent pregnancy.

Fortunately, a goiter usually does not give alarming symptoms. The patient can usually go

to term and be delivered without more than minor complications. However, if the woman has previously lost one child, and is not seen early enough to institute preventive measures, or these fail and symptoms are alarming, Cæsarean section may be indicated, or vaginal hysterotomy may be elected, but labor should not be induced, because the induced labor is just as deleterious as a natural labor. It is the labor itself we are seeking to avoid. It is, of course, much better, if the case is seen early enough, to resort to medical treatment, or to surgery if it is indicated. However, thyroidectomy late in pregnancy or in labor is not to be thought of. If a thyroidectomy is to be done, it must be done early.

It is not always necessary or possible to resort to surgery. The case may be seen too late to advise a surgical procedure. This is illustrated by another case, of a woman whose mother had eight children,—six girls, all with goiters, and two boys, without. The mother and two sisters had goiters. It was the colloid type, growing rapidly since pregnancy. She had to sleep propped high on pillows on account of mechanical interference. Her basal metabolism was plus 24. Surgery was not thought advisable at the late period of pregnancy, so *x*-ray therapy was resorted to. Basal metabolism was reduced to plus 18, and patient was much more comfortable, and she went normally through a rather short labor.

Another case illustrates the continual enlargement of the thyroid in successive pregnancies. This woman had had five normal labors. In the first the thyroid was moderately enlarged, but never went back to normal, and in each succeeding pregnancy she was left with a larger goiter, until now she has a very large one, has choking spells and is short of breath, and has mechanical interference. In her sixth pregnancy when she reported for treatment she had a basal metabolism of plus 65 at one reading, and plus 67 at another. This is evidently a case for surgical interference early in pregnancy, which was advised but, unfortunately, refused because the patient desired an abortion. We refused to do this because we believed surgery would fulfill all indications.

EXOPHTHALMIC GOITER

Women with exophthalmic goiter, fortunately, seldom become pregnant. This is not to be wondered at, for we are all familiar with the

amenorrhea which so often accompanies exophthalmic goiters in girls. We all know also of the frequency of atrophy of the uterus in these cases. In the Glasgow Maternity only one in fifteen thousand pregnancies had exophthalmic goiters, and Bonnaire, in France, observed only two in thirty thousand pregnancies. Seitz was able to collect only one hundred and twelve cases from the literature, but he found that 40 per cent were not affected by pregnancy. These were probably of the milder type; 60 per cent of the cases were distinctly worse; seven patients died, and in five therapeutic abortion was induced, and in eleven premature labors, three miscarriages, and in seven thyroidectomy was performed.

There is a distinct predisposition to uterine hemorrhage and albuminuria. Although few women with exophthalmic goiter become pregnant, when they do it is so distinctly dangerous that Theilhaber uttered this dictum: "Girls—no marriage. Women—no pregnancies. Mothers—no nursing."

Treatment.—The usual treatment with careful régime will carry a majority of the cases through, particularly if we keep in mind the possibilities of surgery upon the thyroid gland. Induction of labor is seldom necessary now, since surgery in the exophthalmic goiter offers so much. However, women with exophthalmic goiter are never safe if they conceive, therefore, they should never marry. If they marry they should never conceive; but if they do in spite of advice, and exophthalmic goiter develops after marriage, they may be carried through the pregnancy with greater safety than formerly, provided they are always under the most careful scrutiny.

THYROID CONDITIONS AMENABLE TO MEDICAL TREATMENT

By J. G. CROSS, M.D.

MINNEAPOLIS

The subject assigned to me, "Thyroid Conditions Amenable to Medical Treatment," I interpret to mean that I discuss the types of thyroid disturbances which are, or may be, benefited by nonsurgical treatment. At the outset it is my opinion there are no thyroid disturbances which are not at some period benefited by nonsurgical means.

It is difficult, as we see by the classifications mentioned in this symposium, accurately to group the thyroid diseases. The gland is often the site of mixed pathological change. We should not lose sight of the fact, also, that there are cases of dysthyroidism showing depressed and exaggerated function at different times. The opinion is gaining ground that a large proportion of thyroid disturbances do not originate in the gland itself any more than, as Dr. Ulrich has stated, that the thyroid in a state of instability is more easily influenced by outside causes.

The classification of goiter on some basis which gives an indication as to the mode of treatment is highly desirable. That proposed by Lichty comes nearer to furnishing a practical basis in this regard than any so far appearing in the literature. With slight modification it is as follows:

First Group: Changes in the thyroid gland without disturbance of thyroid function, being due to pathology of other than the essential thyroid tissue. In this group are included the malignant tumors, simple colloid growths, cysts of adenomata, tuberculosis of the thyroid, syphilis, and infections of the gland with pyogenic organisms. Treatment of these conditions is governed by the same rules, either medical or surgical, as in the same conditions elsewhere in the body.

Second Group: This group comprises a very large class characterized by hypothyroid or hyperthyroid function, with no demonstrable characteristic pathology, but a definite symptom complex. It must be remembered that patients in this class may develop a pathologic picture of some other type later. It is in this class that there is the largest field for the confirmatory tests of basal metabolism, the differential blood picture, the epinephrin test, the glucose-tolerance test, in addition to the most careful clinical observation. It is in this group of cases also that we have most often failed to recognize a definite thyroid symptom complex for want of corroborative tests.

Patients belonging to this group do not require surgical treatment of the thyroid condition itself, though this often depends upon a surgical condition elsewhere, the removal of which is necessary before improvement can take place in the thyroid symptoms.

Adolescent Group of Goiters: Very little needs to be said about this type. The condition is usually temporary, and commonly yields to

medical care. It should be remembered, however, that some adolescent goiters in susceptible individuals are the beginning of other types. These, therefore, should be looked upon as possibly potential goiters of another type. It is in this group of goiters that the iodine treatment is of use particularly.

Fourth Group: The fourth group comprises the cases of hyperthyroidism with enlarged thyroid and thyrotoxicosis. These may be true parenchymatous hyperplastic goiters of the Basedow type, or they may be mixed goiters containing adenomata, cysts, or of the predominating colloid type. This group contains the more serious goiters, which untreated, are apt to run a rather definite course, ending usually either in death, myxedema, or partial recovery. Whether exophthalmos is present or absent, depending upon the intensity with which the sympathetic involvement extends to the ophthalmic area, these are all serious cases. It is unnecessary to go into the symptomatology of thyrotoxicosis any more than to emphasize again the fact that the condition may exist without being accompanied by eye symptoms and signs. Even in the well-developed cases, however, the basal metabolism, the glucose tolerance, response to epinephrin, the differential blood picture, and the presence or absence of complicating cardiac trouble should be determined. Medical treatment has advanced materially in the past ten years for cases in this group.

The more one sees of the disturbance of the thyroid gland, is he impressed with the advantage of early diagnosis. Prophylactic treatment, of course, covers only the adolescent group and those individuals in whom the development of goiter may be expected by reason of place of residence, heredity, or other predisposing factors. There are individuals, however, who come to us with fairly definite symptoms of thyroid derangement, in whom it is now possible to establish a diagnosis upon which a rational therapy can be instituted. There can be no doubt that many of these cases can be saved from a more serious illness by prompt and judicious care, knowing that the thyroid gland is at fault. Hypothyroid cases will be benefited by the administration of thyroid substance or thyroxin.

As regards the treatment of the well-developed cases of hyperthyroidism, one hesitates to enter into a discussion. The proper selection of cases for medical treatment is not always easy. The

writer is of the opinion that the field for the medical treatment, or rather the nonsurgical treatment, of goiter, is one which is enlarging and should become even greater than it is at present. With the earlier and more accurate diagnosis of hyperthyroidism, it is possible to successfully treat the condition where medical treatment would fail in the neglected case. However, the selection of cases for medical or surgical treatment may be quite a feat of judgment.

NERVOUS MANIFESTATIONS IN THYROID DISEASE

A. S. HAMILTON, M.D.

MINNEAPOLIS

In the past few years there has developed a very great interest in the disorders of the ductless glands and in none more than those of the thyroid; and it is wise at this moment to add that our interest and enthusiasm in the matter has quite outrun any exact clinical knowledge that we possess. As a result it has come about that many conditions which we once grouped under so-called functional nervous states and believed them due to emotional conditions, are now often ascribed to disorders of the ductless glands. There are few matters in differential diagnosis which have puzzled me more in recent years than the distinction between those which are fairly to be grouped under functional states of emotional origin and more or less similar nervous phenomena due to exophthalmic goiter.

Some very interesting additions have been made recently to our conception of the nervous system, and we now distinguish clearly between, on the one hand, the cerebrospinal nervous system, which causes the different parts of the body to work together harmoniously, and, on the other hand, the vegetative nervous system, made up again of the sympathetic and autonomic portions, which has to do with the metabolic processes of life,—nutrition, growth, development, and involution. Certain organs of the body, such as the pituitary, thyroid, parathyroids, suprarenals, and blood glands, commonly known as the ductless glands, are closely related to nerve structure, but other organs, though not closely related to the nervous system, such as the liver, pancreas, ovary, uterus, sexual glands, heart,

stomach, and lungs, are, nevertheless, all controlled and interrelated by the vegetative nervous system, either through its autonomic or sympathetic proper division.

Nowhere is the intimate relationship between the endocrine glands and the nervous system better illustrated than in the symptomatology of exophthalmic goiter. Though the disease is now recognized as due to a poison elaborated in the thyroid, of its four principal symptoms,—namely, rapid heart action, enlargement of the thyroid gland, protrusion of the eyeballs, and tremor,—all but the enlargement of the gland are due to disturbance of the vegetative nervous system, and when we add to these the large number of other but less important symptoms it is very clear that, whatever the cause of exophthalmic goiter may be, most of its manifestations come by way of the nervous system.

Palpitation and rapid action of the heart are perhaps the earliest and most constant symptoms of exophthalmic goiter, and are recognized in the earliest description of the disease, as, for example, those given by Parry, Graves, and Basedow. Tremor was not recognized until some time later. Even in Stokes' elaborate article of 1854 it is not mentioned, but was first pointed out by Charcot in 1856, and its place as a symptom was not clearly established until the appearance of Marie's paper in 1884. Indeed, for many years such nervous phenomena as tremor, muscular weakness, and the vasomotor phenomena were grouped merely as evidences of hysteria, in no sense a necessary part of exophthalmic goiter; and *globus hystericus*, when referred to, was considered a mechanical result of an enlarged thyroid gland.

Palpitation and rapid heart action, as pointed out, may be regarded as the earliest symptoms. The pulse rate varies usually from 100 to 180. It is increased by excitement, but emotional disturbance is by no means the sole cause of the acceleration, and one of the chief points in differential diagnosis from ordinary functional nervous conditions is the persistently rapid heart action, even under conditions of most complete rest, which occurs in exophthalmic goiter. The heart sounds are loud, and the apex beat usually diffuse, and the arteries, especially the carotids, usually pulsate visibly. Vasomotor disturbance, such as temporary erythema and dermatographism, belongs in the group of circulatory disturbances though of nervous origin.

Exophthalmos, if present in high degree, is easily recognized, but sometimes is so slight as to be observed only by one previously familiar with the patient. Von Graefe's sign (the inability of the upper lid to follow the eyeball downward, so that the sclera above the cornea becomes visible) is frequent. Widening of the palpebral fissure, or Dalrymple's sign, and infrequent winking are also common.

Inability to converge properly with the eyes or to maintain convergence (Möbius' sign) is less common. Becker's phenomenon, or spontaneous pulsation of the retinal artery, is regarded by some as a very valuable sign.

Besides these changes, various more or less rare phenomena associated with the eye have been described, including paralysis of the external ocular muscles, vibrating tremor of the eyeballs, and optic atrophy. Watery or dry eyes are not uncommon.

Tremor is present at some stage of the disease in practically all cases. It is limited at times to the extremities, and in some cases is general and can be appreciated by laying the hand on any part of the body. The tremor is rapid (eight to ten vibrations per second) and of small amplitude. It is aggravated by movement and excitement, but, like the increased heart action, is present even at rest.

The reflexes are usually increased, but sometimes decreased, and are of no particular value in differential diagnosis.

Various trophic, and vasomotor, and secretory disturbances may appear, and one of the chief of these is an increased tendency to perspiration, a symptom which is almost constant. The sweating may be limited to one locality, as in the palms of the hands, soles of the feet, or the face, or it may be general and sometimes is most profuse. This increase of moisture in the skin is apparently the cause of another manifestation, known as Vigoroux's sign, which consists in a diminution of the electric resistance of the skin. A rapid response to stroking of the skin, or dermatographism, appears not only on the chest, but also on the arms and legs, where it is not ordinarily seen. Increase or decrease in the secretion of urine is not uncommon, and sudden attacks of painless and watery diarrhea also occur.

Quite aside from the edema, appearing as a result of defective heart action, local edema may also occur. This is seen perhaps most often

in the eyelids and may constitute an early sign of exophthalmic goiter.

Among the most interesting symptoms of the disease are those that occur within the mental sphere, and an individual suffering from exophthalmic goiter in well-developed form can hardly ever be said to be normal mentally. As a result of the increased metabolism, the mind, as well as the body, is continually overactive. The patient is restless and alert and can find no relaxation. Well developed states of what is ordinarily called neurasthenia, anxiety, neuroses and various fears are very common. Even in slightly developed cases the patient is ordinarily shy and easily embarrassed, and complains of restlessness, nervousness, and increased irritability, is easily confused, and any attempt at mental concentration causes ready tiring. In more severe cases there is marked emotional irritability with moodiness and deep depression, which may alternate with manic phases or acute delirium. Other frequent symptoms are pain in the head, back, and eyes; bandlike or pressure sensations in the head; insomnia; flashes of heat; difficult or rapid breathing; and various disturbances of the appetite.

Essentially, then, we must look on exophthalmic goiter as a metabolic disorder, but with a general disturbance of mental equilibrium and of the autonomic nervous mechanism of the blood vessels and the viscera.

SOME SURGICAL POINTS IN THE TREATMENT OF GOITER

BY GUSTAV SCHWYZER, M.D., F. A. C. S.

MINNEAPOLIS

Goiter surgery is a vast subject, and since we have only a limited time I shall bring out a number of points that possibly will be of interest to you.

I will refer only to the various kinds of simple goiter, as the adenoma, the colloid, the cystic, or the cystocolloid goiter and so on, inasmuch as they can become an unusual task operatively on account of their vascularity or their unusual situation in relation to the trachea; for a goiter can be circular, intrathoracic, or even intratracheal. Hertzler, of Kansas City, has successfully removed such an intratracheal goiter. The aberrant thyroid we have seen in two cases, one

as a growth of the size of a plum between the trapezius and the sternocleido muscle on the side of the neck, and the other in the tongue.

The toxic and exophthalmic goiters form the group of hyperthyroidism. The clinical symptoms are, generally speaking, going hand in hand with the pathological changes which we find in the goiter tissue. The more severe the symptoms, the more pronounced are the microscopical changes. Plummer has created in his classical work two distinct groups of hyperthyroidism. He differentiates between the toxic adenoma and the exophthalmic goiter. The toxic adenoma lacks one of the three cardinal symptoms, not the tachycardia, not the goiter, but the exophthalmos. Of the general symptoms he found that the gastro-intestinal tract is not involved as in exophthalmic goiter. There is no periodically returning diarrhea. Further important differentiation lies in the history. The exophthalmic goiter has mostly a sudden start. A goiter may never have been known to the patient previously, or it may have existed only a short while. The toxic adenoma, to the contrary, mostly starts upon a goiter which is known to the patient for years.

I will mention here a singular observation concerning hyperthyroidism, namely, exophthalmos involving only one eye. The case was in a young man. He was observed by ophthalmologists who treated the protruded eye and completely failed to recognize the pronounced picture of hyperthyroidism. Years ago when we restricted surgery in exophthalmic goiter to the ligation operation we also have seen the exophthalmos remain one-sidedly for a period of two years, while the other eye recovered within the first year after the operation.

We may remember that the exophthalmos is the most stubborn of the three cardinal symptoms. It is the last to disappear.

We can look back fifteen years during which time we have seen in a number of cases of permanent cures for exophthalmic goiter established by the ligation operation alone. In some of these cases a secondary ligation of one inferior thyroid artery had to follow.

One case, though, which seemed apparently cured in such a way, suddenly developed ten years after the ligation operation a most violent form of hyperthyroidism with pronounced exophthalmos compelling the resection of both lobes.

I do not know of any chapter in surgery where judgment based upon accurate clinical examina-

tion and sound experience comes more into consideration than in the treatment of these toxic goiters. To further this judgment the greatest step forward has been made of late years by the use of the basal metabolism test, a laboratory aid that has made its permanent place with us.

Dr. Gardner has given us a detailed description of the test, and I just wish to add how we make use of it in our cases.

If we find the respiratory quotient plus 30 or more a ligation operation of one upper horn or of both is our first surgical step. Following such operation, most generally, there is a quick and marked improvement of the toxic condition of the patient. The pulse becomes slower, the goiter decreases in its vascularity, the purring bruit over the gland diminishes, and the extreme nervousness of the patient improves. This can be observed in some cases in a few days after the ligation; in other cases it takes months to establish a distinct clinical improvement. Moreover as we see the increase in body weight (probably the most vital point) and find by a renewed basal metabolism test that the rate has become lower, then a resection of the gland must follow. If the case is an extreme one the resection should be restricted to one lobe. When the operation is done under general anesthesia we are often guided by the heart action of the patient during the operation. When cases with pulse rates of 120, 130, 140, and more come down, under general anesthesia, to a rate of 100, we feel encouraged and often do a radical double resection.

We have adopted Crile's after-treatment of applying ice-bags to the body if the operation is followed by extreme toxicity with high fever of 101° and more. We have no use for heart stimulants, especially digitalis, but replace the same by an abundant supply of water given either by proctoclysis, hypodermoclysis, or intravenously. In our experience large doses of morphine hypodermically have been a great aid.

The technic.—The technic for goiter operation has become standardized with the exception of some minor individual modifications. When the goiter is laid free by the customary collar incision it is our practice to ligate the upper horn first. We pay attention to the lateral veins running into the capsule, but we do not search for an inferior thyroid artery, except in some very vascular goiter, a condition most generally found in countries where goiters are endemic. An arteria ima with its veins is not infrequently ligated when freeing the lower horn.

Surgical ability is brought to a test in intrathoracic goiter when hemorrhage, as well as suffocation, is overcome. The dislocation of the goiter from the chest cavity must be done cautiously and skillfully. If the size of the tumor is prohibitive it can be made smaller from within its capsule and then brought forward and dealt with. We have never been compelled to use packing or hot paraffin for undue bleeding; but we have assisted in two cases where the insertion of a tracheal canula saved the patient from suffocation on the operating-table.

The danger of injuring the recurrent nerve is slightly greater on the right hand side on account of its more anterior course. Generally speaking, by leaving the posterior capsule intact we are keeping away from the so-called danger zone, but we must also remember not only pinching or ligating the nerve brings on paralysis of the vocal cord, but undue distant pull in suturing the capsule endangers the nerve.

In answer to the question, How much of the thyroid should be removed? we must hold apart the operation for nontoxic goiter and the one for hyperthyroidism. Resecting for toxic goiter, we are allowed to go to an extreme point. Some surgeons remove five-sixths or more of the glandular tissue. In the nontoxic goiter we have to think of the one main danger, namely, the myxedema. Right here the basal metabolism test again is of great value. In pronounced hypothyroidism, therefore, healthy tissue must remain. It is well to remember that most of the healthy tissue lies in the region of the upper horns. Our practice is to leave as much of the goiter capsule as possible. Regeneration of thyroid tissue is more apt to take place near the capsule.

Once only among all our cases have we brought on a myxedematous condition. This was in a middle-aged woman with a recurring goiter in form of a large node that interfered with the respiration. This recurrence appeared following three former goiter operations done elsewhere. Thyroid feeding under the control of basal metabolism has brought this hypothyroidism from a quotient of minus 33 to a plus 8 per cent, certainly a state of tolerance.

Tetany caused by removal of too much parathyroid tissue responds not to parathyroid extract, but to calcium salts. Six grams of calcium phosphate and calcium chloride given by mouth, or as it has been lately recommended a 5 per cent solution of calcium lactate, 20 c.c. of which are given intravenously once a day will bring on

prompt relief. In our series of over 350 goiter operations we regret only one such calamity of tetany in a woman of 49 years in whom the removal of a small intrathoracic goiter was preceded by a radical excision of the thyroid lobe on the other side done elsewhere.

In finishing our technic we use a running suture of catgut for the external capsule and resuture the previously cut anterior muscles, thus assuring a normal conformation of the neck. We drain all our goiters except the ligated cases. Our main suturing material is plain catgut. Its great advantage over the nonabsorbent material is in preventing after-hemorrhage. This fact we can state positively, for we had used silk exclusively in at least half of our goiter operations. The nonabsorbent material holds its place in the ligation operation and also for the skin suture where the least visible scar is the only one acceptable to the average woman.

THYROID DISEASE BENEFITED BY X-RAY TREATMENT

By R. G. ALLISON, M.D.

MINNEAPOLIS

A study has been made of 35 cases, observed from January, 1920, to the present time, on whom röntgenotherapy was completed before February, 1921. The series does not include cases admitted to the surgical service, some of which were more toxic, and were submitted to the surgery immediately. The cases were all treated

with a standard dosage at three-week intervals. The radiation consisted of 30 milliamperes-minutes of rays filtered through 4 mm. of aluminum and one thickness of sole leather. The target-skin distance was 8 in. and the voltage was equal to an 8 in. spark-gap measured between blunt points. Three portals of entry were used, one over each lobe of the thyroid and one over the thymus. If marked improvement was not noted at the completion of the fourth treatment, the dosage was increased to 34 milliamperes-minutes, other factors remaining constant.

Of 27 patients with Graves' disease without complications who were subjected to x-ray treatment, but not operated on, 24 are well, both from the clinical and laboratory standpoint. The treatment has been complete for nearly eight months. The remaining three cases came to operation. Of these, one was definitely improved before operation, and the other two were normal a few months after operation.

Of six cases of postoperative hyperthyroidism (relapses) one showed a definite cure; five showed no improvement.

Of three cases of thyrotoxic adenoma, none showed any response to x-ray therapy. The only patient who was operated on during an increasing basal metabolic rate died during operation. We feel that the results in the earlier cases might have been attained more quickly with intensive therapy.

No bad results or complications attributable to the treatments have been noted in this series.

THE TREATMENT OF CLUB-FOOT, CONGENITAL AND ACQUIRED*

By EMIL S. GEIST, M.D.

MINNEAPOLIS, MINNESOTA

The following is a study of 127 cases of club-foot seen during five consecutive years. This study deals only with that variety of club-foot known as *pes equinovarus*; that is to say, the typical club-foot as it is so well known, both congenital and acquired. Of these 127 cases, 91 were congenital, and 32 were acquired.

CONGENITAL CLUB-FOOT (91 CASES)

As has been observed before, by far the greater number of these patients are males. In

this series there were 59 males and 32 females. Nearly all of the patients were brought for treatment during the first year, showing that parents are not inclined to neglect a deformity so obvious as congenital club-foot. At the same time, a few patients appeared who had advanced well along in age before any attempt at correction was made. In this series there was 1 patient fourteen years old, 1 sixteen years old, 1 thirty-two years old, and 1 thirty-seven years old. Both feet were affected in 45 cases, while 46 cases were unilateral. Of the unilateral cases, 23 occurred in the right foot and 23 in the left

*Presented at the thirty-fifth annual meeting of the North Dakota State Medical Association, Jamestown, N. D., June 1 and 2, 1922.

foot. Of the 91 cases of congenital club-foot, 37 occurred in children whose parents were American born, while 54 occurred in children of foreign-born parents. A few of these cases were accompanied by other congenital deformities, as follows:

Spina bifida.....	2 cases
Polydactylism and syndactylism.....	1 case
Congenital absence of patella.....	1 case
Congenital hernia.....	1 case
Club-hands and congenital dislocation of the hip.....	1 case

Etiology.—Nothing is known regarding the etiology of this condition. Maternal impressions have occasionally been blamed, but there exists no scientific foundation for this belief, which ought to be discouraged in every manner by the profession. It occasionally happens that a parent is suffering from congenital club-foot, but this is so rare as to probably represent nothing more than a coincidence. Two cases of this series of 91 occurred in the same family being brothers.

Pathology.—The pathological changes are so well described in the text-books that it is not necessary here to do more than to call attention to a few salient pathological facts which have a direct bearing on the treatment. Cases are not all of the same grade of severity; some present a very mild shortening of the tendo Achillis with very slight inversion, whereas others again present a marked shortening of the tendo Achillis and a marked degree of inversion or supination. No matter, however, how mild the case is at the outset, if the patient is allowed to walk on the affected foot untreated the inversion and the shortening of the tendo Achillis will increase so that a club-foot at birth, of fairly moderate type, can be converted by use in a few years into one of an extremely severe type.

At birth and during the first year or two of life there exist few, if any, changes in the skeleton of the foot and leg. As the patient uses the foot, inversion becomes more marked, and the patient develops, as a rule, a large bursa over the outer portion of the foot. In advanced life this bursa occasionally shows a tendency to break down and become infected. In one case in this series it was necessary to do an amputation on account of an infected bursa, the infection having involved the bones of the tarsus and the metatarsus. The flexor muscles (tibialis anticus, tibialis posticus, and long flexors of the toes) are markedly shortened, as is also the

plantar fascia. The peronei and extensors are stretched. The foot is usually retarded in growth so that, even when later corrected, it is never quite of the same size as the normal one. Occasionally this lack of development is the outstanding feature of a case. As the patient grows older distinct bony changes take place, all the bones of the tarsus and metatarsus shaping themselves in the sense of bending and twisting to accommodate the vicious position of the foot.

Symptoms.—The chief symptom is, of course, the very apparent deformity and the unsightly walk caused thereby. Every one of the old cases of this series, however, in addition, complained of chronic back-strain and easy tiring as a result of the fact that the patient was walking on a poorly balanced foot and was throwing into use a large number of muscles of the trunk and back, which are not much used in normal walking.

In one of the old cases above mentioned, the patient came solely for relief of this chronic backache, caused by the condition of double congenital club-foot from which she was suffering.

Treatment.—The treatment of club-foot ought to be begun almost immediately after birth. Dr. Albee, in his text-book on "Orthopedic Surgery," says that in a breech presentation, treatment of the club-foot should be begun before the head is delivered. Early treatment offers an excellent prognosis and should be carried out from the earliest possible moment. In our work we divide the cases of congenital club-foot as regards treatment into—

1. The new-born.
2. Those that have walked from one to eight or ten years.
3. Those older than eight or ten years.

1. *The New-Born.*—It is in this type of case that treatment is most satisfactory. It should be begun within a week or two after birth, and it is simple. Gradual correction during the first year of life is feasible in most cases. It is accomplished by successive plaster-of-paris casts. These casts are applied about every two or three weeks in such a manner that at each change of cast a slight degree of correction is obtained. If we analyze the deformity of club-foot, we see that it is made up of two component elements—the inversion (varus) and the toe-drop (equinus). In treating the early cases we must first pay attention to the varus deformity. In other words, untwist the foot, and convert the foot

from an equinovarus to an equinovalgus. This will usually take six to nine months. If, at any time, the skin shows slight signs of irritation, a pause can be made for a day or two until the skin has again resumed its normal aspect. When the child is seven to nine months old, it is usually strong enough to submit to ether anesthesia, at which time tenotomies can be done. The structures to be subcutaneously cut are the tendo Achillis, the plantar fascia, and the flexors at the base of the toes. Before tenotomizing it is well by forcible correction to manipulate the foot so that the dorsum of the foot can be brought in contact with the front portion of the leg above the external malleolus,—in other words, maximum correction must be achieved. I have seen a number of club-feet well treated in every respect, excepting that over-correction was never obtained; and lack of over-correction in nine times out of ten causes relapse.

The foot is then placed in a plaster-of-Paris cast in markedly over-corrected position, and, if the patient has been walking, he is allowed to walk on the cast. As a rule, two or three further casts are necessary, holding the foot in over-correction, and allowing the child to use the foot if it wishes. If, after this, there exists any slight tendency toward inversion, the shoe can be raised on the outer border and occasionally a brace applied to hold the foot in over-corrected position for some time longer.

2. *Patients who have walked from one to eight or ten years.*—This class includes those cases of congenital club-foot who have walked for the first years of life. In these cases the bones have not yet become misshapen, and one is able to do virtually the same operation as in Class 1; that is to say, forcible correction and multiple tenotomies of the tendo Achillis, plantar fascia, and toe-flexors.

Ober, of Boston, has devised an operation in which the internal lateral ligament is divided at its insertion into the internal malleolus before forcible correction is attempted. Here again it is necessary to achieve extreme over-correction if we are to get definite results. The plaster cast must be well padded, especially on the bottom of the foot; otherwise annoying pressure sores will supervene. Pressure sores not only are slow in healing, but also interfere with continuous treatment and, in that way, favor relapse.

3. *Patients older than eight or ten years.*—

In the third class, we include all patients who have walked a number of years. Here, we have to deal not only with tendon pathology, but with pathological changes of the bones, and we must reckon with them if we are to achieve results. Operations are, of course, always necessary, and include, beside the lengthening of the shortened tendons, an attack on the bony structure of the foot. This is especially true if the patient has reached adult life, although one may safely operate on the bones of a fifteen or sixteen year old club-foot when it appears necessary.

The choice of operation in these old and neglected cases lies between a wedge osteotomy on the outer side of the foot or an astragalectomy after the method of Whitman. We have done a few astragalectomies for this condition, but have been more satisfied with the results of wedge osteotomy and removal of bone from the outer side of the foot. The chief objections to astragalectomy are that we still further shorten an already somewhat shortened leg, and that the foot is not as stable as the one obtained by the wedge osteotomy.

It may be said that, while these extensive operations, of whatever type they may be, on the adult, or near-adult, are very satisfactory to the individual patient, in that they give him a much better foot than he had before, such results, nevertheless, do not at all compare with those feet which we obtain in the cases that are brought to us at birth or during the first year of life.

The argument, therefore, is that these patients should be taken care of early. Club-foot can be corrected at almost any stage, and a result satisfactory to the patient obtained. However, the younger the patient is seen and treatment begun, the better will be the result.

For the past five or six years, it has been my experience that in a number of cases of congenital club-feet the patients persist in "toeing-in," even though they walk nicely on the bottom of the corrected feet. After studying a number of these cases, I came to the conclusion that there existed a twist of the shaft of the tibia between the knee and the ankle, causing inward rotation of the ankle joint and foot. I, therefore, did a transverse osteotomy on several of these cases and literally untwisted the tibia. On looking up the literature I found that Willy Meyer, of New York, also made the same observation twenty years ago, and devised the same operation for

the same condition. We therefore call this operation the "Meyer operation." We find it to be necessary in about one out of every ten or twelve cases of corrected club-foot where there exists a permanent tendency to inward rotation of the foot. I have done this operation ten times and have found it of distinct value in satisfactorily finishing up the treatment in these cases.

ACQUIRED CLUB-FOOT (36 CASES)

By far the majority of cases in this series followed infantile paralysis. There were 32 cases following infantile paralysis; 2 cases following infantile hemiplegia; 1 case following extensive injury and scar formation; and 1 case following gas poisoning and subsequent paralysis.

Pathology.—There exists in these cases a paralysis of a few of the muscles of the leg, the peronei being chiefly involved. We find that the healthy tibialis anticus and posticus are active and pull the foot into inversion. There also frequently exists paralysis of the extensors of the toes so that the intact muscles forming the tendo Achillis contract and shorten. We have, therefore, a condition of paralysis of the evertors and dorsiflexors of the ankle and foot. They become stretched as the normal muscles (the supinators and the plantar flexors) contract and actually shorten. In young patients and if the deformity is allowed to persist, actual bony changes will take place, just as they do in congenital club-foot.

Treatment.—The treatment of paralytic club-foot can be divided into preventive and curative.

Preventive treatment: Any given case of infantile paralysis must be carefully studied and the type and degree of paralysis ascertained and noted. Having done this, the observer, even shortly after the acute symptoms of infantile paralysis have subsided, can reason out and predict the type of deformity which will occur in any given case if he knows which muscles are paralyzed and which ones are not paralyzed. It is, therefore, incumbent upon him to prevent the deformity which will surely occur if not prevented. Granted, in a particular case, that we have paralysis of the peroneal group and of the long extensors of the toes, together with functioning plantar flexors and invertors or supinators of the foot, we can readily prognosticate equinovarus (club-foot) unless measures are taken to prevent the occurrence of such deformity.

A brace should be applied, holding the foot in its proper position or even slightly pronated (valgus position), which brace should also limit plantar flexion so that toe-drop cannot ensue. In infantile paralysis we do not know, until three years have elapsed, how much, if any, of the paralysis is permanent. Should the patient after a lapse of three years still present paralysis of the peronei and the long extensors of the toes, we are then justified in going ahead and by operative means fixing the foot in this corrected position to relieve the patient of an odious and heavy brace.

Most cases, however, come to us with the deformity of equinovarus already established. The peronei and toe extensors are paralyzed and stretched, and the tibialis anticus and posticus and the tendo Achillis are shortened and active. It is in this type of case that the operation of tendon transplantation shines.

One of the few types of tendon transplantation which has retained its position in the modern orthopedic surgeon's armamentarium is the one to be described and used in this type of club-foot. The club-foot must, first, be wrenched and brought into an over-corrected position. Achillotomomy and such other tenotomies as are necessary should be done in order to relieve all tensions, and the foot then put up in plaster and the over-corrected position. One can wait after the above-mentioned correction for four or five weeks for the results of the necessary trauma to disappear, and then continue with tendon transplantation. In a number of cases one is able to perform the above-described correction and, at the same time, do the necessary tendon transplantation, which consists of changing the insertion of the intact tibialis anticus muscle. The tendon of this muscle is cut at its insertion and given a new insertion at the base of the fourth or fifth metatarsal. This should be done after the method of Leo B. Meyer, of New York, leaving, uninjured, as much as possible, the very delicate tendon sheath.

When this is not feasible, the muscles should be drawn through a tunnel in the subcutaneous fat. The cut-off end of the muscle should be attached to the base of the fourth or fifth metatarsal under moderate tension, and, very important, the cast should be applied with the foot in over-corrected position so that no tension is put upon the transplanted muscle.

On the removal of the cast, six or eight weeks later, one can usually elicit motion in the transplanted tendon which has been converted from an inverter or supinator to an evertor or pronator. I know of no operation in the list of orthopedic operations which is more gratifying in results.

On removal of the cast the corrected foot must be maintained for about one year in a brace designed to hold it in its corrected position. The patient is allowed to use the foot, even before the cast is removed, as soon as we are sure that primary healing has occurred.

ON THE SO-CALLED MIXED TUMORS OF THE PAROTID

BY R. S. McCRADIE, B. S.

Assistant in the Department of Pathology, University of North Dakota.

GRAND FORKS, NORTH DAKOTA

Wood, (1) in 1914, was the first to attempt a careful study of the "mixed tumors of the salivary glands," by means of which he was able to establish almost exactly the course of the tumors of these glands and, consequently, their malignancy. The exactitude of his findings was confirmed by other authors. His statement is as follows: "The mixed tumors of the salivary glands run a clinical course strikingly different from the sarcomas and carcinomas, in that they are slow growing and generally benign. The regional lymph nodes are not invaded, and recurrences are likely to remain local in a considerable number of cases." However, Wood arrives at no definite conclusion about one very important matter concerning the origin of these tumors: he only states that they possibly have an epithelial derivation. After Wood, other authors studied the tumors of the salivary glands. The writer will now consider the opinions of the more important of these authors.

Martini,² by the examination of several cases of mixed tumors of the salivary glands and by a careful consideration of cases published by other authors, seems to conclude, with many reservations, in favor of a connectival origin.

Wilson and Willis,³ made a thorough study of the mixed tumors. They examined fifty mixed tumors of the parotid and six of the submaxillary gland. These authors, although agreeing with the others as to the malignancy of these tumors, differ with them in regard to their origin. "There is little evidence that these tumors arise from proliferation of adult epithelium." (Wilson and Willis,³) It is evident that

they consider them neither of epithelial nor of endothelial origin.

DeLafield and Prudden,⁴ without offering a satisfactory explanation, made the following conclusion as to the nature of the mixed tumors: "Many cell types formerly interpreted as endothelioma are actually epithelioma."

Due to the fact, then, that the problem of the origin of the so-called "mixed tumors of the salivary glands" is as yet unsolved, under the direction of Professor A. C. Massaglia, of the Department of Pathology of the University of North Dakota, the writer started a series of observations in an attempt to throw some additional light on the origin and nature of these tumors. The results of the first research were published,⁵ and our conclusion was that, notwithstanding the fact that tumors may arise from sources other than the endothelium, the mixed tumors which we examined were endotheliomata. It is true that the form of the elements of the tumors examined were similar to those of the epithelial cells which form carcinoma, but long and patient research directed towards detecting the origin of the tumor, showed that the cells of the tumors started from the endothelial elements of the gland, and that, although they progressively acquired the form of epithelial cells, they were merely epithelioid in nature and not true epithelial cells. Although this first study clarified somewhat the difficult problem of the origin of these tumors, by demonstrating that some of the so-called mixed tumors of the salivary glands (our cases were all of the parotid) may be endothelioma, the

writer thought it advisable and profitable to continue the research, because it is only by patient study of numerous cases that a definite conclusion may be reached. The following, therefore, is a report on the history of the new cases, and one of the old cases in which the tumor has reoccurred. The pathological examinations were controlled by Doctor Massaglia.

I. Physician: Doctor W. H. Witherstine, Grand Forks, N. D.

Patient: O. J., aged 66.

Clinical Diagnosis: Parotid tumor.

Duration of process: ten years.

Gross appearance of tissue before removal: Recurrent mass.

Clinical history: Recent tumor of the parotid, not especially malignant. Growth very slow.

Pathological Diagnosis: Endothelioma of the parotid. The examinations of the recurrent tumor mass shows an appearance similar to that of a tumor composed of epithelial cells. A careful examination of a slide, made from the tumor mass, with a view to investigate the origin of the tumor shows that the tumor is an endothelioma and not an epithelioma. This confirms the original diagnosis.

II. Physician: Doctor H. J. Fortin, Fargo, N. D.

Patient: Mr. W., aged 29.

Clinical diagnosis: Tumor of the parotid.

Duration of process: Four years.

Gross appearance of tissue before removal: Tumor mass over the parotid. Movable, not red.

Pathological diagnosis: The mixed tumors show irregular arrangement of cellular acini, surrounded by fibrous tissue; in some parts there are patches of this cellular tissue which are distinctly and unmistakably composed of stratified epithelial pearls. There is no new formation of blood vessels. Investigation to determine the origin of the tumor showed that

the neoformation starts from the epithelium of the glands. The so-called "mixed tumors" then was a true epithelioma. (September 30, 1922.)

III. Physician: Doctor R. E. Weible, Fargo, N. D.

Patient: Mrs. C., aged 29.

Clinical diagnosis: Mixed tumor of the parotid.

Duration of process: Six years.

Gross appearance before removal: Encapsulated cystic tumor, lobulated.

Clinical history: The tumor grew slowly during the first two years, doubled in size during the past two years.

Pathological diagnosis: Myxoma of the parotid. (The myxoma has, similar to the endothelioma, a connectival origin). September 29, 1922.

CONCLUSIONS:

It is the writer's opinion that this study of the parotid glands, demonstrates the following scientific fact: that tumors may originate from the tissues of the parotid, whether they be of connectival or epithelial origin. Then, the parotid, and probably also the other salivary glands, have the same behavior in the formation of tumors as that of other glands. This ascertainment does not exclude, what was rightly demonstrated by other authors, that in the salivary glands one may have tumors caused by misplaced tumor germs. Therefore, when we have occasion to examine cases of the so-called mixed tumors, if one does a patient and careful research, many times one may detect their origin and consequently classify them among other tumors.

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THE NEW WASSERMANN TEST FOR TUBERCULOSIS

The famous German physician, Dr. August Wassermann, who has done so much in the way of serum test for lues, has, according to newspaper reports, succeeded in developing a similar test for tuberculosis. Dr. Wassermann is quoted as having said that his new test will differentiate between active and inactive tuberculosis. Although the newspaper reports are somewhat ambiguous it appears that the test Wassermann is using is the complement fixation test,—in other words, a test similar to the test for syphilis, so well known to all, but using some form of the tubercle bacillus as antigen.

We are glad to know that Dr. W. P. Larson, head of the Bacteriology Department, University of Minnesota, with two of his graduate students, Mr. Montank and Mr. Nelson, has evolved a blood test which promises to differentiate between active and inactive tuberculosis. The work of the investigators at our State University is based on the theory that the high fat content of the tubercle bacilli interferes with the serological reactions. The investigators have succeeded in eliminating the fat from the tubercle bacilli and have developed what they call the "ring test." The ring test, as we understand it, is in principle

the precipitine test. It is carried out by layering the antigen over the serum to be tested much in the same way as the nitric acid test for albumin in urine. A positive reaction is indicated by the development of a definite ring at the interface of the two fluids. The ring test has the advantage of being simple to carry out as compared with the complement fixation test, requiring neither special skill nor elaborate equipment.

In a series of 300 cases the test appears to be positive only in active tuberculosis.

This experimentation is in no sense a therapeutic measure; it is simply a diagnostic aid to establish the presence of tuberculosis in questionable cases.

THE ABUSE OF CHARITY WORK

The following circular letter has been sent to all members of the Hennepin County Medical Society, which includes practically all the physicians in Minneapolis:

The Public Health and Hospital Committee of the Hennepin County Medical Society is anxious to receive specific complaints from members of the Society of violations of the rules of the various clinics and charitable organizations of the city by people who can afford to pay for medical service.

We feel that when the members of the medical profession do the work in all of these agencies, and, in addition, 40 per cent (roughly estimated) of their private practice is without compensation, those who can afford to pay should do so.

We hear constantly complaints of excessive doctors' fees. Possibly the use of free clinics by a large number who could afford to pay at least a small fee, may to some extent be responsible for this condition.

We are anxious to get some definite data on this question and would appreciate concrete information in regard to specific instances of violations of this kind and also of attempts on the part of social workers to lead people away from their own physicians to free clinics.

Of course it is understood that this information shall be entirely confidential.

THE SPAN OF A MAN'S LIFE

A recent newspaper article stated that a man could live 125 years if he wanted to, by really thinking he would or could or should, keeping himself in trim by not worrying about anything (this includes income tax, and the price of food-stuffs or anything else he wants to eat or drink). According to this one man's theory, which sounds a good deal like an offshoot of Abram's theory, all you have to do is to practice radio-activity—

that is all that is really necessary. Life goes on uninterruptedly, in spite of the fact that probably many people wish you would die off long before the 125 years have passed. Almost on top of this comes another suggestion that men may live to be 300 years old, and they are to attain this by prohibition, hygiene, and right living. If one does not know what right living means one can read up on it in the dictionary and be governed accordingly, for so far as we have been able to observe, no one really knows how to live. This wonder-worker thinks that as men grow wiser and more careful of what they dump into their stomachs, and as they pay more attention to mending little breaks promptly, a person only 100 years old will be looked upon as a stripling. A good deal of this suggestion comes from the National Association of Mutual Life Underwriters; and the actuary, when he talked of these things, told his audience never to laugh at prophecies for the human race had already added ten years to the length of life of the average man in the last fifty years, and a similar gain is expected in the next fifty years. Consequently, only within the next hundred or two hundred years we may look forward to long life and prosperity.

Someone, it is related, told a friend of his that he would like to live to be a hundred years old, and the friend said, "Why, have you so many vices that you enjoy?" The man answered that he had no vices, that he cared nothing for the theater, drinking smoking, or over-eating, nor did he have any women friends and his friend laughed, then, and said, "Why do you want to live a hundred years,—what for?"

DR. GEORGE FRANK LYDSTON OF CHICAGO

The editor of THE JOURNAL-LANCET feels it his duty to record the death of Dr. Lydston, of Chicago, and has taken an abstract of his career bodily from the *Journal of the American Medical Association* of March 17, 1923.

Dr. Lydston was one of the early, if not the earliest, men in this country to attempt the transplantation of glands, and some time ago in a contribution to THE JOURNAL-LANCET he called attention to this fact and his early experience and success in this new surgical procedure:

GEORGE FRANK LYDSTON, Chicago; Bellevue Hospital Medical College, New York, 1879; died in California of pneumonia, March 14. Dr. Lydston was

born at Tulumne, Calif., in 1858. After his graduation he became intern at the Charity Hospital, New York, and later, resident surgeon of the New York State Immigrant Hospital. He was lecturer on genito-urinary diseases in 1882 and later professor of genito-urinary surgery and venereal diseases in the College of Physicians and Surgeons, Chicago. He was author of numerous books of both scientific and literary character, including a "Text-book on Genito-Urinary and Venereal Diseases," on the "Surgical Diseases of the Genito-Urinary Tract," and on "Impotence and Gland Transplantation." Most of his recent contributions to medical literature were devoted to the possibilities of securing rejuvenation by transplantation of glands. Among his contributions to general literature were a social text on diseases of society, a play "The Blood of the Fathers," and several novels, such as: "Over the Hookah," "Poker Jim," and "Trusty 515." Dr. Lydston was a man of aggressive personality and a writer of ability, with keen and satirical humor.

MINNEAPOLIS CLINIC WEEK

Progress is being made in the preparation of the tentative program of Minneapolis Clinic Week, beginning April seventeenth and extending to and including April twentieth. The hospitals are already sending in their requests for hours, and before another week passes our readers will get a program from all of the principal hospitals with the clinics sufficiently outlined so that they may know what they would like to see.

The fact that clinics have been established in Minneapolis now for several years—were, in fact, inaugurated here and have continued successfully—makes it easier for the clinician to drop into his proper place and show his willingness to help make the clinics a success. We would like to have some communication from the physicians in the country as to any improvement that can be made on the programs which have already been presented to them.

One of the largest hospitals will undertake to provide its visitors with a noon luncheon during the clinic hours, thus saving the visitor from total exhaustion and also giving him a little more time to get back for the afternoon program. This plan will doubtless be followed by other hospitals, as it has been heretofore. It is rather strange that so many of us can be approached through our stomachs, not surgically or medically speaking, but gastronomically. The average man likes to feel that he is going to be fed at his usual time.

By the time the program committee is ready to report, the afternoon meetings will be found to

contain some new features. The Clinic does not expect to present anything marvelous in the way of rare cases, but it does hope to present something that is of common interest to the medical man in the country, as well as to the medical man in the city, which will appeal to his criticism and particularly to the experience which he has undergone himself. Hence, as has been said before, the clinician who makes a mistake may be of great assistance to the man who has suffered a similar experience. One need not say "suffered," however, because every man is likely to err, consequently we all profit by the mistakes of ourselves and others.

The General Hospital, which is the largest hospital in the city, the University Hospital, St. Mary's, the Swedish, and St. Barnabas will be the centers of most of the clinics. But the hospitals outside of this group will endeavor to give you some interesting material; and, if one is looking for something special, one may find it in some small hospital where one might least expect to get a subject that is more or less familiar. So please do not overlook the smaller hospitals for the larger ones. It is to be noted, too, that Minneapolis is not making a spectacular play to attract its visiting physicians, but is going to endeavor to live up to its reputation as a clinical center; and, if those of you who have visited Minneapolis clinics before will come again, we will promise you as much material as you want and as good an opportunity as you will find anywhere to see what may be done in medicine and surgery and the special branches of both.

Mention has been made elsewhere of the banquet of the Hennepin County Medical Society, which is to be held in Donaldson's Tea-Rooms on Tuesday evening, the seventeenth of April, when Dr. John R. Murlin, of Rochester, N. Y. (the State University Professor of the Department of Physiology), will present a thesis on the pancreas and its by-products,—insulin, etc., bringing up the subject of the treatment of diabetes, a subject which all men should be interested in and in which any new method of therapeutics should be warmly welcomed.

BOOK NOTICES

OPHTHALMOSCOPY, RETINOSCOPY, AND REFRACTION. By W. A. Fisher, M.D., F.A.C.S., Professor of Ophthalmology, Chicago Eye, Ear, Nose and Throat College. Published by W. A. Fisher, M.D.

Chicago, Illinois, 1922.

Ophthalmoscopy, Retinoscopy, and Refraction is covered by Fisher in 160 pages of text and 58 full page illustrations. He treats these subjects quite simply and "believes that ophthalmoscopy and the fitting of glasses belong to the general practitioner." An example of the simplicity of the book is his description of the ophthalmometer as follows: "An instrument for investigating corneal curvatures, directions for the use of which accompany the instrument."

This book is very superficial, and in places it is misleading as: In glaucoma the retinal vessels are normal in size, but they do not emerge from the center of the nerve as in normal eyes." (P. 71). Fisher may find use for it in his own teaching, but that is about the limit of the book's usefulness.

—KENNETH A. PHELPS, M.D.

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., and Ralph C. Brown, B.S., M.D., Cloth, price, \$3.00. Chicago: The Year Book Publishers, 1922.

Volume I of Practical Medicine, 1922 Series, is an interesting and comprehensive book of 175 pages, illustrated with 51 plates and numerous diagrammatic figures, and well indexed.

The work is not only a résumé of current progress in medicine, but much of the material has been incorporated in more or less pretentious articles, a distinct improvement over the unrelated paragraphs common to books of this class.

Considerable space is devoted to asthma, pulmonary tuberculosis, pneumonia, and influenza, with practical treatment of these conditions.

Other topics of more than passing interest include the toxin-antitoxin immunization in diphtheria, basal metabolism, artificial pneumothorax, newer methods of treatment in diabetes, and non-surgical drainage of the gall-bladder.

The book is well adapted for either reference or study.

—H. W. ALLEN, M.D.

PHYSIOLOGY AND BIOCHEMISTRY IN MODERN MEDICINE. By J. J. R. Macleod, assisted by R. G. Pearce, A. C. Redfield, M. B. Taylor, and others. Fourth edition, with 243 illustrations, including nine plates in colors. St. Louis: C. V. Mosby Co., 1922. Price \$11.00.

The value of this work has been considerably increased by its revision in the fourth edition. Only a small part is so technical as to be appreciated by the physiologist and biochemist alone. Chapters on the output of the heart, conditions causing altered acid base equilibrium in the blood, the normal electro-cardiogram on the movements and emptying of the stomach, have been re-written.

The recent contributions of Carlson have added much to the interest of the discussion of the physiology of digestion.

Of particular interest is the discussion of respiration. One chapter has been added describing the Tissot method of determining the respiratory exchange in man.

Discussion of the ductless glands includes important data accumulated to date in concise form in contrast to the voluminous contributions of some writers.

For the clinician interested in science of medicine in its latest developments a valuable reference work is available.

—C. A. MCKINLAY, M.D.

PRINCIPLES AND PRACTICE OF X-RAY TECHNIC FOR DIAGNOSIS. By John A. Metzger, M.D., with 61 illustrations. St. Louis. C. V. Mosby Company, 1922. Price, \$2.25.

In his first two chapters the author presents very briefly the more essential every-day problems of the *x*-ray laboratory together with various helpful suggestions and instructions of fundamental nature which should be familiarized by every worker in this field. Omitting entirely scientific discussions of the fundamental physical principles of the Röntgen ray, mention is briefly made of such important governing considerations of successful operation of the *x*-ray as "Distance Time Relation," "Current Time Relation," "Voltage Time Relation," "Law of Densities," "Dangers of the Rays," "Principles of the Bucky Diaphragm," etc., together with short explanatory remarks, knowledge of which is absolutely required of a successful operator.

The next five chapters are devoted to the description and illustration of standard positions of the various parts of the body with a formulæ of technic for each. Each position is fully explained so that a beginner may understand the rationale.

Too many plates are being taken to-day, even by physicians themselves, which shows no regard for the proper position of the part examined; and, as a result, erroneous diagnosis or misleading interpretation is often made.

With the advent of the Coolidge tube and of various control devices of refinement the day of empirical technic of exposure and developing of films has happily passed. The adoption of these technical formulæ with more or less modification is earnestly urged.

In Chapter IX the more common methods of localization are comprehensively explained.

Chapter X explains and illustrates the difficult technic of dental and oral radiography.

Chapter XI treats of the essentials of dark-room technic. The proper dark-room operation is as equally essential in successful production of Röntgen art as the well-balanced technic for exposure. To interpret various defects which are usually unexpectedly brought out is not an easy task. Mastery of the dark-room technic means alleviation of at least one half of the radiographer's grief.

As a comprehensive reference book in the *x*-ray laboratory this work should serve well, especially to beginners or students in Röntgen technic and may be used as a text-book in a large teaching laboratory. For such purposes this book may find a definite place.

—KANO IKEDA, M.D.

MISCELLANY

MEMORIAL TO JULIUS PARKER SEDGWICK

The following memorial was recorded at a recent meeting of the faculty of the medical school of the University of Minnesota:

The Faculty of the Medical School of the University of Minnesota records in sadness the addition of the name of Julius Parker Sedgwick to the lengthening roll of its honored dead.

The Faculty keenly feels the grievous loss his going means to the family and to the many friends by whom he has been greatly beloved, to the School he has ably and devotedly served, to the community he has honored by his clinical and social service, to the profession in which he has stood forth as a striking example of the modern type of the scientific physician and investigator.

Fallen all too early a victim to the ravages of disease, yet in his short span of time he has lived a life unusually full, he has given himself generously to the good of his fellows, to the uplift of medical education, to the pursuit of research, to the welfare of infancy and childhood in his own country, as he did to the betterment of the children of France in the Great War.

His name is written into the literature of medicine, but it is also written in the hearts of many mothers and in the lives of many of the men and women of the future whose early years he has tended and whose imperilled health he has restored.

The Master of Men "took a little child and set it in the midst of them." It was His symbol of service to humanity, and it serves anew as the symbol of the life and the love of our Friend of the Children who has gone out and gone on.

His associates of the Faculty desire to express to his family their affectionate sympathy and the assurance that his memory will be cherished in the history of the School.

NEWS ITEMS

Dr. I. Geo. Wiltrout, of Oslo, was elected mayor of that village at the recent election.

Dr. F. E. B. Foley, of St. Paul, is spending several weeks in postgraduate work at Johns Hopkins.

Dr. F. V. Lyman has given up practice at Noonan, N. D., and is located temporarily in Minneapolis.

Dr. C. D. Harrington, of Minneapolis, was married last month to Mrs. Abbie W. Cargill, also of Minneapolis.

Dr. E. H. Richter, who took over Dr. H. L. Lamb's practice at Sauk Center last summer, has moved to Hunter, N. D.

Bids for the erection of the main building (38 ft. by 130 ft. and five stories high) of Trinity Hospital at Minot, N. D., will be called for soon.

A very lively campaign for raising \$350,000 for building purposes at St. Luke's Hospital, St. Paul, is on, and will surely be a great success.

An incorporation has been formed at Blunt, S. D., to erect a community hospital. Dr. W. C. Sorenson is the moving spirit of the enterprise.

Dr. Milton A. Trow, a pioneer physician of Minnesota, died last month at the age of 70. Dr. Trow practiced in Chatfield for nearly forty-five years.

Dr. E. V. McCollum, of Johns Hopkins, was in the Twin Cities last week, and spoke at a number of meetings on "Deficiency Diseases of Dietary Origin."

Dr. Julius Johnson, of Minneapolis, who recently returned from doing postgraduate work at Harvard, now limits his practice to nervous and mental diseases.

Pipestone is to have a new 50-bed hospital, which will be named the Ashton Memorial Hospital in honor of O. E. Ashton, of that city, who gave \$50,000 toward the cost of its erection.

The Hutchinson Community Hospital, which was opened in October, held its first election of officers last month. The Hospital cost about \$40,000, and has paid expenses since its opening day.

The Minnesota Legislature has appointed a committee to inspect the State Hospital for Crippled Children at Phalen Park to pass upon the Hospital's request for an appropriation of \$321,200. Of course it will be granted.

Dr. Robert Guilmette, now practicing at Argyle, has just received the British World War Service Medal. Dr. Guilmette served for two years as captain in the Canadian army, and was surgeon to Col. Donald Armour in a London Hospital.

Dr. C. H. Mayo of the Mayo Clinic has gone to Europe to visit the hospitals of France, England, Belgium, Italy, and Switzerland. He will present a paper prepared by himself and Dr. H. S. Plummer, at the Swiss Goiter Conference on April 20.

The heads and representatives of the anatomy departments of a dozen midwest colleges held their annual conference at the Mayo Clinic last month. The program was strictly scientific, and was given over to the discussion of new developments in the subject of anatomy.

Dr. W. W. Duke, Professor of Experimental Medicine in the University of Kansas, gave a lecture on March 12, before the Hennepin County Medical Society. His subject was "Chronic Sepsis in Its Relationship to Systemic Disease." He was invited to visit Minneapolis by the Staff of the Northwestern Hospital.

Patrick Henry McCarthy, of Butte, Montana, died last month at the age of 62. Dr. McCarthy graduated from Creighton in the class of '02, and began practice in Butte in 1903. He did a large amount of postgraduate work in this country and Europe. He held many positions of honor and gave largely of his service to his state and country.

The annual short course for physicians begins at the University of Minnesota on April 16, and continues three weeks. The work includes daily lectures, bedside clinics, and a laboratory course and x-ray work. Visits will be made to the hospitals of St. Paul and Minneapolis, where cases of special interest will be found. The fee for the course is \$30.00.

This year's meeting of Minneapolis Clinic Week will be characterized by the emphasis laid on medical clinics, although surgical clinics will not be unduly curtailed. The work done in the four clinic days of the week and on the first day, which will be given over to the American

College of Surgeons of the Northwest, promises a marked degree of useful instruction.

The national Board of Medical Examiners announce that the Board's summer and fall examinations will be held on the following dates: Part I, June 25, 26, and 27; Part II, June 28 and 29; Part I, Sept. 24, 25, and 26; Part II, Sept. 27 and 28. Applications must be made before May 25. Full information may be obtained from the secretary, Dr. J. S. Rodman, 1310 Medical Arts Building, Philadelphia, Pa.

The following is the program of the next meeting of the Consulting Medical Staff of the Lymanhurst School for Tuberculous Children, Minneapolis, on April 10: "Educational Problems in the Special School," by Miss Katherine Young, Principal of the Lymanhurst School; "Intraperitoneal Transfusion of Citrated Blood," by D. M. Siperstein, M. D. All persons interested in tuberculosis are invited to attend these meetings and participate in the discussion.

The Kiwanis Club of Redfield, S. D. has assumed the management of the local hospital owned and operated by Dr. F. M. Baldwin since 1917. The Commercial Club and the various churches of the city have pledged their support, and the institution will be known as the Baldwin Community Hospital. Dr. Baldwin is still confined to bed from an attack of polyneuritis induced by exposure in caring for country patients during the severe cold of February, 1922.

At the meeting of the Northwest Section of the American College of Surgeons in Minneapolis on Monday, April 16, a hospital conference will be held at the Radisson at 2:00 P. M. At 4:00 P. M. Fellows of the College will meet to elect executive officers for next year. The work of the College will be outlined and illustrated by Dr. Allan Craig, associate director. At 8 P. M. a community public health meeting will be held, and short addresses will be given to interest and instruct laymen in this work.

Dr. Charles Pliny Smith, a pioneer physician of South Dakota, died last month in Watertown, S. D., at the age of 79. Dr. Smith graduated from the College of Physicians and Surgeons at Keokuk, Iowa, in 1875, and began practice in Dakota territory in 1882, near the village of Columbia where he took up a claim. He later moved to Columbia and still later to Doland. He did Government work in Florida and was

also in the Asbury Hospital, Minneapolis, in like work for a time during the war. Dr. Smith spent several summers at Lake Minnetonka, and became known to many Twin City physicians.

PRACTICE FOR SALE IN WESTERN NORTH DAKOTA

General practice; \$6,000 cash last year without surgery; large territory thickly settled; dairying, farming, lignite mining, German settlement, city of 900, high school, churches, etc. One competitor. Office outfit complete, rent nominal, nine room modern residence completely furnished. Total \$8,500, will take \$5,000 cash, and balance terms. Leaving on account of health. Address 329, care of this office.

MINNESOTA PRACTICE FOR SALE

Practice in a good town 30 miles from Minneapolis, in a prosperous dairy community, with excellent collections. The town of 1,200 inhabitants is on a beautiful lake, and the roads are unexcelled. Practice for sale for price of residence and office. Will make the best terms to a good man. Address 327, care this office.

FINE LOCATION FOR HOSPITAL OR SANATORIUM

Is offered in a good town near the Twin Cities. Great opening for two or more doctors. Address 334, care of this office.

HOME ECONOMIC TEACHER WANTS POSITION

Hospital position during the summer or as substitute during regular dietician's vacation is wanted by a young woman trained in home economics with dietician training and hospital experience. Highest of hospital references given. Available May to September, and may consider a desirable position as permanent. Address Kathleen Brand, 112 W. Walnut St., Mayfield, Ky.

STATIC MACHINE WANTED

Must be in good working condition. Address Russell Partridge, Box 12, Commerce Station, Minneapolis.

PARTNERSHIP IN MINNEAPOLIS WANTED

A physician who has done surgery for a number of years and of late has devoted most of his time to internal medicine, fluoroscopy, and radium in a large Clinic in a Northwestern city desires to form a partnership or enter a Clinic in Minneapolis. He can command 110 mg. of radium. A graduate (1900) of the Medical School of Minnesota and has studied in other medical schools. Can give the highest of references as to character and professional qualifications. Address 332, care of this office.

THE JOURNAL-~~L~~ANCET

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THE PHYSIOPATHOLOGY OF THE SPLEEN

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The study of the physiopathology of the spleen has established that this organ has the following functions:

1. *The spleen is a hematopoietic organ.* The hematogenic function of the spleen is very active during fetal life, diminishes in the first period of childhood, and finally disappears. But if, at a certain period of the life (adult age) of man, the spleen loses its power to form red cells, it, nevertheless, still retains its lymphopoietic function, which is similar to the function of the lymph glands. (Luciani¹).

2. *The spleen is charged with purifying the blood of its morphologic waste products.* This phenomenon is carried out both by means of its special system of blood circulation, which reduces the strength of the blood current and acts almost as a filter, and by means of the action of the phagocytes, which destroy the morphologic waste products of the blood, (Moynihan²). Some authors (Bottazzi, see Moynihan²) have thought that the spleen produces some substance which weakens the red cells before they are destroyed. This phenomenon, in addition to others, such as the existence of a hemolysin, and the supposition that the spleen gets iron from destroyed red cells for the purpose of supplying it to young red cells (Luciani¹), up to the present time, has not been conclusively demonstrated. According to Pearce (Moynihan³) "the relation between the spleen and bone marrow is rather a matter of the

changes which take place in the storage and utilization of the iron of the body than a specific hormone action." All these data, as well as others, for instance, those upon the functional correlation between the spleen and the liver and between the spleen and pancreas, require new researches, especially supported by chemical biology, because, so far, the results are not conclusive and, in many instances, have been entirely contradictory.

However, aside from the above-mentioned problems, there remain three great problems to be solved by the physiopathologist. They are the following:

A. Does the spleen belong to the group of endocrine organs; in other words, does it produce an internal secretion?

B. The spleen suffers in many diseases and may show important changes; may it become (aside from the question of the leukemias and of the rare cases of tumor starting primarily from the spleen) the origin of a true disease, that is to say, of the so-called "splenic anemias"?

C. Is the spleen a true immunitary organ?

A

RESEARCHES ON THE EVENTUAL ENDOCRINE FUNCTION OF THE SPLEEN

Although the spleen differs from the glands to which an endocrine function has been attributed, both in the disposition and embryonal nature of the cells which form the spleen, some

authors have tried to demonstrate an internal secretion for this gland. Bayer (Moynihan⁴) found that the activity of the thymus is re-awakened after the removal of the spleen; hence the supposition that there should be a functional relationship between the thymus and the spleen. Streuli (see Moynihan⁴) thinks that the thyroid and the spleen have some functional relations. Tarulli and Pascucci, acting under the direction of Luciani⁵, found that the removal of the spleen causes a diminution in the digestive power of the gastric juice. Nevertheless, the experimental research of Tarulli and Pascucci, although of indisputable value, does not conclusively demonstrate a functional relationship between the spleen and the stomach, because (a) the weakness in the digestive power of the gastric juice disappears two or three months after the operation; (b) the injection of splenic substance into the splenectomized animal does not restore the power of the gastric juice, which has been previously weakened as a result of the operation. Davidsohn (see MacCallum⁶), having noted that in animals in which the spleen had been removed it is impossible, experimentally, to produce an amyloid infiltration, thinks that it is caused by a ferment, formed in the spleen. In 1914 (Massaglia⁷) I performed the following experiment: In a dog, in a condition of "latent pancreatic hypofunction" (the pancreas was partially removed, and the other part underwent a sclerotic process by means of resection and ligation of the pancreatic ducts) I did, at different times, the following operative acts: removal of the two external parathyroids, partial stenosis of the portal vein by means of an aluminum ring, and removal of the spleen. Each operation caused in the animal a sudden strong, but only transitory, glycosuria. Sugar in the urine reached its maximum at 0.8-0.9 per cent. The dog, after this experiment, was apparently in good health. Through an error of the caretaker the animal had been almost starved, and then, having been given a great amount of the windpipe of a bull, of which it ate plentifully, died December 7, 1910. At the autopsy the pylorus was found completely obstructed by the windpipes. The remaining pancreas was very much reduced in volume, due to sclerosis. On microscopical examination it was found that only a part of the islands of Langerhans remained in good condition. The interpretation of the glycosuria which appeared after the removal of the spleen is difficult.

The dog, as a result of the operations performed, had been in a state of latent pancreatic hypofunction, that is to say, in such a state that only a slight disturbance in the metabolic changes of the carbohydrates might cause the latent hypofunction to become manifest; the phenomenon is indicated by the appearance of a glycosuria. My experiment on the dog showed, then, that the partial parathyroidectomy, the stenosis of the portal vein, and the removal of the spleen, had changed the latent pancreatic hypofunction into manifest hypofunction. The fact that the removal of the two external parathyroids, which are organs undoubtedly belonging to the endocrine system, determined in the animal a transitory, but strong, glycosuria, leads me to think that the glycosuria which supervened after the removal of the spleen is also a glycosuria due probably to a disturbance in the metabolic changes of the carbohydrates. But there exists the experiment of Lustig and Oddi (Luciani⁸), which demonstrates that the removal of the solar plexus causes a glycosuria in animals. The spleen receives its nonmedullated nerve fibers from the celiac plexus; the sudden appearance and disappearance of the glycosuria after the removal of the spleen may also be attributed to some irritation of the celiac plexus. In this case the glycosuria would not be a consequence of a disturbance in the metabolic changes of the carbohydrates governed by the secretion of the endocrine glands, but as a result of a disorder in the function of the nervous system, similar to what happens when the glycosuria is due to Bernard's puncture or to the burning of the "glandula carotica" (Massaglia⁹).

CONCLUSIONS

These are, then, briefly, the more important researches, the purpose of which was to discover the eventual internal secretion of the spleen. They are, no doubt, interesting, but, so far, they have not been able to throw a clear light upon the solution of the problem as to whether or not the spleen possesses an internal secretion similar to that of the so-called endocrine glands.

B

DISEASES WHICH PROBABLY HAVE THEIR ORIGIN IN THE SPLEEN

There exist some diseases which have a chronic course and an unknown etiology. They were called *splenic anemias* because of two symptoms which characterize them: enlargement

of the spleen and marked anemia. Banti¹⁰ was first able to give an exact description of them. He called the splenic anemias "fibro-adenia" because of an important symptom, characterized by hyperplasia of the connective tissue mesh-work of the spleen. They have the following morbid characteristics in common:

a. A great enlargement of the spleen, an enlargement which represents the initial lesion of the disease.

b. A fibrous hyperplasia of the connective tissue of the spleen starting from, and also more evident in, the Malpighian corpuscles.

c. An anemia which begins after the first changes in the spleen.

But the cases of "fibro-adenia" show some differences among themselves. My knowledge has been established by the study of Banti's work on the splenic anemias, by the study of many cases reported by authors, and also by personal observation of ten cases. I believe then, that, following the classification of Banti, we may divide them into three morbid entities, which may be called (1) the splenic anemia of adults (*L'anemia splenica delgi adulti*); (2) splenomegaly with hepatic cirrhosis (*La splenomegalia con cirrosi epatica*); and (3) splenic anemia of infants (*L'anemia splenica infantile*). The three morbid entities offer the following description:

1. *Splenic anemia of adults.* The first work of Banti¹¹ on splenic anemia bears the date 1883; earlier, Gretzel, in 1866, and Griessinger, in 1867, recognized some cases of splenic anemia, but their description was incomplete. Following the data which Banti gave us we may describe the disease as follows: "Splenic anemia of adults is a disease which belongs to youth and manhood. It starts with an enlargement of the spleen, which slowly reaches a considerable volume, so that it finally occupies the entire left hypochondrium. It may pass the costal arch six to ten centimeters and reach the median line of the abdomen. During a period of greater or less extent (from four to ten years or longer) the splenomegaly is accompanied by a light anemia which shows alternations of improvement and relapse. This is the first stage of the disease." Finally, the second stage begins, which has a more rapid course. This is characterized by a very severe anemia with all the accompanying clinical symptoms.

According to the period of the disease, the blood shows the following changes: During the first

stage, the red cells decrease slightly, to about four million per cmm, and the hemoglobin to 70 per cent. During the second stage, the red cells decrease markedly and may drop to two million, and the hemoglobin decreases to 25 or 30 per cent (Fleischl's hemometer). Poikilocytes may be noted in the blood at the end of the second stage. Normoblasts are not found. Leucopenia may often exist and be as low as 2,000 leucocytes per cmm; there may be a more marked diminution of the polynuclear cells.

During the disease the patient may show the following symptoms. Epistaxis, which never reaches dangerous proportions. Very rarely, hemorrhages of the mucosae and the skin may exist. The liver may appear normal or slightly enlarged. Icterus never occurs. The urine does not show any important changes, and there are no characteristic changes in intestinal function.

The medical treatment of splenic anemia of adults is not successful, and the disease has a fatal issue; only the removal of the spleen, even when the disease is advanced, may lead to permanent recovery.

At autopsy, if the patient has died at the beginning of the disease from some independent cause, the lesions are found to be limited to the spleen only. If, however, the patient dies at the end of the disease, that is to say, from splenic anemia, the following lesions are found: The spleen is uniformly greatly enlarged; its weight may reach two or three kilograms. The capsule may appear normal, or opaque and thickened; adhesions may be formed with the peritoneum by means of fibrils of neoformed connective tissue. On microscopical examination the splenic capsule may be thickened; the large trabeculae may also be thickened. The Malpighian corpuscles and the splenic pulp show the following constant lesions: A neoformation of connective tissue starts from the artery of the Malpighian corpuscles and progressively tries to invade all the follicles so that sometimes all the follicles may be changed into a connective tissue nodule. Nevertheless, if the corpuscles are carefully examined, small cavities are found, and there remains something which resembles the most primitive constitution of the corpuscle. Then, if a spleen of splenic anemia of adults is examined, we can find Malpighian corpuscles in various stages of fibroid transformation. The Malpighian bodies may show hyaline bodies. Very rarely, even in normal Malpighian corpuscles, karyokinesis is found. The fibrous neoform-

mation affects, not only the artery inside the Malpighian body, but also the artery outside of the corpuscle. The lumen of the venous sinuses of the pulp is narrowed, due to the hyperplasia of connective tissue and also to the swelling of the endothelium. All the fibrous meshwork shows a decided thickness in the fibrillæ.

In the pulp are found large round or polygonal cells of a diameter of 10-14 microns; they have a nucleus of 5 to 8 microns, with a scanty amount of chromatin. Normoblasts do not exist in the spleen. The globuliferous and pigmentiferous cells are rare. The splenic vein shows chronic endophlebitis; consequently the intima becomes thickened due to neoformation of connective tissue. The process of sclerosis of the vein may reach the portal vein.

The liver, as stated before, may be slightly enlarged; its weight may reach two kilograms. The hepatic cells may be affected with fatty degeneration. The biliary canals appear normal, and the interlobular connective tissue does not show alteration.

Kidney and heart are affected in different degrees by fatty degeneration.

Lymphatic glands appear normal.

Bone-marrow shows various changes; often it is in a state of hyperplasia.

The disease has an unknown etiology. It does not show any connection with malaria, syphilis, or any other disease. All attempts at research for the specific agent of the disease have been unsuccessful. Banti supposed that the unknown morbid agent, by means of the blood, reaches and localizes in the spleen, where it determines a chronic inflammation, characterized by the lesions described above. From the spleen the unknown morbid agent acts on the blood and the blood vessels, either by means of the altered metabolism of the spleen or (this supposition is more probable) by means of a specific toxin. Starting from these hypotheses, Banti in 1882 already proposed splenectomy as radical treatment of the disease.

2. *Splenomegaly with hepatic cirrhosis.* This form of disease was afterwards called Banti's disease in honor of the author who first exactly described it. Banti's disease, which affects both youth and adult, has a chronic course, which may be divided into three stages:

First, or anemic, stage: This stage is similar, and perhaps equal to the first stage of splenic anemia described above; in fact it lasts about the same length of time.

Second, or intermediary, stage: In this state the liver begins to show some enlargement. A slight jaundice may appear in the sclera and skin. The urine shows urobilin in quantity. This stage lasts from twelve to eighteen months.

Third, or ascitic, stage: This period is characterized essentially by the fact that the liver progressively diminishes in size, and ascites is formed. The spleen remains permanently enlarged, but has lost any tendency to enlarge further. The patient may show, as the patient affected with cirrhosis of Laennec, a subicteric color of the conjunctiva and of the skin, or a "terra" color. A true jaundice was not noted. The patient may suffer from epistaxis, which never reaches a dangerous condition, and, according to Banti, he may also suffer from gastrorrhagies, or enterorrhagies. Urine is more colored, rich in urates, and, in addition to urobilin, may show traces of bilirubin. The blood shows about the same modifications as are found in splenic anemia of adults. Very rarely the red cells diminish below 3,000,000 per cubic millimeter. Leukopenia may exist, in which the polymorphonuclears may diminish proportionately more than the lymphocytes.

Pathological anatomy: As the disease is divided into three periods, so we find different lesions accordingly. In fact, if the patient dies during the first or second stage of Banti's disease (death being a consequence of an intercurrent disease), we find the following lesions: In the first stage the lesions of the disease are limited to the spleen, which shows a gross and microscopical appearance similar to that of splenic anemia of adults.

The second stage is characterized by the important fact that the liver begins to show modifications; the gland appears enlarged, with a smooth surface, its color and consistency may be normal, or suffer slight modifications, such as a slightly yellowish color and a diminution of its normal consistency. Microscopical examination shows a hyperplasia of the interlobular connective tissue; hyperplasia seems to start from the branches of the portal veins; indeed, the interlobular portal veins are surrounded by small round cells (parvicellular infiltration). The biliary canals appear normal.

Third, or ascitic, stage: When the patient dies of Banti's disease we find an abundant collection of fluid transudate in the peritoneal cavity (ascites). The liver shows lesions, both in gross appearance and on microscopical ex-

amination, which characterize the lesions of atrophic cirrhosis of Laennec. The spleen appears in about the same pathological condition as in splenic anemia of adults. The splenic vein shows endophlebitis; the mesenteric veins may also show the same process, but less marked. All the other organs have about the same behavior as they have in cases of splenic anemia of adults.

The etiology of Banti's disease, as that of the splenic anemia of adults, remains unknown. It does not show any connections with other morbid conditions. No successful results have been obtained in a search for a specific agent, either by means of microscopical examinations, culture methods, or inoculation of blood or of a portion of the spleen into animals. The liver,

in Banti's disease, shows the same lesions as those in the common alcoholic cirrhosis, but there exists the following essential difference as to the causative agent: Lesions of the liver in alcoholic cirrhosis are due to a toxic product (alcohol), coming from the intestines; on the contrary, lesions of the liver in Banti's disease are attributed to an unknown toxic product which comes from the spleen. That the toxic cause of Banti's disease has its seat in the spleen is demonstrated by the fact that the disease at the beginning, and afterwards for a long time, is localized in that organ, and that removal of the organ during the first period of the disease, that is, before the liver becomes affected, leads to the recovery of the patient.

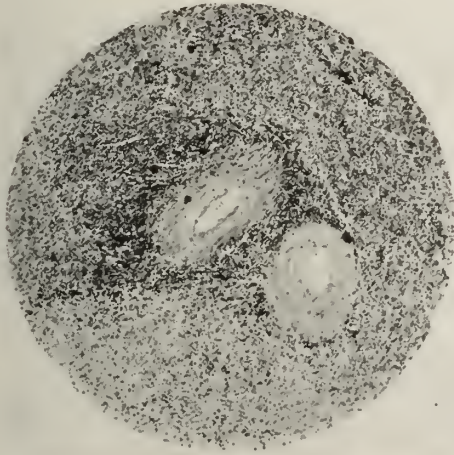


Fig. 1. The spleen (sclerosis of the Malpighian corpuscle) of R., E. E., Michigan, N. D., who died of Banti's disease. Fixation, formalin; staining, hematoxylin-eosin.

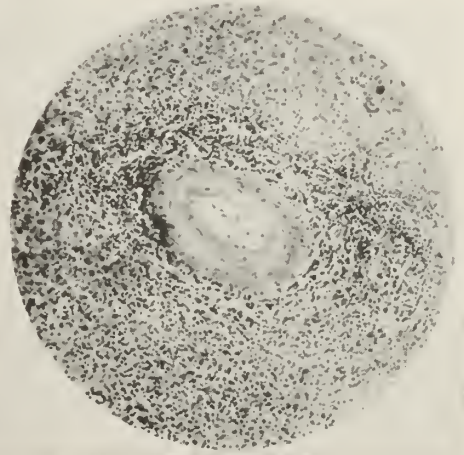


Fig. 2. The spleen (sclerosis of the Malpighian corpuscle) of R., E. E., Michigan, N. D., who died of Banti's disease. Fixation, formalin; staining, hematoxylin-eosin.

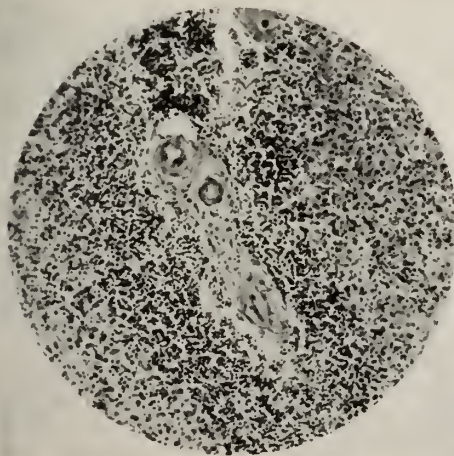


Fig. 3. The spleen (sclerosis of the Malpighian corpuscle) of R., E. E., Michigan, N. D., who died of Banti's disease. Fixation, formalin; staining, hematoxylin-eosin.

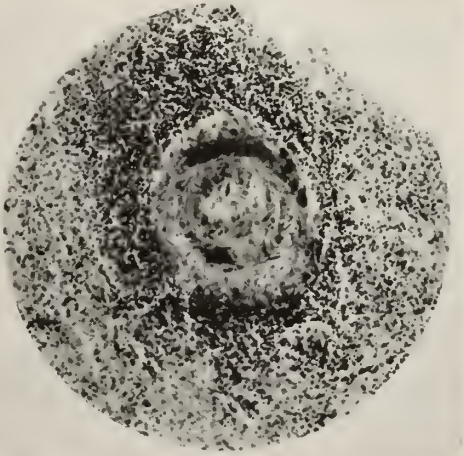


Fig. 4. The spleen almost complete sclerosis of the Malpighian corpuscle) of R., E. E., Michigan, N. D., who died of Banti's disease. Fixation, formalin; staining, hematoxylin-eosin.

3. *Splenic anemia of infants.* Several authors, for instance, Canelli¹², consider splenic anemia of infants as Banti's disease in young children. The disease is distinguished from splenomegaly with hepatic cirrhosis by the fact that it has a more rapid course, so that the three stages, the anemic, the intermediate, and ascitic, which characterize Banti's disease, do not appear so distinct one from the other. There also exists a difference in the prognosis of the disease. Splenic anemia of infants, as opposed to Banti's disease in the adult, displays a tendency to spontaneous cure.

Gaucher's disease. Gaucher¹³ first described a case of a particular chronic enlargement of the spleen which, on account of its histological character, he called "epithélioma primitif de la rate." Collier¹⁴ later described another similar case which he considered an endothelioma of the spleen. Some other rare cases have occurred which authors have interpreted differently; recently Mandlebaum,¹⁵ Moynihan,¹⁶ and others have considered the morbid process not a tumor, but a new morbid entity which, in honor of the author who described the first case, has been called "primary splenomegaly (Gaucher type), or simply "Gaucher's Disease." No cases of this disease have occurred in my studies, but, according to the descriptions given us by the various authors, it should have a symptomatology and course similar to that of Banti's disease. Mandlebaum,¹⁵ in the summary of his work, gives the following description of it: "Pronounced hypertrophy of the spleen, subsequent enlargement of the liver, absence of palpable lymph nodes, absence of jaundice and ascites, absence of characteristic blood changes, discoloration or pigmentation of the skin, and a tendency to epistaxis or other hemorrhages."

The lesions are characterized by a neoformation in the spleen of large rounded cells, containing from one to four nuclei; the cells appear closely united to the walls of the venous sinuses and apparently arise from their endothelium (Mandlebaum); nevertheless, the derivation of their elements is still uncertain.

Mandlebaum,¹⁵ describing such neoformation, says of the largest cells: "A few cells of very large size are seen; one of these measures 71.7 by 100 microns in diameter, and contains thirteen nuclei." Isolated groups of the endothelial cells are also found in the Malpighian bodies (which appear enlarged) between the lymphoid cells.

The same cells are also found in the bone marrow and in the liver. Mandlebaum explains the presence of such elements in these organs by saying that the cells in the bone marrow "arise from the reticulum" and that those in the liver come from the spleen, carried out as metastases through the capillaries.

Up to this point the more important facts which characterize the so-called "Gaucher's disease" are the same as those which characterize the formation of malignant tumors; for some unknown cause, abnormal cells originate which give rise to metastases. These facts lead me to regard the so-called "Gaucher's disease" as a tumor of the spleen, as was done by the authors who described the first cases, abandoning the conception of a new form of disease.

Von Jaksch's Disease (pseudoleukemic anemia of infants). This disease affects infants. It is characterized by a striking anemia, by an enlargement of the spleen, and frequently by a leucocytosis. Anemia pseudoleukemia infantum ought to be considered an unusual form of secondary anemia, which causes enlargement of the spleen, but which does not have its seat in this organ. The disease was introduced here only because it has been considered by some authors as belonging to the splenic diseases.

Vaquez' Disease ("Malady of Vaquez-Osler")—Polycythemia vera.—This disease has an unknown cause, and is characterized by an excessive formation of red cells (usually seven million per c. mm.), with an enlargement of the spleen. But the disease does not have its seat in the spleen, which becomes enlarged only as a consequence of overwork. Indeed, the removal of the spleen either proved fatal to the patient or was unable to induce a cure.

Primitive Splenomegaly.—The group of splenomegalies, until recently, included a large number of cases, because authors classified in it those cases of enlarged spleen in which they were unable to detect the cause. Splenomegaly was considered an enlargement of the spleen, in which the organ had attained a weight of from 1,000 to 3,500 grams; that is to say, a weight greater than that found in the common enlargement of the spleen from stasis, or many infectious diseases. But with the progress of scientific research, the number of cases of primitive splenomegaly has rapidly diminished until it has almost disappeared. The discovery of several infectious agents,—such as the trypano-

soma of Castellani and the leishmania of Donovan,—has demonstrated that several primitive splenomegalies are caused by pathogenic microbes. Moreover, the formation of the chapter of the "fibro-adenias," which is composed of well-defined morbid entities, although we do not know the cause of them, was able to classify a great number, if not all, of the remaining primitive splenomegalies.

Hemolytic Jaundice.—Some modern authors consider hemolytic jaundice a disease not hepatic in origin, but splenic. Moynihan,¹⁷ from his study on this problem concludes, that "the spleen, if not the exclusive cause or seat of the disease, exerts the profoundest influence upon its pathogeny." These recent views on the origin of hemolytic icterus have led me to include it in my study on the diseases of the spleen.

Prior to the year 1868, jaundice was distinguished, according to its etiology, as icterus hepatogenous and icterus hematogenous. 1. Icterus hepatogenous, as proved by demonstration, is due to a mechanical obstruction of the biliary passages, which hinders the outflow of the bile. This, according to most observers, finds entrance into the blood by way of the lymph channels; others believe that it passes directly into the veins (MacCallum,¹⁸). Jaundice then appears. 2. Icterus Hematogenous (Hemolytic icterus) is due to unusual disintegration of red blood corpuscles in the blood; bile pigments should be due to a direct formation from hemoglobin. But, starting in 1868, with a successive and successful series of researches, Naunyn,¹⁹ Stadelmann,²⁰ Naunyn and Minkowski,²¹ and Stern²² were able to demonstrate that the bilirubin and biliverdin are formed from the hemoglobin by the liver cells; then the name of this form of icterus was changed to *hemahepatogenous icterus*. "A purely hematogenous icterus does not occur." (Ziegler²³.)

But how can jaundice in the hemohepatogenous icterus be explained?

Chauffard,²⁴ Girode,²⁵ and others believe that jaundice is caused by the fact that the bile, owing to its abnormal formation, becomes more dense and thick, bearing with it a greater amount of pigment than normally, and consequently becomes unable to flow freely through the biliary passages; the lymphatic channels of the liver then absorb it and by means of this mechanism the bile afterwards passes into the veins.

Silbermann²⁶ and Hofmeier (Ziegler²⁷) explained the cause of icterus neonatorum by a similar process. Icterus neonatorum should be due to a large destruction of red cells in the circulation during the first few days of life. Bile unusually rich in pigment may not flow freely through the biliary passages, and, in consequence, it finds its way into the lymphatic, and later into the blood circulation.

Minkowski²⁸ opposed this conception. He holds that until the hepatic cells are able to function there can be no biliary pigments in the blood; that when the hepatic cells are disturbed in their function not all the bile overflows through the biliary passages, but part overflows into the circulation. This conception is supported by the fact that a liver cell (Krause²⁹) participates not only in the formation of one bile capillary, but helps to form several. For instance, a cell, rectangular in section, may show a biliary capillary on each side, while each corner is occupied by a blood capillary. Then to have hemolytic icterus it is necessary to have not only a hemolysis, but also an altered function of the hepatic cells. Minkowski's conception has received support from the studies of Libermeyer,³⁰ Pick,³¹ Nauwerch,³² Browicz,³³ and Szubinsky³⁴. Eppinger³⁵ has tried to demonstrate that this conception is not correct, but Minkowski, supported by Brauer,³⁶ was able to annul Eppinger's objections.

But why does hemolysis occur in the circulation?

According to Chauffard,³⁷ Widal³⁸ and his collaborators, Philibert, Abrami, Brule, hemolysis is caused by an increased fragility of the red cells; indeed, they have found in cases of hemolytic jaundice a fragility of the red cells, that is to say, the red cells had a diminished resistance to hypotonic salt solution. The disease may be congenital or acquired (Moynihan³⁹).

Both forms of hemahepatogenous icterus have a similar morbid syndrome (jaundice, unaltered stools, enlargement of the spleen, anemia, and red cells with basophile granulations), but one may be distinguished from the other by its etiology. The acquired form may begin abruptly, and usually has stronger acute exacerbations (crises of deglobulization) than the congenital form.

Moreover, in addition to this form of hemolytic jaundice there exists another form (Tix-

ier,⁴⁰ Maragliano⁴¹), which is caused, not by the increased fragility of the erythrocytes, but by a circulating hemolysin which destroys them.

The demonstration of red cells with basophile granulations (polychromatophilia) differentiates hemolytic icterus from icterus hepatogenous, the latter not showing chromatophilia. The polychromatophilia shows the regenerative power of the bone marrow against the destruction of the red cells. Indeed, the red cells with basophile granulations, as I have demonstrated with Dr. Tarabini, in 1908 (Massaglia-Tarabini⁴²), are to be considered, not as elements with protoplasm in degeneration, but as young red cells (an intermediary stage between the normoblast and the normal adult red cells), which, while still immature, are thrown into the circulation as a consequence of the immense strain of the bone marrow in an attempt to compensate for the great destruction of red cells. The regeneration may be so tumultuous that the young red cells may be accompanied by normoblasts. The red cells with basophile granules are the same cells, which, by the method of staining of Vas-sale-Zanfrogini,⁴³ appear stained in azure. These authors also consider them as young red cells.

According to Minkowski, Banti, and other writers, as related by Moynihan,¹⁷ "the spleen is not only enlarged as a consequence of the retention within it of cell remnants, but that within the spleen cells are prepared for destruction and are there actively destroyed." The spleen, then, should be considered the seat of the disease or, at least, of great importance as an etiological factor. But treatment by removal of the spleen which, if it effected a cure, should have definitely decided the value of the spleen as the cause of the disease, has not given constant results. However, considering the statistics on the operated cases, it seems that in most of them a cure resulted.

Since the etiology, the seat, and the intimate nature of hemolytic jaundice have not until now been well known, I report here two cases, studied in collaboration with Drs. Tarabini⁴² and Fiori,⁴⁴ which throw some light upon the problem.

The first case is of a boy, A. S., of Modena, Italy, who on February 25, 1908, was received at the Medical Clinic of the University of Modena because he was sick with jaundice. According to the story told by his parents, no hereditary diseases existed in the family. The youth was fourteen years old; in 1898, that is to say, at the age of four years,

icterus had appeared. From that time, intermittently showing improvement followed by relapse, the jaundice was persistent. Nevertheless, the boy, with the exception of the jaundice, did not complain of any important disturbances during the long period of his illness.

At the physical examination the patient was found normally developed for his age. The spleen was markedly enlarged and harder than normal. The liver was also slightly enlarged.

The functional activity of the liver was tested by a subcutaneous injection of methylene blue (5 centigrams in aqueous solution) and by the ingestion of fifty grams of levulose. The function of the liver appeared practically normal; only traces of glucose were noted in the urine. The urine, which was examined daily while the patient was in the Medical Clinic (a period of some months), showed faint traces of biliary pigments during the crises, which were very strong, and a constant, though variable, urobilinuria. The feces always retained the normal color from the biliary pigments.

The blood examination, repeated several times, gave the following average data:

Red blood cells, 3,700,000 per cmm.

White blood cells, 7,800 per cmm.

Hemoglobin, 65 per cent.

Isotonia, average of several tests, showed that hemolysis started in hypo-isotonic solution at 0.52 per cent NaCl, and became complete at 0.45 per cent. Isotonia shows that there was some globular fragility of the red cells. Lysin in the blood was also looked for. The examination was made as follows, and gave, with the exception of examinations made at the periods of crises, the following results:

1. Serum of icteric patient plus deplasmated red cells of icteric patient, hemolysis after 24 hours.

2. Blood serum of icteric patient plus deplasmated normal red cells, slight hemolysis after 24 hours.

3. Serum of normal blood, plus deplasmated red cells of icteric patient, slight hemolysis after 24 hours.

4. Serum of icteric patient warmed to 60° C. for one hour plus normal deplasmated red cells, hemolysis after 48 hours.

5. Serum of normal blood, plus normal red cells deplasmated, hemolysis after 48 hours.

These tests showed that in the blood of the patient, there existed some hemolytic power, together with some fragility in the red cells; both, then constituted the cause of the hemolysis. During the crises some increase in the power of the lysin was noted and afterwards an increase in the number of young red cells in the circulation. Normoblasts were seen, but the phenomenon of poikilocytosis was not noted.

At the end of three months, no improvement being apparent, the patient left the clinic.

The second case, which was studied in its clinical course by Fiori⁴⁴ is that of a boy nineteen years old, R. C., of Baggiovara, Italy. The boy went, on January 9, 1912, to the Medical Clinic of the University of Modena, because he was suffering from a profound jaundice and extreme weakness. The

patient said that at very rare intervals he had suffered from similar attacks; at other times he had enjoyed good health, but his skin and sclera always showed a slightly yellow tint. At the age of nine years he first noted that he was icteric. On physical examination, the patient showed icterus; the spleen and liver were enlarged, although the latter was proportionately less so than the spleen. Fiori stated that the anemia was great (the average of the several blood counts was 2,000,000 red cells per cubic millimeter). The feces were of normal color. There were traces of bile pigments in the urine occasionally. The author, supposing that the cause of the disease was in the spleen, removed the gland on July 2, 1912. The patient recovered from the operation and was afterwards visibly improved.

Fiori and I then made a thick emulsion of the removed spleen, (1 part of spleen to 5 parts of the following solution: distilled water, gr. 1,000; sodium chloride, gr. 6; citrated sodium, gr. 10), which we inoculated in large amounts (several c.c.), after having previously performed a laparotomy, into the spleen and liver of two young macaques (*M. cynomolgus*). The operation was done immediately after the operation on the man. At the end of October the animals died with strong intestinal disturbances.

No autopsy was performed, due to the negligence of the man who kept the animals; hence it was not possible to establish the cause of death; nor do we know whether the disease was transplanted. It is well to remember, however, that this is the first attempt to graft hemolytic jaundice on monkeys.

Examination of the spleen removed from the patient showed the following lesions: The gland appeared greatly enlarged, and weighed 1,000 grams. The surface of the organ was regular, the consistency of the gland was about normal. When it was cut, a large amount of blood escaped from the surface, as happens in the spleen in a state of passive congestion. On microscopical examination no important changes were noted in the Malpighian bodies; the pulp showed congestion and some increase of its fibrous tissue.

CONCLUSIONS

My conclusions are based upon the study of several authors on hemolytic jaundice and upon the data furnished by the two cases reported above. They are as follows:

1. Hemolytic icterus may be caused either by an abnormal fragility of the red cells or by the presence in the circulation of a hemolysin. It would, then, be more exact to distinguish between two forms of hemolytic jaundice, one due to fragility of the red cells, the other to a lysin.

2. The hemolytic icterus, due to a fragility of the red cells, is probably caused by an abnormal condition of the bone marrow, which forms erythrocytes defectively. I advance this hypothesis because, in the adult, only the bone marrow, and not the spleen, gives rise to

red cells. The fact that in several cases removal of the spleen should have caused the cure of the patient, can be explained by the supposition that the spleen elaborates some hormone which acts upon the hematopoietic activity of the bone marrow. A disturbance, then, in the spleen may cause a disturbance in the function of the bone marrow. The cure after removal of the spleen may perhaps be better explained in cases of hemolytic icterus from a lysin. The splenic gland should prepare the lytic substance which destroys the red cells.

3. The lesions of the spleen in cases of hemolytic icterus are essentially similar to those that occur in cases of passive congestion of the organ. They are, then, different from those which characterize the splenic anemias (a characteristic remarkable increase of connective tissue).

ON THE EVENTUAL IMMUNITARY POWER OF THE SPLEEN IN INFECTIOUS DISEASES, WITH A PARTICULAR CONSIDERATION OF SOME PROTOZOON INFECTIONS

The scientific researches which have as their aim the establishment of the immunitary function of the spleen in the different infectious diseases are numerous. They started with Morgagni⁴⁵ over two centuries ago, but up to the present time, if all the authors who have studied the question are agreed that the spleen shows more or less disturbances in infectious diseases, they are not agreed on the defensive action of the organ. (Lanceraux,⁴⁶ Birch Hirschfeld,⁴⁷ Cornil and Ranvier,⁴⁸ Ziegler,⁴⁹ Orth,⁵⁰ Martinotti and Barbacci,⁵¹ Laveran,⁵² etc.). Indeed, while some believe that the spleen has the function of destroying the germs that have penetrated into the circulation, whether by means of the phagocytary properties of its cells or by means of specific antibodies which are secreted by its cells, other authors, on the contrary, think that the spleen, in many cases, does not destroy the microbes. For instance, Martinotti and Barbacci,⁵¹ have concluded from experimental research that the Malpighian corpuscles of the spleen offer a strong resistance to the invasion of the bacteria of anthrax; Luckhardt and Becht⁵³ found that "asplenic dogs do not produce hemolysins, hemagglutinins, or hemopsonins (a) as rapidly nor (b) in as high a concentration as the corresponding control dogs." Laveran,⁵² on the other hand, has demonstrated that the spleen has no

immunitary power against the infection of the human malarial parasite.

Having thus found unsolved the problem of the defensive power of the spleen against infection, I decided to start my study on the protozoan infections in man, because they offer a limited field, and also because it seems to me that the protozoan parasites more clearly show their action on the spleen. My study, based upon the more important research of different authors and upon my personal research, has brought me to the following conclusions:

1. *Malaria*.—The parasites of malaria, of which we now recognize three forms: *Plasmodium vivax* (Grassi and Filetti), *Plasmodium malariae* (Laveran), *Plasmodium falciparum* (*immaculatum*) (Welch), usually have, as is known, an unequal distribution in the circulation, but are found in greatest numbers in the spleen and in the brain. But what is more important from the standpoint of the immunitary power is the fact that the malarial parasites may live in the spleen for a long time, even when they have disappeared from the circulation (Laveran⁵²). They remain in the spleen in a seemingly inoffensive condition, which may be called latent pathogenic power, so that the patient apparently enjoys good health. No morbid symptoms are shown, with the exception of an enlargement of the spleen. But, after a time, which may be long, the microbes may pass out of the spleen into the circulation, and cause a new attack of malarial fever. The phenomenon is so characteristic that from it may be concluded that the spleen not only lacks an immunitary power against the malarial parasites, (except the function of the filter of the blood), but becomes their elective seat.

2. *Trypanosomiasis*.—Bradford and Plimmer,⁵⁴ Rodet and Vallet,⁵⁵ and Yakimoff⁵⁶ have found that the spleen, in the infections with trypanosomes, has a strong trypanolytic power. Opposed to these researches are those of Laveran and Thiroux,⁵⁷ who concluded that the spleen, in the infection of *Trypanosoma*, has only the function of clearing the blood of dead or dying parasites. In 1906 (Massaglia⁵⁸) I began the study of the important problem. As a first step I sought to determine whether the organism, infected with trypanosomes, showed some immunitary reaction against them. My attention was attracted by the so-called phenomenon of the trypanolytic crises. Indeed, it is known that in

some trypanosomiasis (for instance, the surra in guinea-pigs), the parasites, during certain periods of the disease, when they are very numerous in the circulation, suddenly disappear, only to reappear after some time, fully as numerous, in the circulation. Then I was able to demonstrate that the disappearance of the trypanosomes from the blood is due to the sudden appearance in the circulation of specific antibodies. Many parasites are destroyed, but some are always able to survive; they disappear from the circulation, and take refuge in some organs, especially in the bone marrow. From these arise new races which are immunized against the action of the immunitary substances created by the organism for its defense against the infection. These new races cause the relapses (re-appearance in the circulation of numerous trypanosomes), and lead progressively to the death of the infected being. Levaditi and Mutermilch⁵⁹ later, by controlling my records, came to the same conclusion. This discovery (1907) is important because it explains why immunitary treatment and also some medical treatment (arsenical treatment against trypanosomiasis) may fail after initial good results.

Having demonstrated in this manner that in the blood of the subjects infected by trypanosomes there may exist immunitary substances, I sought the eventual immunitary power of the spleen by the following methods:

1. Examination of the condition of the trypanosomes in the spleen.
2. Examination *in vitro* of the action of the splenic substance (extract) upon the trypanosomes. This experiment was controlled by other experiments, made with extract of the liver and also of the blood upon the parasites.
3. Performance of experimental research *in vivo* to determine whether the trypanosomiasis in splenectomized animals had a shorter and more fatal course than in normal animals.

I concluded that the spleen, by means of its special circulatory system, which acts almost as a filter of the blood, clears the blood of dead and dying trypanosomes, but that the spleen has no marked, specific trypanolytic power. This conclusion explained why, in the spleen, there is an accumulation of great numbers of the wasted bodies of trypanosomes during their infection (for instance, surra or nagana), and why the enlargement of the spleen is more in direct proportion to the number of parasites in the

circulation, than to their toxic power. This conclusion also explains why the extract of the spleen does not show *in vitro* a marked trypanolytic power, and why the splenectomized dogs infected with nagana lived about the same length of time as the normal animals (the controls), which were infected with the same disease.

4. *Syphilis*.—Neisser,⁶⁰ in his experimental research on syphilis, has found that when one inoculates syphilis into the monkey, the infection invades the body very rapidly, and after one day from the inoculation the spirochaeta pallida may be seen in the spleen. The tissue of the removed spleen is capable, by means of cutaneous scarification, to cause the disease in other monkeys. The spleen, then, has no evident immunitary power against the spirochaeta pallida. The behavior of the spleen in syphilis is somewhat comparable to that of the same organ in the infection with trypanosomes. This behavior, I believe, may also concur, although in an indirect manner, to class the spirochaeta pallida among the protozoa, as I attempted to do beginning in 1906 (Massaglia⁶¹) when I demonstrated that not only do syphilis and sleeping sickness (human trypanosomiasis) have several similar symptoms, but that there exists a trypanosomiasis called *dourine* which, because of its symptomatology, course and means of transmission, may connect the trypanosomiasis with lues. *Dourine* may be considered the syphilis of horses.

5. *Infantile Kala-azar*.—The infantile kala-azar, a disease of the countries along the shores of the Mediterranean sea, is caused, as is well known, by the "Leishmania infantum." The disease was called infantile kala-azar, because it particularly affects children, and because of its resemblance to the kala-azar of India. Cases of the disease occurring before the discovery of its specific agent, "The Leishmania infantum," by Pianese⁶² and Nicolle,⁶³ were confused with the cases of primitive splenomegaly.

The "Leishmania infantum," when they infect an organism, show, as is known, the following important property: They penetrate in an elective manner into the large mononuclear cells of the blood, to develop particularly in the spleen, in the bone marrow and also, in less numbers, in the liver. During their intracellular life the Leishmaniae, as is known, show an oval form, and live at body temperature, that is, 37° to 39° Centigrade; when they are cultivated (Novy Mac Neal medium), as Nicolle⁶³ and I (Massaglia⁶⁴)

have demonstrated, they live at a temperature of 22° Centigrade, and acquire a typical herpetomonad form. The particular property (of the parasite of infantile kala-azar) of localizing in those elements (the large mononuclear leucocytes), and in that organ (the spleen), which are considered among the more important defensive powers of the organism against infection, leads one to conclude with some degree of certainty that the spleen has no immunitary power in the infection with "Leishmaniae infantum."

CONCLUSION

The clinical and anatomopathological observations and experimentation show that the spleen in several diseases caused by protozoa (malaria, trypanosomiasis, syphilis, infantile kala-azar) has very little or no immunitary power.

Note.—I wish to thank Doctors R. D. Campbell, W. C. Wilson, and W. H. Witherstine, of Grand Forks, North Dakota, for their interest in my work on the diseases of the spleen. They offered for my study several cases of splenic anemia (fibro-adenia), the clinical diagnosis of which had been previously established by them.—
THE AUTHOR.

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WHAT ARE THE MOST IMPORTANT MEASURES IN PROTECTING CHILDREN FROM TUBERCULOSIS? *

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In the study of tuberculosis, as related to children, we are concerned with only two forms of the tubercle bacillus,—the human and the bovine. Both are pathogenic to humans, although it is generally conceded that the bovine form is much less so than the human.

The fact that 80 per cent, or over, of all adults give positive cutaneous tuberculin reactions, and that at autopsy even a larger per-

centage show tuberculosis lesions demonstrates that the tubercle bacillus is extremely widespread.

The great majority of persons who react positively to the cutaneous tuberculin test, show no clinical signs of the disease. It is impossible, therefore, to say to what extent these mildly infected cases, many of whom undoubtedly have acquired an immunity as far as they themselves are concerned, may act as carriers.

It is frequently impossible to obtain, even in cases of acute tuberculosis in young children, a

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definite history of exposure. For example, out of 362 children admitted to the babies' hospital of New York, a definite history of exposure was obtained in only 94. There are, therefore, many unknown sources of infection.

The bovine form of tubercle bacillus, although not so common a cause of tuberculosis as the human form, is, nevertheless, the cause of gland and bone tuberculosis, especially in America, where milk is frequently given to children without being boiled or pasturized. In fifty children with bone or gland tuberculosis at the Minnesota State Hospital for Crippled Children on whom von Pirquet tests were made with both bovine and old tuberculin (Koch) four reacted only to bovine, while the remainder reacted to both.

An examination of the milk supply of several large American cities revealed the fact that 15 to 20 per cent of the commercial milk contained tubercle bacilli, and this in states where tuberculin tests are compulsory for all milk cows.

Cow's milk is in such universal use as a food for both adults and children that it must be considered, unless pasteurized or boiled, a possible and probable source of tuberculosis.

From the foregoing it is apparent that the tubercle bacillus assumes the character of an omnipresent enemy, which we must meet at every turn in life, and that we can escape falling a victim to its attacks only by maintaining our fighting strength at a high point of efficiency by proper arms and armor and by carefully studying the weak points of the enemy.

In order further to demonstrate the futility of attempting entirely to evade the tubercle bacillus at present, a study of the incidence of infections in children of different ages will be of interest.

Bass made an exhaustive study of children, ranging in age from a few days to six years. Of children under six months, 7.8 per cent reacted positively to tuberculin; of those between six months and one year, 15.8 per cent; from one to two years, 17.28 per cent; from two to three years, 31.3 per cent; and, finally, of the children between five and six years, 78 per cent were positive. Children who reacted repeatedly negative to the von Pirquet were given the intradermal test.

The fact has been recently demonstrated conclusively by Wollenstein and Spence² that many infants suffering from acute tuberculosis do not

give a von Pirquet reaction. Of 362 children suffering from active tuberculosis only 269 gave a positive reaction. Of these 362 cases all died but 24, giving a mortality of over 84 per cent. Of the 184 cases that came to autopsy, all revealed tuberculosis involvement of some of the organs.

A more recent report by Dunn and Cohen from the infants' hospital of Boston show that of a series of 661 consecutive necropsies in children under two years of age, 138, or 20 per cent, showed tuberculosis involvement.

Of 3,100 admissions to the hospital for all ailments a clinical diagnosis of tuberculosis was made in 374 cases, or 12 per cent, and in 9 per cent of all cases of admission the diagnosis of tuberculosis was confirmed by autopsy.

From this evidence it is apparent that the absence of the von Pirquet in no way rules out the diagnosis of tuberculosis in infants under two years of age.

From the foregoing figures it is, also apparent that clinical tuberculosis in young children is a very fatal disease, that it is much more common in children under two years of age than is generally supposed, or than would be indicated either from a clinical examination or the tuberculin skin reaction.

When, then, are the most important means of protecting young infants and children from tuberculosis?

The possibility of inherited tuberculosis, owing to its rarity, may be excluded.

The mother, however, who has open tuberculosis offers a serious menace to the infant from two points of view: She usually gives birth to a child much below par in general vitality and an easy prey to tuberculosis, and she offers a continuous source of infection to the child as long as it is in contact with her. A child should, therefore, be removed from its mother when she has open tuberculosis immediately after birth. This child should be placed with a wet nurse and its general care and feeding, supervised carefully, as such a child will usually fall an easy victim to infection from any source.

In the case of this same infant, it would avail little if it were removed from its own tuberculous mother only to be passed over to a wet nurse who might be herself tuberculous or have a husband or children who were suffering from open tuberculosis.

In order, therefore to accomplish anything

worth while in the protection of children from tuberculosis, the source and channels of infection must be determined and blocked.

Is this possible? For the present, No; for the future, Yes. How? The village, the city, the nation, are made up of individuals. Every new case of tuberculosis comes from an older one, directly or indirectly. Therefore every individual must be subjected, at sufficient intervals, to a physical examination including a microscopic examination of the sputum, to be able to exclude that individual as a possible source of contagion. Whenever a person is found to have open tuberculosis, he or she should be removed from contact with children, or the children should be removed from contact with such person, until such time as that person ceases to excrete tubercle bacilli or until he or she has learned how to live and to protect others against infection.

To this end sanatoria, preventoria for children, the visiting nurse contribute, and each will be discussed later in this paper.

Is this a dream or is it a workable proposition?

A nation which says to its citizens "You cannot manufacture or sell alcohol in any form," need not hesitate to say to its citizens "You must be examined for tuberculosis or syphilis before you can marry and have children" or that "You must have an examination twice yearly and take such other measures as are necessary to protect yourselves, your families, and the public".

To do this, it is only necessary, theoretically, at least, to educate the citizens sufficiently in questions of public health and have them realize their obligations to their families, the public, and themselves. Alas, we are still, I fear, a long way from realizing Plato's dream.

For the present, what are the means by which we may minimize the number of children who will fall victims to tuberculosis?

It is a fact that the mortality among children rapidly diminishes with age, although the number showing infections with tuberculosis as indicated by the von Pirquet or other cutaneous tuberculin tests is greatly increased. It is also now generally believed by authorities that comparatively few adults contract tuberculosis, but that they become superinfected from primary infections contracted in childhood. We have frequently observed the fact in the Minnesota State Hospital for Crippled Children that few cases of lung or general tuberculosis develop in children who suffer primarily from bone and joint in-

fections. These children, if they are in fairly good general health, usually give a very intense skin reaction, either to the old tuberculin (Koch⁴) or to bovine, and usually to both. When, however, they are ill from any cause, measles, for example, and their vitality reduced, the von Pirquet is generally absent for a time, but is regained when their health again approaches normal. We must, therefore, regard the skin reaction to tuberculin as an evidence that the child has been infected to some extent with tuberculosis and that nature is making an effort to render the system immune to further invasion. What we must strive for, is to protect young infants and children from an avalanche of infection and maintain their general resistance at such a high point that they will gradually develop an immunity by successfully combating the occasional bacillus which they seem destined to meet from time to time.

In this connection, when we consider the other great achievements in modern medicine in the immunization against other diseases by vaccination, there is little doubt but that the artificial immunity to tuberculosis will be an achievement of medicine in the near future. The great amount of work being done in the different parts of the world on this subject is too well known to need mention at this time. Suffice it to say that up to the present time no one has as yet been able to convince the scientific world that artificial immunity against tuberculosis in young children, such, for example, as vaccination by cowpox against smallpox, has been achieved.

How, then, can we prevent young children from active infection? By preventing young children from coming in contact with those who have open tuberculosis.

This involves the making of a thorough physical examination of all persons who come in contact with children, and especially those who have been in charge. All persons having active tuberculosis should be persuaded, voluntarily or, if necessary, by force, to pass a certain time at a sanatorium. There the mild cases will perhaps recover, the more severe ones will often be improved, and all will learn the discipline necessary in the care of themselves and in the protection of others.

Children who have been exposed directly to infected persons should have special attention given their general nutrition. If their homes are anything approaching normal, they may remain

there and every effort be made by nutritious food, sunlight, and air to promote their general health to as high a point as possible.

This does not mean crowding their diet to such a point that their digestive apparatus will be impaired, nor sleeping out of doors at sub-zero temperature, for I would like to call attention to the fact that fresh air, and not necessarily cold air, is what is desired.

Not only children giving a positive von Pirquet reaction should have such supervision, but all children who have been exposed. I would give the greater concern to the child who had been exposed whose nutrition was below normal and did not react to tuberculin rather than to the one who was well nourished and gave a positive von Pirquet reaction.

Children who have been exposed and have indifferent home conditions should be removed to a preventorium where the conditions are ideal. How long they will be required to stay there will depend upon their general improvement and the extent to which the general hygiene of their homes has been improved in their absence.

There is little point in sending children to a preventorium and after a few weeks sending them back to their homes where the conditions remain as bad or worse than when they left. It is in this connection that the visiting nurse finds her most useful sphere.

Preventoria have and will serve a useful purpose in the prevention of tuberculosis in children. In addition to the actual good accomplished to the individual child they serve even a more useful purpose as an educational factor, both to the children themselves, who will be the fathers and mothers' of the following generation, and also to the parents and the community from which they come. For this reason preventoria should be properly distributed throughout the nation, and each should be a model of its kind.

They will never, no matter how excellent, take the place of the ideal preventorium which ultimately the child must find in his or her own home.

The housing problem is one of the most difficult to meet. The absolute necessity of sunlight and fresh air can never be met fully in the majority of the crowded districts of our cities.

The wonderful effects of heliotherapy in the treatment of tubercular lesions demonstrates how important sunlight is in the prevention of tuberculosis. The tubercle bacillus, as we well

know, quickly succumbs to sunlight, but remain virulent for a long period where sunlight is excluded.

The importance of sunlight for the health and growth of both animals and plants is well understood, and yet we absolutely disregard this knowledge in housing the masses of the workers in our cities.

A nation that refuses to accept as the minimum standard for the individual all of the nourishing food, sunlight, and air he needs for health and efficiency, will probably not survive many centuries and has no real right to expect to.

With all the protection which medical science can bestow upon the masses and granting that they have sufficient means to procure the necessary requirements, it will avail little if they remain ignorant regarding the essentials of proper living.

It is a fact that the greatest portion of the malnutrition and even the mortality among infants and young children in America, may be traced directly to ignorance on the part of the parent of the simple fundamentals underlying child health and development.

If ignorance is the cause, education must be the remedy. In order to be really effective this education must reach all classes of people and not be directed only at the poor. In questions of public health we must begin by educating properly our physicians and our officials, who, by the way, are frequently woefully ignorant in these matters.

If rules of health are to be enforced it is necessary that those who have this in charge should be convinced of the necessity of their enforcement and understand the reasons why.

The health of the community depends largely upon the health of the individuals who make up that community. Whether an individual observes the fundamental rules of hygiene will depend largely upon his conviction of the necessity for their observance. He must, therefore, be taught health rules so that they will appeal to his reason and his intelligence. This is the very first principal, if real progress in preventive medicine is to be made.

Much can be done in educating the people by proper literature simply and attractively written with an appeal to the imagination. All literature on questions of public health, particularly those regarding child welfare where tradition still ex-

ercises such a powerful influence, should be absolutely uniform.

To this end, a commission of recognized authorities should be named to draft rules to which they and all teachers will subscribe. These should be printed and circulated free of charge by the national department of health in turn to find their way into every health channel in the nation.

Prenatal and child welfare clinics should be organized in every community in the nation. Each clinic should be presided over by one or more skilled physicians and a corps of nurses who have been, or are being trained, in child welfare. At these clinics the infants are examined and the mothers instructed in the technic of breast-feeding and for the older children the proper food is prescribed, as well as other matters pertaining to their health.

The nurse follows these children to their homes and there observes all the conditions affecting the health and well-being of the family. She acts as the liason officer between the doctor and the family and gives helpful advice on a thousand matters and reports to the physician her findings.

The visiting nurse is the necessary link in the heretofore defective chain of Public Health endeavor.

Properly trained visiting nurses and social workers should be attached to all organizations of public health and education, the dispensary, the hospital, and the school.

It is in the protection of children from tuberculosis that the properly trained visiting nurse may be utilized to the greatest advantage. Suspected cases of open tuberculosis will be taken to the clinics for examination. Fathers or mothers or others who have been under treatment at a sanatorium or dispensary will be taught how to live and maintain their health and protect the other members from infection. Children who are below par will be taken temporarily from the home until their general vitality is improved, and, if already infected, until an immunity is obtained.

A knowledge of the nutritional value of the various foods is of the first importance in the prevention of tuberculosis in children.

It is the exception, at least in America, that the family does not have sufficient means to procure enough food of the proper kind to maintain its members in good physical health.

A great percentage of our children in the

schools however, are not up to standard, either in weight or in nutrition. This is largely due to ignorance on the part of the parents concerning the importance of giving them the proper food and in sufficient quantities. The children in our schools who are underweight and otherwise poorly nourished will frequently be found to have had nothing for breakfast except coffee and a small piece of bread.

That a growing child can go from dinner the previous evening until noon the following day with nothing except coffee and bread and be expected to maintain his health and growth and at the same time make any degree of brain effort, is contrary to common sense, as well as to scientific teaching.

The school physician, when aided by properly trained school nurses, by making use of the proper psychology of the children and their parents, can quite transform a badly nourished community into a well nourished one.

A direct demonstration in a school is a good method of stimulating the others to action. Smith, of Boston, in an experiment in one school was able by correcting faulty nutrition by proper food and other hygienic measures, to transfer several boys from the foot of their classes to the head within a period of six months. Who can doubt that the education of every child in the schools in the fundamental principles of hygiene is a most potent means of protecting the children of the present and future generations from tuberculosis?

CONCLUSIONS

The conclusions which may be drawn from the foregoing discussion as to the best means of protecting children from tuberculosis are as follows:

Two forms of the tubercle bacillus, the human and the bovine, cause practically universal infection.

The sources and channels of this infection should be determined and blocked.

1. By the critical examination of all persons for open tuberculosis and particularly for tubercle bacilli in the sputum.

2. By the isolation of active cases in sanatoria for a limited time, for treatment and for education as to their own care and the protection of others from infection.

3. By the testing of all cattle for tuberculosis and the proper pasteurization and care of milk.

At present the evasion of infection is practically impossible; consequently measures must be taken to prevent infected children from developing active tuberculosis—

1. By protecting young children from an avalanche infection.

2. By improving their nutrition through food, rest, sunlight, and fresh air, thereby developing and maintaining their immunity. To this end preventoria should be encouraged.

3. By improving housing conditions. Old unsanitary houses which cannot be remodeled should be destroyed as rapidly as possible and replaced by modern ones.

4. By educating all classes in the essentials of proper living, beginning with physicians and officials by means of literature on all questions of public health which should be absolutely uniform and should be distributed free, the maintenance of prenatal Child welfare, General health or Nutrition Clinics. Visiting nurses, Social workers, and School Physicians; and lastly,

5. By encouragement on the part of the government, medical societies, and individuals, in order to promote the discovery of a means of artificially immunizing young children against infection.

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DISCUSSION

DR. J. G. LAMONT, (Dunseith): I wish to express my appreciation of Dr. Ramsey's very valuable paper. I wish he could talk to us oftener.

The Doctor quoted some very striking statistics from literature in regard to childhood infection. It appears that about 78 per cent of children are infected with tuberculosis before school age. At that time of life when children should be most shielded, when they are under direct control of their parents, they are infected with what may later become a deadly disease, and they go into life with a greater or less handicap, except for this fact, namely, that nature is endeavoring at all times to correct whatever error there may be, and so it is producing an immunity against future infection. If the child does not succumb to the primary infection, resistance will be gradually increased, so that, as time goes on and school life continues, the child is better able than during infancy to withstand a massive dose. It is for this reason that only about one to five cases in every one hundred develop tuberculous activity.

The active case is, after all, the one that is pathological and the one in which the physician, as well

as the sanatorium, is especially interested. The sanatorium is taking care of comparatively few of this class, and the great majority, of necessity, will be treated in the home under the care of the general practitioner.

It is from the badly nourished class that the active group is constantly being recruited. Now, if we can raise the standard of our substandard children, we will have done much. A child may be substandard from the primary infection, and we shall have to fight that all the way through. The substandard, badly nourished child is fairly common, even in North Dakota, where we are on the average stronger than in most countries. When such a child is stripped, the malnutrition is evident in the sloping shoulders and flat chest, and there is probably ptosis or dropping down of the abdominal organs, causing undue prominence below the umbilicus, and there is usually substandard muscular development throughout, and several pounds underweight. When you make a call on some other member of the family, you can usually recognize the substandard child as one whom you have treated previously for some of the infectious diseases at an earlier time. This child has not "come back." By giving timely advice in regard to proper food and hygienic care, the malnutrition, in the course of a little time, may be overcome. Again, malnutrition is commonly the result of improper home routine, for example, a boy comes down to breakfast late, hears the school bell, grabs a doughnut and a cup of coffee, and rushes off to school. He has had no food since the night before. What condition will he be in for the day's school work? These are things that the doctor can remedy by giving proper advice in the home and correcting the home routine. While attending the National Association at Washington recently, I heard a striking statement made by Dr. Livingstone Farrand, who has made an exhaustive study of European conditions. He stated that the war had stamped its stigma on a whole generation of Europeans, that children under ten years of age all bear the stamp of war, namely, malnutrition. Substandardization prevails in all countries of Europe, and we should consider this in connection with immigration.

In the treatment of tuberculosis the optimistic side is uppermost, which is this: A few years ago the death-rate was 200,000 in the United States, and at the present time it is a little over 100,000. Tuberculosis workers are not taking too much credit to themselves for this result, and the figures may be a little out of line, but we fully believe that public health workers and progaganda for better health conditions generally has evidently reduced the death-rate to approximately one-half to what it was a few years ago.

One more statement, and I shall have finished the discussion of this very valuable paper. I have been in the work of treating active cases and feel that that work is not accomplishing all that should be done in the tuberculosis cause. Perhaps we have accomplished something, but I believe if the medical men in this meeting will go home to their com-

munities and give attention in the next two years to three principal lines of endeavor, namely, (1) proper milk inspection, (2) proper treatment and follow-up of contact cases, and (3) special care of malnutrition in children, you will have accomplished more for the tuberculosis cause in North Dakota than that being done by the hundreds of thousands of dollars that are being spent in the hospitals and sanatoria for taking care of cases that are far advanced and moderately advanced. I am not decrying the result of this work, for I am actively engaged in it, and it has its place; but my statement is true just the same, and I shall leave the discussion for your further consideration.

DR. JAMES GRASSICK (Grand Forks): I wish to express my appreciation of Dr. Ramsey's very excellent paper. It surely was a rare treat to come here and listen to it. The only regret is that he was not given more time for a subject of such vital importance.

The fact that has been emphasized by the essayist and by Dr. Lamont in his discussion, that tuberculosis is largely a childhood infection, would seem to indicate that education of the masses as to the importance of preventive measures during the growing period of life would go a long way towards lessening and controlling the disease. Schools might wisely and well give this a place on their schedules.

Before Dr. Ramsey closes the discussion I would like to have his opinion on some matters of importance. Much is said these days of immunity. Some workers of repute are enthusiastic as to the possibilities of vaccines in immunizing against tuberculosis. Among others Calmette, of the Pasteur Institute, and Raw, of Liverpool, have published results of experiments with reputed non-pathogenic live tubercle bacilli that are at least suggestive. I would like to ask Dr. Ramsey what the situation really is in regard to this matter.

DR. RAMSEY (closing): I just wish to emphasize the point that certainly the future of medicine is preventive medicine. It is not nearly as spectacular as the active kind, but much more effective.

In the question of the preventoria and the greater importance of the preventoria to children, rather than the active treatment of tuberculosis, I had a very interesting experience last summer which gave me much pleasure. Before I left France during the war, I had charge of something like 50,000 children, and we organized institutions for their care and all that. One very prominent doctor, who was president of the medical school at Rouen, France, was a very rich man and a very opinionated man. He and another man, who was also very rich, had bought an old chateau with beautiful woods surrounding it and had reconstructed there a preventorium for tuberculosis. It cost them one and a half million francs. He took me out one day to see it, and it was a beautiful place, but it accommodated only about seventy. He asked me what I thought of it. I said, "It is a charming place, but if you wish to do something permanent for your country, since the great majority of cases start in children you should also have a preventorium for children." He did not say a word, but last summer I went back there and saw that he had turned this whole place over as a preventorium that now accommodates about 1,800 children, so it was interesting to see how he had gotten the idea.

Regarding the vaccines: I said in my paper that I was hoping that some day there would be something that would perfectly and permanently immunize children. Up to the present time this has not been done. Much work in this line is being done all over the world, but it is the general opinion that up to the present time no such thing has been accomplished.

MINNEAPOLIS CLINIC WEEK

TENTATIVE PROGRAM

April 17 to 20, 1923

ABBOTT HOSPITAL

April 17-20

Clinics during the week by Dr. A. W. Abbott, Dr. J. G. Cross, Dr. W. A. Fansler, Dr. J. A. Johnson, Dr. F. A. Olson, Dr. E. F. Robb, Dr. N. O. Pearce, Dr. J. P. Schneider, Dr. A. C. Strachauer, and Dr. Rood Taylor.

ASBURY HOSPITAL

Tuesday, April 17th

9:00-11:00 A. M.—Orthopedic Operations and Demonstrations. Dr. Paul W. Giessler.

Wednesday, April 18th

9:00-12:00 A. M.—Surgical Operative Clinic, Dr. Arthur T. Mann.

Thursday, April 19th

9:00-11:00 A. M.—Surgical Operative Clinic, Dr. H. M. Lee.

Tuberculosis Diagnostic and Treatment Clinic, Dr. Alexander Josewich.

Friday, April 20th

9:00-12:00 A. M.—Surgical and Cystoscopic Clinic (Local anesthesia), Dr. S. R. Maxeiner.

DEACONESS HOSPITAL

Wednesday and Friday

8:00 A. M.—Surgical Clinics, Dr. C. M. Roan.

EITEL HOSPITAL**Wednesday, April 18th**

9:00 A. M.—Demonstration of Bone Pathology: (1) Metastatic; (2) Osteomyelitic; (3) Luetic; and Arthritic, Dr. C. A. Donaldson.

Wednesday and Friday

General Surgery, Dr. Geo. G. Eitel,

FAIRVIEW HOSPITAL**Tuesday, April 17th**

8:00-12:00 A. M.—Surgical, Dr. Ivar Sivertsen.

8:00-12:00 A. M.—Medical, Dr. R. C. Logfeil.

Wednesday, April 18th

8:00-12:00 A. M.—Surgical, Dr. N. H. Scheldrup,

9:00-12:00 A. M.—Bone Surgery, Dr. E. W. Alger.

9:00-12:00 A. M.—Medical and Laboratory, Drs. Baker and Hacking.

Thursday, April 19th

8:00-12:00 A. M.—Surgical, Dr. Ivar Siversten.

8:00-12:00 A. M.—Medical, Dr. R. C. Logfeil.

Friday, April 20th

8:00-12:00 A. M.—Surgical, Dr. N. H. Scheldrup.

LYMANHURST HOSPITAL

The Activities of the Lymanhurst School for Tuberculous Children, Dr. F. E. Harrington, Commissioner of Health and Director of Hygiene.

Hirschsprung's Disease: Demonstration of Cases, Dr. C. B. Wright.

Demonstration of Physical Signs in Hilus Gland Enlargement, Dr. E. D. Anderson.

Demonstration of Cardiac Findings in Tuberculous Children, Dr. Thomas Ziskin.

Bronchiectasis in Childhood, Dr. R. G. Allison.

Artificial Sunlight in the Treatment of Tuberculous Children, Dr. J. A. Myers.

Demonstration of the Ring Test in the Diagnosis of Tuberculosis, Dr. W. P. Larson.

Lung Capacity in Relation to Diseases of the Heart and Lungs, Dr. C. A. Stewart.

Demonstration of the Lymanhurst Observation Ward, Dr. O. S. Wangensteen.

Demonstration of the Lymanhurst Outpatient Department, Dr. Hymen Lippman.

MINNEAPOLIS GENERAL HOSPITAL**Tuesday and Thursday**

"B" Medicine

Tuesday and Thursday

"B" Surgery.

Wednesday and Friday

"A" Surgery.

Wednesday and Friday

"A" Obstetrics and Gynecology.

Tuesday and Thursday

"B" Obstetrics and Gynecology.

Tuesday, Wednesday, Thursday, Friday

Pediatrics.

Tuesday and Thursday

Contagious.

Wednesday and Friday

Genito-Urinary.

Thursday

Orthopedics.

Tuesday and Friday

Eye, Ear, Nose and Throat.

Tuesday and Thursday

Nervous and Mental.

Daily

X-ray.

Daily

Laboratory.

Daily

12:00-2:00 P. M.—Dispensary.

Tuesday, April 17th

8:30 A. M.—Gynecology, Dr. A. E. Benjamin.

10:00-12:00 A. M.—Series of Heart Cases Illustrating methods of Diagnosis and Treatment, Dr. Soren P. Rees.

Tuesday and Thursday

Injury to the Cauda Equina, Dr. J. C. Michael.

General Surgery, Dr. Ed. Moren, Dr. Stanley Maxeiner, and Dr. R. R. Cranmer,

Nervous and Mental, Drs. S. W. Morrison, B. W. Jarvis, and Julius Johnson.

Wednesday, April 18th

10:00 A. M.—Artificial Collapse of the Lung in the Treatment of Pulmonary Tuberculosis; Indications, Contra-indications and Technic, and Demonstrations of Cases Including Physical and X-ray Findings, Dr. J. A. Myers.

Thursday, April 19th

8:30 A. M.—Gynecology, Dr. A. E. Benjamin.

10:00-12:00 A. M.—Ward Rounds and Bedside Studies of Selected Cases, Dr. Soren P. Rees.

Friday, April 20th

10:00-12:00 A. M.—Pediatric Clinic, Dr. E. J. Huene-kens.

Clinic on Heart Diseases, Dr. Max Scham.

NORTHWESTERN HOSPITAL**Tuesday, April 17th**

8:30 A. M.—Streptococcic Septicemia, Dr. John M. Lajoie.

9:00 A. M.—Eye, Ear, Nose and Throat Clinic, Dr. Douglas Wood.

9:00 A. M.—General Surgical Clinic, Dr. G. Schwyzer,

1:30 P. M.—Genito-Urinary Clinic, Dr. Oscar Owre.

Wednesday, April 18th

- 8:30 A. M.—Eye, Ear, Nose and Throat clinics, Dr. G. Elmer Strout.
 8:30 A. M.—Bronchial Asthma, Dr. John M. Lajoie.
 9:00 A. M.—General Surgical Clinic, Dr. Martin Nordland.

Thursday, April 19th

- 9:00 A. M.—General Surgical Clinic, Dr. A. T. Mann.
 8:30 A. M.—Eye, Ear, Nose and Throat Clinic, Drs. Horace Newhart and Walter Camp.
 10:30 A. M.—Anemia with Demonstration by Transfusion, Drs. Robert Rizer, Beard and Habein.
 11:00 A. M.—X-Ray Clinic, Dr. R. G. Allison.

Friday, April 20th

- 9:00 A. M.—General Surgical Clinic, Dr. A. E. Benjamin.

PILLSBURY SETTLEMENT HOUSE**Thursday**

- 10:00-12:00 A. M.—Practical Demonstrations of Feeding of Infants under two years of Age, Dr. C. A. Stewart.

ST. BARNABAS HOSPITAL**April 17th and 18th**

- General Surgery, Dr. F. A. Dunsmoor.
 9:00-11:00 A. M.—Surgical Clinic, Dr. Clyde A. Undine,

April 18th and 20th

- General Surgery, Dr. J. O. Taft.

Friday, April 20th

- 8:30 A. M.—Eye, Ear, Nose and Throat Clinic, Dr. G. Elmer Strout

ST. MARY'S HOSPITAL**April 17th and 18th**

- General Surgery, Dr. R. E. Farr.
 General Surgery, Dr. H. B. Sweetser.
 Fracture Dressings, Drs. A. E. Wilcox and Willard White,

Tuesday, April 17th

- General Orthopedic, Dr. E. S. Geist.
 General Surgery, Dr. J. M. Hayes.
 Double Hernia, Dr. A. A. Laurent.

Wednesday, April 18th

- Cystocele, Rectocele, and Hemorrhoids, Dr. A. A. Laurent.

Thursday, April 19th

- Demonstration of Obstetrical Specimens, Dr. J. Warren Bell.
 General Ophthalmology, Dr. K. A. Phelps.
 8:00 A. M.—Carbon-Monoxide Poisoning with Psychosis, Dr. J. C. Michael,
 9:00 A. M.—Esophagoscopy and Bronchoscopy, Dr. Kenneth A. Phelps.

Laboratory

- Wassermann Reaction, M. Shelander.
 Basal Metabolism, Mrs. N. B. McGrath.

SOUTH SIDE SANITARIUM**Wednesday, April 18th**

- 11:00 A. M.—Psychiatric Clinic, Dr. W. A. Jones.

SWEDISH HOSPITAL**Tuesday, April 17th**

- General Surgery, Dr. A. Soderlind.
 General Surgery, Dr. Theo. Tennyson.
 General Surgery, Drs. Linner and Ward.

Wednesday, April 18th

- General Surgery, Dr. Chas. M. Kistler.
 General Surgery, Dr. A. E. Johnson.
 General Surgery, Dr. C. C. Kennedy.
 General Surgery, Dr. H. W. Quist.

Thursday, April 19th

- Radium Therapy, Dr. Charles R. Drake.
 General Surgery, Dr. Ed. Moren.
 Obstetrics and Gynecology, Drs. Adair and Maland
 Genito-Uninary, Dr. Oscar Owre.

Friday, April 20th

- General Surgery, Dr. H. G. Gunderson.
 Neurological Clinic, Dr. Julius Johnson.
 Eye, Ear, Nose and Throat, Dr. Douglas Wood.
 Internal Medicine, Dr. S. P. Rees.

UNIVERSITY HOSPITAL**Tuesday April 17th**

- 10:30-12:30 A. M.—Surgery, Dr. Harry P. Ritchie, Room No. 1.
 10:30-12:00 A. M.—Obstetrics and Gynecology, Dr. J. C. Litzenberg, Wards.

Wednesday, April 18th

- 8:30-10:30 A. M.—Surgery, Dr. A. C. Strachauer, Room No. 1.
 8:30-10:30 A. M.—Urology, Dr. F. R. Wright, Room No. 1.
 9:00-11:00 A. M.—Ophthalmology and Otolaryngology, Dr. W. R. Murray, Room No. 2,
 10:30 A. M.-12:30 P. M.—Gynecology, Dr. J. C. Litzenberg, Room 1.
 11:00-12:30 A. M.—Ophthalmology and Otolaryngology, Dr. H. S. Clark, Room No. 2,

Thursday, April 19th

- 8:30-10:30 A. M.—Urology, Dr. F. R. Wright, Room No. 1.
 10:30 A. M.-12:30 P. M.—Surgery, Dr. A. A. Law, Room No. 1.
 10:30 A. M.-12:30 P. M.—Urology, Dr. G. J. Thomas, Room No. 2.

Friday, April 20th

- 8:30-10:30 A. M.—Gynecology, Dr. W. H. Condit, Room No. 1.
 8:30-10:30 A. M.—Surgery, Dr. G. R. Dunn, Room No. 2.
 10:30 A. M.-12:30 P. M.—Surgery, Dr. A. F. Cameron, Room No. 1.
 10:30 A. M.-12:30 P. M.—Gynecology, Dr. T. W. Weum, Room No. 2.

Joint diagnostic and therapeutic clinics will be conducted by various members of the staff. The nature of these clinics will depend upon the character of the material available, and will be announced daily.

Tuesday, April 17th

- 10:00-11:00 A. M.—Neurology, Dr. J. C. McKinley, Wards.
 11:00-12:00 A. M.—Medicine, Dr. E. T. F. Richards, Lecture Room.

Wednesday, April 18th

- 9:00-10:00 A. M.—Pediatrics, Dr. Rood Taylor, Lecture Room.
 10:00-11:00 A. M.—Medicine (Goiters), Dr. C. A. McKinlay, Lecture Room.
 11:00-12:00 A. M.—Neurology, Dr. A. S. Hamilton, Lecture Room.

Thursday, April 19th

- 10:00-11:00 A. M.—Insulin Treatment of Diabetes, Dr. A. H. Beard, Lecture Room.
 11:30-12:00 A. M.—Hypertension Heart, Dr. Geo. E. Fahr, Lecture Room.

Friday, April 20th

- 10:00-11:00 A. M.—Bedside Conference, Rare Diseases, Dr. Geo. E. Fahr, Wards.
 11:00-12:00 A. M.—Dermatology, Dr. H. G. Irvine, Lecture Room.

Pharmacology

- Demonstrations, April 17th, 9:00 A. M., 321 Millard Hall.
 (1) Subject to be announced, Dr. A. D. Hirschfelder.
 (2) Experiments in ivy poisoning. Dr. E. D. Brown.

Laboratory of Surgical Research

- Demonstrations, April 17th, 9:30 A. M., 221 Millard Hall. Demonstration, on the dog, of technic of blood-transfusion; and exhibit of various research problems, Dr. A. L. Cameron.

Pathology

- Demonstrations, April 18th, 9:30 A. M., 112 Anatomy building. Demonstration of method of making rapid frozen sections, Dr. E. T. Bell.

Anatomy

- Anatomical demonstrations, April 18, 9:30-11:30 A. M., in Anatomy building. Dr. Jackson.

Physiology

- Demonstrations, April 19th, 9:00 A. M., in 315 Millard Hall.
 (a) Nervous control of respiration. Dr. F. H. Scott.
 (b) Benzoate renal function test. Dr. F. B. Kingsbury.
 (c) Iodine in water and food stuffs. Geographical distribution of iodine. Dr. J. F. McClendon.
 (d) Gaseous metabolism without the use of Haldane apparatus. Dr. J. F. McClendon and Mr. Emmett Rowles.
 (e) Some new house humidity apparatus. Dr. E. P. Lyon.
 (f) Respiratory studies in pneumonia. Dr. Esther Greisheimer.

Bacteriology

- Demonstrations, April 20th, 9:00 A. M., 228 Millard Hall. The "Ring Test" in the Diagnosis of Tuberculosis, with demonstration, Dr. W. P. Larson.

UNIVERSITY DISPENSARY**Thursday, April 19th**

- Gynecology, Dr. R. T. LaVake.

Friday, April 20th

- Diseases of the Heart, Dr. Thomas Ziskin.
 Classification and Treatment of Heart Diseases of Childhood, Dr. Max Scham.

BESSE BUILDING**Tuesday, April 17th**

- 1:30 P. M.—Radium and X-ray Clinic, Dr. I. J. Murphy.

Wednesday, April 18th

- 1:30 P. M.—Radium and X-ray Clinic, Dr. I. J. Murphy.

AFTERNOON PROGRAMS**At Radisson Hotel****Tuesday—3:30-5:30 p. m.****Chairman—DR. A. F. WILCOX**

1. Intestinal Obstruction, Wm. R. Cubbins, M.D., Professor of Surgery, Post graduate Medical Schools, Chicago. 20 minutes.
2. Intestinal Obstruction Caused by Large Gall-Stones. Case-report, Dr. R. R. Cranmer 10 minutes.
3. Surgical Aspects of Gall-Bladder Disease, H. M. Richter, Assistant Professor of Surgery, Northwest University, Chicago. 20 minutes.
4. Results in Radical Gastric Surgery: Demonstration of Patients, Dr. A. C. Strachauer. 10 minutes.
5. Demonstration of Patient with Carcinoma of the Stomach and Metastases with Arrest of All Symptoms for a Long Period of Time, Dr. J. M. Hayes. 10 minutes.

Wednesday—3:30-5:30 p. m.**Chairman—DR. G. D. HEAD**

1. Do Penetrating Ulcers of the Stomach Ever Heal under Medical Management? Roentgen Studies, Dr. C. B. Wright. 10 minutes.
2. A Demonstration of the Kottman Reaction. Its Diagnostic Value in Hyperthyroidism, Dr. C. A. McKinlay. 10 minutes.
3. The Practical Value and Present Status of Iletin Therapy in Diabetes Mellitus, Dr. S. Marx White. 20 minutes.

4. Treatment of Pulmonary Abscess by Artificial Pneumothorax-X-ray Studies, Dr. F. L. Jennings and Dr. J. A. Myers. 10 minutes.
5. Speech Defects with Demonstration of the Methods Used at the Minneapolis General Hospital Speech Clinic, Dr. Laura Lane and Mabel E. Rusch. 30 minutes.

Thursday—3:30-5:30 p. m.

Chairman—DR. A. W. ABBOTT

1. (a) Elephantiasis of the Leg Operated on by the Kondoleon Method, Dr. G. Schwyzer.
(b) A Specimen of a Large Sarcoma of the Facia Lata—Lantern Slides, Dr. G. Schwyzer. 10 minutes.
2. Report of Two Cases of Sarcoma of Femur: Lantern and X-ray Films, Dr. A. Mann. 10 minutes.
3. A Case of Myeloma of the Femur: Autopsy Report, Dr. E. C. Robitshek. 10 minutes.
4. A Case of Melanosarcoma of Neck: Specimen and Lantern Slides, Dr. S. Baxter. 10 minutes.
5. The Treatment of Abortion, Dr. F. L. Adair. 15 minutes.
6. Autografts: Lantern Talk, Dr. A. A. Law. 15 minutes.

Friday—3:30-5:30 p. m.

Chairman—DR. HERBERT JONES

1. Final Results of the Radical Mastoid Operation with Demonstration of Cases, Dr. H. Newhart, 10 minutes.
2. Results in the Treatment of Advanced Pyorrhea: Demonstration of Patients, Dr. Thos. Hartzell. 10 minutes.
3. Demonstration of a Group of Children Exhibiting Retarded Growth: Causes Underlying, Dr. Rood Taylor. 10 minutes.
4. Demonstration of Simple Method in the Guinea-pig of Detecting Susceptibility to Diphtheria, Dr. W. S. Reasner, City Board of Health.
(a) The Schick Test in the Child.
(b) The Schick Test in the Guinea-pig: Demonstration.
5. The Important Points in the Diagnosis of Foreign Bodies in the Air Passages, with Case-reports and Lantern Slides, Dr. K. A. Phelps. 15 minutes.

AMERICAN COLLEGE OF SURGEONS

Monday April 16th

The American College of Surgeons cordially invites every physician to attend a conference of the hospital officials of Minnesota, to be held in the

Gold Room of the Radisson Hotel, Minneapolis, at 2:00 P. M., Monday, April 16th.

This hospital conference, which is called in conjunction with the annual meeting of the Minnesota Section of the Clinical Congress of the American College of Surgeons at Minneapolis, April 16th, will have for its object the discussion of various problems as they relate to the program of Hospital Standardization which has been conducted by the American College of Surgeons during the past seven years.

The conference will be under the chairmanship of Dr. Arthur T. Mann, Chairman of the Minnesota Section of the College. Addresses will be made by Dr. Franklin H. Martin, Director General of the College; Dr. Allan Craig, Associate Director of State Activities and Public Health Program; Dr. Malcolm T. MacEachern, Associate Director for Canadian Activities of the Colleges; Rev. C. B. Moulinier, S. J., President of the Catholic Hospital Association; and by others interested in hospital problems. The future standardization program of the College, especially as it relates to the small hospitals, will be explained and a general discussion by hospital superintendents, hospital managers, hospital trustees, and chiefs of hospital staffs will be invited.

An invitation to attend the meeting of the College to the general public, to be held the evening of April 16th, at the Wesley Methodist Church is also extended to those who are in attendance at the hospital conference.

Tuesday Evening

The Hennepin County Medical Society gives its annual banquet at the Donaldson Tea Rooms. All physicians are invited to it. Dr. Murlin, of the Rochester (New York) State University, will give the address of the evening on Progress in the Preparation of Pancreatic Extract in the Treatment of Diabetes.

Daily Program

The daily programs will give detailed information concerning all clinics.

DR. W. A. JONES,

Chairman of the Executive Committee,
Clinical Section of the Hennepin
County Medical Society.

DR. G. ELMER STROUT,
Secretary-Treasurer.

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

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

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APRIL 15, 1923

BOOSTING THE UNIVERSITY

No better advertising scheme could have been devised than has developed in the methods of the self-styled anti-evolutionists. It developed to a point where a meeting of ministers was held, and they demanded that the University drop from its text-books two specifically named books, "The Story of Mankind," by Van Loon, and "Wells' Outline of History." A few other books were named, too, as being particularly obnoxious and likely to corrupt the minds of University students. President Coffman, of the University, had the courage and good sense to send a reply to this ministerial band of objectors in which he gave his reasons for declining to eliminate from the University any of the text-books that treated on scientific subjects; and he declined to instruct his teachers to discourage students from investigating anything of scientific interest. He suggested that there were many types of students in a large University like the University of Minnesota who had various beliefs and some who had no belief at all, and he felt that it was unfair to any of them, all of them in fact, to depart from a University schedule in which an attempt is made to teach things broadly and permit students to investigate for themselves from various angles of scientific, literary, or social research. The method the anti-evolutionists has taken

surely will rebound to the credit of the University in that it will stimulate a number of students who never would have thought of the subjects before to find out what evolution really means. And the controversy that is going on in the newspapers has been so stringently applied that the student will endeavor to formulate his own arguments, either in defense or in the prosecution of the anti-evolutionists. It gives the student something more to think about, and perhaps it will lead him into reading much literature with which he is at present unfamiliar. He will probably study biology, or the science of life, with more interest because he knows that he has at his command professors and instructors who are admittedly typical Christian men and who believe sincerely that the study of biology and its various branches not only conforms with but does not interfere with the belief in a Supreme Being, nor does it in any way detract from religious belief.

One could not ask for better advertising for the State University than to have it attacked by arguments of this character, inane and narrow-minded. This sort of publicity does good to the man who is attending strictly to his business and trying to get an education. It does harm to the attacker, because it shows him to be limited in his mental horizon. The latter can be classified as those suffering from "low visibility." Many a doctor has succeeded in obtaining a remunerative practice by the attacks that have been made upon him; and it is related that a man in Boston, who is not in good standing with his fellow-men but who has an enormous practice, was asked by a practitioner how he succeeded so well in hoodooing people. He led the questioner to a window facing Tremont Street and said, "When you see a crowd of people going down the street, as you see here, about how many of them actually think?" and the man said he thought from 4 to 5 per cent. The well-to-do doctor said, "the other 95 per cent belong to me, and the 5 per cent belong to you." That typifies the spirit of a mass of people who can think only in one line. They are mentally cross-eyed; their field of vision is narrowed down to a single shaft pointing in one direction only and reflected back upon themselves.

Good luck to the anti-evolutionists! May they keep up the attack and thus continue to advertise their failings and credit the University faculty with being a thinking body.

MENTAL HYGIENE CLINIC

There is a good deal of controversy going on in the Twin Cities as to where the new Mental Hygiene Clinic is to have its headquarters.

The Juvenile Crime Commission appointed by Mayor Leach voted, on April sixth, in favor of an intensive survey of juvenile delinquency in Minneapolis. This commission will ask also the Board of Education, the Board of Public Welfare, the County Commissioners, and the Central Council of Social Agencies to join in the invitation to the National Committee, who will study juvenile crime from the social, psychological, physiological, and psychiatric standpoints. The Committee, if it decides to establish a clinic, should have been invited by the Twin Cities, as well as the University. The idea of the Committee, of course, is to cover the largest possible community, and it would hardly be willing to simply cover Minneapolis, hence the invitation deserves the hearty co-operation of not only the Twin Cities but the entire state. And unless there is absolute harmony and no attempt at "psychological peanut politics" there is a probability that Minnesota will not be favored by the Mental Hygiene Committee.

This matter was taken up by THE JOURNAL-LANCET several months ago, and at that time it was found that there were many cities attempting to secure the Clinic. If we lose it now it will be through lack of proper co-ordination among the various co-ordinate bodies. This is an entering wedge for the establishment of a psychopathic hospital, and will undoubtedly create a great deal of interest in the state if the Clinic can be established and kept here for six months or more. It is quite evident from the scope of the proposed Clinic that the physicians of the Twin Cities will be asked to co-operate in every possible way, for no organization of this kind, making the inquiries that it attempts to make, can do so successfully without medical assistance. THE JOURNAL-LANCET is heartily in favor of the establishment of a clinic, not because it may be located in one of the two cities, but because it should be a center which may embrace towns and cities throughout the state. If it is established in Minneapolis or St. Paul the workers must be trained from whatever city has the Committee headquarters. Wherever it is, it will entail the expenditure of time by those workers who are anxious to be instructed in the methods of the Mental Hygiene Committee.

MINNEAPOLIS CLINIC WEEK

The attention of our readers is called to the Tentative Program of Minneapolis Clinic Week printed in this issue of THE JOURNAL-LANCET. It is sent out with the hope that you may be interested in what Minneapolis expects to do for its visitors during the week beginning April sixteenth. You will note in the program that Dr. Murlin, of the Rochester State University, Rochester, N. Y., has changed the title of his paper to "Progress in the Preparations of Pancreatic Extract in the Treatment of Diabetes," but it will embrace all that has been promised in his former title. This paper will be read at the annual banquet of the Hennepin County Medical Society, Tuesday evening April 17, at Donaldson's Tea Rooms.

Incidentally, Minneapolis is full of good shows during Clinic Week. Hotel accommodations are yet to be secured; wire for reservations.

BOOK NOTICES

DISEASES OF WOMEN. By Harry Sturgeon Crossen, M.D., F.A.C.S., Clinical professor of Gynecology, Washington University Medical School, and Gynecologist in chief to the Barnes Hospital and the Washington University Dispensary; Gynecologist to St. Luke's Hospital; Consulting Gynecologist to the Jewish Hospital, St. John's Hospital and the St. Louis Maternity Hospital; Fellow of the American Gynecological Society and of the American Association of Obstetricians, Gynecologists, and Abdominal Surgeons. Fifth edition, revised and enlarged, with one hundred thirty-four engravings, including one color plate. St. Louis: C. V. Mosby Company, 1922.

As usual, in this revision, Dr. Crossen has given the profession a work which is complete to date and well constructed. The important advances in diagnosis and treatment made since the last edition render this revision most timely and necessary. Chief among these advances are the subjects of pneumoperitoneum in diagnosis and x-ray and radium therapy.

In every respect this edition is a most excellent work, helpful alike to the general practitioner and specialist.

—R. T. LA VAKE, 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., Professor of Physical Diagnosis in the Northwestern University Medical School. Volume VIII. Nervous and Men-

tal Diseases. Edited by Peter Bassoe, M.D., Associate Professor of Nervous and Mental Diseases, Rush Medical College. Price, \$1.75. Pp. 240. Chicago: The Year Book Publishers, 1922.

In this book of 249 pages Dr. Peter Bassoe reviews the literature of neuropsychiatry of the year 1921. The subject of epidemic encephalitis is given particular attention; 176 pages are taken up by neurological diseases including the psychoneuroses; and 61 pages are taken up for psychiatry.

The book is arranged according to the plan of previous years. The regularity of the appearance of this series has helped to give the Year Book Publishers' productions an established place in our medical publications. —J. C. MICHAEL, M.D.

NEWS ITEMS

Saturday, May 12, has been designated as National Hospital Day.

Dr. Haldor Sneve, of St. Paul, expects to locate in Redlands, Calif.

Dr. E. T. F. Richards, of St. Paul, has returned from an extended trip to the West Indies.

The City and County Hospital of St. Paul wants a new unit to cost about half a million, and also \$75,000 for radium.

Drs. A. E. Benjamin and Irving C. MacDonald of Minneapolis, are home from a trip to Florida.

Dr. L. E. Claydon, of Red Wing, has returned from a two months' visit to the eastern hospitals. Dr. Claydon heard Coue speak in New York and was not at all impressed by him.

The directors of the Community Fund of Duluth have been asked to build a convalescents' home in that city. Every city needs such a home to relieve the pressure upon its hospitals.

Dr. F. L. Roberts, who has been assisting Dr. O. W. Porter, of Atwater, for several months, has taken up work in the U. S. Public Health Service with headquarters in Minneapolis.

Dr. H. S. Diehl, director of the Students' Health Service at the University of Minnesota, urges all students to be vaccinated, a case of smallpox having been traced to a sorority house.

The Woman's Auxiliary of the Hennepin County Medical Society held its annual bridge party at the Hotel Radisson last week. The proceeds of the entertainment went to Hopewell Hospital.

The State Senate of Minnesota recently passed a resolution asking Congress to establish a neuropsychiatric hospital at St. Cloud for war vet-

erans, in connection with the general hospital for veterans in that city.

At the monthly meeting of the Huron (S. D.) District Medical Society, Dr. R. A. Buchanan, of Wessington, presented two unusual cases of pneumonia; and Dr. J. S. Tschetter, of Huron, presented unusual cases of gonorrhoea.

The legislature of Iowa has made large appropriations for medical purposes in that state. The Medical School of the University of Iowa, at Iowa City, will have sufficient funds to erect a \$500,000 building and to carry on the school properly.

The St. Louis County Medical Society, which is indeed a wide-awake body, has subscribed for twenty-five copies of *Hygeia* to be placed in the public libraries of that county. *Hygeia* is the new "journal of individual and community health," published by the A. M. A.

Governor Nestos, of North Dakota, has appointed as members of the North Dakota State Health Council, recently established by the legislature, Dr. Fannie Dunn Quain, of Bismarck; Dr. Arne Oftedal, of Fargo; and Dr. (dentist) F. L. Householder, of Minot.

A number of Twin City and other Northwestern physicians will make the tour of eastern hospitals planned by the Tri-State Medical Society. A special train leaves Freeport, Ill., to-day (April 15) to visit hospitals in Chicago, Cleveland, Boston, New York, Cambridge (Harvard), and New Haven (Yale).

Dr. S. A. Slater, Superintendent of the Southern Minnesota Sanatorium, will address the Consulting Staff of the Lymanhurst School of Tuberculosis at its meeting in Minneapolis on April 24. His subject is "Certain Problems in the Diagnosis of Pulmonary Tuberculosis." The meeting is open to all physicians.

Dr. J. W. Bell, of Minneapolis who spent part of the winter in Texas and Mexico, has returned, and for the present he will maintain an office at his home, 4889 Lake Harriet Boulevard. Appointments can be made by telephone for calls or consultations, and he will be ready to receive a few patients for the hospitals which he may select.

The so-called nurses' bill before the Minnesota Legislature, introduced by Senator Sherman Child, of Minneapolis, will probably become a law. It provides that examinations for licensing nurses may be held in other parts of the state

than St. Paul, and it annuls the requirement of the old law that there shall be one physician on the examining board.

According to reports going the rounds of the Minnesota press, about 1,000 doctors in Minneapolis and perhaps 2,000 in St. Paul are to be persecuted by the Federal Government for prescribing too much moonshine to their clients. What a queer lot these physicians are! N. B.—Late official figures show that only three physicians have been referred to the Government attorney.

As an offset to the many absurd stories that Minnesota, especially Twin City, physicians are prescribing undue amounts of liquor, Dr. Mary S. Whetstone, of Minneapolis, State Supt. of Medical Temperance in the W. C. T. U., reports, as the result of a survey of the hospitals and homes for children and adults in the state, that the amount of liquor prescribed for patients is well-nigh infinitesimal.

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

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TRANSACTIONS OF THE MID-WINTER MEETING OF THE SIOUX VALLEY MEDICAL ASSOCIATION

Held at the Martin Hotel, Sioux City, Iowa

January 25 and 26, 1923

FIRST SESSION—THURSDAY, JANUARY 25, 1923

The first session of the mid-winter meeting of the Sioux Valley Medical Association was called to order at ten o'clock, Thursday, January 25, 1923, by Dr. Victor Brown, President of the Woodbury County Medical Society, who gave the address of welcome, as follows:

Mr. President and Secretary and Gentlemen: It seems unnecessary to welcome a body of men and women who have been coming here to meet with us for many years. It is over a quarter of a century since the medical men of the surrounding territory first met with us, and have since been discussing affairs of profit and pleasure. We have had many good papers in times past, many sharp discussions, and many happy times around the banquet board. As I look at this program to-day and see the men that are to speak to us and what they are to talk about, it seems to me that we might surely say "day by day, in every way, we are getting better and better." (Laughter.) And so, in behalf of the Woodbury County Medical Society, we welcome you.

Permit me to introduce the President, Dr. C. C. GROSS. (Applause.)

PRESIDENT GROSS: Gentlemen: Our meeting, this semi-annual meeting, I think, probably presents the most attractive program that we have had for many years. Our Secretary, Dr. Waters, has been unsparing in his efforts to give

us a program that will be worth while, and I know that we shall find it profitable.

We will now take up the business of the meeting, and we call for the reading of the minutes of the last meeting.

(Secretary Waters reads the minutes.)

PRESIDENT GROSS: Gentlemen, you have heard the reading of the minutes. Are there any corrections? If not, they will stand approved.

The report of the Board of Censors will be postponed until the afternoon session.

SECRETARY WATERS: There are a few announcements I desire to make. In the first place, we have a wonderful program, and we believe everybody will enjoy it. We desire to have you here on time, and we shall try to start on time, after this. There are so many registering that we were compelled to be a little late. Hereafter we shall start, or try to, promptly on time.

Now, then, there is one slight change in the program as you have it. I have a wire from Dr. Martin Fischer, of Cincinnati, stating that his mother was dying night before last, and it was impossible for him to make the train, and expressing great regret at not being able to be here. So in our Friday morning program of clinical demonstrations, being rather heavily loaded, anyway, we are going to switch Dr. Evans in his clinical demonstration work, over to Dr. Fischer's place on the program this afternoon. Dr. Fischer will not be here, and Dr. Evans will take his place with a clinical demon-

stration, here in this room.

I would like to say in addition, there will be a cracking good banquet to-night. I realize there are a lot of good shows in town to-night, but you may see the better part of the shows and the better part of a good time if you come to the banquet. I advise you not to miss the banquet and try to take in the shows. The banquet will start soon after 6:30 in this room. Tickets are on sale in the hall.

In regard to the registration desk outside; I realize a great many of you may not be members of the Sioux Valley Society. Don't hesitate to go and sign up. What we are going to do is to sign up every one who wants to come—incidentally get his money. We will present your names, those who have not been voted on, in a group later on in the day or tomorrow morning. So go and sign up, whether you are previous members or not.

I would like to call attention to the return fare certificates. Turn in your railroad certificates. The only way we can get our return fares at half price is for every one to turn in a certificate. I do not think there will be any trouble about getting return fare. We have to have 250 certificates in the hands of the Secretary, and countersigned by the railroad officials, before they are good. I believe we are ready to proceed with the scientific program.

PRESIDENT GROSS: Is there any new business before we proceed with the program? If not, we will proceed to take up our program.

We will now listen to a paper by Dr. J. S. Evans, Professor of Clinical Medicine, University of Wisconsin School of Medicine.

Dr. Evans then presented a paper on "Methods of Precision in Medicine," and the paper was discussed by Drs. Koch, Gross, Suker, and the essayist. Dr. Evans' paper was followed by a paper by Dr. F. G. Suker, of Chicago, on "Fundus Complications Accompanying the Various Anemias and Cardiovascular Diseases." Dr. Suker's paper was discussed by Drs. Grosvenor, Parsons, and Stanley.

Dr. Dean DeW. Lewis, Associate Professor of Surgery, of Rush Medical College, presented a paper on "Fractures and Their Complications." This paper was discussed by Drs. O'Donoghue, Warren, Aker, Yancey, and, in closing, by the essayist.

SECOND SESSION—JANUARY 25, 1923

Dr. Lewis Bremerman, of Chicago, followed with a paper on "The Senile Prostate," and

the paper was discussed by Drs. Brock, Jonger, Maxwell, Sterns, Gross, and, in closing, by the essayist.

Dr. Wm. Engelbach, Professor of Medicine, St. Louis University School of Medicine, presented a paper on "The Results of Treatment of the Disorders of Internal Secretions." This paper was not discussed because of a lack of time.

Dr. J. S. Evans followed with "Demonstrations Relating to the Early Diagnosis of Cardiac Diseases."

THIRD SESSION—FRIDAY JANUARY 26, 1923

CLINICAL DEMONSTRATIONS

Dr. M. A. Blankenhorn, of the Department of Medicine, Western Reserve University, gave a "Demonstration of the Diaphragm Signs in the Diagnosis of Diseases of the Heart and Lungs." The demonstration was followed by a number of questions and answers to the same by the essayists.

Dr. A. J. Ochsner, of Chicago, followed with a demonstration of "Clinical Methods," which was interspersed with many questions as case after case was presented.

Dr. Clifford G. Grulee, Assistant Professor of Medicine, Rush Medical College, presented "Demonstrations of Pediatric Cases." Discussion was dispensed with on account of the lateness of the hour.

FOURTH SESSION—JANUARY 26, 1923

The Friday afternoon session was called to order at two o'clock, January 26, 1923, by President Gross.

PRESIDENT GROSS: Gentlemen, please come to order.

(Secretary Waters announces in regard to Association for the Study of Internal Secretions and Dr. Engelbach's interest in getting applications.)

SECRETARY WATERS: I would like to have a motion passed that will permit us to draw on the Treasury for what it has in it at the close of the meeting to-night, to help pay the expenses.

DR. DAREY: I make such a motion.

Seconded, and carried.

SECRETARY WATERS: We have from the Board of Censors here the following new members to be voted upon. I do not want to tire you by reading them. If you are willing to take a chance on the Board of Censors having good judgment and pass them I would like to have you do that. If you insist I will read them.

DR. BELLAIRE: I make a motion that they be accepted to membership.

Seconded and carried. There were 70 applications for membership.

DR. WATERS: The next item of business is the meeting place for the summer meeting.

A MEMBER: I thought it was understood the mid-summer meeting is to be held in Sioux Falls.

DR. NESSA: I make that motion.

DR. ZIMMERMAN: I wish to second that motion, being from Sioux Falls.

Carried.

DR. WATERS: Mr. President: I should like to make a motion that the guests who have been with us the last two days be extended honorary membership in the Society.

Seconded and carried.

PRESIDENT GROSS: We welcome the gentlemen to membership.

We will now proceed with the program of the afternoon. The first paper on the program is that to be given by Dr. Henry Schmitz, Professor of Gynecology, Loyola University School of Medicine, upon "The Treatment of Cancer of the Uterus, with Special Reference to the Indications for Surgical and Radiological Treatment."

Dr. Schmitz' paper was discussed by Dr. Bellaire.

Dr. Clifford G. Grulee then presented a paper, the subject of which was "The Treatment of Constipation in Infants and Young Children," which was discussed by Drs. Jonger, Perkins, Robbins, Melgaard, Gross, and the essayist.

Dr. A. J. Ochsner presented the closing paper of the session. His subject was "Acute Osteomyelitis," and the paper was discussed by Drs. Townsend, Warren, Peacock, Deals, Robbins, Aker, and, in closing, by the essayist.

PRESIDENT GROSS: Just a moment, please, before we adjourn. Last night we had the pleasure

of listening to a very entertaining program. Perhaps most of us did not realize that we were the guests of the Woodbury County Medical Society. But we were. And I think that it would be in order, and the Chair will entertain a motion to that effect, that a vote of thanks be given to the Woodbury Medical Society, and also to the distinguished essayists who have come so far to give us this valuable information, the accumulation of their years of experience. Gentlemen, I will be very glad indeed if I have a motion.

SECRETARY WATERS: Can I have the floor just a minute? First I want to correct Dr. Gross's statement to some extent. You, I think, all paid for your food last night. I assure you the Woodbury County Medical Society, and the Sioux City Chamber of Commerce, were glad to entertain you, and they have tried to make the entertainment the last two days worth while. They deserve a good bit of credit, but you all paid for your going last night, so far as money went.

DR. WARREN: Mr. President: Inasmuch as we have had a large number, in fact, our entire program has been furnished by men from a distance, without giving the names which the Secretary can fill in, I move you that a vote of thanks from the Sioux Valley Medical Association be extended to each member, each gentleman who has contributed to the program of this Association, and the same is placed on record and the Secretary be required to furnish a copy of it to each individual.

Seconded by Dr. Jonger, and carried.

DR. ZIMMERMAN: I move we extend a vote of thanks to Sioux City for the good time we have had.

Seconded and carried.

Adjourned at 4:45 P. M.

R. M. WATERS, M.D., Secretary.

CLINICAL METHODS*

By A. J. OCHSNER, M.D.

CHICAGO, ILLINOIS

INDURATED ULCER OF THE PYLORIC END OF
THE STOMACH

DR. OCHSNER: Mr. Chairman and Gentlemen: (Reads history of patient.) In a patient 63

years of age, who has these symptoms one invariably finds an obstruction due to an enlarged prostate. That part we will not discuss because the reason of his appearing here is not to determine the condition of the prostate, which is

*Presented before the Sioux Valley Medical Association at Sioux City, Iowa, January 25 and 26, 1923.

self-evident, but to determine the other condition.

The first part of the history of this case together with the age would naturally suggest malignancy. The test-meal practically eliminates that diagnosis, although at his age one must constantly bear the possibility of malignancy in mind. The pain is located above the umbilicus, and it extends a little further to the right than to the left of the midline. The fact that there is no difference in the pain that he suffers, in connection with the quality of the food that he takes is a matter that we must consider. There is practically no pain to the right of the umbilicus; consequently we have a right to eliminate the duodenum, because in case of ulcer of the duodenum you would find pain upon pressure at this point. The two considerations outside of malignancy, then, must be ulcer of the pyloric end of the stomach, with obstruction, and spasm of the pylorus and gall-bladder trouble. There is a little pain, at one point just below the end of the eleventh rib, so that we can not positively exclude the gall-bladder. But the deformity is directly in the line of the pylorus; consequently our diagnosis would be an indurated ulcer of the pylorus, sufficient to cause obstruction and spasm of the pylorus. This *x*-ray picture shows the pyloric end of the stomach and the beginning of the duodenum. At this point you have the same deformity that you had in the other picture, so that in this case I would make a diagnosis of an indurated ulcer of the pyloric end of the stomach, for which the treatment would necessarily be a resection.

At your next meeting I hope that the case will be reported and that you will see whether or not this diagnosis is correct. The diagnosis is based, first, upon the history, the fact that this condition has existed for a year and a half. Had there been malignancy at that time the patient could not have survived to this time and be in the present condition. Had it become malignant within the last six months our chemical findings with the test-meal would not be what we have found them now, and the fact that there is no difference in the character of the pain with the difference of the food that he takes would indicate that the portion of the stomach involved is not a portion that is very freely supplied with nerves; it has not many sensitive nerves exposed, because otherwise there would be a difference.

He tells me he can eat anything without having an increase of pain. There is this other possibility, however. You could have all of these conditions present with a pyloric spasm, caused by gall-stones, with adhesions. As I said before, the treatment in this case should consist in a resection of the pylorus.

I shall be very glad to answer any questions concerning the diagnosis. Of course we have four cases to consider, and so it will not be possible to spend very much more time on each one, but I am quite satisfied that the operation will prove the correctness of the diagnosis, and that the patient will recover fully from this, and then after some months his prostate gland will need attention, and he will recover from that also, so that he can look forward to a very long and comfortable life.

Question: Would you not expect some bleeding, Doctor?

DR. OCHSNER: Yes, there would be a little bleeding, it is quite possible to miss this unless the examination of the feces is often repeated. In more than half the cases of ulcer of the stomach we find no blood in the feces, so that the negative finding of blood in the feces means nothing.

Question: Has he ever had an ulcer history?

DR. OCHSNER: This is all the ulcer history he has. He never was sick before at all, which, on the other hand, would be a part of the history which would make you suspicious of malignancy. A person that has reached the age of 61 years without any gastric disturbances is less likely to have an ulcer, more likely to have gall-stones, and most likely to have malignancy. That is a part of the history that we will have to bear in mind.

Question: Could not this be a post-pyloric rather than a pre-pyloric ulcer? In other words, a duodenal ulcer?

DR. OCHSNER: That is one of the possibilities, although in that case the point of tenderness upon pressure is to the right of the umbilicus. We practically never have a pain to the left of the umbilicus and way up above the umbilicus in that case. That would also correspond with the chemical findings from the test meal. The obstruction in that case would be due to a spasm of the pylorus.

Question: Would not the *x*-ray findings indicate that?

DR. OCHSNER: The *x*-ray picture looks that way.

Question: What is your position in regard to the chemical findings in carcinoma, if it is carcinoma? Would you expect invariably to find an absence of hydrochloric acid?

DR. OCHSNER: When the test-meal findings show the presence of Oppler-Boas bacilli, with the presence of lactic and the absence of free hydrochloric acid, you can in 95 per cent of the cases make a positive diagnosis of carcinoma; but in about 5 per cent the operative findings do not confirm the diagnosis absolutely. You can however, find some free hydrochloric acid and you can find an absence of lactic acid and still have carcinoma. That condition you would be likely to find in cases in which the patient has not been kept on a milk diet. Most cases of carcinoma have been kept on a milk diet for a considerable period of time before they come for examination.

GALL-STONES

(Reads history of next patient.)

DR. OCHSNER: Some years ago Sir. Berkley Moynihan made the statement that he could make a positive diagnosis of duodenal ulcer from a good history. Many of you have undoubtedly been present in his clinics and have seen him confirm his diagnosis, practically invariably. This is a very good history. You have all the elements that you need for making at least one diagnosis. The following points of the history are important. He suffers no distress if he does not eat. He has distress two hours after eating, which can be stopped by taking milk. Distress is stopped by the next meal. There is pain upon pressure over a point half way between the umbilicus and the end of the ninth rib. There is a history of typhoid fever. These facts suggest a diagnosis of gall-stones. This man has gall-stones.

The patient gives the digestive history of a patient suffering from gall-stones. There is pain upon pressure opposite the tenth intercostal space to the right of the spine and pain over the gall-bladder. The fact that his pain begins two hours after eating and stops upon taking food, and the fact that there is pain upon pressure to the right of the umbilicus, not high enough for the gall-bladder, would indicate that there is trouble in his duodenum. That may be entirely due to the irritation in the gall-bladder and when you oper-

ate to remove his gall-stones you may or may not find an ulcer in the duodenum.

The reason why his pain begins two hours after he takes his food, is that then the food begins to pass over the papillæ in the duodenum, and as it passes over the papillæ the gall-bladder contracts. As the gall-bladder contracts it comes down upon his gall-stones and produces distress. The milk he takes will pass through without causing irritation, which will act as a neutral fluid as it goes past the papillæ, which will cause no contraction of the gall-bladder and consequently no pain.

In this history the test-meal shows a very high acidity. The high acidity is commonly present in these cases of stones in the gall-bladder. His gall-stones are too large to get into the cystic duct. They stay in the gall-bladder. He never has real gall-stone colics. The high acidity that he has may be the cause of the irritation in his duodenum; and that may be the cause of the tenderness that exists upon pressure over his duodenum.

In this case the proper treatment will consist in removing his gall-stones. We always inspect the appendix because during his typhoid fever he may also have damaged his appendix, and very often some chronic condition there affects the duodenum. Having had his gall-stones for more than twenty years the lining of the gall-bladder is probably damaged to such an extent that it would not be wise to preserve the gall-bladder, so that a colecystectomy would be made and proper treatment be instituted in case the infection in the duodenum is sufficient to have produced an ulcer. If this is not the case, his gastric and duodenal disturbance will disappear with the excision of the gall-bladder and appendix.

DR. BELLAIRE: These diagrams show a shadow in the region of the gall-bladder in which a diagnosis was made of a thickened chronic infected gall-bladder. You see the edge of that over here. These others confirm that. Here is the same shadow coming down here, over there. Here is another shadow down here, very plain. It does not show any shadows of gall-stones, however.

DR. OCHSNER: Some years ago we had one of our Chicago röntgenologists who had found some gall-stones in his röntgenograms, and he was quite cocky about it and thought that we ought to have our patients have an *x*-ray ex-

amination made before undertaking gall-stone operations and as he was a friend of ours we thought we would make him happy and send him some of our cases. One morning he was an hour late in sending his plate and his report, in which he stated very positively that there was not a sign of gall-stones present. I had just removed sixty-eight large gall-stones from that case, so I sent them back to him and told him we both agreed perfectly.

Question: What were the points in the history of this last case that would rule out a duodenal or peptic ulcer?

DR. OCHSNER: The duodenal ulcer is not ruled out. The time of pain in this case would indicate that there is duodenal irritation, but whether it is sufficient to produce ulcer or not I would not be able to tell. There are undoubtedly adhesions between the gall-bladder and the duodenum, which may be sufficient to cause that late pain. That is hunger pain, so to speak. So that here we are practically certain that there is irritation of the duodenum, either due to simply a congestion or to adhesions to the gall-bladder or possibly to an ulcer. So that we would not rule out duodenal ulcer. In fact I am quite certain you will find trouble there of one sort or another. I hope very much that at the next meeting the further findings will be reported, because that is one of the nice things about surgical diagnosis. For thirty-five years I have invariably written down the diagnosis in every case that I have operated on, some 40,000 of them, and have sent the written diagnosis with the patient to the hospital, and have had my assistant examine the patient independently, and have had him write down his diagnosis so that we had to stand by our diagnoses or fall. I think that is one of the sporting attractions of surgical diagnosis: if your judgment is bad you lose. If you use bad judgment in considering your symptoms and your physical findings you ought to hear about it. I shall be very glad to hear about these cases later.

Question: If you rule out duodenal ulcer what are the strong points in the gall-stone diagnosis?

DR. OCHSNER: The strong points in the gall-stone diagnosis are these: the gastric disturbance, the hyperacidity, the pain over the gall-bladder, and the pain in the tenth intercostal space. These are the cardinal points upon which you make the diagnosis, and the absence of cachexia

after two years of illness and the history of typhoid fever.

GALL-STONE IN THE COMMON DUCT

(Reads history of next patient.)

This is a very excellent history. It contains the points that are important. And I should like to say that the matter of history-writing is one of the things that should be dwelt upon above everything else in clinical medicine and clinical surgery, and that every surgeon should be thoroughly trained in the art of history-writing in a logical way, the way this history has been written, because ultimately the diagnosis must depend upon the history and upon the physical examination. All the other elements must be used to confirm what you find from your history and from your physical findings; and whenever the other findings do not confirm these findings, then you must forget them until after you have treated the patient, because, if you pay attention, we will say, to the metabolism test when it does not confirm your physical findings and your history, you will be muddled to a terrible extent. If you take the leukocyte count, for instance, when it does not correspond with your history and your physical findings, you will make an endless number of very disastrous blunders so far as your patient is concerned. Whenever these findings correspond with your history and your physical findings, then you can use them to the advantage of the patient. At least they will be harmless.

One of the fundamental principles in surgery and in medicine in general is that all the useless things you do must be harmless, in order that the patient does not suffer as a result of them. So that whenever you are muddled by any of the useless tests that you make that do not confirm your physical findings and your history, then either you have not your physical findings carefully carried out or your history lacks something, so that in these cases I would say that, after you have your history and your physical findings, those should be made entirely independently, your judgment should not be muddled by any tests before you have finished your physical examination and your historical tests. These you must have first. Then you must write down what your diagnosis is, and then afterwards you can do all the useless things you like. It does not make a bit of difference what else you do, as long as you do not permit those things to

influence your judgment that you have made at the conclusion of these two things, and then your patient will not suffer.

Here we have a perfectly clear history with undoubtedly a correct diagnosis and undoubtedly the correct treatment. The patient's history gives a sickness of three weeks. It states that he was intensely ill for three weeks. Ordinarily, if that sickness had been malarial fever or gastric fever or typhoid fever you would count it as an important element in making your diagnosis. Having been rheumatism you might overlook it. But it must not be overlooked in this case.

Next, you have characteristic pain. Your pain is in the back and in the stomach. You have a small amount of jaundice with the first attack. Then upon the opening of the abdomen, the distended gall-bladder was relieved by drainage.

With those symptoms you would invariably make a diagnosis of gall-stone in the common duct. It was reasonable to suppose that the stone in the interval had passed through into the duodenum, so that the irritation that was left in the gall-bladder was relieved by drainage. Evidently the tissues of the gall-bladder were in a condition in which it seemed likely that the entire irritation would disappear upon drainage of the gall-bladder. However, within seven weeks the second attack took place. The patient suffered from the same character of pain that he had before. Again, he had jaundice and a distended painful gall-bladder. Upon making the second incision it was found that the gall-bladder was distended with pus. At that operation it was not possible to determine the location of the gall-stone, which undoubtedly was present. The diagnosis of stone in the common duct was quite correct. It was, however, necessary to consider the severe infection of the gall-bladder. It would have been an easy matter to start up a peritonitis by attempting the removal of the stone at that time, and then we would not have the patient here now, so that the course was taken which was safe for the patient.

Whenever you have an infected gall-bladder you need the highest quality of surgical judgment. You can drain this gall-bladder and the patient will recover; then you can remove that gall-bladder after the infection has subsided, and the patient will recover.

There are conditions with an infected gall-bladder in which you can safely remove the gall-bladder. There are other conditions in

which you run a large risk in removing the gall-bladder. In the first place it is proper to remove the gall-bladder. In the second place, it is proper to drain it. That is the place where you have to have good surgical judgment, and where you have to use that judgment without regard of further trouble. You know that if you leave that gall-bladder you are going to have trouble afterwards, but you have a kind of trouble that you can get through with without losing your patient. You take out the gall-bladder, and you will have no trouble, because the patient will get well or he will die. So that is where you have to use the finest kind of surgical judgment, and no doubt draining this gall-bladder the second time showed good judgment.

I would say that in draining a gall-bladder like this, it is never wise to use a rubber drainage-tube. Dr. Stanton, my former assistant, followed out several hundred of our cases and found that the cases in which we packed the gall-bladder with iodoform gauze, and took out the gauze in a week or ten days—that those cases had no further trouble. More than half of the cases in which we put in rubber tubes, had trouble afterwards, because it seems that the gall-bladder grasping the rubber tube caused pressure necrosis of the mucous lining, later on causing trouble. Whenever we drain a gall-bladder we always drain by tamponing with iodoform gauze and permitting the gauze to make gentle pressure against the wall of the gall-bladder. In this case you will naturally have further trouble because there is an obstruction of the cystic duct. There was a free flow of bile after the second operation, which shows that the cystic duct was not completely obstructed. The pain since the second drainage of the gall-bladder was similar to the pain before the first operation; consequently the stone is still lodged in the common duct, but the conditions are now such that the stone, undoubtedly, can be removed with safety to the patient, because now there is not an inflammatory condition present. That is the point that is of importance in the treatment of this case. This case should be operated on before he has another infection of the gall-bladder. The operation that should be done in this case consists in a removal of the gall-bladder in the interval between the last operation and the next severe attack. If you can prevent the occurrence of another severe attack by keeping this patient absolutely on liquid food, you can thus

postpone the operation until his condition is such that you feel safe in removing the gall-bladder, in opening the common duct, in going down with a very blunt curette, a perfectly smooth gall-stone curette, as we call it, locating the gall-stone and bringing it up or pushing it down into the duodenum. Pushing it down into the duodenum is not very safe. It is safer, if we find it opposite the ampulla, to open the duodenum, make a little incision, get it out from that side in the interval. That can be done, and the interval can be prolonged at your choice by keeping the patient on liquid diet and giving him liquid paraffin or mineral oil to take, so there is no infection likely to occur. Then the treatment will consist in removing that stone, then keeping him on a liquid diet until all the tissues have recovered thoroughly.

There is a matter that I should mention here which I think you will find of very great importance in practice, if you are not already familiar with it. When a patient is suffering from gall-stone colic you know how difficult it is to stop the pain by the use of morphine. The reason why it is difficult to stop the pain with morphine is that the stomach contains some mucus, which, when it passes the papillæ, causes a contraction of the gall-bladder, and every time that occurs more mucus gathers in the stomach and another quantity of mucus goes past the papillæ, and you have another contraction, so that you have one contraction after another each one producing a gall-stone colic. It is a very simple matter to get rid of the mucus. You spray the patient's pharynx with 4 per cent cocaine, get him to swallow the saliva with the cocaine in it, which will cocainize the whole lining of his esophagus and stomach. Take water at 110° F., add phosphate of soda, which will dissolve the mucus, wash out the stomach, and leave it clear of mucus. A case of gall-stone colic which will not be relieved by the hypodermic use of from one-half to three grains of morphine will go to sleep almost at once and the gall-bladder will relax, and the muscles of the common duct will relax, and the patient will be free from pain. You put him on rectal feeding for several days, so that the tissues of the gall-bladder and duct have a chance to remain in a relaxed condition.

If more mucus accumulates in the stomach, wash out the stomach again. Then you can operate at leisure. It is a very bad practice to

operate during the acute attack of gall-stone colic, and if you follow this plan you never will have to operate in cases of gall-stones during the acute attack of gall-stone colic. I think this man is to be congratulated upon the fine condition in which he is and upon the fact that he will continue to be in this condition if he follows the idea of living on liquids until he gets ready to have his gall-stone removed. He will get well without any trouble following an operation performed in the interval.

Are there any questions?

Question: Did the rheumatism have anything to do with it?

DR. OCHSNER: Any infection, it does not make any difference what it is, is liable to be carried into the gall-bladder, and after the bile becomes infected some little portion of epithelium will start the formation of gall-stones.

I shall be glad to answer any further questions because this is a tremendously interesting case.

Question: What per cent of phosphate of soda do you use?

DR. OCHSNER: We put a heaping tablespoon into a gallon of hot water, take a bath thermometer and have a temperature of 110° F. That relaxes the stomach and dissolves the mucus. You wash it out until you can not feel any more mucus in the washings.

Question: Would that severe pain in the back have any indications of an ulcer in the stomach?

DR. OCHSNER: Very often it has, but in this case it would not have. There has been no tenderness at any time over the stomach. You can have an ulcer in the posterior wall of the stomach and have pain in that case almost exactly in the same place, but then you can feel it through the stomach wall.

Question: Would orthoform lozenges relieve that?

DR. OCHSNER: Yes, they will relieve that.

A CARCINOMATOUS INFECTION

(Reads history of next patient.)

I think you can all see the condition here of the umbilicus. The patient is forty-three years old. You will see here in the x-ray plate a practically complete obstruction of the pylorus. The history, the fact of an induration in the umbilicus, and the x-ray picture will make a diagnosis for every one of you, I am sure, because that induration in the umbilicus can come only from one cause, namely, the extension of carcinomat-

ous infection from the stomach along the suspensory ligament to the umbilicus. There is, undoubtedly, already a secondary carcinomatous involvement of the liver. The prognosis is absolutely bad. This man would be enormously benefited by deep x-ray therapy. He would improve enormously by very intensive deep x-ray therapy, but the improvement would be only temporary. There is no possibility of permanent improvement; with this history, with the enlargement of the liver, with the induration over this entire area, with the involvement of the umbilicus, with the x-ray picture.

Question: Why a carcinomatous infection?

DR. OCHSNER: Because in my opinion carcinoma is an infection, and here you have one of the beautiful examples of the infection. You have the infection traveling along the suspensory ligament, precisely as other infections travel along the tendons. Dr. John Nuzum has worked for five years at this infection theory and has located a micrococcus which will live in anaërobic and under aërobic conditions, and which he finds regularly in human carcinoma of the mouse, and with which he has produced carcinoma under certain definite conditions of inoculation, and he has now an adult dog that is dying from metastatic carcinoma, due to the infection with this micrococcus. Of course, the theory has not been accepted. Every theory that is any particular good has to be opposed first by organized medicine. We shall have the professors and organized medicine condemn it as a heresy, as they have always. Four hundred years ago Paracelsus, in Farara Italy, while a student, pointed out to the faculty of the University of Farara that the plague which was raging in that city then could not have occurred judging from the physical appearance of the lesions, and from the course the epidemic was taking except by the transmission of some living substance from an infected person to the healthy who then acquired the disease. The faculty of Farara escaped into the mountains, and Paracelsus instituted methods to prevent transmission from one to the other, and in a few months the epidemic of plague was ended, and the professors from the University, who had escaped up into the mountains, came back and said that the Lord had not intended it to be a bad epidemic, that there was nothing to Paracelsus's theory at all, that the Lord had stopped it. That is what we do nowadays about Nuzum's micrococcus, but the micrococcus does

the business, and this is a very instructive case in which you can see just how he does it.

TUBERCULOUS KIDNEY

In this x-ray film you see the mottled pear-shaped appearance at this point. You would almost certainly consider this a gall-bladder full of gall-stones, containing a good deal of lime. You see its form and location. But it is not a gall-bladder full of gall-stones. It is a pelvis of the right kidney full of stones. I hope that I may have the report of this case later on, after this has been demonstrated.

Why do I say that this is the pelvis of the kidney full of some material? It may be caseous material that contains lime, or it may be renal calculi, a lot of small renal calculi,—these little mottled things, bunched together. The reason why I think that this is in the kidney is again from the history. You have a typical history of tuberculous pyelitis, bladder disturbance, which subsides under irrigation. She had about fifty irrigations, and the bladder disturbance subsided. The cystoscope findings show an irritation of the mucous membrane of the bladder and show a dilatation of the right ureter, just exactly what you would expect to find with a chronic irritation of the pelvis of the kidney, just exactly what you would expect to find with a tuberculous kidney. In that case, however, by centrifuging the urine you would expect to find tubercle bacilli.

There is one possible condition which might be present in this case, outside of the condition that I have just mentioned; namely, there might be a tuberculosis of the spine, with a circumscribed tuberculous abscess containing calcareous material, with a secondary irritation of the pelvis of the kidney or the ureter. That is just a mere possibility. The history here again is the important matter to be considered; namely, the pain, the irritation of the ureter and bladder, the fact that there has been no gastric disturbance at any time, which with that many small gall-stones present would enable one to find at least a certain amount of gastric disturbance. You see the exposed portion of the skin is dark colored, which would make us suspicious of an irritation of the suprarenal capsule on this side.

The treatment in this case would, of course, be a right-sided nephrectomy. I should be very glad to hear results when that treatment is introduced. I have no doubt whatever but what the patient will recover after that operation and

will be free from all of her bladder irritation and will have none of that pain in her back.

I shall be very glad to answer any questions in regard to this case.

Question: Why do you think there is a tuberculous condition?

DR. OCHSNER: From the early history, with the frequent urination and with a young person like this, having to get up frequently at night, and a pain in the back and a pain in the right side opposite the kidney. These are the cardinal symptoms of a tuberculous condition. But one should have found tubercle bacilli in the urine at some time or other. I would not want to be certain about that.

Question: Would there be any fever at some time?

DR. OCHSNER: There would be a temperature especially in the afternoon. She has not been under observation in the hospital so that part we have not been informed about.

If there are any other questions about this or any other cases you wish to discuss I should be very glad to discuss them with you.

Question: What is your idea of a primary tuberculosis of the kidney?

DR. OCHSNER: It is doubtful whether that ever occurs. I think in almost all cases of tuberculosis of the kidney it comes from getting the bacilli in the circulation through the mesenteric lymphatics or from the lungs or tonsils.

I neglected to mention in all of those cases in which we suspect tuberculous trouble anywhere we should always bear in mind the possibility of the infection originating in the tonsils. In Chicago, for instance, we had cases with tuberculous glands in the neck to operate on every week before all milk was pasteurized. Ever since the milk has been pasteurized we may get one or two or three in a year that come from the country where some farmer has cows that have not been tested. The same is true of tuberculous joints. We do not operate on one tuberculous joint where we operated on twenty some years ago because the milk in our city is pasteurized. We get few cases of tuberculous peritonitis from the city area in Chicago now.

It might be interesting to you to hear about the enthusiastic support we got from our biggest milk producer in Illinois, a man of very great influence, and a very capable man. When we introduced pasteurizing of milk in Chicago many years ago, it happened this man had a hydrocele,

and came to the hospital in the morning for relief. I tapped his hydrocele and injected a few drops of carbolic acid, and he said "I must get through in time to get down to the Health Commissioner's office by 10 o'clock." I asked why he should have to go there. He said, "These fool commissioners are going to make the farmers pasteurize the milk, and that would be ruinous to the farmers." So I told him that I was with him. I would go down to the Commissioner with him and support him and that I knew the Commissioner very well, and had a great deal of influence with him, because it would ruin our business, too. I said to him, "You are a wealthy man. If you sell us tuberculous milk probably one of your children will get tuberculous glands, and it will take me about two years to cure those, and I will get about \$1,000 out of you. Then there will be some of the other people that are well off that drink that milk, and I will get some tuberculous joints to treat. That will mean several thousand dollars, and then some one will come with a tuberculous peritonitis from drinking your tuberculous milk, and that will mean a lot, because I can treat that patient for a long time. I have a friend who is an undertaker, who is a friendly man, and there are lots of people that he will get if they continue drinking tuberculous milk, and they will outlive him if they have to quit drinking tuberculous milk. It will be a terrible loss to him. He will support you very well." By that time he got somewhat pale under the gills and he said "I'll be damned if I am not for it now."

The other farmers had expected this rich milk producer to knock out pasteurization. Then when he came in and was for it they were done for.

I believe that primary tuberculosis occurs only through the lungs or the tonsils or through the mesentery lymph glands from the alimentary canal.

Question: Why do you recommend a nephrectomy?

DR. OCHSNER: Because when you have the condition present in this kidney I do not believe that the kidney, after so many years, can be restored. I believe with nephrectomy the other kidney will do the work for thirty or forty years without trouble, while if you keep irritation on this side by retaining a diseased kidney the other one would surely suffer. She will live much longer with one good kidney than with one good and one bad one.

PANCREATIC EXTRACTS AND DIABETES MELLITUS

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MINNEAPOLIS

Since the demonstrations of experimental diabetes by Minkowski, in 1889, each year has witnessed attempts to produce a pancreatic derivative which would alleviate the symptoms of pancreatic insufficiency. Previous to 1921 a number of investigators offered some very definite data to show that an extract could be obtained from fresh pancreas which would decrease the diabetic symptoms and findings in animals made diabetic by partial or complete pancreatectomy, and in a few cases similar results were obtained in the diabetic human. In December, 1921, there were reported by Banting and Best,¹ working at the University of Toronto under Dr. J. J. Macleod, similar results obtained from a series of unique and resourceful experiments which were remarkable in that they established beyond all doubt what had previously been only indicated. From these same laboratories there soon followed the announcement that a pancreatic extract had been prepared² which contained no harmful impurities and which, injected into diabetic patients,³ caused a disappearance of sugar, acetone, and diacetic acid from the urine, and reduced the blood sugar to normal, or even sub-normal values. Further investigations⁴ showed that the extract was capable of depleting the blood sugar of a normal or diabetic animal to an extremely low value, producing a marked hypoglycemia and with this condition there appeared very grave symptoms, convulsions and coma, which were often followed by death. It was recognized that the substance was as dangerous as it was active in removing the symptoms of diabetes. This marked element of danger has hampered the introduction of the substance into general use, but, in spite of this, a remarkable progress has been made during the last year, both as to the production of the extract and its application as a successful treatment of diabetes, due to a wise and rigid program of development controlled by the University of Toronto.

It is to be stated at the outset that no cure of diabetes mellitus by the use of pancreatic extract is anticipated. Effective treatment by a continuous and sufficient exogenous supply of the

lacking internal secretion is the goal which seems to be in view.

The pancreatic extract as prepared at the University of Toronto has been called "insulin," a term introduced by Sir Edward A. Schaeffer, in 1916. The extract was first prepared in form pure enough for human use at the University of Toronto by alcoholic extraction of fresh adult beef pancreas. The process of purification depended upon fractional precipitation from alcoholic solution, the active principle being insoluble in 95 per cent alcohol, but soluble in less concentrated alcoholic solutions. Murlin⁵ working independently, having been engaged on this problem since 1912, reported early in 1922 the preparation of active pancreatic extracts by perfusion of the pancreas and by extraction of pancreas with aqueous solutions of hydrochloric acid. P. A. Shaffer⁶ has reported a method of extraction and purification by means of which he obtained a very pure and quite uniform product. Shaffer used an acid alcohol and water extraction, precipitating the active principle by means of half saturation of ammonium sulphate. His final purification was accomplished by a precipitation of the active principle at a pH of about 5.5. The substance prepared in this way is the purest product which has yet been reported, and is described as an almost white, granular, or amorphous substance containing about 12 per cent nitrogen, but not giving any of the protein reactions.

Injected into normal animals, insulin produces a marked lowering of blood sugar. The present method of assay is based upon injection into normal rabbits. The amount of extract necessary to reduce the blood sugar of a normal rabbit of one kilogram weight to 0.04 per cent contains an amount of insulin designated as one unit. This amount of active principle when injected into the human body will enable the body to metabolize about 2 grams of glucose.

When the blood sugar of man or animals is reduced much below the normal, symptoms result which may be followed by death. The point at which these symptoms of hypoglycemia develop varies somewhat, but usually appears when

the blood sugar reaches about 0.045 per cent. Animals receiving a sufficient dose of insulin exhibit, after approximately an hour, an extreme weakness followed by very characteristic convulsive seizures which increase in frequency and severity. Later with extreme exhaustion there are relaxation, coma, and death. The animal may be returned to normal even from the state of coma by injections of glucose subcutaneously.

Injected into diabetic patients in proper dosage the blood sugar is reduced, the effect usually being noticeable within an hour. Continued over several days the diacetic acid and acetone disappear from the urine, as does also the sugar. This physiological effect is definite and a constant finding. The use of the extract as a treatment of the disease is made difficult by our present inability to readily determine the extent of the physiological effect, as quite technical laboratory procedures are necessary to give this information. The extent of the physiological effect must be carefully controlled as it has to be sufficient in order to get the desired results, and, if more than sufficient, may lead to grave symptoms resulting in death. The symptoms of hypoglycemia in man resulting from an overdose of insulin are nervousness and weakness accompanied by perspiration, a feeling of acute hunger, giddiness, motor disturbances, and collapse. The patient sinks into coma and may die. Carbohydrate, which is quickly assimilable by mouth, as orange juice, a sugar solution or candy, will cause a rapid disappearance of the symptoms. For more extreme cases where the comatose condition has been reached, 10 to 15 minims of a 1-1,000 solution of epinephrin is indicated, or glucose may be given intravenously.

To give sufficient insulin and not too much is the difficulty encountered in attempting to treat diabetes with the pancreas extract. This indicates that the insulin given must be carefully balanced by a proper diet day by day. It necessitates a very accurate dosage of food in the diet by the physician and an absolute observance of the prescribed diet by the patient. With the institution of the treatment there is required a very careful study of the patient, with a quantitative determination of his ability to utilize carbohydrate, protein and fat.

The question as to the indications for the use of insulin is still an open question, but in general it may be said that the treatment is indicated when a patient can no longer be main-

tained sugar free upon a diet that is sufficient for that individual. The sufficient diet will depend upon the individual case, sufficient for existence in some cases, sufficient for work in others and sufficient for growth in children. Its immediate use is indicated in any case of diabetes where the condition of the patient is at all serious. It should be instituted at once where acidosis has developed. Where the extract is used without any preliminary study of the patient, very complete laboratory studies are necessary to note the patient's condition at frequent intervals. In diabetic coma the treatment should be started at the earliest possible moment, and the acidosis will often clear up rapidly in an otherwise hopeless case.

In most cases where a diabetic has been upon dietary treatment which proved unsatisfactory even under careful management, and insulin is begun, the necessity of this exogenous supply of internal pancreatic secretion is undoubtedly a permanent thing. It is often observed, however, that the amount of insulin necessary to take care of a given diet will gradually decrease somewhat from the amount found necessary from the first dietary studies. While such a condition is very encouraging it becomes a very great source of danger unless noted and the dosage of insulin correspondingly decreased to prevent the hypoglycemia which may follow.

A similar but more marked decrease in the required dosage of insulin is met with in treating acutely severe diabetes. Here the tissue break-down and sugar excretion is enormous and large frequent doses of the extract are necessary and will be tolerated. As the tissue break-down decreases and the metabolism begins to approach the normal, the extract must be reduced and often may be dispensed with entirely, the patient being subsequently controlled by dietary restrictions only. There is then an indication for the temporary use of insulin, the improvement being noted by its use probably corresponding to the so-called increase in tolerance observed by the use of careful starvation and food restriction upon a balanced diet.

In treating diabetes with insulin the blood sugar is somewhat indicative of the general condition and is of great value as a help in avoiding trouble from a hypoglycemia, but the real information concerning the dosage of insulin comes from the quantitative urine, since, on an established diet, the amount of sugar in the urine

during twenty-four hours is approximately the amount of glucose which must be taken care of by the twenty-four-hour dosage of the extract.

In standardizing a patient upon insulin treatment an antiketogenic diet of sufficient calories is instituted.^{7, 8} In general, a rather high-fat diet would seem allowable and from the following consideration probably preferable. In so far as insulin will bring about a disappearance of acidosis, as well as of a lipemia, it would appear that the usual objections to a high-fat diet do not hold when insulin is also being used. From a consideration of available glucose in the different classes of food, the high-fat diet is economical from the viewpoint of the amount of extract necessary to metabolize equal amounts of carbohydrate, protein and fat. If we consider the glucose to be burned comes from 100 per cent of the carbohydrate, 50 per cent of the protein, and 10 per cent of fat as taken in the diet, then one unit of insulin should metabolize to the extent of 8 calories from carbohydrate, 16 calories from protein, and 180 calories from fat. We have found that in some cases at least, this theoretical ratio does not seem to hold; that the addition of fat to the diet required rather more extract than could be accounted for from its 10 per cent glucose content. However, we may say in general that the high-fat diet allows a minimum of the extract to be used for a maximum caloric intake.

A minimum dosage of insulin is important, at least for the present, from consideration of expense to the patient, and it is highly desirable also from the standpoint of safety, especially where the patient passes out from under strict laboratory observation.

Upon an established diet the total glucose intake may be determined by adding to the total carbohydrate in the diet 58 per cent of the protein and 10 per cent of the fat. By subtracting from this amount of glucose the amount of sugar found in the twenty-four-hour urine, a good idea is obtained of the patient's ability to retain and metabolize carbohydrate. The twenty-four-hour urine sugar represents the amount of glucose in the diet the patient is unable to metabolize and is that amount which must be metabolized by the use of the exogenous supply of internal secretion. The amount of extract to be given can be quite closely calculated upon a basis of one unit for each 2 grams of urinary sugar excreted in twenty-four hours, but it is

advisable to give the extract somewhat short of the calculation and increase to get the desired result. It is a very convenient safeguard to leave a trace or a small amount, 5-10 grams, of sugar in the twenty-four-hour urine, as in the absence of frequent blood sugar determinations this indicates that the blood sugar is at a sufficiently high level. For individuals allowed to pass from under close observation and continuing the extract, a qualitative test of the morning urine specimens may be used in conjunction with the twenty-four-hour specimen as an additional safeguard. Even though the twenty-four-hour specimen showed a small amount of sugar, a morning specimen showing no sugar should point to extreme caution in taking the usual dosage of the extract that day. It would seem advisable to advise the patient to reduce the dose or discontinue the extract for that day and consult with the physician.

Many severe diabetics coming under observation will be excreting glucose far in excess of the amount taken in as calculated from the diet by the above method. The subtraction indicated above will give a negative value which indicates that body tissue is being broken down very rapidly and being converted into glucose, which is subsequently excreted in the urine. In such a situation the use of insulin in large doses will result in a gradual decrease in the tissue breakdown until the urinary output of glucose will become less than the amount contained in the diet. Until this tissue break-down with excretion of the converted glucose is controlled, an accurate idea of the patient's ability to actually metabolize sugar cannot be obtained. As this improvement in the metabolic processes is taking place, the insulin required becomes progressively less and the dosage must be reduced to prevent the development of a hypoglycemia. After sufficient improvement the patient may be studied and standardized upon a maintenance diet with insulin as outlined above.

The extract is given subcutaneously. A properly made extract is non-irritating and gives no local or general reaction, except as has been indicated in case of an overdose. The frequency of dosage is still questionable, but generally good results are obtained by one dose daily, given preferably before the morning or noon meal. In many cases more uniform results may be obtained by giving the required amount in two doses daily. The daily requirement of insulin

will vary from 5 to about 50 units a day, depending upon the severity of the case and the diet prescribed.

It is always to be borne in mind that even when a patient has been apparently standardized to a definite diet with extract just sufficient to metabolize it, there still may be some tissue break-down furnishing glucose not accounted for by the dietary calculations. If this condition gradually tends to right itself either the diet must be increased or the dosage of insulin decreased. This is especially liable to occur when the extract is begun as an emergency measure in the case of a diabetic rapidly converting his own tissues to glucose for excretion. This situation is least likely to arise where the patient's condition allows preliminary control of the blood and urine sugar by dietary restrictions and a full appreciation of the patient's potential tolerance from dietary studies before the extract is employed. The indication appears to be to make a complete study of the patient before insulin treatment is started, if possible. In cases where the patient's condition is serious and the extract is used as an emergency measure, it is essential that laboratory observations be made frequently and carefully, both for noting changes in the patient's condition and to guard against dangers attending the use of the extract.

The very definite and powerful physiologic action of insulin makes it a most efficient means of combating the symptoms of diabetes. From the foregoing it must be realized that it can be used only under carefully controlled conditions. To institute insulin treatment for dia-

betics at the present time requires care and study which makes it preferably a hospital procedure where careful quantitative dietary studies can be made and regular laboratory studies can be carried out.

NOTE.—Repetitions of some of the fundamental physiological experiments of Banting and Best have been carried out by the use of pancreas extract made at the University according to the methods referred to above. Experience in the clinical application of insulin in the treatment of diabetes has been gained by the use of the pancreas extract produced by Eli Lilly and Company, of Indianapolis, under the name of "Iletin." We wish to express our appreciation of the co-operation of the Research Department of Eli Lilly and Company and to acknowledge our indebtedness to them for Iletin furnished free of charge during the experimental stage of production.

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PSYCHOSES INCIDENTAL TO THE CLIMACTERIC*

By W. A. JONES, M. D.

MINNEAPOLIS

There is no definite psychosis that is characteristic of, or definitely due to, the climacteric. Almost any of the constitutional disorders which eventually result in a psychosis may be incidental to the menopause. In looking over some of the older works on insanity, one occasionally finds a reference to the conditions of the climacteric which bring about a psychosis, both in women and in men, but apparently noth-

ing has been accepted as typically incidental to the change of life. Most of these patients that we see, from thirty-five to forty-five years of age or even older, give a very fair history of their constitutional inferiority, or present either a somatic or a psychical, or a social condition which typifies their general construction and conduct. Consequently, the man or woman who escapes a psychosis in early life, in young adult life, may be the victim in middle life—and middle life means any age from thirty-five to fifty-

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five. There may be in the history of the individual a definite physical disorder which can be demonstrated and which may be relieved, but the physical disorder is commonly one of an inherently unstable nervous system, an accompanying disorder of the gastro-intestinal tract, the heart, and particularly of the arterial system, and not uncommonly, in fact very frequently, a disease that is due to infection. That really means a biochemical state into which the individual gradually emerges, and upon this are ingrafted the circulatory changes that are incidental to epochs, constitutional limitations, or to environment of a social order. How often are we reminded of the instability of individuals who perhaps have gone through many hazards before or during puberty, in which their organs of chemical reconstruction and their genitive apparatus or their ductless glands become disordered.

The social equation is perhaps as important in the life of many individuals as their physical state, for there are numberless individuals who become physically disqualified, physically sick, and yet preserve a normal mentality throughout life. It is in those, then, who are inherently predisposed to nervous and particularly to mental upsets that we find the psychoses, just as there are certain types of people who develop nervous syphilis; they are inherently and congenitally candidates for syphilis of the nervous system.

The woman who is subjected to hard labor, who tries to help and make her husband a success, who assumes responsibilities that are beyond her horizon, and who at the same time becomes child-bearing and is more or less inadequately cared for during her pregnancy and particularly after her confinement, who has, perhaps, brought several children into the world, finds herself at the age of thirty-five or forty breaking under the pressure. She represents a class of those inherently predisposed to break under situations which are beyond their endurance. Thus she develops a psychosis. It may be an overhanging, a delayed form of dementia precox; it may be an acute confusional state, with various delusions, hallucinations, and things of that sort; or it may be what is commonly termed a period of depression, which, if due to physical disturbances, may become a typical involuntional melancholia.

Another class includes those who are characterized by striking peculiarities, eccentricities,

oddities, disproportionate development, abnormal affectiveness,—those who are impracticable, who have morbid impulses, irregular actions and modes of life without definite co-ordinative motives. All of these things are there in the beginning. Some of them develop mildly in early life, gradually, as time goes on, increase in intensity, and finally are dissolved in a definite form of mental disorder.

Then there is the class composed of those who live in a shut-in state of mind. They have impulses and ambitions and desires which are never realized. This must be a tremendous strain; and at the prime of existence, during the period when they should do their most active work, or at the approach of their climacteric, they explode into a definite form of mental disorder. Yet the climacteric is, or, may be, a definite factor in the conclusion of either a physical, or a psychical, or a social rupture.

An important type of people to consider in this connection are those who suffer from sexual inversion or sexual perversion. They belong to a class in themselves. No one really can determine, except in cases which are open and easily demonstrated, how much the sexual life has to do with the mental life of the individual. Take, for instance, the case of a man who has denied himself for twenty years, or less. He suddenly develops a perverted state of mind from his sexual repressions; and he is the man who, out of courtesy, is looked upon as representing the moron type of individual,—the man who goes out and attacks by violence the unprotected, simply to gratify an unexpected condition in his generative system which has never been called out before. The same thing applies to women who are repressed from necessity, who have normal instincts and normal desires and longings; who suffer during the busy period of life, that is, from twenty to forty years of age, who are not infrequently disappointed, and who are practically never tempted. And yet, when they approach the climacteric they throw discretion to the winds and permit themselves to emerge in butterfly costume and satisfy their long pent-up desires. Now, a part of this is due to a physiological turgescence which comes from a combination of causes, physical, psychical, or social; and it is very difficult to ferret out the actual basis behind it all, as to why this psychosis develops in this class of women. Yet, if the truth were known, this class is an extremely

large one, because there are a great many disappointed women in the world. They have no consciousness of the cause of their disappointment, of their peculiar nervous symptoms which have grown and developed slowly because of a state of mind which has kept them in a repressed zone. The social side of this type is probably based on either a physical or a psychical condition or foundation, and is revealed only by the analysis to which they have been subjected after consulting a physician as to the cause of their variegated nervous complexities. Many women, as well as many men, go through life, even to old age, with peculiar ideas and many of them with striking sensations, and who, from various fundamental reasons, keep them in the background; and they are only released under careful, searching investigation and analysis. This is probably the type that falls under the Freudian enthusiast, who is constantly searching for the one thing, the one object, the one feature which the investigator has in mind and which he develops and into which the patient is led.

I have a few cases in mind which illustrate a part of this discussion:

CASE 1.—A woman of forty-four, happily married and with children. Her early life has not been divulged; no one knows much about her. But in 1917 she is induced to consent to a hysterectomy (the reason for it known only to the operator), and this was done because of abdominal pains. Following this her sleeplessness begins, and her attacks of nervousness. She becomes introspective and anxious; carries on her shoulders the troubles of the world. She has gastric disorders; thinks she is benefiting herself by eating but one meal a day. Then she becomes depressed; she expresses herself as ready to die, and picks out her pall-bearers; then she drops into a definite, acute depressive psychosis, from which she emerges as well as ever after a year or two of convalescence.

CASE 2.—Another woman of forty-four, with a history of cancer of the stomach on the father's side; otherwise clear, except for suffering from some gastro-intestinal disturbance. She is a high-tempered thing; has outbursts of anger which began while she was attending a religious meeting. This prompts her to antagonize her husband, and in a public meeting-place she discusses her family affairs and is convinced that the husband is either under some sort of penalty or suspicion. She becomes noisy and confused. As soon as she is sufficiently rested and cleared up her confusional state disappears and she becomes again a fairly normal woman.

CASE 3.—Most of my cases seem to be about forty-four years of age; consequently here is another woman forty-four years old. She has a clear family history, but she had an influenzal attack in December, 1918. About this time she had become

interested in Christian Science. From that she was easily led into "spiritism," believed that she was a medium, a healer. Then she became excited, suspicious, violent, and destructive, refused food, but remained oriented throughout the entire period and realized in part her general condition. After a few months she made a recovery. Her menstrual history shows that she had always been irregular and had been having but little menstrual flow.

Many patients who go through periods of domestic brainstorms at the climacteric, who seemingly recover clinically, frequently show a certain degree of general mental reduction even though they are cheerful and oriented. A close study of these recoveries will show the loss of mental poise.

CASE 4.—Another woman, of forty-seven, who had the care of invalid mother for twenty years; she is a childless woman, as so many of these women are. Never has had a pregnancy, never has had her genitive apparatus stirred to the point of maternity. What she thinks about and what she broods over no one but the secret city in her heart knows. But she admits that she has never been strong, that she was always nervous and high-strung. At forty-five her menopause began. She was suspicious, believing that she was accused of stealing. She sleeps badly, and has had the usual run of hot flashes.

She improved, slid back again, developed occipital headache, and then became depressed with sudden onset of confusion; is noisy and depressed, and is evidently a case of involution melancholia, which, incidentally, appeared at the time of her climacteric.

CASE 5.—A woman of forty, colored, who took the ministry as her profession. She lived in the South and had malaria. She was operated on at 37 for some female trouble only the Supreme Being knows what that means (evidently one of those futile, needless operations that take place on so many of the national pelvises).

In the middle of 1922 she fell on the platform of a street car, and was shaken up and bruised. Since that she has had pain in her abdomen, together with occipital headache and pain all over. She was examined by some kindly disposed physician who encouraged her pains and aches, and persuaded her to walk with a cane, until she became weak and relaxed and had all the symptoms known to the colored classes. She did many things she ought not to do, and did not do many things she should do. She was looked upon as a traumatic neurasthenic, but her condition is one of a disordered mental state, which may be typically ascribed to an unstable nervous system and an incidental minor injury which was fostered, petted, and cared for at the time of her climacteric.

CASE 6.—A woman of forty-six; another childless woman, and with that goes the supposition that she was sexually unfit or sexually unprepared, or sexually asleep. She does not believe in the sexual life and does not want anyone else to believe in it. She is a selfish old thing. This woman was nervous, sleepless, and developed the usual delusions of persecution and depression, and she wanted to die. She foolishly took all of her medicine at once,

not knowing that very few drugs administered in mental cases are poisonous. She is one of the psychopathic cases too, of the serious type "who mistake the sleep of their senses and the snores of their intellect for enviable perfections." The male of this type is cleverly defined in a poem by Joseph Auslander in "The Bookman," entitled "When Homer Nodded:"

"I think Odysseus was a fool,
Though Homer hails him wise and full of craft;
I think a man who looked in Circe's eyes,
And never even quaffed once—recklessly
Saw the sun quivering cup, all ambered cool,
Held out to him by hands of white sunrise,
And never even laughed once—recklessly;
I think him daft!"

PROCEEDINGS MINNESOTA ACADEMY OF MEDICINE

MEETING OF MARCH 14, 1923

DR. H. LONGSTREET, TAYLOR, PRESIDING

DR. L. C. BACON gave a report of the end-results of a case of carcinoma of the breast as follows:

During March, 1920, I removed by the radical, so-called Halsted, operation, a scirrhous carcinoma of the right breast from a woman, aged 57 years. Lymphatic involvement was very extensive; many large glands were found in the axilla, in the subclavicular region, in the triangles of the neck, both anterior and posterior to the sternomastoid muscle, and were also prominent in the subscapular region. I, of course, told her family that with so extensive a growth it must already have invaded the mediastinum or other deep areas and that it could not be expected that she would live more than a few months. She was sent to Dr. Schons for x-ray treatment, and it might be worthy of note that she was very much prostrated by the several series administered. A reaction with a rise of temperature and great exhaustion followed them, and it was with difficulty that she was persuaded to continue. Following this, and two months after the operation, she developed an abscess of the right lung, which persisted for about eight months. Fever, bad heart action, and great prostration made operation seem out of the question, but all of this time she continued to cough up large quantities of purulent matter mixed with shreds and bundles of fibrous material. This process finally cleared up with no evidence of a right lung remaining except a small portion of the apex. (I might pause here to state that I have seen several cases develop a serious pleuritic effusion after the Halsted operation, but this is the only lung abscess.)

By the end of the first year after her operation she began to regain her strength and increase in flesh until she had regained her normal weight. Her scar was healthy, the right thorax somewhat flat and with very little movement during respiration. The heart had moved to the right bringing the apex under the left margin of the sternum. The left lung area of resonance seemed to have increased. She became short of breath rather more easily after exertion, and at times had some pain in the region of the heart, which would last for a few days and

then disappear. Other than these defects and the natural fear of the return of the disease she has enjoyed life for two years, visiting friends, carrying on her home, working in her garden in summer, etc.

The first of this month (March, 1923,) she contracted an influenza, soon became cyanotic, the heart action became weak and rapid, a hypostatic condition of the lung developed, and she died the fourth day.

An autopsy was permitted. No carcinomatous or other growths could be found in the chest or abdomen. Because there had been no cerebral or nerve disturbances the brain and spinal cord were not examined. The abdominal contents appeared normal. The thorax contained a small amount of serous fluid. The right lung was represented by a piece of crackling lung tissue about two inches in breadth by one and one-half in height and rather a small mass of scar tissue of about the same dimensions to account for the rest of the lung. The parietal pleura was smooth and apparently healthy; not thickened. The remnant of the right lung was not adherent except for a slender band of fibrous tissue running from it to and through the mediastinal tissues and attaching to the pericardium. While this band had ceased to be inflamed, it will probably account for the occasional attacks of pain which she experienced. The heart was somewhat enlarged, the muscles firm, and the valves normal. The left lung showed the conditions usual in hypostasis.

There is much room for speculation in this case and I would be grateful for enlightenment. While we all know that the scirrhous type of carcinoma of the breast is sometimes slow in its process, in view of the extensive lymphatic involvement and the large size of some of the remote glands I cannot believe that the process had not progressed beyond the field of operation, and I must give the x-ray, credit for its destruction. What the x-ray, with its possible destruction of carcinomatous tissue, may have had to do with the lung abscess, I would like to know. What would the reaction following the x-ray treatment mean? Could the x-ray have caused devitalization of lung tissue in the absence of new growth? At no time did the patient suffer with an erythema after the x-ray exposures.

DISCUSSION

DR. DENNIS: Dr. Bacon asked about the possible effects of *x*-ray. I reported years ago a case of sarcoma of the chest wall which was resected. A year later the woman returned with a mass the size of a hen's egg near the left breast. She was four and one-half months pregnant. I removed the mass in the breast and resected a two-inch piece of the diaphragm. She had a stormy convalescence, but is alive and well to-day. She had repeated *x*-ray treatments for from one and a half to two years, and with this history of malignant growth with recurrence, it seems that her present freedom from trouble must be ascribed to the *x*-ray. I think probably there are certain tumors that can be arrested by *x*-ray or radium, but that most cannot. It depends on the malignancy of the tumor.

In regard to the reaction following the *x*-ray or radium treatment; that is quite common. Intensive radium or *x*-ray treatment will cause a certain grade of cell necrosis and the resulting absorption often causes headache and malaise that may last for a number of days.

DR. HENRY L. ULRICH reported a case of bone tumor as follows:

The plates are of a patient 54 years old, male, whose family and personal history is negative. His present illness dates back two years, when he noticed some loss of function of the right shoulder. It started as stiffness, which he thought was rheumatism, and later some pain developed. There is no history of injury of the shoulder or hip that he can remember. The hip started some time last January.

The patient presented on physical examination some atrophy of the shoulder girdle with some loss of function. He is unable to raise the arm above the level of the shoulder. The right chest did not move as well as the left, though auscultation and percussion are negative throughout. The heart is negative. Abdomen is negative. Prostate is negative. There is a right inguinal hernia. The right thigh is much atrophied. He is unable to flex the thigh unless he lifts the knee with both hands. There is some atrophy of the leg muscles. The reflexes are all normal except that the abdominal are absent.

The blood picture was normal except for a mild anemia and slight leucocytosis. The blood chemistry was normal. The blood Wassermann was negative four times in this laboratory, three times at two others, and positive twice at the State Board of Health laboratory.

Three months later the patient presented himself with practically the same findings except that his general health and nutrition seemed improved. A mass was situated on the left thorax in the posterior axillary line, about the size of a small egg, sessile, and securely attached to the intercostal fasciæ. There is no pain on palpation or pressure. The mass is visible in the *x*-ray plate of the chest, but the shadow is external to the thoracic cavity. The

condition of the shoulder and hip has not changed much in function or appearance except that there is more bulging above and laterally to the hip joint. There seems to be some swelling along the spinous process of the right scapula. The blood picture at this time was practically like the former one except that the hemoglobin had come down 10 per cent.

Our opinion of this pathology, particularly of the hip, suggested at the time of the patient's first appearance that we might be dealing with an osteomalacia. This was based on the fact that the rami of the ischium and of the pubes, respectively, were pushed in and not fractured, because we could not find any primary focus of malignancy anywhere.

The second batch of plates, three months after use of cod liver oil and calcification measures, show progress of this process, which is evidently a malignancy. At this time we also noticed a second mass at the lower end of the left scapula.

We sent these plates to Dr. Bloodgood for diagnosis. Max Kahn, his röntgenologist, suggests that we are dealing with a central sarcoma, probably giant-cell sarcoma of malignant character. Dr. Bloodgood personally thinks we are dealing with a mediastinal tumor or multiple myeloma.

DISCUSSION

DR. COLE: I feel, after looking at the plates, that the most probable thing is metastatic carcinoma. I think it could be differentiated from the *x*-ray. Sometimes it gives a very positive picture, but when it is in the flat bones, as the ilium, the diagnosis seems to rest between metastatic carcinoma and multiple myeloma. Metastatic carcinoma is much more common, and sometimes is not painful. We have had three cases during the last year or fifteen months more multiple than this that gave no history of pain at all. There was some nerve pain, but no bone pain from the lesion itself. It is very difficult to arrive at the primary source of some of these carcinomata. I remember the case of a negro who had general carcinomatosis, with primary symptoms of carcinoma of the back. At autopsy I could not find the primary focus.

DR. HEAD: Did you say there was no Bence-Jones protein in the urine?

DR. ULRICH: That has not been looked for. Dr. Bloodgood suggested that, but I have not yet done so. Of course carcinoma has been considered. The interesting thing about the case is the selective sites, the picking out of two flat bones on the same side, and a certain area around the articulations. Of course we have seen multiple carcinoma of bones, but I have never seen one around joints like this, if this is carcinoma.

DR. R. E. FARR gave the following case report (Motion pictures were taken during and after the operation and were presented):

J. P. B., aged 56, formerly a store-keeper. Entered St. Mary's Hospital January 21, 1923.

History: The patient is married, and has two children living and well. His general health has a-

ways been good with the exception of varicose veins and ulcers of the left leg in 1920. The present trouble began three years ago, when he began to cough occasionally and his voice became hoarse and rasping. This condition remained stationary until three months before entering the hospital. He has had some pain in the region of the larynx and has lost twenty pounds in the last year, which he attributes to change in occupation. There is a history of possible encephalitis lethargica three years ago, and he dates the beginning of his trouble from this time.

General examination was negative excepting some palpable glands in the left sublingual region.

Examination: Laryngoscopic (indirect). Shows an ulcerated growth replacing the left vocal cord and arytenoid. There are marked injection and swelling on the left side of the larynx. This was done on January 22 (direct). This examination, made the following day, confirmed the findings of the first examination. There was an attempt made to remove a piece of the growth, but on account of its being so flat and resistant it was unsuccessful.

Subcutaneous tuberculin tests proved negative, as did the lungs to physical and x-ray examination. At this time the patient's nurse was found to be a diphtheria carrier, and the patient was allowed to go home for a few days. Blood Wassermanns were taken and were negative.

Patient re-entered the hospital on February 2, 1923.

First operation: Preliminary mobilization of the larynx and trachea with iodoform packing (Crile.) Anesthesia,—local infiltration block. A midline incision was made, the thyroid isthmus was divided, and the trachea and right side of the larynx were completely isolated with iodoform gauze.

After the first operation the patient developed bronchopneumonia and became very ill. The incision became infected with streptococci. The patient left the hospital two weeks after the operation, and the incision was treated by the Carrel-Dakin method.

He re-entered the hospital March 2, 1923, one month from the time of his first operation. Smears showed from twenty to thirty bacilli to the field. One week later the number of bacilli had been reduced to four to the field.

Second operation: March 10. Tracheotomy, laryngotomy and laryngectomy. Anesthesia,—local subdermal infiltration block. The vertical incision was converted into a T incision at the top. The trachea and larynx were once more isolated and 2 c. c. of 4 per cent cocaine was introduced into the trachea by means of a fine needle.

Tracheotomy: A transverse incision was made half-way through the trachea just below the larynx.

Laryngotomy: The voice box was opened by means of the rib shears, and the growth was found to have destroyed the vocal cord and to have extended upward towards the epiglottis, having the area of a silver half-dollar. It was ulcerated and approximately 1 cm. in thickness. It was macroscopically malignant.

Tracheotomy: The trachea was completely divided and sutured to the skin at the substernal notch.

Laryngectomy: Topical applications of cocaine were made to the epiglottis and posterior fauces. The larynx was removed, a large catheter was introduced through the nose into the esophagus, and the wound was closed with chromic gut. A cigarette drain was placed in the upper angle of the wound and another behind the displaced trachea. The skin was closed with silkworm. A tracheotomy tube was introduced.

Post-operative treatment: The patient was encouraged to move around freely. Moist gauze was placed over the tracheal opening, and a basin of water containing tincture of benzoin was placed near the bed and kept steaming continuously. His pulse during the operation remained at 80; his respirations and color remained normal. Since the operation his temperature has ranged between 101° and 103° rectal, and the pulse has remained below 100. There has been no pulmonary involvement, and he is now sitting up, this being the fourth day. He is taking large quantities of nourishment through the esophageal catheter. A duodenal tube was substituted for the catheter to-day.

Subsequent note by Dr. Farr: The pathological report showed chronic inflammation, no malignancy. The great destruction of the larynx, approximating three-fourths of its lining membrane, seemed to be absolute indication for laryngectomy. Do you think I met the indication?

DISCUSSION

DR. SCHWYZER: I just want to say that I believe that is a field where local anesthesia is valuable. If it had been tuberculosis I imagine it would have been a good idea to make a little separate incision through the skin and draw the trachea out there. After a week or ten days very often there is tuberculosis, it gets loose and retracts. I have opened the larynx and taken out about half and burned out what I could not remove, and closed it up again after removing the vocal cord.

DR. FARR: I wish to thank Dr. Schwyzer for his discussion. In doing the one-stage operation it is desirable to bring the trachea out through a stab-wound in the skin. However, in the two-stage operation this is impossible as the skin has already been divided to the suprasternal notch. I have operated upon only one tuberculous case and this man died a few days later of bronchopneumonia.

Frozen sections might have been made in this case. However, with this large tumor there seemed to be nothing to do but to remove the larynx. I am gratified that Dr. Schwyzer concurs with me in my judgment in this regard.

The pathological report furnished by Dr. E. T. Bell of the University shows no malignancy, only a chronic inflammation. It is to be noted that this process had completely destroyed the left vocal cord and the anterior attachments of the right, and had extended up to the epiglottis.

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MINNEAPOLIS CLINIC WEEK

The sixth annual Minneapolis Clinic Week, which began on Monday, April 16, and was concluded Friday evening, April 20, was in many respects the most successful meeting the Clinic has enjoyed. There were 216 registrants from outside of Minneapolis and about 98 registrants from Minneapolis. This was more than double the number we had expected, but, evidently, the outside friends of Minneapolis decided that the program was very alluring and promised much in the way of advances in medicine and methods of clinical attack, particularly the afternoon programs, which in themselves deserve special mention. They were the outcome of the labors of Drs. John P. Schneider, Archa Wilcox, and J. D. Lewis. This committee selected from approximately sixty offers a program which was cohesive and of common interest to both the specialist and the general practitioner. We were especially favored in having with us for the first day's program men who stayed over from the meeting of the American College of Surgeons, among them Dr. Wm. R. Cubbins, of Chicago, who spoke on "Intestinal Obstruction"; and Dr. H. M. Richter, also of Chicago, who spoke on "Surgical Aspects of Gall-bladder Disease."

The afternoon programs on Wednesday, Thurs-

day, and Friday were conducted by Minneapolis men. And, evidently, judging from the crowd in attendance in the Gold Room of the Radisson for these special afternoon dry clinics and demonstrations, the whole program was very successfully carried out. We had hoped to have a strictly dry-clinic program during an afternoon session, but part of the inability of the committee to carry this out was due to a lack of clinical material, although this did not apply to the morning clinics in all of the hospitals.

The clinicians expressed themselves as pleased with their audiences, and the visitors expressed themselves equally pleased with the demonstrations and clinics.

Minneapolis has carried on this Clinic Week now for six years, and from what one can judge from the attendance and the character of the program it is likely to be perpetuated. It has been fully demonstrated that Minneapolis is a clinical center and is still able to fulfill its promises.

The Executive Committee desires to express its gratitude to the clinicians who made up the program; to the hospitals who did so much for Clinic Week; to the young women who assisted, and particularly to Miss Tess O'Brien, who labored many hours for many days in perfecting the preliminary, as well as the final, programs; to Mr. Klein, of THE JOURNAL-LANCET, who assisted by his advice and counsel; and to Miss Florence Scallen, who had charge of the registration desk, ably assisted by Miss Adah Davis and Miss Esther La Pierre.

THE MEETING OF THE MINNESOTA
SECTION OF THE AMERICAN COL-
LEGE OF SURGEONS

This meeting was held in Minneapolis on April 16, 1923, in the Gold Room of the Radisson Hotel, Dr. Thomas McDavitt, of St. Paul, who is also a trustee of the American Medical Association, being the presiding officer. The afternoon program was a very interesting one. Dr. Allen Craig, the Associate Director, and assistant to Dr. Franklin Martin, of Chicago, outlined the program and spoke on hospital development and illustrated the construction of hospitals, the new hospital buildings, and made many suggestions as to what should be done in the future. Dr. William R. Cubbins, Associate Professor of Surgery, and Dr. Harry M. Richter, Professor

of Surgery, Northwestern University Medical School, both of Chicago, spoke on "Hospital Standardization from the Surgeon's Standpoint," and they brought out many interesting points relative to the history, charting, and deductions among standardized hospitals. Dr. Karl H. Van Norman, director of the Miller Hospital, of St. Paul, spoke on the same subject, but from the superintendent's standpoint. The Rev. C. B. Moulinier, S. J., President of the Catholic Hospital Association, spoke on "The Soul of Hospital Standardization." The President-elect of the American Hospital Association, and Associate Director for Canadian Activities, American College of Surgeons, is Dr. Malcolm T. MacEachern, outlined the "Principles of Hospital Standardization."

Following this was a round-table discussion which was participated in by Dr. H. B. Sweetser and Dr. John H. Rishmiller, both of Minneapolis.

The Community Health mass meeting was a public affair, held in the Wesley Methodist Episcopal Church in the evening, and evidently there was very great interest in it as there was a large attendance. The address of welcome was given by Lieutenant-Governor Collins, who is one of the best boosters in the state for scientific medicine. He talked in his usual chatty and emphatic way, and insisted that the principal thing doctors are looking for is good health, which is an asset to the general public, while bad health is always a liability. Lieutenant-Governor Collins certainly is always with the doctors. He has no time for outside fringes of medicine or the so-called methods of the various wayside cults. He believes in doctors, and he sticks by them. And when he becomes the governor of Minnesota, as he undoubtedly will, we are going to have a friend in the governor's chair.

Dr. Allen Craig spoke on the American College of Surgeons and its relation to public health problems. He advanced three very necessary points. The first was the promotion of health; the second, co-operation between the doctors, the public, and the press; and, third, the necessity of regular physical examinations for everyone. This prepared the way for Dr. Richter and Dr. Rush, who spoke on cancer; and each demonstrated what Dr. Craig had called attention to, the necessity of early recognition of cancer, the fact that it is a local condition and not a general one, and that it sometimes has a very small beginning; consequently, a large portion of cancer

cases can be cured by following a few simple rules.

Dr. William R. Cubbins spoke on "Experimental Medicine and Its Value to the Public." He illustrated his points on experimenting on animals without in any way assailing the anti-vivisectionists. He said he felt very sorry for the little mice that had been inoculated with cancer in order to demonstrate cancer transmissibility; that it seemed a very great crime to use these poor little defenseless mice for such profound experiments. Then he detailed the necessity of employing rabbits for experimental work in the treatment and cure of rabies, and again he expressed his extreme sympathy for the poor little rabbits which had to give up their lives to the experimentalist who found, by using the spinal cord of a rabbit, a safe method of inoculation against human rabies. And he appealed to the audience by telling them that he knew they would all feel very sorry over the death of these animals and that they would not under any circumstances permit the experimentation to occur, but would rather give up the lives of their children and their families who became subjects of cancer or rabies rather than permit the destruction of these animals.

Again, Rev. Moulinier spoke on better hospitals and the necessity of following the advice and instruction given them in the earlier speeches made by these men who are celebrated for their knowledge. The president of the Catholic Hospital Association is a very forceful and convincing speaker, and he left a very delightful impression on his audience.

Dr. MacEachern closed the evening meeting by telling the people what hospital standardization means to them; how necessary it is to go into detail, to have definite records and definite examinations made, and to check up the various members of the staff by criticism or investigation, discussing the mistakes openly, if any are made, and demanding the reasons for making a diagnosis or performing an operation.

THE HENNEPIN COUNTY MEDICAL SOCIETY'S ANNUAL BANQUET

The annual banquet of the Hennepin County Medical Society was held at Donaldson's Tea-Rooms, Minneapolis, on Tuesday evening, April 17. There were 275 tickets sold, showing an attendance of 275. Out of this number 205 were

from Minneapolis, and about 70 were out-of-town visitors. The arrangement and billeting of the banquet were under the auspices of a committee appointed by Dr. F. L. Adair to provide for the meeting-place and entertainment, the committee consisting of Dr. F. C. Rodda, as chairman, Dr. E. L. Gardner, Dr. E. D. Anderson, Dr. L. E. Calkins, and Dr. J. Warren Bell. As this was strictly a Hennepin County Medical Society matter it was not under the jurisdiction of the executive committee of the Clinical Section.

The entertainment consisted of music during the dinner hour by Squire's orchestra; and Mr. Fred Wills gave exhibitions of eccentric dancing. The chief entertainer of the evening, however, was Dr. Frank Darrow, of Fargo, North Dakota, who is one of Fargo's leading physicians. He gave a parody on what he called "Recent Acquisitions in Medicine," which consisted of some marvelous slight-of-hand work and such tricks as one sees performed only by an expert. He called to his aid several of the doctors in the audience, who assisted him in his performance. He gave an illustration of so-called mental telepathy and hypnotism in which one of our leading physicians was seated on the stage and was able to call out from his position cards picked out by various men in the audience. How this trick was done the writer has no knowledge whatever, but it was extremely clever, and one wonders what was the attitude of the man on the stage and how he was able to judge so accurately as to the cards chosen at random. Then, too, Dr. Darrow has a very happy faculty of telling a funny story, and his stories were highly appreciated and extremely enjoyable.

The address of the evening was given by Dr. John R. Murlin, of the Rochester State University, New York. Dr. Murlin's address was on the "Progress and Preparation of Pancreatic Extracts for the Treatment of Diabetes." Dr. Murlin is a physiologist and is familiar with all the experimental work on the pancreas that has been done in the last thirty years. He gave us a running résumé of the work of the experimentors and what they accomplished in advancing our knowledge of the pancreas and its function; and he told of the isolation of the active principles of the pancreas, which are now before the medical student for investigation, namely, "insulin" and "letin." We hope to publish this

paper a little later, and it will be found to contain the history of this work, that is, the work on the pancreas and the use of the derivations extracted from the pancreas, and the effects upon diabetes both in experimental and hospital practice.

A NOTABLE MEDICAL SOCIETY PROGRAM

A good medical society program is so difficult to prepare on paper and to carry into practice that few good programs are offered in either minor or major societies. Our national and state associations are, as a rule, excellent in their way, but they do not have the pulling power which we all desire to have them possess. Now and then a minor society seems to loom up with a program so excellent on paper and so informing and delightful in execution that we are pleased to make mention of it for the encouragement of the men who direct medical society meetings.

The Southern Minnesota Medical Association has had several programs of this character in recent years, as has been mentioned in these columns; but we think not one of them has been better than the program of the Sioux Valley Medical Association carried out at its semi-annual meeting in January last, a report of which will be found on another page of this issue. At this meeting there were a dozen papers and talks, Drs. A. J. Ochsner and Clifford Grulee, of Chicago, giving two each, and the other eight were by distinguished men in the profession. While this presents an admirable program on paper, in execution the work done was well-nigh ideal, because so many members of the society joined in the discussions and queries developed by the speakers.

That the meeting was a worth-while one was evidenced by the fact that seventy new members joined the Association. We think the papers will prove of great interest and value to our readers; and we cannot refrain from expressing our pleasure that THE JOURNAL-LANCET was made, some time ago and wholly without solicitation on our part, and without our knowledge, the official organ of this splendid group of medical men in the Sioux Valley of the Middle West. Though a minor medical society, the Association is doing major medical society work.

BOOK NOTICES

AN OUTLINE OF THE PIRQUET SYSTEM OF NUTRITION.

By Dr. Clemens Pirquet, Professor of Pediatrics at the University of Vienna, Austria. 16mo of 96 pages. Philadelphia and London: W. B. Saunders Company, 1922. Cloth, \$2.00 net.

In order to gain a clearer understanding of von Pirquet's system of nutrition, the meaning of three terms must be definitely in mind. These terms are *nem*, *siqua*, and *pelidisi*.

Nem.—Von Pirquet decided that the calorie was not an accurate unit of food values. A given number of calories may be ingested, but this given number of ingested calories is not utilized by the individual. Part of them are lost in the stool. Von Pirquet decided that the food unit used by the agriculturist is a better index of nutritive value. This unit, the water-free starch unit, indicates the food value of a given quantity of any food stuff when compared to the fat-producing value of a given quantity of water-free starch fed in excess of the minimum diet. He decided to use the nutritive value of one gram of average human milk as his unit. To this nutritive value was given the name *Nem* (nutritive equivalent of milk). All other food stuffs were given values in *nems* corresponding to their nutritive value when compared with one gram of average human milk,—for instance, a gram of starch has a food value of five *nems* because it has a nutritive value five times as great as that of one gram of average human milk. In his calculations, however, the term, *Decinem* (1/10 of a *Nem*) is most frequently used.

Siqua.—Having worked out a system of food values, Von Pirquet felt the need of a standard of nourishment requirement. He decided that the requirement based on age, height, and weight was inaccurate. He felt that the area of the absorbing surface of the gastro-intestinal tract was a more accurate index of requirement. He found that the square of the sitting height in centimeters corresponded closely enough for practical purposes to the area of the surface of the intestinal tract in square centimeters. Hence the square of the sitting height in centimeters could be used as an index for determining food requirement. To the square of the sitting height in centimeters, he applied the term *Siquas*. His next problem was to correlate his standard of food requirements, *siqua*, with his standard of food values, *nem* or *decinem*,—that is, an individual of a given *siqua* would require so many *decinems*, just as in our terms an individual of so many kilograms would require so many calories. On the basis of an enormous number of experiments he made the following determinations:

1. The maximum amount of food which can be ingested by an active individual without damage to his digestive system or his general health is 1 *nem* per square centimeter of sitting height; or 1 *nemsiqua*, or 10 *decinemsiquas*.

2. The minimum amount of ingested food necessary to maintain basal metabolism amounts to 3

decinems per square centimeter of sitting height, or 3 *decinemsiquas*.

Between these two limits, 3 *decinemsiquas* as a minimum and 10 *decinemsiquas* as a maximum, the amount of food necessary for a given individual depends altogether upon his activity, his age, his general condition of health, and his state of nutrition. This estimation, of course, requires the exercise of judgment. For instance, of two individuals of the same weight and age, one active and the other sedentary, the one might require 7 *decinemsiquas* and the other only 5.

Pelidisi.—The fact that the state of nutrition must be taken into consideration in determining food requirements brings us to the discussion of the term *pelidisi*. Von Pirquet found that there was a definite relationship between the cube root of the weight in grams multiplied by ten and the sitting height. This ratio was, in a normal individual, 100/100. In an undernourished individual, the ratio might be as 90/100. In a fat individual the ratio might be as 110/100. This ratio, between body-weight and sitting height, is known as the *pelidisi* of an individual. An individual with a *pelidisi* of 90 would of course be considered as being undernourished. Undernutrition being an abnormal state, such an individual would of course be considered as requiring a greater number of *decinemsiquas* than an individual with a normal *pelidisi*.

Given the *pelidisi* of an individual, it is then a simple matter to prescribe a certain number of *decinemsiquas* in accordance with his age and activity. Two *decinemsiquas* should be added to the minimum requirement of 3 *decinemsiquas* for a sedentary individual. Manual labor would require the addition of perhaps 2 more, making a total of 7 *decinemsiquas*. A very active growing child might require as many *decinemsiquas* as a manual laborer.

CONCLUSIONS BY THE REVIEWER

If there is a value in this system of feeding, it is in the bulk prescription of food for a large group of people. As a result of the war and attendant conditions, this feeding of large groups of people in as economical a manner as possible, has become necessary in certain parts of Europe. The system offers an economical method for the calculation of large amounts of food stuffs necessary for the feeding of large groups of people. It permits the allotment of available food stuffs from a central depot with the least possible waste of raw material, transportation facilities, over-head expense etc.

—W. A. RUPE, M.D.

NEWS ITEMS

Dr. D. C. Rood, of Duluth, is home from California, where he spent the winter.

Plans for eleven buildings for the Veterans' Hospital at St. Cloud have been approved at Washington.

Dr. F. M. Mahin, of Walcott, has become associated with Dr. E. K. Pfaff in hospital work and general practice at Richmond.

The Shriners' Hospital at Minneapolis for Crippled Children was dedicated last month and turned over to the Board of Governors.

It was announced in our last issue that Dr. Haldor Sneve, of St. Paul, intends to move to California. The announcement was a mistake.

The City and County Hospital at Albert Lea is to have an addition that will double the capacity of the building. The new addition will cost about \$65,000.

The Board of Education of Minneapolis has voted \$25,000 for a psychiatric clinic for the study and cure of mental defects in the school children of the city.

Dr. A. M. Hanson, of Faribault, has gone to Europe for a couple of months to do research work on the parathyroid glands. He will study in France and Italy.

The annual meeting of the South Dakota State Medical Association will be held at Watertown on May 22, 23, and 24. The program will appear in our next issue.

The Minnesota Nurses Board of Examiners held meetings in St. Paul, Rochester, and Duluth last week. Examinations have been conducted heretofore only in St. Paul.

Dr. George E. Parsons, of Elk River, died last month at the age of 41. Dr. Parsons was a graduate of the Medical School of the University of Minnesota, class of '05.

The Women's Auxiliary of the Hennepin County Medical Society gave a dinner during Clinic Week to the wives of medical men who came to Minneapolis to attend the clinics.

The social workers of Minnesota seem disposed to ignore physicians even in matters of health work; but even laymen will object to such a course, and have already done so effectively.

Dr. George Earl, of St. Paul, has returned from the Cruise of the American College of Surgeons to South America. He spent some time, previous to joining the Cruise, in the East and South.

Notices of the meetings of the Minneapolis Clinic Week, and of the Northwestern Section of the American College of Surgeons which took place last month in Minneapolis, will be found in our editorial columns.

The Northwestern Clinic of Watertown, S. D., has leased the entire second floor of the Kirwan Building of that city, and is now remodelling the same for the Clinic's headquarters. The rooms will be ready for occupancy about July 1.

Dr. Russell M. Farnham, of Los Angeles, Cal., was married last month to Dr. Harriet J. Bower, of the same city, who formerly lived in Minneapolis. Both Dr. and Mrs. Farnham are graduates of the Medical School of the University of Minnesota.

The Buena Vista Tuberculosis Sanatorium conducted jointly by Wabasha and Winona Counties is proving inadequate; and a movement has been started looking to a larger institution for Winona, Wabasha, Olmsted, Houston, and Fillmore Counties.

The Mission Hospital, conducted, until two months ago, by a group of doctors at Winner, S. D., has been leased to a registered nurse from St. Louis, Mo., and will be conducted hereafter as the General Hospital of Winner. It will be open to all physicians.

The Sioux Falls (S. D.) History Club gave an afternoon last month to the consideration of medical topics. Dr. A. J. Moe, of Sioux Falls, gave a talk on "Industrial Medicine," dealing especially with first-aid measures; and Mrs. J. D. Coon told what chemistry has done for medicine.

The trustees of the Miller Memorial Hospital of St. Paul are considering a plan to raise \$1,000,000 by public subscription to meet the present and future needs of the Hospital, and as an endowment fund needed to carry out the charitable work of the Hospital as contemplated by the founder.

The *Minneapolis Journal* asked for subscriptions last month to raise \$5,500 for the construction of a radio station at the Glen Lake (Hennepin County) Tuberculosis Sanatorium for the benefit of the patients. In a few days the amount asked for was oversubscribed by more than a thousand dollars.

Dr. Horace Clark, of Wheatland, N. D., died last month at the age of 61. Dr. Clark was a graduate of the Medical School of Harvard University, in the class of '88. He studied in Dublin, and had practiced in England and Austria. He began practice in this country at Lemmon, S. D., whence he moved to Wheatland.

At the next meeting of the Consulting Staff of Lymanhurst, on May 8, at 7 P. M., Dr. A. J. Chesley, Executive Secretary of the Minnesota State Board of Health will speak of the tuberculosis work of the Board; and Dr. A. J. Myers, of the Staff, will speak on the "Past Accomplishment and the Future Possibilities of the Staff." All physicians interested in tuberculosis work are invited to attend.

The University of Minnesota received last month a gift of \$250,000 from the Citizens' Aid Society Foundation, established several years ago by the late George H. Christian, of Minneapolis, and of which his widow is now president. The money will be used to endow a Cancer Institute, which will purchase enough radium for the treatment of patients and for research work in this disease. It is reported that pay-patients will be received.

On April 15 a special train left Freeport, Ill., to carry a group of physicians and their wives to eastern hospitals and medical centers, including Cleveland, Boston, New Haven, New York, etc. The party was made up largely of members of the Tri-State District Medical Association, whose membership is mainly in Iowa, Illinois, and Wisconsin. Minneapolis and St. Paul sent about twenty-five men, while a half dozen went from other places in the state. Dr. J. H. Rindlaub, of Fargo, N. D., was the only physician from that state.

Dr. Robert Olesen, who was loaned to North Dakota by the U. S. Public Health Service about a year ago to assist in the establishment of a stable health department, to be developed only if enough money could be had from the State Legislature, has been withdrawn and sent to Pennsylvania to assist in making sanitary surveys in the coal regions at the behest of the U. S. Coal Commission. Dr. Olesen did splendid work in North Dakota, but the time is not yet ripe for the health work that needs to be done in North Dakota and many other states.

PRELIMINARY PROGRAM OF THE NEXT ANNUAL
MEETING OF THE NORTH DAKOTA STATE
MEDICAL ASSOCIATION

The annual meeting of the North Dakota State Medical Association will be held at Grand Forks, Thursday and Friday, May 31 and June 1.

The House of Delegates will meet on Wednesday evening May 30 at 7:30. The Councilors and Delegates are urged to be present for the first meeting of the House of Delegates and have reports ready so that the business of the House can be completed in order that it will not interfere with the scientific program. Committees for the arrangement of this meeting are in the hands of members of the Grand Forks District Medical Society and all are working in order to make this the best meeting in the history of the Association.

The program is about completed. At this date the following are expected to give papers: Dr. J. T. Rogers, St. Paul; Dr. Frank J. Corbett, Dr. Hugh S. Willson, and Dr. Franklin R. Wright, of Minneapolis; Dr. D. A. Stewart, Superintendent of the Manitoba Sanatorium, Ninette, Manitoba, an international authority on the subject of tuberculosis, will be present and will deliver two addresses.

The following members of the State Association have promised papers: Dr. C. N. Callander, Dr. Frank Weed, Dr. J. O. Arnson, Dr. E. A. Pray, Dr. Martin Rindlaub, Dr. Weible, and Dr. E. A. Larson. Further papers may be added to this program.

A special feature of the program will be the reporting of unusual cases occurring in practice. Each person reporting cases will be allowed from seven to ten minutes. He may report as many cases as he wishes in that length of time. Up to the present time the following persons have agreed to report one or more cases: Dr. J. P. Ayles, Dr. J. C. Suter, Dr. Paul Burton, Dr. A. D. McCannel, Dr. Geo. Durnin, Dr. H. E. French, Dr. W. F. Sihler.

A banquet will be held on Thursday evening at 6:30. Following the banquet, addresses on scientific subjects will be given by Dr. D. A. Stewart and Dr. Franklin R. Wright.

The complete program will be published in the next issue of THE JOURNAL-LANCET.

FINE LOCATION FOR HOSPITAL OR SANATORIUM

Is offered in a good town near the Twin Cities. Great opening for two or more doctors. Address 334, care of this office.

POSITION AS TECHNICIAN WANTED

A young man now engaged in laboratory work desires a position to do like work in a clinic or hospital in the Northwest. Has a working knowledge of the x-ray laboratory. Address 340, care of this office.

SOUTH DAKOTA PRACTICE FOR SALE

An unopposed practice in the best little town in Southeastern South Dakota is offered for sale. Office equipment in good building and appointments, \$600. For particulars, address 336, care of this office.

LABORATORY POSITION WANTED

By a young woman trained in the Minneapolis General Hospital, who has had hospital laboratory experience, desires position in Minneapolis. Address 338, care of this office.

LARGE MINNEAPOLIS PRACTICE FOR SALE

A surgical, medical, and G. U. practice in downtown corner. Two drug stores on the corner, with no other physician in the vicinity. Rent, \$60 monthly; dentist pays half. Terms, \$2,000 cash when you start; this includes furniture, fixtures, instruments, and good-will. Address 341, care of this office.

SANATORIUM FOR SALE

One of the best paying, private sanatoriums in the United States, devoted principally to nervous cases. Best of reasons for selling. If a physician or staff of physicians are interested they would find this a delightful place to be in, with an interesting and profitable business from the start. Located in Wisconsin. Capacity, fifty patients. Cost is \$225,000.00, \$50,000.00 cash. The owner will stay there six months. Address Sargent & Walker, Duluth, Minn.

PRACTICE FOR SALE

Complete office equipment with established eye, ear, nose, and throat and general practice exceeding \$14,000, mostly office work, in one of the largest and best cities of South Dakota. Great opportunity, especially for a Norwegian-speaking physician. Price \$3,500. Part cash, balance \$100 per month. Address 335, care of this office.

UNOPPOSED LOCATION FOR SALE

In an up-to-date town of 500 population in S. E. Minnesota, Large territory and good collections. Price for location and equipment, \$900. Address 339, care of this office.

X-RAY MACHINE FOR SALE—CHEAP

1 Scheidel Western transformer, 220 volts, A. C.; 1 Tube Stand, S. W.; 1 Helium Tube, new, fine focus; 1 Hand Fluoroscope; and 1 Oak Room Lamp. Will sell for \$250 if taken at once. Address Henry A. Thoney, Administrator, Glencoe, Minn.

THOROUGHLY COMPETENT WOMAN WANTS POSITION

As secretary and assistant, good stenographer; can do routine laboratory work and can take and develop X-Ray pictures. Age thirty. Worked two and one-half years with a very high-grade surgeon and diagnostician. Recommendations of highest character. Address 344, care of this office.

PRACTICE FOR SALE IN SOUTHWESTERN NORTH DAKOTA

General practice, \$5,000 cash, average for several years without surgery; large territory; unopposed; modern town of 900. First-grade high school, good churches, and fine progressive people. \$4,500 with \$2,000 cash for complete office equipment and residence. Do not write unless you mean business and will visit prospect. No one looking for location can afford to pass this up. Address 345, care of this office.

STATIC MACHINE WANTED

Must be in good working condition. Address Russell Partridge, Box 12, Commerce Station, Minneapolis.

PARTNERSHIP IN MINNEAPOLIS WANTED

A physician who has done surgery for a number of years and of late has devoted most of his time to internal medicine, fluoroscopy, and radium in a large Clinic in a Northwestern city desires to form a partnership or enter a Clinic in Minneapolis. He can command 110 mg. of radium. A graduate (1900) of the Medical School of Minnesota and has studied in other medical schools. Can give the highest of references as to character and professional qualifications. Address 332, care of this office.

HOME ECONOMIC TEACHER WANTS POSITION

Hospital position during the summer or as substitute during regular dietician's vacation is wanted by a young woman trained in home economics with dietician training and hospital experience. Highest of hospital references given. Available May to September, and may consider a desirable position as permanent. Address Kathleen Brand, 112 W. Walnut St., Mayfield, Ky.

HOUSE PHYSICIAN WANTED

Single man having just completed internship preferred. Must be familiar with X-Ray technic. Salary \$2,000 per year, with full maintenance. Excellent opportunity for advancement to right party. Address Mudcura Sanitarium, Shakopee, Minn.

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DEMONSTRATIONS OF PEDIATRIC CASES*

By CLIFFORD G. GRULEE, M.D.

Assistant Professor of Medicine, Rush Medical College, Chicago, Illinois
CHICAGO, ILLINOIS

DR. GRULEE: Mr. Chairman and Gentlemen: This first baby is five months old and comes because of vomiting. The vomiting is of the projectile type. The child has not gained weight. It has had the vomiting ever since it was a few weeks old. The history is that the child does not gain, the stools are scanty, and it vomits no matter what food it is put on, except when given a thick cereal feeding. It does not vomit then. I do not know whether the child has vomited since the last bottle or not. We looked at it at that time, and found we could not see very much then. It may be possible to see something now. You notice the principal thing—I am not going into the detailed examination here—when I hold this baby up to you, you notice what a large abdomen it has. When it is lying down that enlargement is mostly in the upper portion, not so much below the umbilicus. We have looked for waves over the stomach and have been unable to see them so far. The child proceeded to cry very vigorously while we were looking before. Sometimes you have to look for the waves several times. There is no question in my mind if we were able to give this child sufficiently long examination we should be able to find definite gastric waves coursing across here. And the question then would come up: Why? What is the nature of the condition? There seems to be very little possibility that a child of five

months, in as good condition as this child, would be suffering from a true pyloric stenosis, the hypertrophy of the circular musculature. The probabilities are this is a case of pylorospasm of rather mild degree. How do we arrive at that conclusion? In the first place the child has been vomiting almost since birth; secondly, vomiting has been definitely projectile in type; and, third, it takes food of a liquid character and vomits it. When it takes a thickened food it holds it. Those three points are very strongly in favor of some condition that is accompanied by a constriction at the pyloric end of the stomach.

Now, from a practical standpoint they are only two. Those two are congenital pyloric stenosis and pyloric spasm. In a congenital pyloric stenosis the condition is more extreme than with pylorospasm. The waves, in all probability, would be very marked by this time. The emaciation would be very marked. In fact I have never seen but one case of pyloric stenosis in a child over three months of age. The others have all been dead, I take it. The pylorospasm will last for a long while, especially mild degrees of it.

Of course, just to revert again to the diagnosis, if you have a typical case, the thing that you want to feel is the pyloric tumor. But do not think because you do not feel a pyloric tumor, you have not a congenital pyloric stenosis, because a very fair proportion of the cases of true pyloric stenosis will not show a tumor at all.

*Presented before the Sioux Valley Medical Association at its mid-winter meeting, January 25 and 26, 1923.

I saw a case the other day where the waves came around into the flank. Evidently the pyloric portion of the stomach was enlarged, so that the pylorus was covered. It proved to be a pyloric stenosis.

The pylorospasms are not benefited by operation. It would be difficult to operate the same way that you do in a pyloric stenosis, slit the circular muscle fibers and let the mucous membrane herniate through the wound. The connection between your circular muscle fibers and your mucosa is so intimate in pylorospasm, where there is no such hypertrophy from a mechanical standpoint, that it is a very hard thing to divide your circular muscular fibers and not go through into the mucosa. Ideally, I think the best way to treat these cases is by giving them a large quantity of atropin (comparatively large for a child this size) with the idea of relaxing the muscular over-action at the pylorus, and, second, to wash the stomach in order to relieve it of this residue, which is unquestionably irritating to that stomach. But that ideal treatment can be carried out only where you have ideal conditions to carry it out in. The atropin treatment is unquestionably of great value. A child of this size could certainly take a 1/500 gr. probably 1/250 gr. of atropin before each bottle. That might be enough to overcome the constriction of the pylorus and get results. The probabilities are it would not be enough. If it were not enough then you could go ahead and try washing the stomach. If you have not the facilities for doing this, a thing which is so definitely indicated in this instance by what has gone before, is that you could give the child a thickened food. You ask me if it is so simple to give a thickened food, why don't you use that in preference to using the stomach-washing? My reason for this is, that in these children the thickened food, which is given, consists of a large amount of starch with milk boiled down to a thick paste, and is not a food which is characterized to nourish these children over a long period, which you usually have to follow in the treatment of pylorospasm. With the use of stomach washing you can give these children a food, which is characterized to meet the case from a physiologic standpoint, and get a rising weight-curve during the whole of your feeding period, or after, we say, a short period of treatment.

Now, this other case is an entirely different

proposition. This baby comes with the history of vomiting. The vomiting is not projectile. It is an entirely different type of vomiting. The vomiting here—here you see, too, that the abdomen is distended, but I think you will agree with me in this instance, the abdomen is not distended to the same degree as it was in the other case—the vomiting here is apparently more or less a spilling-over. But when you get back into the history of this the vomiting has another characteristic, which you would not get unless you asked for it, and which, I dare say, would be much more frequently observed if we did ask for it. That is that this child brings the food up into the mouth, gargles it a while, then swallows it again. Ofttimes in that process it overflows. That is a thing which we find rather frequently in the infants in our wards, because we are on the look-out for it. Unless you ask a mother definitely about that type of vomiting you will not get it. The mother will not tell you anything about it. She will simply say that the child is vomiting or spitting. You would not get the history that it brings it up into the throat, gargles it a while, as it were, then swallows it again. Usually during the process it is projecting the tongue back and forth so that the level of the fluid in the back of the throat moves up and down with the movement of the tongue. Usually there is rather a disgusting noise being made at that time. That probably is true in this case, as near as we can get from the history, and represents a condition of what we know as "rumination." Now, you have known of rumination perhaps in cattle, also, to a certain extent in adults, but the rumination in infants is of much more serious import. In infants rumination frequently is the cause of a very severe form of malnutrition, and these children simply go down, down, down, if they have a severe form. Nor has there been any treatment devised which can be regarded as sufficiently successful to assure results. You must remember that rumination has back of it a certain psychological aberration. These children get enjoyment out of the act, and you must get at the psychology of the situation in order to get results.

I remember one case of rumination I had where I told the doctor all sorts of things to do. He proceeded to tell the family all sorts of things to do. I saw the doctor about six weeks afterwards, and I asked about the baby. "Oh, the

baby is fine." "Did you do what I told you to do?" "No, they would not do that. The grandmother had a little bell she rang every time after the child ate, and kept its attention, and the child got well." That is the secret, I think, of the treatment in these conditions. The secret of the treatment is to keep the child's attention off of the ruminating act for several minutes, perhaps several hours after the child takes food. There is a good deal in the literature about tying the jaws up, so that the mouth is held together, and the child cannot get the food up into the mouth. Theoretically that is very fine. Let me tell you, when some of you start to tie up the jaw of a young baby you are going to have your troubles.

The doctor has been kind enough to bring us some cases here of rickets, and I want to talk to you a few minutes on rickets. There has been so much written and said about rickets lately, and a great deal of this must be boiled down and sifted out. Now here is a child with a very definite rickets. You see that rachitic rosary there. You could see it a mile off. Now there is one thing I want to tell you about a rachitic rosary. That is that most men who feel for a rachitic rosary feel across the ribs. Don't do that. Feel along them. The reason why you should feel along the long axis is this: the bone, (the rib), grows much more rapidly proportionately than does the costal cartilage. As a consequence the relative position of the costochondral junction in babies is much further towards the axillary line than it is in adults, with a consequence that if you feel, as you ordinarily would for the rachitic rosary, you will miss it. You see where it is here (pointing). It is clear out here at the side. The head is large and one might think quite long, and that is the type of head which you expect to see in a premature baby, also the fontanel is wide. One might say has that child a hydrocephalus? I want to tell you it is not always easy. One often thinks that a hydrocephalus is one of the easiest things on earth to diagnose. I want to tell you the way I got fooled the other day. We had a baby in the ward that had a large head, wide open fontanel, and the child died from some intercurrent infection, and I signed the chart "hydrocephalus" thinking there was no question about it. The child went to autopsy and it had only a large head and large brain. There was not any hydrocephalus at all. It was

one of the premature infants with what we call megacephalus and not hydrocephalus.

In this other baby you see the rachitic rosary quite marked. The other signs are not so marked. There is some enlargement of the epiphyses. The head is rather square, not markedly so. This child was brought in for a big liver, and the liver comes about to there. But you will notice, too, that there is a constriction in the chest at this point, and that the ribs flare here. To my way of thinking that liver is not an enlarged liver, but is pushed down by the rachitic girdle, which comes above the liver, and pushes it down just a small distance. The general condition of the child is excellent; otherwise, no symptoms whatever. The question came up "Why was this liver enlarged?" I don't think it was. I think it was displaced. We have seen the results of rickets in children that are perfectly normal in every way. There is some enlargement of the epiphyses. You notice no deformity. The legs are straight and the general condition of the child is excellent.

Now just a word about rickets. There is a lot of misconception about rickets, and it seems to me that we ought to do our best to clean it up. In the first place, no one knows what the cause of rickets is, in spite of all the work that has been done about it. They have not come to a definite conclusion. You can prevent rickets if you want to give every child cod liver oil. You can prevent rickets if you want to give all your children plenty of fresh air and sunlight. But you can't always prevent rickets in a community like Chicago, or even here, where a large portion of the winter the sun is covered over either with smoke or with clouds. There is no question but that one of the old English physicians was right, when he said that he thought rickets was caused by too little sunshine, and the most definite evidence we have is that rickets is caused as the result of too little sunshine. Now you can put them on a porch and let the sun shine through a window on them all you please and it does not do any good. The actinic rays are taken out by the glass, and they can get all the sunshine of that sort they want and it does not do any good at all. They must have direct sunlight.

Another thing is, the nearer sea level you are, the less does your sun protect against rickets. In other words, if they are up high the actinic rays there are much more active, and as a consequence the babies are much better protected

against rickets. It has been pretty definitely shown by Hess of New York that sunlight and ultra-violet rays will increase the quantity of phosphorus in the blood, which has been shown to be reduced in the active stages of rickets. So that probably that factor has a great deal to do with it.

But there is another thing I want to say to you. There is an idea among the laity that most of these rachitic children are rachitic because they don't get enough to eat or the proper food. It is very interesting to me that Jundell, a Scandinavian pediatrician of some note, has shown that as long as he underfed his babies they did not develop rickets; in the over-fed ones they did, and I have often seen that marantic babies do not develop rickets primarily, that is, if they are primarily marantic they do not develop rickets. They may be rachitic and become marantic afterwards. Now, this type of baby that I showed you first is a little bit different in that it was a premature baby. Practically every premature baby, regardless of what you feed it or how you treat it, develops rickets. You practically can't keep a premature baby from having rickets. The same is true of negro children in a place like Chicago. Every negro child I have ever seen had rickets when it became of rachitic age, that is, about six months. There is a whole lot, gentlemen, we do not know about rickets yet, but there is a lot we can do to prevent rickets by following the ordinary rules of hygiene, get the children in the open air and the sun. Rickets is not active during the summer months and you can store up a lot of phosphorus probably by giving them plenty of fresh air and sunlight then.

This little girl offers a problem which is perhaps not to be solved today. (reads history)

Now there is a definite history that this child, about the time she was 18 months old, I think it was, had a large liver and a large spleen. At that time she very evidently had anemia. At any rate, her blood count on the 22nd of November last showed that she had a (reads).

Now, I don't know what is the cause of the aldermanic proportions of the abdomens of the babies in this part of the world, but they all seem to have them. Every one I have seen this morning has had a good big one. It is pretty hard to tell whether that child has a big spleen or not, because this abdomen is so fat, the child is evidently gaining very well in size,

but I think I feel the spleen right there. I think I get a definite edge of a spleen right there. I am not absolutely certain. I tried it in the other room. I was not sure then. The child does not like to lie down and you have great difficulty, but I think this liver shows something too. Other than that the child offers very little. She has a big abdomen. The abdomen is out of proportion to the rest of the body, though she is well nourished. Her general condition is not at all bad and the question comes up, What is the diagnosis and what will we do?

Now, anemias in children of this age, beginning as this evidently did, around the end of the first year or even earlier, will not fall into the classifications which you use in adults. You don't see the same type of anemia in infants and young children that you see in adults. Age makes a great deal of difference. The age incidence here is very marked. There seem to be in young infants three factors which enter into the production of an anemia.

The first of these is the question of inheritance. The same factors acting on two different children will produce different results. We know that is true not only in anemias but in many other conditions, so that there seems to be a predisposition to anemia in certain children, and that we must always take into account.

The second factor is the question of food. These children develop anemias on certain types of food with a regularity which seems to be more than accidental. There seems to be something in the food itself, and I will come back to that in a minute. The third is that we find a type of anemia which very definitely follows infections of some sort. Now, these simple anemias are not usually accompanied with enlargement of the spleen and liver. Where we get an anemia accompanied by the enlargement of the spleen and liver we immediately tack on it that wonderful term of anemia pseudo-leukemic-infantum-of-Von-Jaksch. That anemia may have almost any of the characteristics of anemias of other sorts. The most typical cases show a rather severe anemia with a hemoglobin relatively reduced below the red blood count, a high leukocyte count, but rarely, very rarely, over 25,000, usually about like this, 14,000 or 15,000. They have a lymphocytosis and you get normocytes and normoblasts; sometimes you get normoblasts in cases that have not any splenic enlargement, and the truth of the matter is when

you come to classification of anemias in young infants, the whole thing is chaos. There is no proof to show that these cases of anemia pseudo-leukemica-infantum-of-Von-Jaksch are anything more than secondary anemias, with enlargement of the spleen, and there is not anything to prove that secondary anemias may not on certain occasions cause an enlargement of the spleen. There is an element in this case which is most interesting to me. About a year ago that hemoglobin was up to 70%; 70% in a child two years of age is very good. You know, immediately after birth the hemoglobin may be up to 100 or 110% and it very rapidly drops, so that under normal conditions a child over one or two years old rarely has over 80% hemoglobin, and 70% may be regarded as normal. It was up to 70%. Now it is down to 55%. This baby demands a quart of milk, not in the daytime, but in the night, takes a quart of milk at night, every night.

What does that mean? It means that the child is getting a large amount of fat, and it means that the child has formed in the intestines a large amount of fatty acid. There is nothing that is as destructive of hemoglobin as the fatty acids. perhaps that is a factor in this case. At any rate, when you have an anemia in children, don't feed them large quantities of milk. The mother says the child won't take anything but milk. Of course it won't take anything but milk. Why should it? It is getting 40 ounces of milk a day. That is enough to feed any one of us. Of course it won't take anything but milk, and it won't take anything but milk unless you starve it to it, and it is absolutely necessary in this case that you do it. That child is not going to get better until you change its food, and the principal articles of diet that it should have are spinach and beef juice. And that child should have a goodly portion of spinach and a certain amount of beef juice every day. It won't take it as long as it gets all the milk it wants all night. Of course it won't.

Now, I am not sure whether you would classify this case as a case of anemia pseudo-leukemica-infantum-of-Von-Jaksch or not. It has the secondary anemia, as far as the blood count shows, and has the spleen. Typical cases of pernicious anemia I don't believe have ever been described in children under two years of age. Perhaps among children the most frequent form of real primary anemia is the so-called aplastic

anemia, where you have the drop of hemoglobin, reds and whites all at the same time. They show a rapid course and high temperature. I think the thing to do for this child is to pay attention very carefully to the diet. I believe you will get much further than by giving the child drugs. Certainly you must cut out a large part of the milk and especially the cream from the milk. I think you can go further by giving the iron in the form of vegetables and foods than you can with Bland's pills. You can expect it will take quite a while, and I predict it will take quite a struggle.

I want to show you this case and I will talk about part of it this afternoon. This is a pretty husky-looking baby, but the story of the child is this: that when the doctor first saw it it was very constipated and this constipation had been treated by the use of cathartics, and the more cathartics the more constipation. But that didn't bother the parents at all. That was not what they came to the doctor for, but because the child had a convulsion, began to have convulsions with its constipation. Now, to me that is very interesting. This is a child where you would hardly suspect that the condition of the brain was such as to produce convulsions. There is nothing in this child certainly that suggests an imbecility or anything of that sort. The child is certainly a live wire. It is noticing everything, sitting up taking notice on every occasion, perfectly all right. But why should it have convulsions and what has the constipation to do with the convulsions? There is only one thing that is going to cause convulsions of that type, and that is a spasmophilia, and I think that I could not do much better than to tell you a few things about spasmophilia at this time. To many of you that term does not represent much of anything, especially if you are not familiar with the pediatric literature of the last ten years, but spasmophilia is what its name implies, a tendency to convulsions, a tendency to spasmodic seizures. It manifests itself in three or four different ways. The principal way, perhaps, that we all see, is in the form of heaped-up convulsions, several convulsions in a small unit of time. It frequently is associated in the minds of most of us with gastro-intestinal disturbances, though it is not essentially a gastro-intestinal condition. Other forms in which it does show, (and the surgeons will unquestionably know something about this,) is the so-called tetany which we get

with parathyroid disturbance, and the laryngismus stridulus which sometimes initiates convulsive seizures. This is not exactly a strangulation, but it is a peculiar spasm of the muscles of the larynx, which makes it extremely hard for these children to draw much air into the lungs, and they make a whistling sound when they do. It is not spasmodic croup, because the condition lasts much longer than spasmodic croup, and is not accompanied by acute inflammatory conditions of the upper respiratory tract.

Now these conditions, too, like rickets, occur usually in the winter and spring months. They have been associated very definitely of late with a decreased calcium content in the blood. It was thought at first, you know, that rickets was associated with the same condition. That seems not to be true. It seems that rickets is associated rather with a decrease in the phosphorus content of the blood, but that in the spasmophilia it is a decrease in the calcium content of the blood. If you are possessors of a galvanic current you can take the electric irritability and you will find that is reduced. I won't go into that now, but this is the most frequent cause of convulsions in infants, and it is well that you should understand it, and know that it is comparatively easy to treat.

In the first place, of course, your indication is to get control of the convulsive seizures. That is best done usually by the use of chloral hydrate rectally. To these babies, you could give

from one to five grains (usually two grains to start with) and repeat in four hours with another grain. After the convulsive seizures are quieted, frequently you get them asleep and keep them just on the edge, using your own judgment about the quantity of chloral hydrate you use. You are able gradually to decrease the quantity of chloral hydrate. Then for controlling the convulsive tendency, in other words, for increasing the calcium in the blood you can give them large quantities of calcium lactate. It does not do any good to give small quantities of calcium lactate. You might as well quit. You must give these children at least 20 grains of calcium lactate every four hours, and oftentimes, 30.

And then another thing that we know increases the retention of calcium, if given over long periods, is cod liver oil and phosphorus. This promotes the retention of the calcium and helps to gradually reduce the irritability, and these children get better. You never see this type of convulsion in the summer months, in July, August and September. There are convulsions which come on with high temperatures, or some infection. But if you take the electrical irritability you find this is not increased. February, March, April and May is the time when you will see these convulsions. As to the gastrointestinal side of it, that has to be taken up in this individual case. I will speak about this this afternoon, when we take up the question of constipation. Thank you. (Applause.)

PERSONAL EXPERIENCES IN THE OPERATIVE TREATMENT OF ECLAMPSIA

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Clinical experience teaches that of all cases of eclampsia, 20 per cent are antepartum, 60 per cent intrapartum and 20 per cent postpartum. Primipare are affected oftener than multiparæ. Twin pregnancy and hydatid mole predispose to eclampsia, while hydramnion does not. Well-nourished, full-blooded, strong women are affected oftener than weaklings. There also seems to be no seasonal variation, cases occurring equally in summer and winter in this climate. (From Bumm and Kaufmann.)

Pathology.—The brain is usually congested, but at times anemic. Often there are pin-point hemorrhages scattered through the brain substance, especially in the pons. Both liver and kidneys are the seats of a severe degenerative process, that is, cloudy swelling, fatty degeneration, and necrosis of the secreting epithelium. In the liver the acini bear the brunt of the attack; in the kidney the epithelium of the tubules is affected. These changes are so marked that often they may be detected with the naked eye,

Summary. Eclampsia at 8 Mos. 1 Para Very Fleshy, weighs 225. Many Convulsions before entering Hospital. Four Convulsions after insertion of bag. Baby dead. Mother lived.

Entered Hospital at 6 AM. Had been found unconscious in bed. Bag inserted at 9 AM. Expelled 4 PM. Delivery at 4:15 no record of Pulse and temperature before delivery
LAB. 3-21. ALB+++ ALB+ S.B.P 165 DBP 110

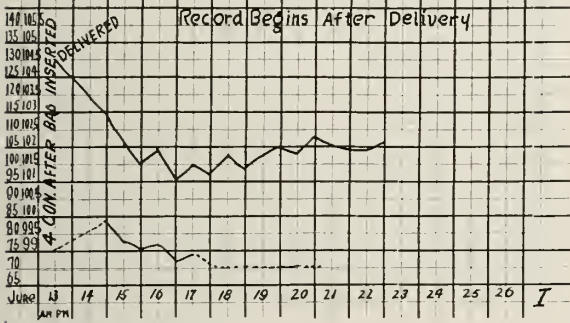


Chart I

Summary. Primipara. at term. Rigid Cervix will not admit finger First Convulsion July 21. Entered Hospital on same day about 15 Convulsions in all Classical Caesarian under local Two Convulsions on table Child lived 3 Mos. Mother died

LAB 7-21 Leuc. 24,000 ALB.**** S.B.P.190
Neut. 81% Micro- pus and blood 7-21 Blood urea Jamp. Per.100
Lymph. 17 7-21-Pnebotomy 500cc Chlorides in Urine 0.6%
Eryth 4,500,000. Blood sugar 0.9
7-22 Blood Urea 72
Blood SW for 132

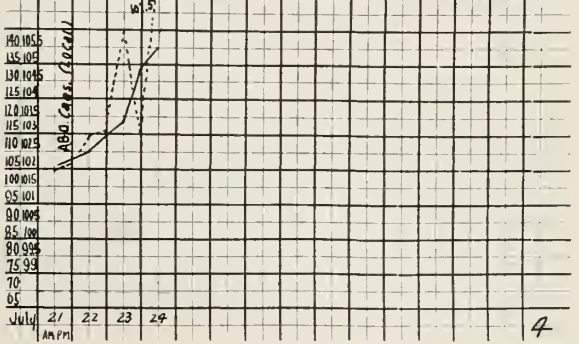


Chart IV

Summary. Eclampsia at term. Cervix 3d milled finger Hard not Effaced. 6:24 Entered Hospital pre-eclamptic Stage on acct. of rising blood pressure. scanty urine and headache No.5 Bag inserted under anesthesia. all symptoms aggravated one Convulsion 3 Hrs. later 5 Hrs. required to expell bag Version and extraction. Mother and Child lived.

LAB. 5-11: A.L.B.+ Funct. Test 6:21 25% 1st Hr. 6:20 S.B.P.125 DBP 75
6:20 A.L.B.+ 31% 2nd Hr. 35% 2nd Hr. 6:23 S.B.P.155 DBP 80
6:23 A.L.B.+++ 6:26 - 15% 1st Hr. 26% 2nd Hr.

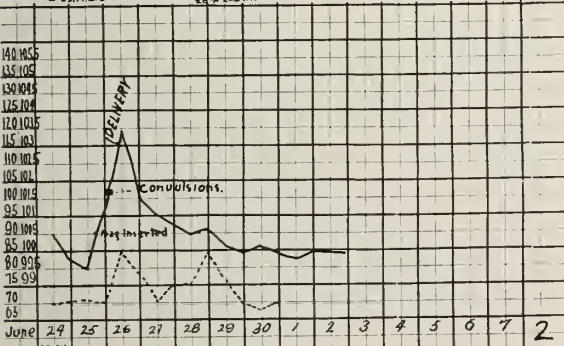


Chart II

Summary. Primipara. Eclampsia at 7 1/2 Mos. Two Convulsions before entering Hospital. 8 after insertion of Bag all symptoms aggravated by Bag and subsequent Labor. Mother died. Baby lived.

LAB ALB.+++
Casts.
S.B.P.150

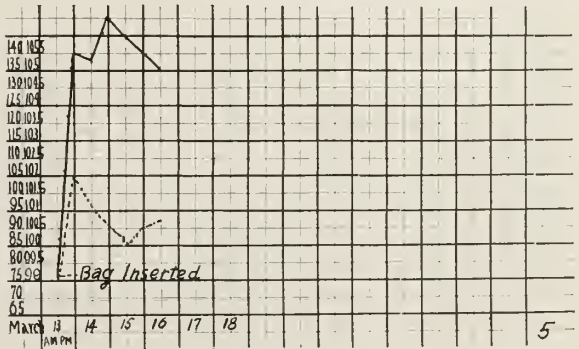


Chart V

Summary. Eclampsia. 1 Para at term Cervix Soft No Dilatation No effacement. Abd. Caesarian. Entered 5-21-21. 6 Convulsions before Caserian Baby Dead Mother Lived.

MAY Leucocytes 16000 JUNE Leucocytes 34000 Ne & Blood culture
Erythrocytes 3,880,000 7th Hb 40-50 June 30. P.S.P. 40% in 2 hours.
27th Hb 80% JUNE Leucocytes 37000
Alb +++ 10th P.S.P. 20% returned in 2 hours

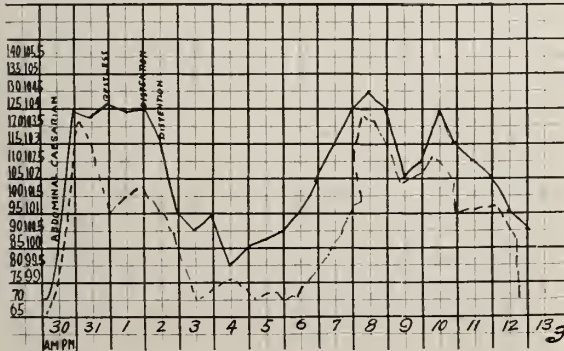


Chart III

Summary. Eclampsia at 6 mos. two Convulsions before entering First Pregnancy. Cervix rigid and not dilated. Patient Just recovering from flu and Flu Pneumonia. (Had been desperately ill with Pneumonia.) Foetus dead. Mother lived No Hospital record before vag. Caesarian on acct. of rush During Flu epidemic

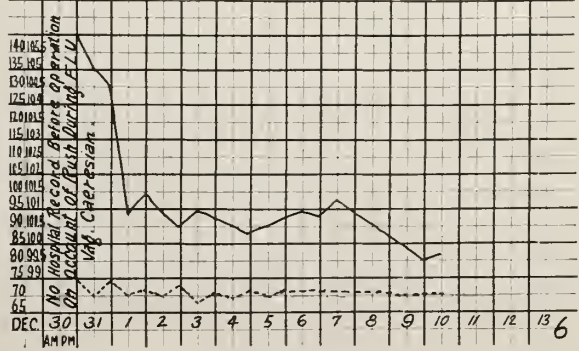


Chart VI

Summary. Para. Most severe case clinically. At least 20 Convulsions in first 24 Hrs. Preg. 8 Mos. along. Dead Fœtus. Vag. Caesarian Mother lived. One convulsion after operation.

ALB.

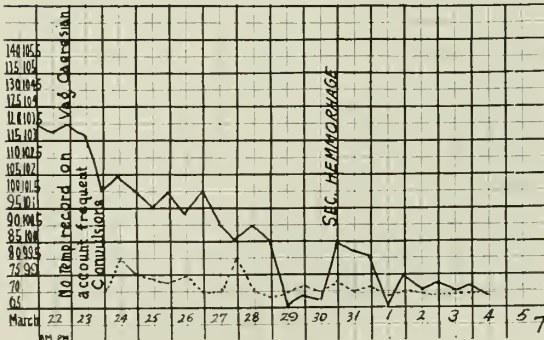


Chart VII

Summary. ii Para. 8th Mo. Two convulsions before entering Cervix admitted two fingers and Partly Effaced Vag. Caesarian Mother and Child lived. No Convulsions after operation.

LAB. ALB. ... On 5 exams. Many Casts of all kinds.

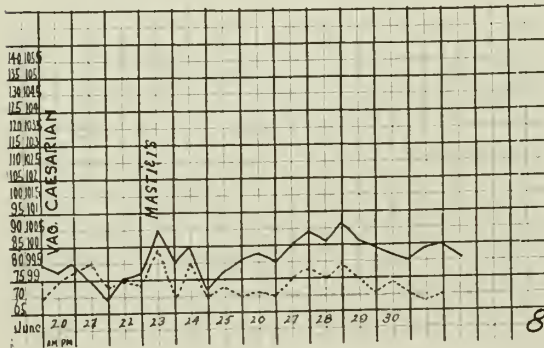


Chart VIII

Summary. Pre-eclamptic toxæmia with co-existing nephritis Vag. Caesarian at 7mos. Second Pregnancy Cervix rigid not dilated Child living but died during extraction (Anesthesia not deep enough) Mother lived.

L.A.B. 1-6. ALB. # 1-6. 1921. Eryth. 3,300,000.
 1-15. ALB. " " Leuc. 22,000 Hemo. 30%.
 Acetone " Neut. 81 %
 Lump 16 %

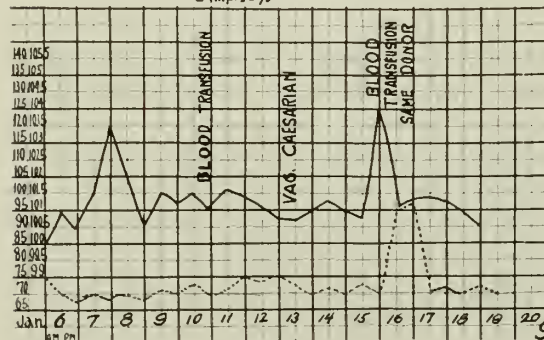


Chart IX

Summary. Second labor. 8th Mo. Cervix rigid and undilated Six Convulsions before entering Hospital Vag. Caesarian Mother and Child Lived. No Convulsions after operation.

L.A.B. 6-21 ALB.
 6-21 2oz. urine from 6 AM. To 2 PM.
 6-21 SBP 155 D.B.P. 90.

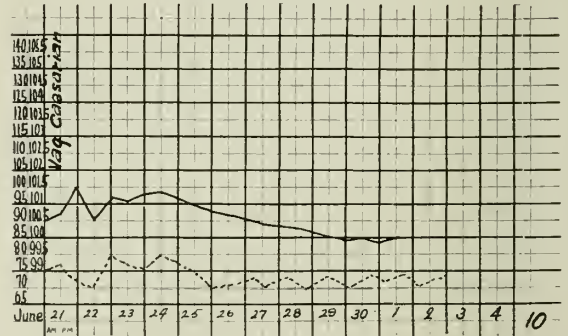


Chart X

both liver and kidney presenting a mottled appearance. Similar changes occur in the liver and kidney of the fetus.

There are often fatty degeneration of the heart muscles and thrombi scattered through the lungs. Other changes, such as edema and inflammatory processes in the lungs, emboli composed of liver cells, emboli composed of placental cells, fat emboli and hemorrhage of the brain, are accidental findings and have nothing to do, per se, with eclampsia. (From Bumm.)

Lubarch and Smarl consider the following findings typical of eclampsia:

1. Degenerative processes in kidney.
2. Anemic and hemorrhagic necrosis of liver.
3. Softening and hemorrhage of brain.
4. Softening and hemorrhage in heart muscle.
5. Multiple thrombosis.

These pathological findings tell but one fact, that is, that this disease is a severe toxemia of some sort. They tell us nothing as to the nature or source of the toxemia. You are all familiar with the various theories: (a) chemical, (b) mechanical, (c) bacterial, and (d) uremic.

Anaphylactic—syncytial cells are found in the blood during pregnancy, and this fact has been made the starting point for the theory that the presence of syncytial cells excites the formation of antibodies which cause anaphylaxis.

Tetany—that it is a form of acute tetany due to diminution or loss of parathyroid secretion.

It seems likely that during pregnancy there is a toxin elaborated in the body that should be excreted by the kidneys, and that this disease is eclampsia.

Blood Chemistry.—There has been much recent work on the metabolism of pregnancy and causation of toxemia and eclampsia. Some authors attempt to differentiate a nephritic and hepatic toxemia on the basis of the nitrogen partition in the blood; others are of the opinion that it is not justified. The blood nitrogen for a normal case of pregnancy is as follows (Caldwell and Lyle):

Non-prot. nitrogen 35 mg. per 100 c.c.

Urea nitrogen 18 mg. per 100 c.c.

Creatinin 2 mg. per 100 c.c.

Uric acid 4 mg. per 100 c.c.

This shows urea nitrogen lower in pregnancy than in the non-pregnant state. The blood nitrogen of eclampsia (Caldwell and Lyle) is as follows:

Non-prot. nitrogen 49.7 mg. per 100 c.c.

Urea nitrogen 26 mg. per 100 c.c.

Creatinin 2.17 mg. per 100 c.c.

Uric acid 6.19 mg. per 100 c.c.

As in true nephritis retention of uric acid and creatinin carries a grave prognosis.

Prognosis.—According to the best statistics, 20 per cent of mothers die and 50 per cent of children die.

Treatment.—There are three distinct schools: (1) the conservative, (2) the radical, and (3) the combination.

1. The Conservatives: The conservatives follow the teachings of Stroganoff, and this method is popular on the Continent. Stroganoff advises the free use of morphine and chloral per rectum, and phlebotomy, 500 to 1500 c.c. being removed. The patient is put in a darkened, quiet room; the nurse wears rubber soled shoes; and all external irritants are reduced to a minimum. The woman is then allowed to go through labor. The statistics show the mortality to be about the same in this method of treatment as in the radical, 25 per cent of deaths. (Maternal.)

I have no personal experience with this method. Statistics prove it to be as efficient as the radical methods, and I think in absence of best hospital facilities it would prove the proper treatment.

Those who occupy the middle ground use the above treatment till it is evident the patient is getting worse (convulsions, and increase in the pulse-rate and blood pressure), and then deliver by radical methods.

2. Radical School: The men in this class deliver at once after the first convulsion or be-

fore. The following methods come into consideration, depending on conditions:

a. Insertion of a colpeurynter into the uterus. Later delivery by version and extraction.

b. Manual dilatation and forceps or version and extraction.

c. Abdominal Cesarean.

d. Hysterotomy or vaginal Cesarean.

F. S. Newell, Professor of Obstetrics, Harvard, takes the middle course when he says: "If the obstetrician is committed to a policy of immediate delivery Cesarean section has a place though it should not be employed to exclusion of other methods. If the patient is a primipara, especially if over 35 with a small rigid vagina, which will resist attempts at dilatation, vaginal Cesarean is indicated if the child is small and premature; and abdominal section, if the child is near term and large.

"In eclampsia occurring in patients where the cervix is obliterated and the external os is easily dilatable, Cesarean section has no place, since induction of labor or accouchement forcé will give as good results. The true place of Cesarean section in eclampsia is in patients who do not start in labor in spite of convulsions, who are getting worse in spite of treatment, and in whom the condition of soft parts renders operation from below more dangerous than abdominal section on account of greater shock involved in accouchement forcé, or the prolonged irritation of the cervix plus increased absorption of toxins in cases where a bag is employed."

J. B. DeLee advises as follows: The method of delivery depends on:

1. The period of pregnancy.

2. Environment of the patient.

3. State of the cervix.

4. Skill of the operator.

5. Extraneous complications, such as placenta previa, small pelvis, etc.

If the cervix is shortened or effaced so that only a thin edge remains, it may be dilated with the fingers, metallic dilators, or bags, or it may be incised. If the cervix is tightly closed and not effaced, the cervical canal long, two methods are available, vaginal or abdominal section.

In primiparæ before the 34th week or in multiparæ with soft, usually lacerated cervix, roomy vagina, and relaxed outlet, vaginal hysterotomy is indicated.

In a primipara at or near term with long hard cervix and rigid soft parts, this operation is diffi-

cult, and the question of abdominal section arises.

Dilatation by bags, the colpeurynter of Carl Braun, the unelastic ballon of Champetier de Ribes, or its modification by Voorhees, in favorable cases of soft dilatable cervix can be accomplished in one sitting under anesthesia in one to two hours. Often after the bags have produced a partial opening vaginal section can be done.

E. Bumm, of Berlin, advises as follows:

1. The main duty of the obstetrician in eclampsia is immediate delivery, as this is the surest way to stop the convulsions and improve the patient. In milder cases the convulsions stop after delivery. Others in deep coma sometime improve when the uterus is emptied while the pulse is good.

The advice to empty the uterus is easy to follow where dilatation is advanced. Version and extraction should be done immediately.

If the cervix is only partly open and only partly effaced, delivery is harder. Bags or manual dilatation with podalic version and traction on a foot will suffice. Save the mother—disregard the child.

When the cervix is undilated, not effaced, vaginal hysterotomy is the choice. When the patient is conscious and in good condition, it is allowable first to try morphine. It is possible the convulsions will cease and labor progress. Break the bag of waters. If the morphine treatment fails, the vaginal hysterotomy should be done. If the soft parts are narrow and the cervix hard to reach so that the extraction of the child would cause deep tears in the perineum, abdominal Cesarean section is to be preferred.

Now, then, what shall we do when confronted by a case of eclampsia? Disregarding the conservative or morphine treatment, what surgical procedure is proper?

If the cervix is well or fully dilated, use forceps if the head is engaged; version and extraction, if not. In all other conditions, no matter whether the child is large or pregnancy is at term, vaginal hysterotomy is the operation of choice. The only contra-indication would be a small pelvis or a flat pelvis.

The energy expended by nature in the expulsion of a child at term is considerable. I know of no way of estimating it. The forcible contractions of the uterus for several hours must represent a considerable force in the aggregate. This energy, expended, must be balanced by its

corresponding waste products or toxemia. This, in turn, is excreted largely through the kidneys.

Autopsies prove the damage to the liver and kidneys in eclampsia. Why then add the burden of the muscular effort of labor and its toxemia to already damaged kidneys and liver? Why then use bags which allow the toxemia of labor to be added to that of eclampsia?

It is the experience of gynecologists that vaginal operations are followed by much less reaction and shock than abdominal operations. It is clinical experience that shows the lessened pain, lessened temperature rise, lessened increase in pulse-rate, the smoother convalescence in vaginal operation.

Why not then the vaginal hysterotomy, which delivers the woman in the shortest time and causes the kidneys less burden than any other procedure?

I have the charts of ten cases of eclampsia. This is too small a number from which to draw hard and fast conclusions. They are merely personal experience which has helped to mould the personal opinion recited above.

The series are as follows:

5	Hysterotomies:	
	Maternal mortality.....	0
	Children dead before delivery.....	2
	Children lost in delivery.....	1
2	Abdominal:	
	Maternal mortality.....	1
	Children dead before delivery.....	1
	Children lost in delivery.....	0
3	Bag cases:	
	Maternal mortality.....	1
	Children dead before delivery.....	1
	Children lost in delivery.....	0

In all these cases phlebotomy, glucose per rectum, intravenous of Fischer's solution, purgation were used; also morphine where it was deemed advisable.

I am able to show only the pulse and temperature records on the accompanying charts. Routine blood pressure readings were taken on all, but unfortunately were not noted on the histories.

CASE 1. (Bag).—Shows the course of a successful delivery by bag. There were four convulsions after insertion of bag, but the bag cannot be held to have made convulsions more frequent. Note the improvement in pulse and temperature after delivery.

CASE 2. (Bag).—Note the rise in temperature and pulse-rate after the insertion of the bag.

CASE 3.—Abdominal Cesarean; successful outcome. Note the stormy convalescence.

CASE 4.—Abdominal Caesarian. (Local anesthesia). Mother died.

CASE 5.—Note the rapid rise in the pulse and temperature after the insertion of the bag, and increase in number of convulsions.

CASE 6.—Hysterotomy. Note the smooth convalescence as regards temperature and pulse-rate.

CASE 7.—Hysterotomy. Note the almost im-

mediate improvement after the operation.

CASE 8.—Hysterotomy. Note the almost complete absence of reaction following delivery.

CASE 9.—Hysterotomy. Note the immediate improvement after the operation and the smooth convalescence.

CASE 10.—Hysterotomy. Note the smooth convalescence.

THE RADICAL MAXILLARY SINUS OPERATION UNDER LOCAL ANESTHESIA*

BY L. A. SCHIFFER, M.D.

BISMARCK, NORTH DAKOTA

The primary object of this paper is the consideration of local anesthesia in the radical operation on the maxillary sinus according to the title given to our program committee sometime ago. Inasmuch as I wanted to take up the subject from a wider standpoint a short outline is given.

1. Short history and description of the beginning of use of local anesthesia in this operation.

2. Method which I use for inducing anesthesia with reason for preferring local over general.

3. Indications for radical maxillary sinus operation.

4. Method of operation.

5. Some observations on the radical operation and short discussion of the widely varying views and probable explanation of the extreme differences.

It should be understood also that I am claiming originality neither in the method of operation nor the anesthesia. Where I know to whom the credit for originating a procedure is due the name is given in the article.

I

According to a report written by Denker and published in 1908 and 1910 Von Eichen was the first to perform the Luc operation under local anesthesia, in 1904. He used 1 c.c. of 0.5 per cent solution of cocaine to which two drops of 1-2000 adrenalin was added. This he injected subperiosteally and painted the surface of the lining membrane with 10 per cent solution of cocaine after opening the sinus. Two years later Börger of the Franckel Clinic used

2 c.c. of the same solution instead of 1 c.c. And in 1907 Nagel warmly advocated using local anesthesia for this operation. He prepared his patient with a hypodermic of morphine one-half hour before operation and used subperiosteal injections of Schleich's solution (0.5 per cent cocaine in isotonic solution).

He then applied 10 per cent cocaine-adrenalin solution in the inferior meatus of the nose and injected 1 per cent solution cocaine-adrenalin into the lining of the sinus using 2 c.c.

Dr. Denker, who shares with Dr. Luc, the honor of being one of the early workers to bring out a successful operative procedure, used the following method:

1. Morphine hypodermically one-half hour before operation.

2. 1 per cent novocaine with suprarenin injected upward toward the orbital margin, then injecting the infra-orbital nerve.

3. Tampon of 10 per cent cocaine solution with suprarenin on the outer wall of the inferior meatus.

The development of both the technic and the popularity of this operation under local anesthesia was given its greatest impetus during the World War. While it is due to the otolaryngological profession as a whole, Dr. LeMaitre of the French army is, perhaps, deserving of the greatest credit. He it was who stated definitely that it was bad practice to resort to general anesthesia in doing a radical maxillary sinus operation.

II

The reason for giving the method which I use for inducing the anesthesia is not that it is essentially different from that of any one else, but there are always little individualities in

*Presented before the North Dakota Academy of Ophthalmology and Oto-Laryngology, at Jamestown, N. D., June 1, 1922.

technic which seem to work out more successfully for one than another.

The patient is prepared by giving an enema early in the morning. No food is given, though a small amount of dry toast and coffee is given early. A suitable dose of morphine and atropine is given three-quarters of an hour before operation. If the patient is very nervous other sedatives may be given beforehand, such as chloretone or scopolamin. The infra-orbital nerve is then injected with a small amount of 2 per cent novocain with adrenalin. Then the posterior-superior dental nerve is injected in the pterygomaxillary region by directing the needle upward, inward, and backward for about seven-eighths of an inch from the point of entrance at the buccal fold above the second molar tooth and infiltrating slowly as the needle progresses through the tissue. Next a cotton wound applicator dipped in a 20 per cent solution of cocaine-adrenalin is applied over the nasal ganglion at the posterior end of the middle turbinate, if possible, and a tampon expressed from the same solution is placed on the outer wall of the inferior meatus. Before incision is made in the canine fossa the mucous membrane and periosteum, although anesthetized, is infiltrated with 0.5 per cent novocain-adrenalin solution. This serves to arrest hemorrhage, and gives a clear operative field until the mucous membrane lining is perforated.

This technic gives a good anesthesia, lasting for about one hour. Owing to the fact that the field is so clear, a good, thorough, radical operation may easily be done in about one-half of the time required for the same work under general anesthesia.

There is, perhaps, more swelling of the face following local than general anesthesia. Applications of ice and frequent irrigations of the sinus serve to keep the swelling at a minimum.

There is not the nausea or vomiting following the local anesthetic as there is not so much blood and mucus swallowed. It also obviates almost entirely likelihood of inspiring infected material into the bronchi with the attendant serious sequelæ.

III

Under the indications for the radical operations must be mentioned, of course, necrotic bone, presence of polypi, and a diseased mucous membrane lining that will not heal up by simple irrigations and removal of the pus. I believe

most firmly that a point should be made that what is a proper indication for radical procedure in one locality is not necessarily sufficient indication in another. Now, with us in central North Dakota I believe that all chronic empyemas should be operated on radically. The window-cutting operations seem never to be satisfactory except in such cases as would yield to shrinking and negative pressure treatment. I know that in other localities the different intranasal operations fill a distinct need, but with us the climate seems so favorable that we never appear to have what might be termed subacute cases. They are either acute and yield readily to treatment, or they are so deep-seated as to require radical operation.

IV

The method for radical operation which I use depends entirely on the pathology found when the antrum is opened. The incision is made into the canine fossæ, and before opening into the antrum the character of the bone is observed. Quite frequently this is found to be bluish and necrotic, in which case I proceed and do practically the Denker operation. In case the bone seems normal, an operation after Caldwell-Luc is performed. After the communication into the inferior meatus is thoroughly made the sinus is sponged with tincture of iodine. Then I sew a small piece of rubber tubing into the buccal wound to use as a drain. I am indebted to Dr. Lamere, of Omaha, for this bit of technic, which saves the patient no end of suffering, allowing irrigation several times a day without pain. Also by irrigating through and through in this way convalescence is hastened, and the results have been better, in my hands at least, than when I used to pack the wound with gauze.

V

A number of operators especially of the Middle West are discontinuing those antrum operations which open the sinus through the canine fossa, giving as their reason that one destroys the dental nerves. By using reasonable care in opening the antrum high enough and by careful curetting one need not injure the dental nerve supply any more than by any other method. The mere fact that we are able to get such good through-and-through irrigations make the operations of the Caldwell-Luc or Denker type preferable, should be very slow to discard this safe and satisfactory treatment of these cases.

CONSERVATIVE EARLY TREATMENT OF RECENT SIMPLE FRACTURES OF LONG BONES: PRESIDENT'S ADDRESS*

BY GEORGE F. THOMPSON, B.Sc., M.D., F.A.C.S.

CHICAGO, ILLINOIS

As a class of diseases or injuries, fractures are the most poorly treated, and, one might say, are even the most mistreated, group of pathologic entities that we deal with, for various reasons, not hard to determine. This has always been the case, and it was only natural, therefore, when surgical asepsis and technic attained their present certitude, that the old methods of treating fractures should be relegated to the past along with the discard from other antiquated practices. It appears so easy with the use of sutures, wires, nails, plates, bands, pegs, bone splints, and other devices to accomplish in a few minutes the same, or even better, results than follow the slow and tedious mechanical therapy of yesterday, that operations on fractures are apparently believed by many to be as urgently called for as the removal of a diseased appendix, or, at least, I judge so from the large number of fractures operated on early by many of our so-called industrial surgeons. The *x*-ray has been both a boon and a fetish. It enables us to obtain better results, but it also causes many to resort to methods in order to obtain a good cosmetic result which jeopardize even a good functional result and also at times the safety of limb or life.

During the past few years I have had almost constantly under treatment one or more patients with suppurative osteomyelitis and other results of suppuration, who had been operated on for a fracture of the long bones, mainly the femur and tibia, within two to four days after injury, and I know of two patients who died after operations on the femur. No attempt was made in any of these cases, in all probability, to secure reduction and fixation, as the time between injury and operation precluded a fair trial of mechanical therapy. Personally, I very seldom find it necessary to operate on fractures of the long bones, and I am frequently placed in an unenviable position by having fracture cases referred to me for surgical treatment where it is not only unnecessary but absolutely contra-indicated, and consequently having to square my-

self with the doctor and the doctor with the patient or his relatives, or else do what is not only wrong, but often harmful; and I believe the reason many early fractures are operated on is largely to avoid injuring someone's pride or reputation.

A very large majority of long bone fractures can be successfully and satisfactorily reduced and maintained by mechanical means within the first few days or within a week, and the results of attempts at reduction are so easily controlled by recourse to *x*-ray examinations that I do not believe there is any good reason for operative interference until it has been demonstrated that either reduction or maintenance cannot be effectually obtained. With a proper knowledge of the nature of the displacement as afforded by the *x*-ray and the principles involved in the reduction and retention of the fragments, one needs only in most cases the requisite patience and the courage of his own convictions to obtain a satisfactory functional result. The explanation of the poor results so often observed in fractures lies in the fact that in most cases the early care of the patient is undertaken by internes who have not had the necessary training, nor the opportunity of learning from sad experience the necessity of early reduction and fixation. Probably the strongest argument in favor of early operation is that the sooner the operation the easier is reduction accomplished, but in most instances the same end can be attained by the proper use of extension, posture, casts, or splints under anesthesia or with sufficient doses of morphine to alleviate pain and allow the spasm of the muscles to relax. Even in fractures near to or involving joints, perfect or nearly perfect results can be obtained without operation except in cases with much comminution or wide separation of fragments, by careful and patient early manipulation.

It is my opinion, borne out by my own results and from observing the frequent untoward effects of early operation, that all long bone shaft fractures and nearly all fractures of long bones near joints should be treated conservatively, and several attempts at reduction and retention should

*Presented at the annual meeting of the Soo Surgical Association.

be made during the course of the first week or even ten days following the accident before deciding to do an open operation. I do not wish to be misunderstood as to early operations in certain cases, as for instance, certain skull fractures, the patella and olecranon, fractures with dislocation, certain fractures of the carpus and tarsus and the pelvis, which demand early interference and are benefited thereby.

One of the bugaboos which has led to many unnecessary operations is the impossibility of obtaining perfect apposition of the fragments as shown by the *x*-ray. While approximation to perfection is desirable and even mandatory where it can be obtained, we all know that a good functional end is secured in many cases which appeared absolutely hopeless; and from *x*-ray examinations of old fractures antedating Röntgen's discovery we may often well marvel at the wonderful resourcefulness of nature. The shortening which usually remains permanent in long bone fractures is another reason cited in favor of immediate operation. A shortening of three-fourths to one and one-fourth inch can be accommodated for without a limp, and frequently that much results following operation where approximation is obtained only after resection of the end of one or both fragments.

There are very serious objections to early operation aside from the fact that it is usually unnecessary. First of these is the possibility of infection, which is easily established in osseous tissue and just as stubbornly evicted. Surgical sepsis of the highest type in its minutest details is urgently demanded in bone surgery, and no surgeon should undertake any such procedure without proper knowledge and training and without the proper equipment and assistants. That sepsis is more probable following early operations than after an interval of seven to ten days, as maintained by many, I am not convinced, for I have frequently operated on patellas and olecranons the day after injury without incurring infection. Another objection to early operation,

which also applies to delayed operation, but in lesser degree, is the difficulty of applying a cast, splint, or other device which will maintain the fragments in the position in which the operator fixed them. Owing to the straining and writhing while recovering from anesthesia, and more so perhaps to the muscular spasm in the injured limb after the relaxation of anesthesia has passed, it is not uncommon, in fact it is rather common, to find that the fragments do not retain their alignment or that the plate or other means of fixation has bent or broken. This is especially noticed in the case of the femur in a body cast. The most patent objection to operative treatment of these cases is the fact that often the surgeon is incompetent and unable to cope with the numerous difficulties which so frequently arise in what appeared beforehand to be a simple procedure. Only recently in a certain hospital a man—I will not say *surgeon*—consumed four hours and fifteen minutes operating on a simple fracture of the femoral shaft. The boy died two hours later. I had under my care for two years with osteomyelitis a young man operated on for a similar fracture on the day after injury by a man who was not even a mediocre physician. At present I have a patient who had a simple fracture of the leg operated on the day after injury by an inexperienced surgeon who does considerable casualty work. The limb became badly infected, but luckily the surgeon had not fixed the fragments with any material, foreign or otherwise, and the resultant suppuration was not severe, but the fragments are now, three months after the injury, overriding and are displaced laterally.

One can summarize all that I have said in one sentence: Simple fractures of the long bones should not be submitted to open operation until intelligent attempts to secure reduction and fixation during the first four to ten days, depending on various circumstances, have been proven futile, and then only by surgeons of proven ability and under strictest aseptic environment.

THE CLINICAL LABORATORY: No. 1—INTRODUCTION—THE CLINICAL SIGNIFICANCE OF IMPORTANT LABORATORY FINDINGS

BY WALTER E. KING, A.M., M.D.

SAINT PAUL

This is the first of a series of papers by Dr. King designed to show the work done in the public laboratories of this country, a work that is unexcelled, we believe, in the laboratories of our best medical schools or in the private laboratories of large clinics or hospitals. Other articles will follow.—The Editors.

INTRODUCTION

The results of laboratory examinations of clinical material should be regarded by the practitioner as indicating symptoms. At all times, the reports from the laboratory analyses of the blood, the tissues, and the secretions and excretions of the body should be given proper consideration and should supplement the clinical findings in arriving at diagnoses.

Now and then the laboratory findings may present the deciding factor; not infrequently such results are of more importance in diagnosis than a physical examination of the patient. In the majority of instances the laboratory findings serve as corroborative evidence, while 'rarely' the information is not of practical clinical significance, although of scientific value. The practical, successful diagnostician places due stress upon both the physical examination and the laboratory findings. The physical examination should never be slighted even in those cases in which the laboratory may provide apparently conclusive evidence. On the other hand, routine laboratory examinations of blood, urine, spinal fluid, tissues, suspected abnormal tissues, transudates, and exudates should never be ignored and should be utilized as a routine procedure in arriving at a correct diagnosis.

The diagnosis of disease has rapidly become more complicated, due to the introduction of newer and more complex methods of laboratory procedures. Up until a few years ago the physician was able to perform most of the necessary laboratory tests in his own office. It was necessary for him to be provided with a very moderate laboratory equipment. Conditions have so changed since the introduction of serology, blood chemistry, and Röntgen ray, for example, that it is now scarcely possible for the average physician

to carry out even the more simple of the newer laboratory methods.

As Dr. Faught states in the preface to the seventh addition of his "Essentials of Laboratory Diagnosis," "The clinical laboratory is no longer the simple collection of reagent bottles, test-tubes, and alcohol lamp of ten years ago. The development of many new methods in response to the demand for additional accurate information in the clinical study of cases has widened the scope of the clinical laboratory until it has now reached the dignity of a specialty of medicine."

The clinical laboratory is now an established institution. Conditions have fostered its development, for it has become an indispensable aid to the physician. Without it, many patients would require the care of the hospital or would suffer as the result of inadequate facilities for diagnosis. The result would be considerable hardship for the average community.

It should be understood that the clinical laboratory, in order properly to perform its function, should confine itself strictly to the work of laboratory diagnosis. It does not follow, however, that those engaged in clinical laboratory work are not required to possess general knowledge of clinical medicine. The clinical laboratory should represent a good working knowledge of clinical diagnosis. Its director should understand the problems of the practitioner; and only through such correlated knowledge can the clinical laboratory render the maximum service to the physician.

This series of articles, which will continue for some time, will follow a definitely planned outline. They will bring to the busy physician, in as concise and well-expressed form as possible to the writer, a summary of the important laboratory procedures and the clinical significance of the results which may be found in each. Methods of technic, comparisons of the merits of different laboratory procedures, and other technical matters will be totally disregarded. The purpose of the articles, as planned, is to be of

real practical service to the physician in pointing out important diagnostic signs as revealed by microscopical and chemical examination of clinical material. The following question will be kept distinctly in mind: What do the laboratory results signify in the given case?

Standard laboratory methods, except as such may apply to the question of diagnosis, will not be discussed. An effort will be made to present to the practitioner those laboratory procedures which are of the greatest significance in diagnosing, with the probable findings, the interpretation of such findings, and the application of the interpretation in given cases by means of which accurate diagnosis may be made. The discussion, therefore, will bear directly on the clinical significance of laboratory findings and will be based upon practical experience and the works of others as found in the current literature and the more recently revised text-books. The series when completed, it is hoped and planned, will comprise a practical compend for the physician which will furnish a ready reference by which to find the clinical significance of the more important laboratory findings. Beginning with the next paper and proceeding in the order mentioned, attention will be directed to the laboratory examinations of clinical material according to the following outline:

- I. Blood—
 - a Chemical
 - b Microscopical
 - 1 Normal findings
 - 2 Abnormal findings
 - 3 Findings in blood diseases
 - c Blood grouping
- II. Urine—
 - a General
 - b Chemical
 - c Microscopical
 - d Bacteriological
 - e Renal function test
 - f Hour-glass test
 - g Urinary findings in certain diseased conditions
- III. Serodiagnosis and Miscellaneous tests—
 - a Syphilis
 - 1 The Wassermann test
 - 2 Limitations and interpretation of Wassermann test
 - 3 The significance of the negative Wassermann
 - 4 The Wassermann as a guide in treatment
 - 5 Experimental serodiagnostic tests for syphilis
 - 6 False Wassermanns
 - 7 Provocative Wassermanns
 - 8 Colloidal gold test
 - 9 Nonne test
 - 10 Spirochete diagnosis from chancre or gland
 - b Typhoid fever and paratyphoid fever
 - 1 Agglutination
 - 2 Blood culture
 - c Gonorrhoea
 - 1 G. C. smears
 - 2 Complement fixation
 - d Pneumonia
 - 1 Bacteriological
 - 2 Pneumococcus typing
 - e Precipitin reaction for human blood
 - f Tuberculosis
 - 1 Complement fixation test
 - 2 Microscopical
 - 3 Animal inoculation
- IV. Gastric analysis—
 - a Physical appearance
 - b Chemical
 - c Microscopic
 - d Sahli's desmoid test
 - e Absorptive power
 - f Laboratory findings in certain gastrointestinal diseases
- V. Spinal fluid—
 - a Physical appearance
 - b Chemical
 - c Wassermann
 - d Cytology
 - e Bacteriological
- VI. Human milk—
 - a General
 - b Chemical
- VII. Cow's milk—
 - a Chemical
 - b Bacteriological
- VIII. Sputum—
 - a Gross appearance
 - b Microscopic
 - c Bacteriological
 - d Laboratory findings in certain respiratory diseases

- IX. Feces—
- a General examination
 - b Chemical
 - c Microscopic
 - d Bacteriological
 - e Intestinal digestive power test
 - f The feces in certain diseased conditions
- X. Skin—
- a Microscopic
- XI. Semen—
- a Microscopic
- XII. Water—
- a Bacteriological
 - 1 Potability
 - 2 Swimming pool
- XIII. Transudates and exudates—
- a Cystic fluids
 - b Pleural and peritoneal exudates
- c Purulent exudates—
- 1 Eye
 - 2 Ear
 - 3 Nose
 - 4 Throat and tonsils
 - 5 Teeth
 - 6 Urethra
- XIV. Diagnosis of rabies.
- XV. Tissue diagnosis.
- XVI. Toxicological examinations.
- XVII. Autogenous vaccines.
- XVIII. The collection of clinical material.
- XIX. List of diseases, the diagnoses of which depend upon laboratory findings.
- XX. Appendix—For the incorporation of important newer data accumulated after work had begun on the preceding outline.

THE DOCTOR AND HIS LICENSE*

BY E. KLAIVENESS, A.B., PH.D., M.D.

MINNEAPOLIS, MINNESOTA

"Tempora mutantur, et nos mutamur in illis"—and then! Yes, what then? Suppose we apply this well-known old Latin quotation to ourselves and the undreamed of metamorphoses that our profession has experienced during the last twenty years. May we not then admit with shame that the changes referred to have brought us from the sublime to the ridiculous? To be more specific let us state a few incontrovertible facts. For centuries it has been the established custom that a license to practice the art of medicine and surgery was granted exclusively by the university of which the future practitioner had been a pupil and a student. In Europe and elsewhere in the world this custom still prevails save in this country, where the individual States of the Union have created separate licensing bodies, political organizations that have arrogated to themselves the final power of decreeing who shall be permitted to practice medicine and surgery and who may not, irrespective of what the institution of learning, the University, may feel and think about the qualifications of the individual members of this licensing board. Once licensed, however, this disciple of Hippocrates

could prescribe any drug or any line of treatment that in his opinion and in conformity with established experiences would prove beneficial for his patients. While this happy and ideal condition still exists in all more or less civilized countries of the world, and while the duly licensed physician in our country was permitted to enjoy his scientific rights unmolested, he did indeed occupy a sublime position in society; but, alas! this blissful peace was not to last long. Having suffered in humility the loss of his constitutional rights when he acquiesced in the separate legislative enactments requiring a special license by each State before he could follow his profession in the state of his choice, he was but a few years ago called upon to suffer a curtailment of his rights to prescribe a certain class of drugs known as narcotics, and to make his degradation still more keenly felt he was commanded to apply for an additional license in the obtaining and maintaining of which he must pay a yearly tax to our Federal Government.

From this description I am sure that all of my colleagues will understand that I refer to the Harrison Law, also how I feel about this piece of Congressional legislation. Strangely enough, let it be recorded, not a protest, single or en masse, was heard or read of as coming

*Presented before Seventh District Medical Society of South Dakota at Sioux Falls, S. D., February 13, 1923.

from the organized medical profession. Moreover, the bitter pill was sweetened by the firm belief and hope of saving a very small minority of our population from self-destruction by persisting in the pernicious habit of indulging in the use of a few of these narcotic drugs. A plea for broad humanitarianism was resorted to and applied as an ointment to the wounded pride of the doctor; and with a wonderful display of humility he again yielded up his rights, even though it must be contrary to all scientific reasoning to issue first a general license and thereupon dissect this same license into subdivisions and small bits.

Entirely disregarding any discussion about the merits or failures of the Harrison Law, the fact remains that the doctor, by the curtailment of his original license, has been turned into a special-tax producer while at the same time losing some of his self-respect by seeing his license rights legislated away.

The next chapter to be recorded with reference to the changes that have taken place in the medical profession during more recent times, fully demonstrates the folly of not having entered a vigorous protest on the former occasions, because, emboldened by former weakness on our part, we now are called upon to apply for another additional license, that of prescribing wines and spirits, and, while it is true that we are relieved of paying a special tax for this additional license, still we are being further humiliated by being made the recipients of firm rules and instructions about how to write these simple prescriptions. A rather anomalous condition when we consider for a moment the utter inability of these prohibition directors to serve as instructors in pharmacology! It yet remains to be seen whether or not the subdivisions of our license, encompassed by the Harrison Law and Volstead enforcement law, will represent the final efforts from legislative bodies for dissecting away our original license. Personally, I feel that even though other new restrictions may be imposed upon us we certainly cannot well lose any more of our former lofty position and all-embracing rights in our ministry of alleviating human ills.

When rights, possessed either by an individual or an organized body of men, are interfered with, circumscribed, or attacked, the strategical moment for defending such rights is at the very inception of the contemplated attack or encroachment. This rule holds good in the history of

man in any of his many undertakings, and, if applied to our own case, would have saved us from degradation when compared to the rights and high position enjoyed by our confreres in other countries. Take the Harrison Law, for instance, and let us suppose that every licensed physician in the United States of America had turned a deaf ear to the plea of humanitarianism and in response to our general, the American Medical Association, had resolved not to apply for any new license because no member of the profession would prescribe a single narcotic drug irrespective of the sufferings of their patients or the imperative indications for their administrations under ordinary circumstances. Suppose we had really shown backbone enough to adhere to any such decision, how long do you fancy that the Harrison Law would have remained on the statute books of our country? Or how long would it have had any living force? Not only would other means have been found for dealing with this small minority (the drug addicts), but the doctor would have retained his scientific rights unimpaired, and Congress thus made wiser, after its first encounter with the profession, would not have dared to visit upon us prohibition directors as the newest phenomenon and instructors in pharmacology, nor to inflict upon us the dubious honors of being considered the only select ones for receiving a new sublicense, which, to be sure, permits us nothing more than what our general license used to permit us, and elsewhere in the world still permits physicians to do, namely: to prescribe wine and spirits when deemed necessary for our patients. Surely, when we contemplate these changes here described, we must confess that things are not always what they seem to be, but, on the contrary, that we have lost so much in private and public opinion that we no longer can avail ourselves of Robert Louis Stevenson's eloquent glorifications of the medical profession as evidenced when he wrote of a physician as follows: "He is the flower [such as it is] of our civilization, and when that stage of man is done with, and only remembered to be marvelled at in history, he will be thought to have shared as little as any in the defects of the period, and most notably to have exhibited the virtues of the race."

Could Stevenson write as well of us to-day? Considering the changes that we, as a profession, have undergone of late, I greatly fear he would be compelled to pen another picture.

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THE DAMNATION OF UPTON SINCLAIR

Twenty years ago a book was published which was called "The Damnation of Theron Ware," in which there was some controversy between religion and medicine; and it included within its pages the story of the priest, the doctor, and the Methodist minister. It was quite entertaining and quite outspoken, hence the title of this editorial, for Upton Sinclair has just published his latest book, which is called "The Goose-Step," and the outside wrapper represents a large goose with an academic cap, followed by lesser geese in the same academic costume, presumably to represent the president and faculty of a university.

Upton Sinclair has a very forceful way of writing, and from his own point of view he speaks the truth and, apparently, nothing but the truth. He has only one idea in mind, namely, destructive criticism; and in this book he attacks almost every university in the United States, and so far as one can read, he finds nothing good in any of them. Usually the president is selected as the butt of his sarcastic criticism, but he includes the members of the faculty who are supposed to be overpaid. Some of them have rather liberal ideas, and these he compliments for their so-called freedom of speech. But when one of the latter is dismissed

from the faculty because of his utterances, the regents, the president, and the conspiring members of the faculty are utterly damned.

The University of Minnesota comes in for much abuse; the University of Wisconsin, where Upton Sinclair's son was a student, is flayed alive; and the University of Chicago is simply broiled. Most of this comment is based on the assumption that some man started the university and that in so doing he was able to hide his deeds of dishonesty behind the cloak of personal ambition. In Minnesota ex-Governor Pillsbury, who has been familiarly known as the father of our university, is viciously attacked, and no credit whatsoever has been given him for his efforts, for his time, or for his money freely used in building up the University of Minnesota. He does not even mention that the University began with the emeritus president, Dr. Folwell, who is so well known throughout the United States for his conservatism, his candor, and his honesty. He dismisses ex-president Northrup, now dead, by speaking of him as an amiable gentleman who was liked by the rulers of the University of Minnesota because he did not interfere with the card-index system,—a powerful and critical indictment, for everyone knows, who knows anything of the University of Minnesota, that it was built up through the labors of President Northrup; that he was looked upon as the father of the students, advisor to all; that he was skillful and earnest, and helped many men and women to get through the University by his encouragement and advice; and that he combined the various departments of the University into a harmonious whole, and was looked upon during his life-time as a Christian man,—a man with a big heart and much wisdom. He at least was constructive in his efforts to make the University of Minnesota a powerful institution. On the other hand, the attacks made by the father of "The Goose-Step" are always destructive—never constructive. So far as one can see, the author does not have a good thing to say for any man, however earnest he may be in his work in building up a great institution, such as the universities mentioned. It is said that the Sinclair in private life is the Sinclair of "The Goose-Step." He is constantly finding fault, constantly criticizing the work of others, but never offers a single encouraging word of praise to anyone who is doing what seems to him right.

The whole book is a series of damnatory denunciations. The only real bit of fun in it is that Upton Sinclair defeated the champion tennis player of Wisconsin at a tennis game, and was defeated himself by the champion tennis player of Chicago. Upton, therefore, admits that he is a good tennis player; and we are willing to admit it. But he is a very poor critic; and, in spite of the damnation of all the universities of the country, his fame will die out long before any one of the universities he condemns will die.

There must be something radically wrong with a man of this type, and since his championship of Abrams, of San Francisco, in which he writes pamphlets urging people to use the latest and best and most scientific theories in the world, we are doubly sure that there is something wrong with Sinclair, and ultimately he may be damned.

"IS BETTER HEALTH DUE TO THE DOCTORS?"

This is the subject of a paper printed in *Current History*, for April, a monthly publication from the office of the New York Times Company, and it is supposed to be a criticism of the medical profession on the ground that there are no certain cures and that death-rates would have declined irrespective of anything doctors and health authorities might have done. We do not know who Fred C. Kelly, its author, is, but he writes like a second-rate sanitary engineer. At all events he has picked up and muddled together more or less misinformation and old medical theories culled from old medical literature. He dares to suggest that the doctors have really done but little good and that the improvement in the health of the people would have come about anyhow. He says that there are failures both in preventive (he calls it "preventative") medicine and curative medicine, and that they are so predominant when we see the facts that "a medical history would be an astonishing study in human credulity." He laughs at the precautions taken and suggested by medical men, and he utterly condemns serum treatments, without stopping to think of what antitoxin has done for the death-rate in diphtheria. He ridicules the gauze masks which were worn during the frightful epidemic of influenza. And he shows his animosity when he says that people are sometimes sent to jail for refusing to obey the rules laid down by health departments. He does not consider for a moment the real facts

in his own case, because he says that most people believe in doctors, but that that proves nothing. Yet it is admitted that doctors really have accomplished very much in advancing medical science by their laboratory methods, by their pathological investigations, and by their study of laws pertaining to health. If he can get away from these things he deserves to be a better sanitary engineer than he seems to be. He says that no intelligent doctor resents honest criticism. Certainly not. Every honest doctor admits that he may be wrong. He is quite right when he says that medical journals are filled with criticisms by doctors about themselves, but that their criticisms never reach the public, probably due to the fact that the public are not ready to read such criticisms intelligently because they have no foundation as a basis for their knowledge or criticism of what has occurred.

It is generally accepted that General Gorgas rid the Panama region of yellow fever, aided by sanitary engineers; but the doctor was first and the sanitary engineer second in accomplishment. It is pretty well known that Walter Reed gave his life for the purpose of discovering the method by which yellow fever was spread; that he permitted himself to be bitten by a mosquito that was a carrier of yellow fever. Some doctor, too, discovered—and this discovery was not made by an engineer—that smallpox could be wiped out by vaccination. Germany proved this years ago. The vaccination was not done by engineers, but by physicians and health authorities who were trained in their work.

This man Kelly evidently resents the fact that it cost the Government twenty million dollars for public health work. How much does the Government pay for some engineering problem? Twenty million dollars is a mere bagatelle. Evidently, Mr. Kelly feels that influenza should have been stamped out in 1918, for he says it made no difference whether people wore gauze masks, or went to theaters and crowded places, whether theaters were open or closed, or whether streetcar windows were open or closed. Somehow the public found out, though, that where people were gathering in crowds the epidemic of influenza spread more rapidly and that when people who had colds or influenza were kept away from crowds the disease was not so actively promulgated. We happen to know as little to-day of the cause of influenza as we knew in 1889 and 1918. It is one of the mysterious

diseases that cover the world; and, somehow, as yet, no sanitary engineer has been able to find a solution for this perplexing problem. Neither has the serum, so far, been able to prevent cases of influenza. Mr. Kelly makes light of the seriousness of influenza, while physicians know perfectly well that influenza as it swept the country four years ago and is sweeping it now has left, not only death, but disability in its train. And we have no doubt that many sanitary engineers have been afflicted with influenza.

It is to be hoped that Mr. Kelly has an attack and so realize some of the suffering entailed. Of course, it is very easy to criticize a doctor or doctors. They are so accustomed to criticism and damnation that they appreciate an occasional bit of praise; but that is an individual proposition. Very few medical organizations are patted on the back for what they may have accomplished. Doctors are jumped on for charging large fees, for operating on everything that will lie still (a perfectly just criticism), for the indiscriminate pulling of teeth, and the wholesale removal of diseased tonsils (or those that are not diseased). For all of these things the doctor is bedeviled and bedamned.

Mr. Kelly hands it to the surgeons, however, very scathingly, and he quotes one Frank B. Gilbreth, probably the foremost authority on human motions, who, after a study of surgery from an *engineering* viewpoint, concludes that surgeons are the least skilled of any class of hand-workers, considering their opportunities and requirements. Then this self-appointed critic discusses the leper colony of the Philippines and tells how many of the lepers were helped by raising their own food and digging in the garden. Evidently, Mr. Kelly's studies of psychology have not carried him very far into therapeutics. Neither does he understand that mental suggestion and mental occupation do much to help disease, whether organic or functional, and to make life easier for the afflicted. It is very probable that an occasional leper and an occasional case of tuberculosis may be relieved in some such method. But so far as one can see, the sanitary engineer has had nothing to do with either of these illnesses. He speaks about our gullibility about doctors. We wonder if some of the other people have not been equally "gulled" by the sanitary engineers. Mr. Kelly evidently has a sore finger that he is thrusting into the limelight, and he has written an article which

contains a good deal of piffle. He shows his ignorance of medical subjects and medical methods, and he does not put up a very good card showing that he is a sanitary engineer.

CLINICAL LABORATORY DIAGNOSIS

In this issue we begin a series of articles on "Clinical Laboratory Diagnosis" by Walter E. King, A.M., M.D., of St. Paul, Minn.

Dr. King is known through his connections as former Professor of Bacteriology, Kansas State College, and Assistant Director of Medical Research, of Messrs. Parke, Davis & Company. As most of our readers know, he is at present Director of the Beebe Laboratories, and Bacteriologist of Bethesda Hospital, St. Paul.

For several years Dr. King has devoted special attention to clinical laboratory work and the training of laboratory technicians. He has been an extensive contributor to technical journals and text-books. Through his many years of experience as a teacher, research worker, and writer, he is equipped to do a real service in these articles for the physician who desires to utilize laboratory findings, together with clinical observations, in the diagnosis and treatment of disease.

MISCELLANY

MEDICAL LEGISLATION AS AN EXPERT SEES IT

Chicago, February 27, 1923.

Dr. W. A. Jones, Editor,
THE JOURNAL-LANCET,
Minneapolis, Minn.

Dear Doctor Jones:

I always read THE JOURNAL-LANCET with interest and was especially interested in the leading editorial in your issue of February 15. This question of the legal regulation of the practice of medicine has long been a hobby of mine.

I have followed the efforts of legislatures on this subject for over twenty years and have been frequently impressed with the fact that the same reasons are brought forward in every state and in every period to account for the defeat of the measure that is drafted and promoted by physicians. In the second paragraph, you say that the failure of the Minnesota legislature to pass this bill is "probably due to lack of organization among medical men." This explanation has been brought forward as the correct one for over fifty years. I have had occasion to go through the proceedings of all of the state associations at different times, as well

as the minutes, reports and proceedings of the American Medical Association, and it is noticeable that this explanation is the one that is always advanced. If lack of effective organization is such a universal condition, is it not safe to assume that it always has been and always will be present? In other words, that the medical profession is never going to attain a position of political organization that will enable it to secure the adoption of such measures? And doesn't this amount to saying that the medical profession never has been able to mobilize and discipline its own members to such an extent that their combined political influence will be sufficient to overcome the popular objections to restrictive laws regulating the practice of medicine? And, if this has proven continuously and universally true for half a century, isn't it about time that we began to look around for another solution for this problem and another way of securing satisfactory legislation—if legislation is needed?

It really is pathetic the way in which the medical profession goes on year after year, blundering around in the same old path and butting its head against a stone wall, which it has never yet been able to break through. You say there have been medical practice acts passed. Very true. Yet practically every one of them has been a compromise which has differed so widely from the original bill that it has been practically ineffective in so far as it imposed a burden on the honest man without restraining the dishonest practitioner. It makes you and your friends and associates who are graduates of the best medical schools of the country, take an examination and pay a registration fee in order to secure a license, but there is not a single state in the Union to-day in which the law is enforced with a sufficient amount of rigidity or general application to prevent almost any unlicensed fakir or charlatan from fleecing the public through all kinds of subterfuges and disguises. Now, a law that handicaps the honest man and doesn't deter the dishonest man is, to my way of thinking, a pretty bum law.

Third and last, the psychology of the whole thing is wrong. There are 150,000 doctors in the United States, of all kinds and degrees. Of these, about 89,000 belong to the American Medical Association. It would be safe to say that those outside the organization care even less about medical legislation than our members do. So that we have the engaging spectacle of 89,000 physicians trying to bring 110,000,000 people to accept the standards which the 89,000 men have decided are good for the 110,000,000 citizens. Will they ever accept us as judges on that subject? Not on your immortal and refulgent tintype! The public is going to select its medical advisers in just the same way that it is going to select its own religious and legal advisers. It generally selects them for personal reasons, and it doesn't care a red hoot whether the man it selects has a license or a diploma or not; and if the medical society picks on any irregular practitioner and attempts to discipline him as an object lesson (and such an effort only happens in the case of about one fakir out of five hundred), all he has to do is to claim that he is being persecuted by "the medi-

cal doctors who are jealous of his wonderful skill," and the mass of the people, including practically all the newspapers, will throw up their sweaty night-caps and howl about the "medical trust."

So that, even if we were able to pass such laws as we want to, which we never have and never will be able to do, if we were able to enforce them after they were passed, which we also never have been able to do, we would only gain in the end the misunderstanding and animosity of the people for whose protection these laws are supposed to be passed. Now, this being the case, and I think it can be clearly proven, in the language of the hired man in George M. Cohan's "Tavern," "what's all the shooting for?" I don't know, and I never have been able to find anyone who could tell me. The public, as Huxley pointed out in 1857, is a great deal better off if it is compelled to assume the responsibility for its own well-being and select its own health advisers, and why we should insist on forcing ourselves into the entirely gratuitous position of guardian angel for an unappreciative and misunderstanding public, I'll be hanged if I know.

All right, I've gotten it off my chest and I've had a canter on my hobby, if you'll pardon the mixed metaphor, so I can only say once more, the Lord hold you in the hollow of his hand. Amen.

Cordially yours,

FREDERICK R. GREEN.

NEWS ITEMS

Dr. C. L. Carman, of St. Paul, has returned from an extended European trip.

Plans are under way for the construction of a forty-bed hospital at Warroad.

Dr. Millard C. Hanson, a recent Rush graduate, has located at Breckenridge.

Work on the Deaconess Hospital building at Billings, Montana, has been resumed.

Dr. Williard J. Hall, of New York, has been lecturing in the Twin Cities on health subjects.

Work on a large addition to the State Tuberculosis Sanatorium at Custer, S. D., is progressing rapidly.

Dr. Walter G. Sahr has become associated with Drs. Willard and B. F. Sahr and Dr. A. L. Kusske at Hutchinson.

Dr. A. C. Matthews, of Becker, has been appointed a member of the staff of a state hospital at Kings Park, N. Y.

Dr. V. J. Schwartz, of Minneapolis, has returned from Europe where he spent several months in postgraduate work.

Dr. F. N. Bjerken, of St. Hilaire, has become associated with Dr. E. H. Smith, of Bimidji. Dr. Bjerken is a graduate of Rush, class '17.

Dr. C. S. Raadquist, of the Adams Hospital of Hibbing, has returned from Chicago, where he has been taking an advanced course in *x*-ray work.

National Hospital Day was celebrated in Minneapolis last week by talks on hospitals, a radio program, and open hospitals for visitors in the afternoon.

Dr. E. W. Fahey has retired as Director of Public Health of the City of Duluth after nine years' service. He is succeeded by Dr. L. E. Sukeforth.

The Twin City Shrine Hospital for Crippled Children has a radio receiving set, which is giving infinite pleasure to the little ones in the institution.

The commission of Japanese physicians and scientists brought to this country as the guests of the Rockefeller Foundation, visited the Mayo Clinic last week.

Dr. A. W. Ward, of Minneapolis, has gone to Europe for some special work in pathology and surgery. He will be gone a year and will study in Vienna, Berlin, and Frankfort.

The North Dakota State Nurses' Association met at Minot last month. Miss Sarah Sand, of Fargo, was re-elected president, and the Association will meet at Jamestown in 1924.

The "drive" for money for St. Luke's Hospital of St. Paul is proving very successful. Several physicians of St. Paul have given \$1,000 each. The total amount sought is in sight.

It is reported that the hospital at Onigum (Cass County) will be opened soon for the care of Indians in the Leech Lake Indian Reserve. This action would require the employment of a physician.

The North Dakota State Medical Association holds its annual meeting at Grand Forks, N. D., on May 31 and June 1. The House of Delegates meets on the June 30. The program appears on another page.

Dr. D. R. Hastings, who recently completed his internship at the Minneapolis General Hospital, has joined the staff of the Missabe Hospital and Clinic, and is located at the Duluth office of the Clinic.

For the past three years a course in physical training has been given in the schools of Inter-

national Falls. At the annual health contest among the boys last month a lad ten years of age was given a score of 99 plus.

Dr. A. C. Strachauer, of Minneapolis, gave, by invitation, an address on "Surgery of the Stomach" in Cincinnati on April 30 before the Ohio Academy of Medicine and the College of Medicine of the University of Cincinnati.

Dr. Willard S. Small, of New York, as the consultant of a large committee of college and university presidents, was in Minneapolis last week to study the methods adopted in the University of Minnesota to preserve the health of its students.

The forty-second annual meeting of the South Dakota State Medical Association will be held at Watertown, S. D., on May 22, 23, and 24. The House of Delegates meets on the first day. The program of the meeting appears elsewhere in this issue.

On May 1 Dr. and Mrs. Asher C. Taylor, of Duluth, celebrated the fiftieth anniversary of their wedding and the forty-ninth anniversary of his practice of medicine. Dr. Taylor graduated from Michigan in 1874. He is still in active practice.

The new and commodious biological laboratory buildings, with administration building, just completed by the Mayo Clinic some distance out of Rochester, were destroyed by fire last week, causing a loss of over \$100,000. Rebuilding will begin at once.

The Miller Memorial Hospital of St. Paul has raised a fund of \$250,000 by subscription, which fund will be added to the endowment in order to take care of the number of free beds originally planned for by the founder of the hospital, Mrs. Charles T. Miller.

The Huron (S. D.) District Medical Society met at Huron on May 3 for a regular monthly meeting. Dr. G. W. Launspach discussed "Influenza"; and there was a general discussion by all the members on "Measles," considering the epidemic of measles in Huron.

Dr. T. S. Kammerling, of Sioux Falls, S. D., will move to Chicago next month and become associated with Dr. Wm. A. Fisher, with offices at 31 North State Street. Dr. Kammerling has been appointed a member of the faculty of the Chicago Eye, Ear, Nose, and Throat College and Hospital.

At the next meeting of the Consulting Staff of the Lymanhurst School for Tuberculous Children, to be held at the School on May 22, Dr. E. D. Anderson will present a paper on "A Study of Dr. Espine's Sign in a Group of Tuberculous Children"; and Drs. Siperstein and H. Bangness will present one on "Pulmonary Cavities in Tuberculous Children." All physicians are cordially invited to attend the meeting.

The following Northwestern physicians took the South American Cruise of the American College of Surgeons: Dr. and Mrs. John W. Andrews, Mankato; Dr. W. E. Browning, Caledonia; Dr. and Mrs. Frank E. Burch, St. Paul; Dr. and Mrs. George Earl, St. Paul; Dr. Hugh E. Houston, Kalispell, Montana; Dr. R. S. Westaby, Madison, S. D.; Dr. and Mrs. John A. Winter, Duluth, Minn.; and Dr. and Mrs. T. C. Witherspoon, Butte, Montana.

A further study of hydatidiform mole has been undertaken at the Chicago Lying-in-Hospital, especially in regard to the frequency of malignancy following this condition. An attempt is being made to collect case-reports from outside physicians. Cases reported by physicians will be greatly appreciated, and the physician will be given due credit in any literature published. Address communications to Robert B. Kennedy, M.D., Chicago Lying-in-Hospital, Chicago, Ill.

Dr. Henry M. Wheeler, of Grand Forks, N. D., has retired from practice after forty-six years of active work as a general practitioner and as a surgeon, nearly forty of which were spent in Grand Forks. Dr. Wheeler was graduated from Michigan in the class of '77, practiced for a few years in Northfield, Minn., and then went to Grand Forks, where he was always highly esteemed as a physician and as a citizen. He was twice mayor of this city, and was always recognized as a genial good fellow. The profession of Grand Forks gave him a handsome reception a few days ago, and the speakers said many handsome things (all true) about him.

The following physicians took the "Short Course" for general practitioners given by the Medical School of the University of Minnesota from April 16 to May 12: Dr. W. M. Drummer, Farmington, Minn.; Dr. Edward W. Fahey, Duluth, Minn.; Dr. Hazel Freed, Grass Range, Mont.; Dr. Harry J. Gowenlock, Gardner, N. D.; Dr. E. H. Grove, Arlington, S. D.; Dr. A.

J. Henderson, Kiester, Minn.; Dr. H. G. Hilliard, Minong, Wis.; Dr. A. E. Holmes, St. Paul; Dr. John T. Holmes, Missoula, Mont.; Dr. M. F. Hayes, Nashua, Minn.; Dr. B. R. Karn, Ortonville, Minn.; Dr. Leo C. LeClair, Twin Bridges, Mont.; Dr. Franklin L. Leister, North St. Paul, Minn.; Dr. A. Mahoney, Breckenridge, Minn.; Dr. E. C. Miller, Brookings, S. D.; Dr. Jacob E. Nyquist, Duluth, Minn.; Dr. Bert L. Phillip, Libby, Mont.; Dr. L. N. Roberts, Little Falls, Minn.; Dr. Christian L. Roholt, Waverly, Minn.; Dr. J. H. Smallwood, Worthington, Minn.; Dr. Benjamin F. Swezey, Buffalo, Minn.

PROGRAM OF THE FORTY-SECOND ANNUAL SESSION OF THE SOUTH DAKOTA STATE MEDICAL ASSOCIATION

Watertown, May 22, 23, and 24, 1923

TUESDAY, MAY 22

Business session at 2:30 P. M.
Meeting of House of Delegates.
Report of Secretary-Treasurer and of standing committees and appointment of committees.
Meeting of Board of Councilors, 3:30 P. M.
Financial report of Secretary-Treasurer.

WEDNESDAY, MAY 23, 9:30 A. M.

Surgical Clinics of South America—Dr. R. S. Westaby, Madison.

Pyelitis in Infants and Children—Dr. Geo. E. Johnson, Avon. Discussion opened by Dr. C. C. Gross, Yankton.

Some Phases of Prostatic Hypertrophy—Dr. A. G. Allen, Deadwood. Discussion opened by Dr. B. A. Bobb, Mitchell.

Blood Groupings—Dr. D. A. Gregory, Sioux Falls. Discussion opened by Dr. J. C. Ohlmacher, Vermilion.

Malignant Diseases of the Lymph Glands—Dr. S. M. Holf, Yankton. Discussion opened by Dr. A. J. Moc, Sioux Falls.

WEDNESDAY, 1:30 P. M.

The Relations of the Profession and Public Based on Thirty Years' Observation—Dr. G. G. Cottani, Sioux Falls.

Dr. Frederick A. Spafford—Dr. J. W. Freeman, Lead.

Unveiling of Portrait—Harriet Anne Rolfe, Flaudreau.

Antiquarian History of Medicine and Medical Practice in South Dakota—Hon. Doane Robinson, State Historian, Pierre.

What the Medical Profession Is Doing for the Control of Cancer—Dr. J. E. Rush, Field Director American Society for Control of Cancer, New York City.

Bronchoscopy—Dr. John B. Gregg, Sioux Falls. Discussion opened by Dr. C. C. Hoagland, Madison.

Lung Abscess Following Tonsillectomy—Dr. R. D. Alway, Aberdeen. Discussion opened by Dr. J. G. Parsons, Sioux Falls.

THURSDAY, MAY 24, 9:30 A. M.

The Surgical Kidney—Dr. D. S. Baughman, Madison. Discussion opened by Dr. Roy G. Stevens, Sioux Falls.

The Congenital and Acquired Defects of the Face and Neck—Dr. Gordon B. New, Mayo Clinic, Rochester, Minn.

Goiter—Dr. Warren A. Dennis, St. Paul, Minn.

Abdominal Anomalies in about 250 Cases Found in the Anatomical Laboratories in the State University of Iowa—Dr. H. J. Prentice, Iowa City, Iowa.

Abdominal Injuries—Dr. F. E. Clough, Lead. Discussion opened by Dr. F. S. Howe, Deadwood.

THURSDAY, MAY 24, 2:00 P. M.

The Medical Profession and the Community—Dr. F. E. Sampson, Creston, Iowa.

Some Problems of a Medical Education—Dr. C. P. Lommen, Vermilion, S. D.

Regional Anesthesia in Surgery of the Prostate and Bladder (Illustrated)—Dr. Wm. R. Meeker, Mayo Clinic, Rochester, Minn.

Some Orthopedic Conditions of the Knee Joint—Dr. Chas. A. Parker, Rush Medical College, Chicago.

PROGRAM OF THE THIRTY-SECOND ANNUAL SESSION OF THE NORTH DAKOTA MEDICAL ASSOCIATION

Grand Forks, N. D., May 31 and June 1, 1923

THURSDAY, MAY 31

Morning Session, 9:00 o'clock

President's Address—Dr. E. P. Quain, Bismarck. Anatomy from a Surgical Standpoint—Dr. C. N. Callander, Fargo.

Discussion: Dr. W. H. Witherstine, Grand Forks, and Dr. H. E. French, University.

Myelogenous Lukemia (a case-report)—Dr. E. A. Pray, Valley City.

Discussion: Dr. E. C. Haagensen, Grand Forks; Dr. J. J. Heimark, Fargo, and Dr. Aldo Massaglia, University.

A Study of 1,000 Consecutive Cases Presenting Gastro-Intestinal Symptoms—Dr. Hugh S. Willson, Minneapolis.

Discussion: Dr. H. G. Woutat, Grand Forks; Dr. H. O. Altnow, Mandan, and Dr. W. C. Nichols, Fargo.

Lacerations of the Pelvic Floor and Perineum—Dr. Frank Weed, Park River.

Discussion: Dr. H. W. F. Law, Grand Forks; Dr. W. A. Gerrish, Jamestown, and Dr. W. G. Brown, Fargo.

THURSDAY AFTERNOON SESSION, 1:30 O'CLOCK

The Cancer Problem—Dr. J. E. Rush, New York, Field Director, American Society for the Control of Cancer.

Epidemic Enccephalitis—Dr. J. O. Arnson, Bismarck. Discussion: Dr. A. J. McCannel, Minot, and Dr. A. W. Skelsey, Fargo.

The Neurasthenic, the Viscerotropic—Dr. John T. Rogers, St. Paul.

Discussion: Dr. J. P. Aylen, Fargo; Dr. W. F. Sihler, Devils Lake, and Dr. T. Mulligan, Grand Forks.

Chronic Cholecystitis—Dr. R. E. Weible, Fargo.

Discussion: Dr. August Eggers, Grand Forks; Dr. Fred Ewing, Kenmare, and Dr. J. W. Bowen, Dickinson.

1. Remarks on the Utility of the Phthalein Test and Mosenthal Test Diet in the Diagnosis of Chronic Nephritis without Edema. 2. Remarks on Aplastic Anemia as a Clinical Entity (A case report)—Dr. H. O. Altnow, Mandan.

Demonstration of Glioma Involving Anterior Portion of Cerebrum and Pituitaries—Dr. C. A. Larson, Fargo.

Unusual Cases Occurring in Practice—Dr. J. P. Aylen, Fargo.

Complete Inversion of Uterus (3 cases)—Dr. J. C. Suter, Grafton.

This condition very rare, all cases primiparæ.

Case One—Delivered of a normal first child in December after normal labor, admitted to hospital February 24th, operation February 25th.

Case Two—Delivery December 5th, admitted to hospital and operation December 28th.

Case Three—Spontaneous inversion, replacement short time after.

Conception and Labor, Vagnia Absent—Dr. Geo. A. Durbin, Bottineau.

Patient brought to hospital in labor, on examination found absence of vagina. Cesarian section; recovery of mother and child.

Orchitis Due to Typhoid Bacillus Infection—Dr. Paul Burton, Fargo.

a. Abdominal Tumor (ovarian) 14 lbs. b. Uterus Didelphic—Dr. H. E. French, University.

a. Patient 73 years old, operation, local anesthesia, recovery. b. Patient age 30, had given birth to two children, operation for left pyo-salpinx, at operation two complete uteri found, recovery.

Extremely Large Double Iguinal Hernia—Dr. A. D. McCannel, Minot.

(Illustrated with lantern slides.)

Streptococcic Throat—Dr. V. J. LaRose.

Fatal termination, clinical report, bacteriological findings.

THURSDAY EVENING

Banquet at the Hotel Dacotah, 6:30 to 8:30

President Eric P. Quain, Presiding.

Speakers—

Tuberculosis a Community Disease—Dr. D. A. Stewart, Ninette, Man., Superintendent Manitoba Sanitarium.

Gross Pathology of Hypertrophy of the Prostate—Dr. Franklin Wright, Minneapolis.

FRIDAY, JUNE 1ST—9:00 O'CLOCK

Diphtheria of the Genital Tract in Puerperal Women.

Discussion: Dr. George Carpenter, Fargo; Dr. W. C. Fawcett, Starkweather, and Dr. M. McGregor, Fargo.

Encephalitis with Special Reference to the Epidemic of 1923 (Observations in upward of 300 cases)—Dr. E. M. Hammes, St. Paul.

Discussion: Dr. J. E. Hetherington, Grand Forks, and Dr. Floyd Woodward, Jamestown.

Treatment of Diabetes with Reference to Insulin—Dr. M. A. Shillington, St. Paul, N. P. B. A. Hospital.

Discussion: Dr. J. E. Engstad, Grand Forks, and Dr. Arne Oftedahl, Fargo.

Treatment of Brain Injuries—Dr. Frank Corbett, Minneapolis.

Discussion: Dr. R. D. Campbell, Grand Forks; Dr. J. E. Countryman, Grafton, and Dr. Paul Burton, Fargo.

Tuberculosis: A Review of Sanitarium Cases—Dr. D. A. Stewart, Ninette, Manitoba, Superintendent Manitoba Sanitarium.

Discussion: Dr. James Grassick, Grand Forks; Dr. J. H. LaMonte, Dunseith, Superintendent State Tuberculosis Sanitarium, and Dr. Geo. Mylan, Thief River Falls, Superintendent Minnesota State Tuberculosis Sanitarium.

AFTERNOON SESSION, 1:30 to 3:00

Program at Science Hall—University

Department of Anatomy—Dr. H. E. French, Dean. Anatomical Demonstrations. Dissections: Head, upper extremity, lower extremity, etc. Cross sections. Variations and pathology in bones. Models.

Department of Bacteriology and Pathology—Dr. Aldo Massaglia. Microscopical demonstrations. Slides of various bacteria. Gross pathological specimens. Tumors, malignant and benign typhoid ulcers, (intestinal). Syphilitic lesions, etc.

Department of Physiology and Pharmacology—Dr. A. D. Bush. Experiments in drug action, Chart Exhibit, etc.

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VERSION IN OBSTETRICS*

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MINNEAPOLIS, MINNESOTA

Within the past five years one of the most vehement controversies in the history of obstetrics has been started, a controversy that has aroused as much interest among medical men and the public as that upon "Twilight Sleep" and Cesarean section. This controversy is over the place of version in obstetrics.

Internal podalic version has stood the test of approximately two thousand years as being one of the best measures, at times the best, for combating certain unusual situations in obstetrics. At present all experienced obstetricians are thoroughly cognizant of the value of the maneuver and the high possibility of its success where proper conditions of time in labor, asepsis, anesthesia, and technic obtain. However, there has been such a unanimity of opinion, founded on observation and personal experience, among leading obstetricians that delivery by version and extraction is fraught with such definite, real, and potential dangers to mother and child (to the mother, infection and rupture of the uterus—to the child, asphyxia and traumatic injury) that indications and conditions have been laid down as guides to direct and morally justify one in selecting this maneuver as the one most likely to accomplish delivery with the least danger to mother and child.

Indications:

1. In abnormal presentations and positions,—transverse, shoulder, parietal, face and brow presentations, and complicated occipitoposterior positions.

2. Placenta previa. Using the breech as a tampon. (Bags are sometimes better.)

3. Any complication requiring rapid delivery, not amenable to medium and low forceps.

4. Prolapsed cord or extremities.

5. Slight pelvic contractions.

Conditions:

1. No marked pelvic contractions or disproportion between the head and the pelvis.

2. Cervix completely dilated or potentially so.

3. Head not so firmly engaged, and uterus not so firmly contracted that the head may not be raised out of the pelvis with safety under thorough relaxation under anesthesia.

4. Amniotic fluid not long drained away, with contraction of ring and thinning of the lower uterine segment.

In late years these accepted standards of the limitations of version have been assailed by Dr. Irving W. Potter, of Buffalo, N. Y. Dr. Potter believes that the field of employment of version and extraction should be widely extended. In his practice, for the two years ending August 31, 1921, he personally delivered 2,242 cases, 83 per cent by version. He states that his results are not higher in maternal and infant mortality and morbidity than those of any experienced obstetrician and that the use of version is a bene-

*Presented before the Hennepin County Medical Society, Minneapolis, February 5, 1922.

fit to mother and child and obstetrician. In other words, he believes that, with the required skill and under proper conditions, delivery by version is better for the mother and child than normal delivery, and that only those cases should be delivered by other methods in which Cesarean section is indicated (approximately 8 per cent in these statistics) or in which the obstetrician arrives too late to make the version possible. He advocates routine version and extraction for all practitioners with the exception of "anyone who does not want to do it or is afraid to try it because he realizes his own ignorance and lack of skill."

Certainly, no man responsible for the safety of women and infants in childbirth would practice or advise such routine operative application which is so contrary to all previous experience without absolute conviction that he is justified in so doing, after weighing all relative facts and potentialities for safety or disaster to mother and child. Especially would this be true of a man in the position of Dr. Potter, who must realize that his hospital connections and surgical honors lend great force and authority to his acts and thus increase his responsibility to the public and to the profession. A realization of these facts has compelled the attention of the medical world and brought about a thorough examination of a position which otherwise, I believe, every man of experience would designate at a glance as preposterous and pernicious and not worthy of further consideration. The subject has received the consideration of many leading men in the specialty with, I believe, a resulting majority of opinion that the opinion and judgment of Dr. Potter, in this instance, are in error and fraught with very dangerous consequences, if accepted. That the matter is not yet clearly settled in the minds of many is evident to me from the fact that hardly a week passes but I am asked concerning the matter by physicians and laity alike. From this evidence of widespread attention and my conviction, from my own experience and observation, that the general acceptance of the teaching would result in a needless increase of maternal and infant mortality and morbidity, I feel that the matter should be thoroughly discussed in every medical organization.

I will quote, verbatim, from Dr. Potter's book, "The Place of Version in Obstetrics," in order that his views cannot be inadvertently distorted. Dr. Potter says:

The abdominal surgeon has taught us that it is a relatively safe procedure to invade the uterus and peritoneal cavity from above, from which I argued that, if similar surgical precautions were employed, it would be a very much less serious matter to invade the uterus from below. As a result, I have been able to demonstrate in papers, which I have published and wherein I reported that I had performed podalic version over four thousand times, that the procedure in competent hands should be attended with no maternal, and a very small fetal, mortality when conducted according to the method which I have advocated. Moreover, by this method the pains of the second stage of labor are entirely eliminated, and I am satisfied that the suffering and dread of childbirth will be so much lessened that women will be willing to have larger families. Finally, as the vagina, the peritoneum, and other soft parts are not subjected to long-continued stretching, fallen bladders and rectoceles and gaping vaginas will be seldom seen and post-puerperal suffering and morbidity will be reduced to a minimum.

I believe that the shortening of the much dreaded second stage of labor will do more than any other single influence to lessen the fear of childbirth, now so universal among mothers, and will result in a higher birth rate in that class of society upon which the well-being and continuance of our state rests.

In my practice, preparation is made as for any other surgical intervention. Above all, the genital canal is not infected by repeated examinations and explorations, as is usually the case when version is performed as an emergency maneuver. Under the strictest asepsis a single examination is made to ascertain the amount of dilatation, the hand being introduced to the fundus for a careful exploration of the state of the uterus and the situation of the fetal parts. Thus, when version is begun, the hand which enters the uterus has but small chance of carrying infection with it. In general, the fact that the patient suffers little or no shock when delivered according to my method, probably makes her more resistant to infection.

The second danger attending introduction of the hand is the likelihood of rupture of the uterus. No case of uterine rupture has ever occurred in my practice. Version is never attempted until the cervix is fully dilated or dilatable. The patient is anesthetized to the surgical degree before the hand enters the uterus, complete relaxation of that organ being in this way obtained. Altogether, I have delivered by version and reported 4,000 cases. The indications for the version varied widely but "neglected transverse presentations with the uterus on the point of rupture" were not treated by version. This condition would not be found in the practice of an operator doing elective version, as the delivery would be completed before it could supervene.

In my experience, the laceration of the mother's soft parts, during version and extraction, according to my method, is much less than after forceps deliveries or that seen in labors when the second stage is greatly protracted. Neither do we see cystocele or rectocele, conditions often due to long

pressure of the fetal head and undue stretching of the birth canal.

The fetal mortality, I believe, compares favorably with that in any other form of delivery or in the practice of any other obstetric specialist. In any delivery, the principle dangers to the child are due first to a possible prolapsed cord, partial, complete or concealed; secondly, to unduly prolonged pressure of the uterus upon the child, as in cases of faulty presentation and borderline cases of contracted pelvis. "He has broken only one fetal extremity and that a humerus, in a case where the arm was extended and the mother was a primipara."

Dr. Potter further says:

No man worthy of a position in the medical profession works for "pay" alone, nor does he grudge his time nor shirk the weight of responsibility. Nevertheless, the "laborer is worthy of his hire," and the man who can bring to his work the greatest amount of ability, energy, and kindly feeling is the one who will best serve his patient and most truly exemplify the standards of the profession of which he is a member. Therefore, any advance in the practice of obstetrics which will conserve the strength and well-being of the attendant and shorten the amount of time necessary for the completion of a given task, provided that safety and efficiency are in no way lessened or sacrificed, is worthy of consideration, even upon this ground alone.

The above constitutes Dr. Potter's view of facts, and his reasoning therefrom as regards version and extraction, which has impelled him to take this stand. I do not question his statistics, his prowess, or his sincerity; but I do question his judgment of facts and his reasoning therefrom, and I believe that neither his premises nor his statistics warrant the extent of operative procedure advocated by him.

From the standpoint of infection, under proper conditions, version is, no doubt, as compared to other intervention, relatively safe, but is it relatively safe enough, as compared with normal delivery, to justify its substitution therefor? Consider this matter in its possible relation to your own family and to your patients who should have the same standards applied. What is your answer? My answer is, unqualifiedly "No."

It is obvious that the difference in anatomy renders an equality in point of safety between entrance of the uterus from above and from below in obstetric operations untenable. One cannot be so sure of the asepsis of the channel through which the hand passes. Especially is this evident in cases of uncleanliness, pyelonephritis, and gonorrhoea. Evidence the fact that even under the best technic the mortality and morbidity of Cesarean section is increased by

vaginal examinations. Witness the lessened morbidity in the experience of most of us since the introduction of the routine rectal examination and its substitution for the routine vaginal examination. To say that one can carry the hand to the fundus, under the best technic in every normal case, with the same potential for safety that attends the rectal examination, is not borne out by facts in my experience and observation. In the treatment of cases in the In and Out-patient Departments of our public hospitals by physicians and students, I am convinced that such a belief would prove disastrous. No individual statistics can overpower or render void the value and the moral responsibility of judging the matter from the standpoints of possibilities and probabilities of relative safety. We are not more morally held to know and use the best technic than we are to appreciate the limits of safety of even the best technic. From my knowledge of anatomy, bacteriology, pathology, and technic I would feel less culpable in having infection attributable to intervention, where the latter was clearly indicated and necessary, than I would in having an infection attributable to unnecessary intervention. No time factor or conservation of strength or well-being would change my judgment in the matter. I believe that this is the feeling common to the majority of the profession in placing their final judgment on the moral justification of unnecessary intervention.

In my own experience, I do not find that the second stage of labor is a dread to any woman. Before the advent of nitrous oxide analgesia this may have obtained. It is the first stage, before nitrous oxide is advisable, that offers the greatest hardship. From the time in the latter part of the first stage that nitrous oxide analgesia obtains until the woman delivers, the pain, though not entirely absent, has never been a source of future dread. Facts in my possession do not furnish evidence that this is a justifiable indication for intervention. I have found that nothing engenders in a woman confidence and freedom from possible dread of future deliveries more than the fact that she has been able to deliver normally. Especially is this true where women have to move from place to place and cannot have the physician who brought them through other labors and in whom they have the most unqualified confidence.

Dr. Potter believes that delivery by version

results in fewer injuries to the pelvic floor because of the shorter period of pressure. Here again my experience does not corroborate such a contention. With episiotomy at our command, if necessary, and careful repair, it is remarkable how few are the morbid results. Dr. Potter is, undoubtedly, alone in never seeing a cystocele or rectocele, but he is not alone in seeing better results as his experience increases. There are, no doubt, a few women in whom nothing short of a Cesarean section would result in little or no relaxation. This might be called an indication for routine Cesarean section, and I have no doubt but that many groups of statistics might lead some to believe it to be a comparatively safe procedure in properly skilled hands. I would consider such statistics misleading.

Dr. Potter's view of the relative safety for the child in routine version, in contradistinction to normal delivery and intervention when necessary, differs from that of other skillful and experienced operators. With them he stresses the danger of prolonged pressure. Careful pelvimetry, early diagnosis of malposition, a thorough realization of the terrific toll of high forceps, and the thorough realization of the danger of a prolonged second stage have led to a much diminished occurrence of prolonged pressure upon the head.

In relation to pelvimetry and version: Dr. Potter says, "I recognize the pelvimeter as an instrument of some value, but in my own work have depended more upon my personal experience, considering the history of the patient, the findings of vaginal examination, the general build of the individual, and, most valuable of all, the knowledge gained by my own hand in the uterus as worth more than that obtained by the use of any machine calculations of inside or outside pelvic measurements." Though slightly beside the point, this statement may give one a key to his extensive use of Cesarean section.

The use of elective version for slight pelvic contractions is a moot point. Authorities differ in their views. Careful pelvimetry, however, seldom fails in indicating the possible necessity of Cesarean section or version. In individual cases a test of labor sometimes renders our judgment incorrect, and the woman delivers with ease. Though this is at times a source of embarrassment, it is always a source of rejoicing to him who believes that the mother and child have been saved from the potential dangers of unnecessary intervention.

The majority would agree, I believe, with his statement that he does not believe that the high forceps operation is justifiable when brought in comparison with version when version is not absolutely contra-indicated. Infant mortality in high forceps lies around 40 per cent. This may obtain in mid-forceps, where version is possible. The mortality of mid-forceps lies around 20 per cent, but I believe that the skillful use of the low forceps, when necessary, offers a greater potential of safety for mother and child than the extension of the use of version beyond the present-day teaching of indications. Dr. Potter's personal experience with birth injuries is unique and more to be admired than relied upon as an assurance of safety for others.

In reference to the danger to the child; I will quote from a correspondence appearing in the August 5, 1922, number of the *Journal of the A. M. A.*, concerning the review of Dr. Potter's book, appearing in the July 1, 1922, number of the same journal. Both the review and the correspondence should be read by every man interested.

"In Professor Rucker's report on his experience with Potter's version, in the *Journal of Obstetrics and Gynecology*, March, 1921, the author is enthusiastic for the method, yet his fetal mortality was from 12.1 to 17.55 per cent; according to "group," a gross mortality of 14.5 per cent. Professor Rucker is the first Potter enthusiast to report his results and is still enthusiastic when his fetal mortality is from two to three times the normal experience. If this is a criticism we may only feel that the method has been tried and found wanting in safety or rationality."

When asked what influence Dr. Potter's unquestioned statistics have on my view of the matter I can only say that, though they were my own statistics or those of many others, they would not change my view, but would only increase my belief in the grace of God and my previous wonder at the marvellous resistance and vitality of women and infants in the process of labor.

Any method of version productive of such excellent results as those obtained by Dr. Potter demands careful study. There can be no absolute canon of technic in version. Each man, as in violin bowing or golf, will have his own individual form and will do well to hesitate a long time, if his results are excellent, before he changes that form because a different form has

brought success to another. Very few skillful operators do version exactly alike, and every man has his reasons for certain variations and modifications. Dr. Potter's variations and modifications and his reasons therefor are suggestive, and are stimulative to inquiry, if not to acceptance. From a standpoint of teaching a technic to students who have not yet acquired their individual form one must judge various technics by their potentiality for safety, their mechanical correctness, and their results. Dr. Potter's method is excellent in respect to his results, but I do not believe it to be the safest or the best method.

From my observation, the most important points that he stresses and the points most frequently neglected to the detriment of the procedure are the use of elbow rubber gloves, the thorough stretching and ironing out of the perineum and vagina by the entering hand preliminary to the version, and the substitution of deliberation and care for excitement and rough handling of the infant, both in and after extraction. These points are not new to most operators, but they cannot be too carefully stressed, especially in teaching.

Certain of Dr. Potter's variations and modifications are open to frank disapproval and should be discussed. He advocates chloroform as the anesthetic of choice in the procedure. In my opinion this is a grave error. His experience is yet too small to outweigh the experience of its danger in general surgery and in the toxemia of pregnancy. Its possible toxic action upon the liver has been proved beyond contravention. Under the most skillful anesthetist, as compared with ether, it has been proved relatively more dangerous. His reason for its use is that he gets better relaxation. In my experience, deep ether anesthesia has always given sufficient relaxation for the successful accomplishment of version.

Dr. Potter emphasizes the use of the modified Walcher position, with the patient's feet held on chairs or stools by a nurse on each side. He claims for it the same advantages of relaxation and control claimed by the advocates of the lateral position in normal delivery. It has been my experience that the lithotomy position renders the possibility of asepsis more sure and that it increases the ease of watching and controlling the perineum without practical loss of relaxation.

Dr. Potter dilates the vagina and perineum by introducing one finger, well lubricated with green

soap, to the cervix and withdrawing it with deep, firm, and steady pressure. Two fingers are then introduced, etc., until the whole hand is introduced and has dilated and ironed out the rugæ and folds of the vagina. Better asepsis can be assured by introducing the fingers and hand as a cone and dilating without withdrawal.

Dr. Potter emphasizes the use of the left hand in version, no matter what the position of the fetus. This, I believe, to be a personal equation. Though left-handed in many maneuvers, I am more deft with the right hand in version, no matter what the position of the fetus. Many men vary the hand used according to the position of the fetus. This would appear to be the most rational method, and yet, in practice, it is not essential.

Dr. Potter, after entering the uterus, separates the membranes from the uterus by sweeping the hand around gently and ruptures the membranes high up, to conserve amniotic fluid for the more easy execution of the version. I believe it is much safer, from the standpoint of possible infection, to rupture the membranes at the os and enter the amniotic cavity immediately, without contact, if avoidable, with the uterus. A large percentage so rupture naturally, before the cervix is dilated or dilatable. No increased difficulty in version has been experienced after making the low rupture, provided deep anesthesia and consequent relaxation obtain.

Dr. Potter always draws down both feet, believing that better and more even control can thereby be obtained, and, if necessary, in the interest of mother and child, the labor can be terminated more quickly. He believes that nothing is lost by this method in point of dilatation. Most men believe that the drawing down of only one foot gives better dilatation. The latter opinion I believe to be more correct.

Dr. Potter says, "Bags are never employed in my work. Cervical dilatation is an absolute prerequisite to the performance of version; if it does not occur spontaneously it is induced in the manner previously described, by stretching the cervix very gently with the gloved fingers. I do not believe that bags can bring about dilatation in any way comparable to the natural process." Most men believe that in many cases of rigid cervix, and in many cases of placenta previa and toxemia, where version may be indicated, bags are often of inestimable value. From my own experience, one would make a

great mistake in teaching or practicing the exclusion of their use.

My purpose in laying the question of version before you has been twofold: to consider a much discussed opinion, the acceptance of which I believe would be dangerous; and to emphasize the value of version under well-recognized indica-

tions, as laid down by the vast majority of experienced obstetricians.

All will heartily agree with Dr. Potter that students should be given more intensive instructions in the value, indications, and technic of version. His work will have rendered a valuable and laudable service if it aids in bringing this about.

CLINICAL DEMONSTRATIONS: DEMONSTRATION OF THE DIAPHRAGM SIGNS IN THE DIAGNOSIS OF THE HEART AND LUNGS*

By M. A. BLANKENHORN, M.D.

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CLEVELAND, OHIO

DR. BLANKENHORN: Mr. President and Gentlemen of the Sioux Valley Medical Society: The particular things I wish to discuss and demonstrate this morning are rather difficult, in fact, almost impossible, to put in writing. For that reason I have come this distance at your invitation, to illustrate them by a clinic demonstration. I will show typical cases and expect you to ask questions; and I hope to see you put your hands on these patients, those of you that are interested, and feel the signs which I shall attempt to point out. The signs are in some cases visible, but they are best understood by being felt.

There has been much written about the diaphragm and the diaphragm signs in the methods of diagnosis in internal medicine, but much of it has dealt altogether with the diaphragm itself. This particular study deals only with the diaphragm as a means to an end. We are concerned with the viscera immediately in relation to the diaphragm. We are mostly concerned with the viscera above the diaphragm,—the heart and lungs. The diaphragm, by its action, displays to us its position, and the position of the diaphragm is modified by changes in the viscera above the diaphragm. We, therefore, get information regarding the size, the shape, and the position of the heart. We also have information regarding the size of the lungs, and we have information regarding the condition of the pleura.

This sketch illustrates the diaphragm with central tendon and two domes, one on either

side. Beneath this is the subcostal angle, which can be seen on the patient marked off by the margin of the costal cartilages. The subcostal angle must be divided by a midline into two angles, called the left and the right. The diaphragm signs I shall discuss are disclosed to us by the movements of the costal margins. As these margins move outward they widen the costal angles, and as they move inward they narrow the angles. Normally the act of inspiration results in widening of the angles, but the diaphragm by its contraction tends to restrain the widening. The diaphragm is unable to restrain the widening entirely, for its contraction takes place in a curve, hence at a mechanical disadvantage. If for any reason the curve of the diaphragm is flattened out to a straight line, the contraction occurs at a mechanical advantage, and the costal margin is restrained from going outward and may even come inward. The various conditions that flatten the curve of the diaphragm are as follows: enlargement of the heart or pericardium; enlargement of the lungs, as in emphysema; fluid or air in the pleural cavity; or pleural adhesions. These conditions may be bilateral or unilateral and affect the costal angles accordingly. The behavior of these angles during respiration, therefore, gives you an understanding of the position of the dome of the diaphragm, and indirectly informs you of the viscera immediately in relation with the diaphragm.

In eliciting these signs we usually have the patient lie down, and then, choosing symmetrical points on the costal margins, we watch the movements of these points during respiration.

*Presented before the Sioux Valley Medical Association at its mid-winter meeting, January 25 and 26, 1923.

Such a point may move in three directions all at once, usually cephalad, ventrad, and laterad during inspiration, and the reverse of these processes in expiration. The movement laterad is the most important and is best explained as a widening of the costal angle. The patients whom I shall present show unilateral signs only. We were unable to locate any one with bilateral signs. But these patients, together with a black-board, will illustrate my points very well.

It is not easy to apply these signs to your own use. That really is the reason I came out to talk to you about them, and one difficulty is that the costal margins are not, in a given individual, constant in their behavior. To a certain extent they are under the control of the patient's will. If he breathes naturally and unconsciously, they will move alike each time; but when you ask him to breathe for you he invariably introduces some artifact and modifies them as you watch; so a single breath, and observing a single breath, are not enough. You must watch him through quite a period of breathing with hands on the critical place, in this position. If you ask him to take a big breath he invariably will breathe more with the costal elements in his breathing, breathe more with his chest and not so much with his diaphragm. One of my patients here, when he breathes quietly, presents an asymmetrical movement. When he takes a big breath he uses his scaleni and intercostals vigorously, gives a big heave, then both of them go out in balance. Then diaphragm, scaleni, and intercostals are disturbed by conscious effort. It is difficult to have a patient breathe naturally when you ask him to, and he knows he is being watched. You have to look, look again, and look even more. I think the conscious effort that a patient puts into it, the artifacts that he introduces, have been the greatest obstacle in making this particular thing a useful sign.

Another obstacle to its being a useful sign is that there are undiscoverable asymmetries of pleura, old fibrotic processes that we can't discover by x-ray or percussion, which put a wrench in the works. They don't behave the way they should, and we are discouraged with the thing, and say there is nothing in these diaphragmatic signs.

This first patient I am able to show by courtesy of Dr. Runyon. This lad has a well compensated double mitral disease and a double aortic; the aortic dominates, and the greatest change I see

is that the left side of the heart is out. I visualize his condition as one obtaining where the heart is down in that position, and that dome of the diaphragm is affected. Now I will mark off on him the costal angles and also a point, and of course, in comparing one side with another, one must take symmetrical points first of all. You cannot do this very well with the patient sitting up. The methods of examination are to have the patient lying on his back, or partly on his back. I take the symmetrical points with my thumbs and have him breathe. I do not know whether you can see it as well as I can, but my right thumb moves farther away from the midline than my left, but my thumbs are on symmetrical points. When he takes a big breath they go out almost alike. When he takes an ordinary breath—this diaphragm I take it is down about in that position, and it works at a mechanical advantage by its attachment at that point—when he takes a big breath he can overcome that mechanical advantage by over-activating, and he will drag it out in spite of the restraining effect of that diaphragm. Now, will you lie down. It is a much better position, and a good method of eliciting the signs and making observations is to put the thumbs along parallel to the costal margin. It is not a very easy matter to see it, because the skin remains stationary, and the costal margin slips under the skin. By putting the hands in that position, the thumbs representing the costal margins, you can tell what those costal margins are doing. For purposes of comparison it is much easier to compare one point with another by putting your fingers on the points you wish to compare, and starting usually in the inner portions and moving outward. You compare the movement of one side against the movement of another. As he takes a big breath my hands move about alike. As he takes a gentle breath the one on the right side moves out quite a bit better. I would like very much to have the gentlemen interested come and put their hands on these patients. I came out here to demonstrate these patients, and I do not consider them adequately demonstrated if you all sit back there and simply listen to me and look. Those of you who are concerned, come up and put your hands on these patients.

This other boy has a chronic empyema and an osteo-arthritis. I am showing him by courtesy of Dr. Hagadorn. This boy had influenza-pneumonia three and a half years ago in De-

ember, and a few weeks after the onset of his pneumonia he had a rib resection performed for empyema. He has been an open or shut patient ever since. The longest period he has been shut was a year and a half. He has been opened four times and is open now. I saw his x-ray plate in the office of Dr. Bellaire, and I have illustrated precisely what this plate shows. It shows on the left beyond the heart shadow, instead of a curved diaphragm, a diaphragm growing straight across. He has a high attachment of his diaphragm and the left dome is now a straight line and has control over that costal margin.

This boy is a much more exaggerated case than the first one and shows a marked difference in the excursion of these two angles. It comes inward on quiet breathing, and with forced breathing it remains stationary. Now, I should be very glad to have anybody come up here and put his hands on this lad, or come up and watch him breathe.

One of the doctors asks a very pointed question. He stands at the head of the bed and looks downward and says: "Doctor, you can see that." I agree. You can see it on this patient. Any shoe-maker will tell you that. This is a shoe-maker's case, not a doctor's case. The very patients where you need the information in these signs are not the ones where you can see it. Take patients with cardiovascular disease. Usually they are thick-chested and heavy individuals, and it is almost impossible to percuss them. Such a patient becomes acutely short of breath. You do not know whether his heart has suddenly decompensated, whether he has developed bronchitis, asthma, or what. You want to know about the size of his heart and the volume of his lungs. You can get your hands on them, on the costal margins and feel them move very distinctly, but you cannot see them because the intercostal margins are buried so deeply in the tissue.

This is the x-ray plate of this lad. I think you can all see that line, even from back there. He has a small heart. I think the heart is slightly displaced into the left chest. He has quite a bit of fibrosis. He has cloudiness in this side. In all probability this is a chronic pleurisy, perhaps a collection of fluid. There is the diaphragm drawn in a straight line.

In examining these patients we usually divide all our people into two groups, because chests

differ naturally. There is the greyhound type of chest, one in which the costal angle is rather narrow. In that individual the diaphragm goes in a long, high dome, a large curve. Under those conditions it takes much more modification of the diaphragm to affect the costal angle. The other is the bull-dog type, which has a costal angle greater than a right-angle; and the diaphragm is more nearly horizontal, to begin with. Here it takes much less modification of the diaphragm downward to affect the costal margin. This lad is more of the bull-dog type. The one against the wall is decidedly of the bull-dog type.

There are conditions due to disorders below the diaphragm which also modify the excursion of the costal angles, particularly the subphrenic abscess. If that develops it will lift the diaphragm up higher than its natural dome. You have seen x-ray plates with a high dome from an accumulation of fluid under the diaphragm, above the liver. In that condition the diaphragm is out of function. When we see a patient with septic conditions and find no disease of the heart or lungs, and find a costal margin going out much farther, we suspect that condition, and x-ray examination is necessary. It is possible to make a diagnosis of subphrenic abscess with these signs, without x-ray.

The gentlemen that have been up here and put their hands on these boys have been very stimulating to me in the questions they have asked concerning the situation. Are there any other questions you want to ask before I let the boys go?

The doctor asked about the elevation of the diaphragm in subphrenic abscess. The diaphragm, normally, we will say, takes a curved position and exercises influence on the costal margin, but not control of it. That is, it still goes out, but it does not go out greatly. As the diaphragm is lifted up by the fluid it assumes a position even higher. Then it has even less control over the costal margin.

QUESTION: Do you notice any change in acute gall-bladder?

DR. BLANKENHORN: No, I have never seen a gall-bladder of itself from a hydrophora large enough to affect the condition of the diaphragm.

QUESTION: A spastic condition?

DR. BLANKENHORN: That is a very pointed question, whether or not spastic conditions will give asymmetrical movement of the diaphragm.

The question comes up in pleurisy, say, a lower lobe pneumonia. There is a painful limitation to breathing, but the costal margins are moved symmetrically. Under those conditions I do not think it is possible either to voluntarily or involuntarily disturb the balance between the diaphragm and the intercostals. I have not seen in appendicitis or any unilateral acute inflammatory process of the abdomen an asymmetrical movement of the costal margins. It is sometimes extremely difficult where we have borderline symptoms referring to the upper abdomen, and we study them very carefully in that relation and check them up by operative procedure or further illumination. I do not believe we have been deceived by that condition.

One of the doctors asked me where these signs were developed. I must give all credit for the elaboration of the physiology of the diaphragm to the head of the Department of Medicine in Western Reserve, to Dr. Hoover. I have been concerned principally in the dissemination of information relative to the diaphragm. In my teaching in postgraduate medical courses to experienced practicing physicians I can demonstrate these things very satisfactorily, and the physicians tell me they find it useful information. In my teaching in the wards with the undergraduate students, we take it as a matter of course if they are to have a degree from our school this is useful information to them. As I

see them years afterward they are applying it as useful information. But to make a report of it in a journal somewhere and expect practicing physicians, or even teaching physicians, to make useful information of it has been a decided disappointment. I will say frankly that I rarely have seen a teacher of medicine come and make rounds with us on our wards who, we think, uses all the diaphragm signs for what they are good for.

We have tried many times by various devices to put levers and riding styles and hitch all these things up to smoke drums and make elaborate tracings which convey much conviction when they are printed in journals of physiology, etc., but it is impossible to plot a curve legibly, that is, intelligibly to plot a curve of a movement which takes place in three dimensions. For that reason we insist on your putting your hands on the chest, feeling the thing as it moves, as a whole.

DR. KLINE: Is it of value in differentiating paranephric abscess?

DR. BLANKENHORN: No. The paranephric abscess deals with the portion of the diaphragm which has very little influence over the costal margin. It deals with the posterior portion of the diaphragm, and that part of the diaphragm has no influence over the movement of the costal margins. (Applause.)

SOME DISEASES OF THE MOUTH, JAWS, AND FACE SURGICALLY TREATED*

IN TWO PARTS—PART I

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The study of the relationship between ill health and defective teeth and diseased jaws is by no means recent. It has received casual mention in the older literature and has been recognized for a long time by some practitioners of medicine and dentistry. The subject has not received, however, the prominence it deserves, although a good many practitioners have been giving this matter a thorough study, and now do not complete case-histories unless they have a detailed report on the pathological conditions that exist in and

adjacent to the teeth.

The development of this knowledge marks a great practical advance in the diagnosis and treatment of disease. It is now apparent that many disorders which heretofore were considered obscure in origin and incurable, are due wholly or in part to chronic infection and that such diseases can often be cured, or, at least, the progress of the disease retarded, by the removal of the primary source of infection.

Chronic sepsis is far more frequent than was formerly supposed. It is now conceded by eminent specialists that few people of mature age

*Presented at the annual meeting of the Soo Surgical Association.

are wholly free from it. Among individuals examined by Dr. Arthur Black, without reference to their complaints, the percentage of periodontal infections was 56 per cent for persons under 25 years of age, 72 per cent for those between the ages of 25 and 30, 87 per cent for those between 30 and 40, 89 per cent for those between 40 and 50, and 100 per cent for individuals over 50 years of age. There is, of course, some variation in statistics reported by different observers. This is due in part to the class and age of the patients examined and in part to slight differences on the basis upon which the diagnosis of sepsis is made.

It is now generally agreed, however, that dental sepsis is one of the most common of the chronic active infections, and for this reason it ranks theoretically as a very frequent cause of ill health.

Duke reports that oral sepsis as a focus of chronic active infection may be a source of ill health in many different ways. It may harbor and distribute organisms which, under certain conditions, may infect other tissues and give rise to acute or chronic inflammatory lesions. It may have a toxic effect with ensuing disease in both normal and diseased organs. This effect in healthy individuals may perhaps be slight; it may be decidedly harmful, however, in individuals who are depleted by disease.

It may also cause functional disturbance in relatively normal organs by furnishing an alien protein to which an individual may have become highly sensitized. In the same way it may increase functional disturbances due primarily to organic disease. Finally, it may cause local pain, referred pain, and headache.

The immediate therapeutic result which follows the eradication of oral sepsis varies, and the more conservative often hesitate to promise too much. Frequently the result is excellent; on the other hand, it is often disappointing. It is likely to be disappointing if the removal has been incomplete, or if other co-existing infections have been left intact, also if extreme anatomic changes have been brought about as a result of chronic systemic infection. The best results are obtained in those instances where the systemic effects are chiefly toxic. In these cases a brilliant result often can be secured within a short time.

It is unfortunate that the profession, both in medicine and in dentistry, has not studied

the true pathological conditions in and adjacent to the teeth. The mere suggestion of the report of a single case wherein there was the slightest manifestation of a cure through some form of dental care, started a wave of one or the other forms of treatment throughout the entire country, if not, the dental world. Let me illustrate what I mean. You all remember when some members of the profession who had achieved some reputation as practitioners reported that they were able to cure pyorrhea by the injection of emetine. They went so far as to say that they had obtained cures. This so-called cure for the relief of loose, sore teeth became the subject of debate and discussion in our medical and dental journals. Newspapers reported this wonderful miracle. Drug houses, seeing the opening for a good harvest, sent out agents and employees over the entire country, preaching the wonderful cure that could be obtained in the treatment of pyorrhea by adopting emetine as a treatment.

My observation and study of the pathological condition involving the teeth and adjacent structures satisfied me that emetine could not bring about the results claimed for it. To-day one rarely hears this drug mentioned. It has taken its place side by side with other fads so numerous in the history of medicine. If dental pathology is once mastered, it is only then one can draw certain conclusions in working out a diagnosis. Without a genuine knowledge of the dental tissues, their pathology, and their relation to systemic diseases, both physicians and dentists are more liable to err in making a diagnosis and differential diagnosis which will oft times cause patients to be mutilated and maltreated.

Unfortunately, there seems to be a tendency for some practitioners to urge patients who are suffering from rheumatic pains to have teeth extracted without determining the possibilities of eradicating infection without removing these organs of mastication. Such advice is contrary to the laws that govern scientific diagnosis. Especially is this true of rheumatism, for Dr. Cabot says "Rheumatism has sometimes turned out, in my experience, to mean aortic aneurism, cancer of the pleura, tabes dorsalis, osteomyelitis, bone tuberculosis, syphilitic periostitis, lead poisoning, morphine habit, alcoholic neuritis, and gonorrhoeal infection. Rheumatism is one of the most doubtful of all diagnoses."

These words should prove that all modern aids to diagnosis should be used if one is to safely rely upon his diagnosis.

During the last five years we have tabulated 1,000 cases suffering from miscellaneous systemic complaints, and find that 18 per cent were benefited by the complete eradication of all chronic infections involving the teeth and adjacent structures; 82 per cent were not benefited, and it is up to the diagnostician to find out what the contributory factors were that brought on the systemic conditions. Yet, after all, I am satisfied that these 82 per cent who had the oral sepsis removed were benefited in having a clean mouth, and were not liable to suffer from any complications which may arise therefrom.

Time does not permit me to take up this work as I would like to, for volumes have been written and rewritten on this subject, covering it from the standpoints of etiology, diagnosis, treatment, and prognosis.

There seems to be a diversified opinion among men as to how teeth should be removed. Some practitioners advocate the complete removal of all teeth that are pulpless. Talbot, in his research on bone absorption around the roots of teeth, reports that dental *x*-ray pictures do not show the pathology necessary for the guidance in the treatment of interstitial gingivitis, pyorrhea alveolaris, or apical alveolar changes. He finds that there are a number of stages in pathological evolution from the normal healthy tissue to the fully formed abscess, in which the *x*-ray does not and cannot by the present method discriminate.

To treat diseased teeth successfully, and the alveolar tissues, we must in some way be able to distinguish the finer changes which occur in the evolution of a fully developed abscess. Each stage requires different treatment, and the knowledge of each stage is necessary in deciding whether a tooth can be saved or should be removed.

Talbot further claims that *x*-ray pictures, as produced to-day, are far from what they should be. He recognizes the wisdom of the removal of pulpless teeth when all other sources of infection have been excluded. He has arrested arthritic deformities, and has cured headaches, indigestion, boils, skin eruptions, and large glands of the neck by removing pulpless teeth. They did not show defects in the *x*-ray picture. I

am getting to be more and more inclined to agree with Talbot, and yet in our experience we have found that in pulpless teeth, especially single-rooted ones, when treated and the canal correctly filled, the results were as good as when we would have extracted the teeth. To rely on the *x*-ray as a guidance in determining whether teeth should, or should not, be extracted is unsatisfactory. We believe that unless one can grasp the full significance of dental pathology, and be able to differentiate between the various pathological phases that take place in and about the teeth, one is at sea and is more liable to err in working out a diagnosis.

The great trouble with the dental profession is that the teaching of pathology in our dental schools has to be modernized. Unfortunately, we find that a large number of dental schools devote too much time to preserving the visible portion of the teeth, and to making restorations which look well, and serve well for the purpose of mastication.

Fillings, crowns, and bridges have not been, and still are not, at the present, constructed with a paramount purpose of avoiding sepsis, and have often been attached to teeth so badly infected that the patient was worse off after dental care. This condition still seems to prevail in a large number of our dental schools. If dentists are to be turned out in the future as they have been in the past, I sometimes shudder when I think of the great suffering there will be caused. I mention this for the reason that I have always hoped that the dental profession would take upon itself to better the standard of dental training. So far little progress has been made. The medical profession may yet find it necessary to incorporate the teachings of scientific dentistry or, I might better say, stomatology, in its curriculum.

Our present-day literature and the statements usually made by teachers and text-books frequently are so antiquated that the student fails to comprehend the fundamental principles that are necessary to oral surgery. Unfortunately, the trammels of custom and the difficulty of overcoming the dead weight of authority prevent many from breaking the shackles of dental provincialism.

In the study of inflammatory affections of bones much needless confusion has arisen in connection with the terminology. The term *osteitis* might rightly be applied to all of the bones except when the medullary cavity of a long

bone is affected. Then the term *osteo-myelitis* is preferred. It is also important to realize that necrosis and caries are the result of inflammation, and are not to be considered as distinct diseases.

Diseases of the jaw bones present a far different pathological process. The correlation of the teeth and jaw bones and their various pathological phenomena presents to the surgeon a clinical aspect not found in any other bones. Diseases of the jaw bones usually arise from one dental lesion or a combination of dental lesions, such as tooth decay, delayed eruption of teeth, pericementitis, and diseased pulps. A careful anatomical and pathological consideration, together with the history, should produce convincing evidence that the majority of inflammatory infections of the jaw bones have their beginning in some dental disturbance constituting the primary lesion.

One of the common severe complications known as trismus dentium arises usually from a diseased molar extending to the tissues of the masseter or the internal pterygoid muscle. The lower third molar may be considered as the chief offender. On account of its peculiar anatomy and location, it can erupt only partially and sometimes not at all. The fact that the lower third molar undergoes decay is largely due to the operculum of the gum, which covers a greater part of the occlusal surface of the tooth, allowing decomposition of the epithelial scales and other débris of the mouth, combined with the acidity engendered by their disintegration to corrode the structure of the tooth, thus quickly destroying its integrity.

This process of degeneration, if unchecked, will involve in time the pulp, causing odontalgia and infection. This process of pulp infection may extend beyond the apical end, and result in a marked inflammatory process. The pus, burrowing down deep into the bone, sometimes produces a fistula within or out of the mouth; if untreated it becomes chronic. I have seen some of the most alarming inflammatory attacks produced in this way. There is no tooth in the mouth that is so frequently delayed in its eruption as the third molar. The cause of this is best described in the words of the late Dr. James Garretson: "The advent of the modern teeth is very often accompanied by painful and distressing symptoms that may be protracted through many months, or it may even be years, unless

relieved by surgical interference. These circumstances arise from the position occupied by these organs so close to the joint of the lower jaw where the mucous membrane is reflected from the gum to the cheek and fauces, combined with the very common condition that the jaw is not sufficiently elongated backwards to allow them to range in the horizontal series with the other teeth. This mechanical difficulty not only prevents the proper evolution of the teeth, holding them back in their bony bed, but it often prevents their direction of growth and dislocates them. Annoying and very painful as are often the symptoms attendant on difficult eruption and misplacement of the upper wisdom teeth, they are trivial in comparison with those which occur in similar condition of the lower."

Strange as it may seem, an unerupted lower third molar may develop a marked case of acute periodontitis. This is usually due to the soft tissue lying over the enamel, forming a pocket which permits foreign substance to accumulate, giving rise to putrefaction. Under such a condition the infection may spread beneath the periosteum and dissect its way beneath the body of the mandible and finally break into the soft tissue and eventually make its exit in the form of a cutaneous fistula. This clinical picture must not be confused with the pathology as found when the infection follows the long axis of the tooth, or from an infected root canal, and burrows through the bone, then breaks through the periosteum and invades the soft tissues, and then terminates in a fistula.

Here we have two conditions of acute infection terminating frequently in a fistula, yet differing in the prognosis: (1) the infection involves the gingivopericemental tissues and travels beneath the periosteum, developing an osteoperiostitis, and later spreads into the soft tissues, destroying the cellular elements and finally ripening into a well-defined abscess, which may by itself break through if not opened with a knife. Once the pus is fully evacuated the prognosis is favorable.

In the second condition the progress of the infection is different, and one may look to a prolonged suppuration with a rather delayed prognosis. The pus, instead of travelling between the periosteum and the bone, attacks the bone cells at the root-end of the tooth, developing a root-end osteitis. The infection spreads within the cancellous structure of the bone and

destroys a large amount of tissue before it finally breaks beneath the periosteum, then dissects its way through this covering to invade the soft tissues, and terminates as in the first condition. Healing, however, does not take place so rapidly, as the bone having developed an osteitis will continue to suppurate and, if untreated, may develop into a sequestrum. Fortunately, such a condition other than causing the patient to undergo much suffering has a favorable prognosis, yet at times terminates in a chronic inflammatory process with a continuous suppurative fistula.

Occasionally the infection may develop from an infected pulp, pass through the apical end, involve the pericementum, and, instead of destroying the cancellous structure, the pus makes its exit at the gingival margin. Then, again, the pus may burrow through the alveolar process and terminate in a gum fistula.

The treatment of inflammatory conditions involving the lower jaw must depend on a clear and comprehensive understanding of the pathological changes, plus the signs and symptoms related thereto.

Unless one is familiar with the tissue changes that take place during the progress of disease, the diagnosis, prognosis, and treatment are speculative. Under such a condition the disease may run its course with its many alarming complications, causing the patient needless suffering from want of correct surgical care. Conservative dental care, so universally recommended in the treatment of these inflammatory conditions, is of little value to break down the insurmountable resistance; therefore surgical interference is indicated as a rapid and speedy cure.

During my twenty years of surgical experience, in free clinic and private practice, I have come to the conclusion that text-books and dental periodicals in their articles relating to dental pathology have progressed little in teaching students to realize that conservative surgical care is necessary for the cure of gross pathological disturbances involving the jaws and adjacent structures.

Much might be said in favor of the following remarks by Dr. Fritz Williger in his "Dental Surgery":

"There is an old saying for the treatment of all processes of suppuration of the jaw and its surroundings which has not yet lost its meaning.

"Ubi pus, ibi evacua: If the pus does not find its way clearly out of this alveolus after

the diseased tooth has been removed, then the knife makes a way for it. Broad incisions quickly made soon produce the desired effect, that of freeing the bone of the inflammatory products burdening it."

In conditions where the inflammation begins from an infected pulp or the gingivopericemental tissues the removal of the offending tooth by extraction may abort further progress of the disease. Unfortunately, the patient does not consult a dentist until the symptoms become alarming. It is then that the operator must give due consideration to his patient.

The removal of the offending tooth under a local anesthetic is absolutely contra-indicated. The acute process of infection is at its height, and the forcing of a local anesthetic will have a tendency to spread the infection, so aggravating the condition as to produce alarming symptoms.

Right here I recall an interesting case which will illustrate the danger of local anesthesia in an acute inflammatory process:

A patient, Miss ———, aged 25, developed an acute pain of a lower second molar. She consulted her dentist, who diagnosed her condition as an ulcerated tooth, and painted the surrounding area with iodine. The following night the pain increased. The next day she returned to her dentist. She was referred to an exodontist to have the tooth extracted. The patient called at the office of the exodontist. Without obtaining a history of the case, the patient was given a local anesthetic which the operator called "conductive anesthesia." The tooth was removed without pain. The next day the patient developed a marked swelling of the jaw, and the pain was intensive. She called at the office of the exodontist. The operator then proceeded to curette the socket and irrigated the wound. In the afternoon the pain was so excruciating that the family physician was called. Morphine was given, which gave the patient some relief. The third day the process of infection had spread to the surrounding area, and the swelling increased considerably. The neighboring teeth were loose.

The exodontist and the physician were called to the residence, and the loose teeth were extracted and another curettement done. A mouth wash was prescribed, and another hypodermic of morphine given, and hot applications were applied to the swelling.

Fifth day, no improvement.

Sixth day, exodontist advised more extractions. This was done.

Seventh day, pain excruciating, fever, patient restless, marked trismus, tongue furred, deglutition painful, swelling large and hard.

Eighth day, referred by exodontist to general surgeon.

Ninth day, referred to hospital, and operation advised to give relief to pus. This was done, and considerable pus was drained from the area involved. Wound packed with gauze to permit free drainage.

Tenth day, pus flowing freely, patient improved.

Eleventh day, pus flowing freely, and continued to flow for three weeks.

Then another operation was performed. An incision was made beneath the jaw, the bone curetted and packed with iodoform gauze. The pus continued to flow; no improvement.

Several days later the patient was advised to leave the hospital and undergo office treatments. This was done for three months. During this time the patient was given a number of bismuth injections.

The fistula by this time was draining slightly. The wound would apparently heal and open periodically. The patient was referred by the family physician to me. By the time the patient came to me the disease had run its course. I am satisfied that if the tooth had been removed under gas-oxygen anesthesia the patient would not have been subject to such a marked spreading of the infection.

I do not wish to belittle the value of local anesthesia. We use it a great deal in our operative work; but I want to emphasize that no one should use it unless he is familiar with the case to be operated on, and the indications and contra-indications of both local and general anesthesia.

Smith makes the claim that local anesthesia is contra-indicated with tissues of low vitality. The additional trauma caused by injecting the solution may still lower the tissue vitality. However, one must also take into consideration that curetting a diseased area in a state of active acute inflammation, as was done in the case just mentioned, is contrary to the principles of good surgery, for one must never forget that during the acute stage, the tissues, being overwhelmed by the action of the bacteria and their toxins, are putting up a splendid defense composed of loops of newly formed blood vessels imbedded in a mass of leucocytes and tissue cells in a state of acute proliferation. This does not necessarily indicate that the abscess has entirely ceased to spread, for the toxins may still have sufficient power to destroy this delicate newly formed tissue, cell by cell, but the leucocytes, rushing like soldiers summoned to beat off an assault, continue to pass from the thin walled vessels of new formation into the abscess cavity, being attracted chemotactically by the substance present in the pus.

During this time the cavity becomes lined by granulation tissue to act as a strong barrier to the bacteria and their toxins, and this, in a large

measure, prevents their entering the blood stream.

In our opinion it is not necessary to wait for an acute infection to become localized if the operator understands the pathology of the disease, and knows how to combat the progress of the infection. Free drainage is indicated. This can be done only by knowing the indication and contra-indication for operative procedure. Surgical ignorance will frequently make matters worse, as was done in the case I have cited.

In our practice we prefer gas-oxygen anesthesia and opening the tissue over the infected area with a sharp knife, then passing a closed hemostatic forceps into the wound down to the pus pocket. The jaws of the forceps are now opened, and the instrument pulled out of the wound. This simple procedure will push the soft tissue apart and liberate the buried pus. Iodoform gauze is then gently packed into the cavity.

The above operative procedure we recommend in cases of subperiosteal abscess. However, if the offending tooth is beyond dental care, we advise extraction at the time of the operation.

So far I have given considerable thought to the inflammatory conditions involving the lower jaw.

When one observes the close relation of the upper teeth, especially the bicuspids and molars, to the antrum, and the various pathological conditions that so frequently involve the teeth and adjacent structures, one can appreciate the fact that maxillary sinusitis may frequently exist as a mild chronic infection without causing the patient to have the usual symptoms of antral disease.

In cases of long standing the mucoperiosteum lining will become considerably thickened at the floor of the antrum. Hypertrophic changes take place forming a mass of granulation tissue which resembles thickened folds, accompanied by a collection of polypi and areas of degeneration.

One of the usual conditions that involve the floor of the antrum is proliferative pericementitis. This condition is of the chronic inflammatory type that involves the periapical end of the root of a tooth, especially pulpless teeth. It may be defined as a thickened mass of inflammatory tissue developing from the pericemental membrane. It grows slowly, and the bone cells surrounding it break down to provide room for this spongy mass to develop. The tooth to which this inflammatory tissue is attached is septic. It

may not be painful to percussion. It may have a root canal filled to the end, and be filled or crowned. It will perform its function as an aid in mastication. The radiograph may show little or no abnormality at the root end.

Teeth in the above condition are frequently passed as healthy teeth, free from infection and giving the patient good service. In our clinic we have had the opportunity to study several thousands of these pulpless teeth. For a long time we relied on the radiograph as a positive proof to differentiate septic from nonseptic teeth. If the canal was filled to the end and there was no bone destruction at the root end, such a tooth was considered free from infection. During the last two years we have gone a step farther. We now take into consideration the tissue changes that take place in teeth that are pulpless, and the care that was given the root canal before it was filled. When a radiogram is made it is done with a very low tube and long exposure so as to bring out detail. Several pictures are taken and comparison made. Usually in cases where the pericemental membrane shows a thickening in comparison to a healthy tooth, we consider it septic, and call it proliferative pericementitis.

Bacteriological tests so far have given proof of our contention that pulpless teeth with proliferative pericementitis are infectious; streptococci, staphylococci, and various other types of bacteria are usually found.

In the more advanced cases of proliferative pericementitis the radiograph will always show marked tissue changes at the periapical end of a root. Such cases are easily recognized; but great care must be exercised in order to differentiate a proliferative pericementitis from a root-end infection or a cyst.

Proliferative pericementitis, as I have said before, is a chronic inflammatory mass of tissue developed from the pericemental membrane. It is infectious and in its growth will involve the surrounding bone. Besides causing constitutional symptoms, it frequently attacks the floor of the antrum, giving rise to a mild chronic infection of the maxillary sinus, which drains through the middle meatus, without giving rise to any symptoms that may alarm the patient.

The following is an interesting case which will give striking proof of such a condition:

Miss F., aged 24; occupation, stenographer; complaint, pain in region of the upper left jaw and in

back of neck. Two years ago her dentist treated this tooth for several weeks, filled the root canal, and then put a gold crown on it. During the past three months she noticed a dull pain in the region of this tooth, which gradually was getting worse and conveyed a sense of fulness.

Examination: Her mouth as to cleanliness was good; no gingivitis or gingivopericementitis. All the teeth in the upper arch were vital except the upper left first molar. This tooth had the pulp removed and the canal filled. Missing teeth, all the third molars. Lower teeth, vital, the molars having occlusal amalgam fillings. Transillumination of the antrum on both sides appeared normal. Irrigation of the right antrum showed nothing abnormal. Nasal examination showed nothing abnormal, except a slightly deflected septum. General health, fair. Has frequent headaches. Pain in the back of her neck. Urinary and blood examination, normal. Radiogram of the upper left first molar showed a morbid condition at the root end. The canal was filled to the end.

Probable diagnosis, septic pulpless upper left first molar with a marked proliferative pericementitis involving the floor of the antrum.

On removing the gold crown we detached a foul, offensive, putrid odor. Under local anesthesia the affected tooth was dissected out of its socket. With it came a mass of chronic inflammatory tissue, which was found attached to the root end of the tooth.

The antrum floor over the socket was destroyed, and we could easily see the mucoperiosteal lining. No attempt was made to break into the antrum, as we felt at that time that it was not diseased. The socket was swabbed with glycerio-iodin and left to heal. This, however, did not take place as expected. The wound did show signs of healing, yet we could see that it gave promise of remaining in a chronic inflammatory condition. An exploratory examination of the antrum was finally decided upon. This was done by making an incision in the alveolar cul-de-sac, sliding the soft tissue apart to freely expose the bone. A window was cut into the bone the size of a silver fifty-cent piece to expose the antrum. Much to my surprise I found the floor of the antrum to be thickened and covered with folds of polypi, with areas of sloughing. The entire diseased tissue was removed. An opening was made in the lower meatus to provide free drainage, and the wound was packed with iodoform gauze after the Caldwell-Luc method, and the oral opening was closed. From this time on the patient made remarkable progress, her health being fully restored.

The above case is one of many that I have observed. The progressive development of root-end infection will in time break down the tissue that separates the maxillary sinus from the teeth.

Epithelial odontomes.—Epithelial odontomes, when found in the upper jaw, may frequently involve the antrum. These growths result from an abnormal development which takes place in the dental epithelium alone. They are of three

types: (1) multilocular cysts; (2) follicular cysts; (3) dental cysts.

A multilocular cyst is an innocent tumor arising from the dental epithelium with the formation of a number of cystic cavities. A definite capsule is present. In the early formation the various cystic cavities are quite distinct. As they become larger the walls become thinner until communication may be established. The teeth closely associated with the tumor become loose and fall out. When this happens the cyst becomes infected from the oral secretions.

The cause of these cysts is unknown. Injury, such as the fracture of a tooth or jaw, may stimulate growth of these cysts if the seat of the injury contained misplaced paradental epithelium.

Multilocular cysts are usually found in the lower jaw, rarely in the upper. In my experience I have had only one case in which the upper jaw including the antrum was involved. The patient was a woman sixty-nine years of age. The growth was about the size of a hen's egg. It communicated with the oral cavity and was infected. The complete removal of this mass involved all of the floor of the antrum and outer wall. In the lower jaw these cysts exist frequently. I have operated on a large number, the size varying from a dove's egg to the involvement of a great part of the jaw.

The tumor grows slowly, and is painless. It contains a brownish albuminous fluid. Inflammatory changes do not seem to occur very readily. It has no malignant characteristics. The lymphatics are not affected unless the cyst is infected. When the cyst is small it can be removed in its capsule; but if in the stage when the surrounding tissues have been distorted it is necessary to remove a large part of the jaw.

Multilocular cysts are often mistaken for malignant growths. Extensive operations have been performed under the impression that such a tumor was of a malignant character.

Follicular cysts are cystic tumors arising from the dental epithelium and connected with unerupted teeth. These cysts are usually formed during the period of tooth eruption. The unerupted tooth being embedded within the jaw may be fully or partially developed. The cyst is formed by proliferation and degeneration of the follicle. The growth is progressive. The swelling is painless. In the early stage there may be no sign of any abnormal condition except a

missing tooth. Later the swelling is noticed as small and bony. Then it steadily increases in size, so that on palpation a sense of egg-shell cracking is obtained. If the tumor involves the upper jaw the growth may extend into the antrum.

Since inflammation is a very common complication, infection of the antrum with necrosis of its walls is frequent. Since the radiograph has come into use the diagnosis of these cysts is easily made. However, the absence of a tooth in the region of the swelling may indicate that a follicular cyst exists, yet one must have in mind the possibility of such a swelling arising from an embedded supernumerary tooth.

The canine and premolar teeth are most frequently involved in the development of a cyst. The cyst contains a fluid in which degenerated epithelial cells and cholesterol crystals are found. The growth into the antrum may be so extensive as to involve a great part or all of the antral cavity. If not cared for it will by extension of the growth obstruct the nasal channel. The treatment consists in the complete removal of the capsule and tooth.

Dental cysts are innocent cystic tumors caused by irritation of paradental epithelial remnants found about the roots of pulpless teeth. These cells proliferate, while those in the center degenerate into a fluid. Clinically, two processes occur,—the formation of an adventitious capsule and absorption of the bone surrounding the tumor mass.

A dental cyst may be of any size, from a small pea to the size of a dove's egg; occasionally they are found to be larger. The origin of these cysts is obscure. They are of common occurrence and are associated with pulpless teeth. These cysts do not cause pain, and grow slowly. On inspection the mass presents a regular rounded outline. On palpation in the early stages the swelling feels hard and bony, and is clearly defined. Later on the bony wall is thin and elastic, and will give on pressure. In some cases fluctuation can be obtained. Dental cysts frequently become inflamed and suppurate. This is usually brought about from an infected root.

In the maxillary sinus the cyst may project into the cavity, pushing the lining of the antrum inward. When this occurs and the cyst is infected the antrum will usually become diseased, unless the cyst is removed surgically before the surrounding structures break down. It is im-

portant that dental cysts be not confused with proliferative pericementitis. As I have said before, proliferative pericementitis is always associated with a septic root. The pericemental membrane is diseased and undergoing chronic inflammatory changes, while a dental cyst is usually not infected. It develops from a proliferation of misplaced embryonic epithelial cells forming an epithelial root tumor. Later the central part of this tumor degenerates from lack of blood supply within the tumor.

Root-end amputation is never indicated in proliferative pericementitis, as failure is inevitable after such a surgical procedure; while in a true dental cyst the prognosis in root amputation is favorable in the majority of cases if the root canal is properly filled.

May I call attention at this time to the importance of understanding the pathology regarding tissue changes that take place at root ends, if one attempts to diagnose these conditions from observing a dental film. Radiographic diagnosis of teeth appearing to be in a morbid condition, and calling such morbid conditions a rarefaction, blind abscess, granuloma, etc., are nothing short of ignorance in dental pathology.

A radiogram of a tooth is only an aid in making a diagnosis. Frequently dental cysts become infected. This usually occurs by way of the peridental membrane. In cases where the gingiva is diseased, the gingival pericemental tissue soon becomes involved, and the infection travels along the peridental membrane. When it reaches the cyst the infection becomes acute on account of the lowered resistance of the cystic mass. Later the entire area breaks down, and the patient has all the symptoms of acute inflammation. If the cyst extends into the antrum the infection will involve the maxillary sinus.

Complex composite odontomes.—These tumors consist of irregular nodulated masses of dental tissue. They are usually found in the molar region. During the growth these odontomes give no sign of any abnormal conditions, occasionally they cause neuralgic pains. They grow very slowly and may go on for several years before the patient notices a prominence. At

times these tumors will extend to the outer surface. It is then that the fibrocellular capsule may become infected. When this happens a foul-smelling discharge may follow, loosening the odontome. The following is an interesting case:

Patient, Albert H., aged 10; school boy; American born, white; weight, 70 pounds.

Complaint: Pus oozing from palatal surface of upper left second premolar.

History: On December 24, 1917, the upper left deciduous tooth was extracted. One month later the patient began to complain of pain in the region of the left antrum. The jaw began to swell in the region of the upper left first molar. The swelling was lanced by his dentist, but pain continued sufficiently to confine the patient to the bed for two weeks. Pus began to flow from a fistula, which developed at the place where the tissue was lanced. This condition continued until April, when he was referred to me. The condition of his mouth as to cleanliness was fair. There was a slight gingivopericementitis on the lingual surface of lower molar. The following teeth were erupted:

6, 5, 2, 1		1, 2
6, 2, 1		1, 2, 4, 5, 6
4, 3		3
4, 3		3

and in normal occlusion. The deciduous teeth remaining were:

The upper left jaw revealed a large mass two inches long and two inches wide. The mucous membrane covering the area was congested, the center of which had sloughed, exposing a bony mass about the size of a five-cent coin. There were no evidences of the eruption of the right upper second premolar and first molar. His tonsils were enlarged and showed diseased crypts. The nasal channels were normal. The radiograph revealed a large mass extending into the antrum.

Probable diagnosis, odontoma. The patient was referred to the hospital for operation. Under ether anesthesia an incision was made over the mass about two inches long. The mucoperiosteal flap was dissected free from its bony attachment. The outer bone plate, which was found to be somewhat diseased, was removed. The tumor was then shelled out of its bed. The cavity was found to be diseased and was foul smelling. The wound was swabbed with tincture of iodine, and was packed with iodoform gauze. The packing was removed on the third day, and the cavity was irrigated with a solution of boracic acid. On the eighth day the patient was discharged. He returned three months later for observation, and the cavity was found to be closed.

This interesting case shows that the entire antrum was involved by the growth of this tumor.

(To be continued)

STUDIES ON THE RESPIRATORY ORGANS IN HEALTH AND DISEASE

IX. THE VITAL CAPACITY IN A GROUP OF COLLEGE MEN*

By J. A. MYERS, PH.D., M.D., AND FRANK J. MYERS

MINNEAPOLIS

For many years it has been known that vital-capacity determinations distinctly aid in the detection of pulmonary and cardiac diseases. In fact many industrial and educational institutions have recognized the value of the vital-capacity test, and have made it a part of the routine entrance examinations of all their employees and students. In the University of Minnesota, Dr. L. J. Cook has taken vital-capacity readings on all male students entering the University for many years, and his records contain many thousands of such readings. Dr. Cook very kindly permitted us to use his records in the preparation of this paper.

Most of the 1,280 records used in this study were made on students who entered the University in the fall of 1920. Percentage tables made from Dreyer's formulæ were used in ascertaining the percentage of the theoretical normal vital capacity of each student. The students were grouped, first, according to age, and, second, according to vital-capacity percentages. Table 1 shows that the ages range from 17 to 32 years. Of the 1,280 students 11.4 per cent showed vital-capacity readings below 85 per cent of the normal, while 9.1 per cent had vital capacities between 85 and 89 per cent of the normal. There were 25.1 per cent of the students with vital capacities between 90 and 99 per cent, while 27.4 per cent had vital capacities between 100 and 109 per cent of the normal. Of the entire group 13.1 per cent and 13.9 showed vital capacities between 110 and 115 per cent and above 115 per cent, respectively.

It is often stated that individuals who have vital capacities below 90 per cent of the normal possibly have pathology of the heart or lungs, while those with vital capacities below 85 per cent of the normal probably have such pathology. In this group of students it has been seen that 11.4 and 9.1 per cent had vital capacities below 85 per cent of the normal and between 85 and 89 per cent of the normal, respectively. This makes a total of 20.5 per cent who are below 90 per cent of the normal. There are several possible

factors, all of which may be contributory, in this group of students with vital capacities below 80 per cent of the normal: (1) such conditions as old pleurisies, which might not be detected by the hurried routine examinations, might account for such diminutions in vital capacity; (2) cardiac lesions; (3) early pulmonary lesions and old fibrotic pulmonary lesions; (4) errors in taking or recording the vital-capacity readings (it is quite common when the time for the test is limited for the nervous student to fail to give his true lung capacity); (5) unknown causes. There is a small percentage of persons with low vital lung capacities for which we can not account after careful physical and x-ray examinations.

TABLE I

Age	No. of cases	V.C. below 85%	V.C. 85-89%	V.C. 90-99%	V.C. 100-109%	V.C. 110-115%	V.C. above 115%
17	27	18.5	7.4	40.8	25.9	3.7	3.7
18	125	10.4	6.4	31.2	26.4	12.0	13.6
19	301	11.3	11.6	26.3	25.9	12.6	12.3
20	296	13.5	8.8	18.9	25.7	12.5	20.6
21	195	10.8	7.2	24.6	28.2	13.3	15.9
22	126	7.9	9.6	29.4	31.7	15.8	5.6
23 to 25	135	8.9	8.2	24.4	33.3	16.3	8.9
26 to 28							
29 to 32							
Total, 1280							
Average		11.4	9.1	25.1	27.4	13.1	13.9

The work of Hulett and Jackson showed that approximately 21 per cent of their group of students had vital capacities below 90 per cent of the normal.

In this group of 1,280 students 52.5 per cent had vital capacities between 90 and 109 per cent of the normal, while 27 per cent had capacities of or above 110 per cent of the normal. It is a well-known fact that special physical training and experience may lead to over-development of the vital capacity of a young individual. A considerable number of freshmen students have been engaged in athletic training during their

*From the Department of Internal Medicine, University of Minnesota.

high school years, while others have been engaged in occupations which require hard manual labor, such as farming. Unquestionably, such factors contribute a great deal to the high vital capacities in the present group of students.

From the data used in this paper it is obvious that in college men there is a fairly wide variation above and below the theoretical normal vital

lung capacity. No attempt has been made to determine the percentage of the students with vital capacities below 90 per cent of the normal who have pulmonary or cardiac pathology, nor has any attempt been made to determine the percentage with high vital capacities who have received special physical training.

A SYNDROME IN A MONKEY (*Cynocephalus Sphinx*) SIMILAR TO THAT WHICH CHARACTERIZES CHRONIC LYMPHATIC LEUKEMIA IN MAN

BY ALDO C. MASSAGLIA, M.D.

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The suborder *anthropoidea*, which belongs to the order of the *primates*, is divided, as it is known, into different families; among them the family of the *hominidæ* (*homo sapiens*) shows by means of blood tests a close relationship to the family of the *simiidæ*, and more distant relationship to the family of the *cercopithecidæ*. Indeed, if, for instance, we make a transfusion of 25 c. c. of defibrinated human blood into a chimpanzee (*anthropopithecus troglodytes*), the animal does not show any morbid symptoms. (Friedenthal¹). We have an equal result, as is well known, when we inoculate the blood from a man into a man. The experiment *in vitro* also shows that the human serum is not able to hemolyze the red corpuscles of the orang-outang (*simia satyrus*.) However, the more sensitive test to show the zoological relationships among animals is the test with precipitins, which now has a great value in the study of blood stains from a medicolegal point of view. Indeed, Nuttall² found that with antihuman serum (he did 825 tests) there exists a maximum reaction only amongst the *hominidæ*, *simiidæ*, and *cercopithecidæ*.

Therefore, considering the blood of the animals of the above-named families of the suborder of *anthropoidea* to be equal, or almost equal, to that of the man, I started a series of researches in an attempt to transplant leukemia, Banti's disease, or other diseases of unknown origin to the monkey by means of transfusion of the blood, or inoculation of an emulsion of some hematopoietic organs of patients suffering with these diseases. This study, to date, is not completed, but, upon examining the blood

of a monkey, I found a syndrome which I believe is worth relating.

A monkey (*cynocephalus sphinx*), age not exactly known, weighing 4,400 grams, remained under observation during November and December, 1922, and January, 1923. The results of repeated examinations gave the following: the animal was apparently in good health; the lymph nodes, especially of the inguinal region, were very much swollen, firm, but not painful; on palpation one could feel the spleen, which showed some tenderness. The blood examination (average of six examinations performed at different times) gave the following findings:

Red cells.....	4,000,000 per c.mm.
Hemoglobin.....	55 per cent.
Leucocytes.....	36,000 per c.mm.
The red cells appeared in good condition; very few normoblasts were found. The differential count of the leucocytes showed—	
Lymphocytes.....	65 per cent
Large mononuclears and transitional forms	
.....	17 per cent.
Polymorphonuclear neutrophiles.....	18 per cent.

Discussion: The apparent good health of the *cynocephalus sphinx*, the considerable enlargement of its lymph nodes, accompanied with a slight enlargement of the spleen, the changes in the normal constitution of the blood, which showed a moderate diminution of the red cells with a proportionately more marked diminution of the hemoglobin, the leucocytosis, due chiefly to an increase of the lymphocytes of the small type—all these data correspond to those which characterize in man, the disease, "Chronic lymphatic leukemia".

In animals (horses, cattle, dogs, swine, and cats) cases of leukemia have been noted (Kitt³), but I believe that this is the first case found in monkeys. And probably in the near future, if our observations shall be brought more frequently to these animals, which have the same, or almost the same, composition of the blood as man, we shall find in them several of those diseases, which have been hitherto considered limited almost entirely to man.

NOTE.—I wish to thank Dr. Max Thorek,

Director of the American Hospital of Chicago, for his kindness in furnishing the monkeys used in my studies.

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PROCESS IN THE PREPARATION OF PANCREATIC EXTRACTS FOR THE TREATMENT OF DIABETES*

By JOHN R. MURLIN, M.D.

ROCHESTER, NEW YORK

Science seldom advances by perfectly logical steps. A great discovery may set us on the way, but there often ensues a period of groping with little to show for the effort made. Minkowski's discovery that the pancreas is the seat of diabetes brought us out of the woods at the base of the mountain, but Banting showed the way to the summit. The history of intermediate efforts reveals many failures to realize upon the hope engendered by Minkowski's contribution. Zuelzer, in 1908, came very near to success by means of his extract obtained from fresh pancreas purified of protein by means of alcohol, very much as is now done by the Toronto investigators.

An additional vantage point was gained by the researches establishing the islet tissue as causally related to the disturbance in surface metabolism. The first to act upon the theory that the internal hormone of the pancreas is destroyed by trypsin was Croftan (1910). He was followed by Scott (1911), who attempted ligation of the ducts and consequent degeneration of the acinar tissue, in 1911. Knowlton and Starling (1912) obtained improvement in the utilization of sugar by the heart by means of a pancreatic extract, and Clark (1916) accomplished the same by perfusion of the pancreas.

The writer became interested in the subject in 1912, the motivating idea being that the duodenal mucosa might play a part in the activation of the internal, as well as of the external, secretion of the pancreas. Extracts were made in

weak acid, which stopped the excretion of sugar when injected intravenously into depancreatized animals. This effect, however, was complicated by the action of alkali, and for three years we were diverted from the study of pancreatic extracts per se. Later, however, it was found that extracts made in weak acid and administered by stomach with glucose and weak alkali would restore, to a limited degree, the power to oxidize glucose.

Work was resumed in 1921 upon pancreatic extracts made in weak acid, and upon the perfusion method of Clark. The most recent results from the physiological laboratory at Rochester, N. Y., show that (1) the extract in weak acid is stable at an H-ion concentration of PH 5.7; (2) it is not destroyed by heating to 80° C. for half an hour at a PH of 6.7-7.2, but is destroyed by this temperature at PH of 4.4-5.7; (3) it is not lost by dialysis for four to twelve hours through thin parchment paper; (4) the active principle (insulin) is probably not a protein, for its potency seems to be inverse to the N content; (5) it is precipitated from watery solution in a high state of purity by three classes of substances,—(a) alcohols: methyl, ethyl, propyl, butyl, amyl, and capryl; (b) by trichloroacetic acid and acetone; (c) in less pure form by ammonium sulphate in one-half saturation and by sodium chloride; (6) insulin can be obtained from the pancreas of the pig by perfusion in much larger amount per unit weight of pancreas than by extraction of the whole gland. It is also much purer when so obtained and, therefore, requires much less subsequent treatment than by crude extraction.

*Author's abstract of a paper presented by him at the annual banquet of the Hennepin County Medical Society, April 17, 1923.

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AN AMUSING BIT OF CORRESPONDENCE

Without referring to anyone in particular, but to everyone in general, the editor feels constrained to publish a letter written by one of the prominent men of the Northwest who sent in a hurry a call for a preliminary program for Clinic Week (by the time his letter reached the chairman of the Executive Committee the program was already on his desk). He stated that he was very anxious to know what we were going to do down here and what we had to offer before he decided to attend, and he could not understand why the preliminary program had not been sent to him earlier. Incidentally he asked that a room be reserved for him at the Radisson Hotel, which was promptly attended to. The chairman of the Executive Committee replied to him in an apologetic manner, stating that the getting out of a program is not an easy matter but requires the labor and time of two or three people who do practically nothing else for days in advance of Clinic Week; and that it is a very difficult problem to get between sixty and a hundred doctors to send in their material, the titles of their clinics, with the day and hour chosen by them, so that the information can be put into the hands of the printer, the galley-proofs submitted and corrected and

returned for the final printing on time. And in doing this all of these men are telephoned to by a special assistant (some of them were called from four to six times), and urged to get in their material for the preliminary program without delay. The chairman ventured to remark that getting a lot of doctors together was like herding a lot of cattle,—and that there was danger of a stampede at any moment, and consequently it was a more or less trying situation. To this the out-of-town doctor replied as follows:

"I have your letter and thank you for your trouble and courtesy. Anent the doctors and the cattle: I was raised on a farm with the cattle and have had some experience with getting a bunch of doctors together; but of the two, give me the cattle."

PHYSICIANS AND NURSES FOR RURAL DISTRICTS

A conference of nurses and district workers was held recently in Minneapolis, and the subject under discussion during a part of the meeting was the great difficulty in securing physicians and health nurses for outlying communities. In one county, for instance, which has a population of approximately ten thousand there are but five physicians. This, of course, does not take into consideration the number of people who practice the healing art and who are not physicians. Naturally, from this small number of doctors it is very difficult to get a sustained interest in public-health work or to secure public-health nurses except under great expense.

It is not easy to determine just where the fault lies, but it is quite generally conceded that the young medical man of the present day dislikes to go out into the country and begin a pioneer practice. He does not do, as the older men had to do, anything and everything that comes into his province. He feels himself unprepared, perhaps, to do a lot of emergency work, and he is very much disinclined to separate himself from his congenial surroundings. These surroundings are mainly made up of an abiding-place in a city where he can attend medical society meetings and where he has some recreation and entertainment. But most of all he dislikes to give up his association with a well-equipped hospital, where he has everything at his command in the way of laboratory facilities,

associates, and consultants, and everything pertaining to the possibilities of making thorough and exhaustive examinations. Yet there are a large number of medical men who live in the cities on the fringe of an existence and who barely make a livelihood, and when one speaks of a livelihood one is reminded of what one of the ancient kings said, namely, that living expense consists of your board and clothes. These same men are probably very well qualified, trained, and educated to go out into the country and do medical work in rural districts. And they could not only make their board and clothes, but could make a very decent living, save money, and take enough time off each year for medical advantages or clinical visits and travel for recreation. This has been the history of many medical men who have gone out into the country and have worked up a practice in a community and have enjoyed the fruits of their labors.

Consequently, the time must come when the University Hospital and its affiliated hospitals must carry out the law which provides for the establishment of branch hospitals throughout the state. And if every county had a reasonably well-equipped hospital, the younger men would feel much more inclined to go out and work. There might be some difficulty in arranging such an order of hospitals. There might be and probably would be some petty jealousies as to who is to be the head of the hospital and who are to be on the hospital staff; but this difficulty might be overcome by making it a general state affair under the direction of either the State Board of Health or the University Medical School and allied hospitals. It has already been accomplished in some eastern states, and there is no reason why it should not be done in Minnesota, or any other state.

During all this time of waiting for something attractive to come about, the nursing problem is almost as difficult as the medical problem. The nurses have the same desire to live where they have equipment and associations that are more or less helpful to them. But, if the community hospitals are established, there would be less difficulty in getting trained nurses for public-health work. This movement has already been started in a bill which is a law, but which lacks appropriations to carry out its provisions. Some day our hard-headed legislators will see the necessity of more attention to medical and nursing needs. In the meantime the non-medical

man will continue to practice the healing art, much to the discouragement of the man of medicine. However, that is not a serious problem. The doctor will some day come into his own, and he must still continue to maintain his high ideals in medicine; otherwise he is doomed to failure.

THE TRI-STATE HOSPITAL ASSOCIATION

One of our chief regrets is that we were unable to attend all of the meetings of the Tri-State Hospital Association, held at the Curtis Hotel, Minneapolis, on May 17, 18, and 19. But on Friday evening, when an open meeting was in progress, we had an opportunity to hear some speakers who are well known. Chief among them was Dr. Delman A. Craig, the associate of Dr. Franklin Martin, who is at the head of the College of Surgeons in Chicago. Dr. Craig has a very dramatic manner of arousing interest, and the moment he steps to the platform he speaks of things that are and that will be. He told, first, of the effort to standardize hospitals, creating a staff, having staff meetings, and going over the work of the staff member in his individual case; the records which are kept under the direction of the staff or the surgeon or the medical man, their completion, etc.; and, finally, the co-operation between the staff and the patients. His aim was to impress on his audience the necessity of publicity as to the methods in standardized hospitals, and he illustrated his brief but instructive address with a few anecdotes which carried a good deal of force with them. He told of having a letter from a man who said he was writing in for instructions. He said he had a hospital of thirty beds, and that he was the only man on the staff, and he wondered how the College of Surgeons could organize him and thus permit him to become a member of the standardized hospital group. That was something of a problem, but eventually it was done.

Then Dr. Craig spoke of one or two other little incidents in hospital experience which ought to be published far and wide,—the little things that come up between the hospital and the patient and his friends. He said he not infrequently had heard someone inquiring over the telephone from the switchboard operator as to the condition of a patient, to be told that the patient was doing as well as could be expected;

and he thought that the most inane, unsatisfactory answer that could be given to anyone who was anxiously inquiring about a sick person in a hospital. He was quite right in his criticism. He also said that sometimes a conversation over the telephone either made a friend or an enemy for the hospital; that the authorities were very apt to assume an air of business which prevented them from carrying on a polite or even a reasonable conversation that would be satisfying to the inquirer. He spoke of meeting the friends of patients in the hospital, how sometimes a very good impression was made by the superintendent or a head nurse or whoever might be in charge when new people came into the hospital; and they sometimes made a friend or an enemy by their manner. He counselled everyone to be extremely careful about little details of this type in order to bring the people in closer communion and to emphasize the necessity of a friendly relationship between the hospital, and the patient and the family.

Another address, given by the Hon. L. C. Hodgson, who is a member of the Board of Control of the City of St. Paul, and was formerly the mayor of St. Paul, was on "The Hospital and the People." He, too, emphasized the necessity of getting into closer touch with the outsider, and he touched on the existence of the hospital for the benefit of the people. And he remarked particularly on the fact that the patient, when he comes into a hospital, is sick and that the family he left behind him is also sick, mentally sick; that it frequently caused a good deal of difficulty between the family and the patient and the hospital if the little things in hospital life were not accurately adjusted. He said that during his term of office he had investigated some 300 or 400 complaints of patients or friends, and they all, or most of them, narrowed down to petty things which emanated from people who were sick or families who were mentally upset on account of sickness. He felt that a great deal of this could be avoided by a little care and foresight. He particularly called attention to the necessity of a little more of the human element between the hospital, the patient, and the friends; that hospital people were very apt to be brusque, busy, and sometimes intolerant; and that it was often a cause of rupture between the hospital and the family of the patient. This is all very good advice, and his calling attention to the humanitarian

point of view is a valuable point to all in hospital authority.

Very naturally he did not speak of the other side of the situation,—the inconsiderateness of the outsider, the patient, and his friends who do not know or appreciate the difference between the right and the wrong of hospital reception, management, or care, and the fact that they intruded themselves, became obnoxious and fault-finding, and totally out of touch with what the hospital people were trying to do. But he admitted this position again in his suggestion that more of the human equation be produced to balance the natural feudal instinct between the hospital and the public.

Dr. Malcolm T. MacEachern, of the Canadian College of Surgeons, and president-elect of the American College of Surgeons, gave a lantern-slide talk on hospitals and the methods of standardization and the ways in which it could be carried out, and he showed by his tables and other illustrations the ease with which this could be attained. Both Dr. MacEachern and Dr. Craig are going about the country spreading the gospel of standardization, and they are doing a remarkable bit of missionary work for both the public and the hospital.

Dr. Arthur Sweeney, of St. Paul, who represented the Ramsey County Medical Society, spoke on the hospital as an educational factor, and gave a very striking recitation of the history of hospital development, as he remembered it, forty years ago. It was certainly an interesting account of the development of hospitals from their early inception, of Dr. Sweeney's recollection of the Massachusetts General Hospital as it was in his student days and what it is at the present time, and of what the hospitals of the cities now do and accomplish and the remarkable results that are obtained in the way of equipment, improvement, and management, and all hospital details.

These tri-state meetings are yearly affairs. Next year the meeting will be held in Milwaukee, at a time to be decided upon by the executive committee of the Tri-State Hospital Association.

"THE ANCKER HOSPITAL"

Every medical man in Minnesota, if not every one in the Northwest, must have been shocked to learn of the death of Dr. Arthur B. Ancker on Tuesday, May fifteenth, which occurred

while he was on duty at the St. Paul City and County Hospital.

Dr. Ancker became superintendent of the hospital when it had but twelve beds; and it now has a capacity of eight hundred beds. He had been in the hospital forty years, and had watched 200,000 patients pass inspection. He was widely known as a modern and progressive hospital manager. He was on the editorial board of *Hospital Management*, and he was at one time president of the American Hospital Association. He was also a member of the American Medical Association and of the Ramsey County Medical Society, and he was a Mason. He was a man of peculiar and notable personality, a very strict disciplinarian both with his nurses and helpers and his staff members, yet everyone realized that his authority was based upon fact and originality; and although it seemed hard for some of his associates to bear with him, they all respected him because he knew what he was talking about and knew what he was directing in the way of hospital management. As a result of this kind of management, *at all events*, The City and County Hospital (now the Ancker Hospital) of St. Paul has grown to be an institution with which every member of the staff is proud to be connected.

Dr. Ancker was born in Baltimore, Md., on March 20, 1851, hence was seventy-two years old at the time of his death. He graduated from the Medical College of Ohio (Cincinnati) in 1882, and in 1883 he was appointed physician and surgeon in charge of the St. Paul City Hospital. At that time this hospital occupied the discarded home of Dr. Jacob H. Stewart. Twenty-seven stoves were required to heat it. The first floor of the barn was the county morgue; the second floor of the barn, the former hay-loft, was for contagious diseases,—quite a contrast to the present modern and up-to-the-minute arrangement. The Board of Control think so much of Dr. Ancker and his attainments that they have decided to change the name from The St. Paul City and County Hospital to The Ancker Hospital.

We are clipping from the *Minneapolis News* a brief editorial which is well worthy of wide publication:

A SERVANT OF MAN

The death of Dr. Arthur B. Ancker, Superintendent of the City and County Hospital in St. Paul, writes finis to the earthly life of one of the truest ser-

vants of mankind that ever lived. Recognized throughout the world as one of the leaders in hospital work, he left as his monument a great institution of nationwide fame, which he had built himself from the beginning, and which from first to last carried the impress of his character and personality. Only a few months before his death one of the new departments of that institution was named in his honor, the suggestion for the tribute coming from fellow-workers in the hospital field in the east. His advice was widely sought, and his counsel accepted by men high in his profession. To a most extraordinary executive capacity he added a wise understanding of men, a deep and sane sympathy with men; he loved men and served men without being made ineffectual through emotional sentiment. He was a good man, a kind man, and a dedicated man, and his life has made the world better.

MISCELLANY

IN MEMORIAM—DR. A. M. EASTMAN By THE MINNESOTA STATE BOARD OF MEDICAL EXAMINERS

It is with deep sorrow that we chronicle the death of our esteemed colleague, Dr. A. M. Eastman. He had been a member of the Board for six years.

From the first meeting, he evidenced an intelligent interest that never waned, and was always ready with the most sane and wise advice. He was also ever anxious to do any amount of work necessary for the success of the Board.

His courtesy and geniality, his exuberance of spirit and humorous wisdom, were always a delight and a never-failing wonder to his brother members.

We who knew him best, who have experienced his many fine qualities are loath to believe that we can never again have his cheering presence with us.

To his family we extend our most heartfelt sympathy in this bereavement, which we share with them.

—THOS. McDAVITT, M. D.,
Secretary.

NEWS ITEMS

Dr. R. M. Irvin, of Mandan, N. D., has moved to Portland Oregon.

Dr. E. C. Hall has moved from Laurel, Montana, to Casper, Wyoming.

The new wing of St. Joseph's Hospital of Brainerd was opened last month.

The name of Hopewell Hospital, Minneapolis, has been changed to Parkview Sanatorium.

The Minneapolis General Hospital graduated a class of sixteen nurses on Hospital Day last month.

Dr. Charles B. Rodes, of Butte, Montana, is visiting Rochester, Chicago, and St. Louis, doing special research work.

Mrs. Ellen M. Robinson, a graduate nurse of the Boston City Hospital, has opened a private hospital in Livingston, Montana.

Dr. N. G. Mortensen, of St. Paul, was appointed by the Governor of the State a member of the Minnesota State Board of Health.

The Lidgerwood (N. D.) Hospital has reopened after being closed for about a year. The superintending physician is Dr. E. G. Sasse.

Dr. A. S. Hamilton, of Minneapolis, has gone to Boston to attend the American Neurological Society and other medical meetings in the East.

Dr. Arthur B. Ancker, of St. Paul, died last month at the age of 72. An appreciation of Dr. Ancker will be found in our editorial columns.

Dr. E. C. Kading, of Belgrade, Montana, has entered the service of the Admiral Line of Steamships. He is now on the President McKinley.

The name of the St. Paul City and County Hospital has been changed to the Ancker Memorial Hospital in honor of its deceased superintendent.

Representatives from twenty-three Minnesota health organizations met last month to plan a health exhibit at the Minnesota State Fair in September.

The American Urological Association held its twentieth annual meeting in Rochester, May 21, 22, and 23, 1923. Dr. W. F. Braasch, of the Mayo Clinic, had charge of the local arrangements.

Dr. G. E. Rice who received advanced degrees in surgery from the University of Minnesota, April 2, left Rochester May 18, 1923, for Pueblo, Colorado, where he is to be connected with the Pueblo Clinic.

Dr. George A. Holm, past assistant surgeon, reserve, who has been in charge of the relief section for tuberculosis of United States Veterans' Bureau District No. 10, has gone to Vienna to do special work in tuberculosis.

Dr. A. J. Chesley, Executive Officer and Secretary of the Minnesota State Board of Health, was elected president of the State and Provincial Health Officers Association at their annual meeting in Washington (D.C.) last month.

Dr. Charles M. Hollister, of Pierre, S. D., died last month at the age of 56. Dr. Hollister graduated from the School of Medicine of the University of Pennsylvania with the class of '95, and he had practiced in Pierre for seventeen years.

Dr. H. P. Bacon, formerly of Milaca, who has been doing work at Hopewell Hospital, Minneapolis, in the service of the Government, will go to Boston for a special course of study in tuberculosis work. He is one of twenty men selected by the Government for this special work.

Dr. F. T. Oberg, who has just located in Tower City, N. D., was induced to move from Kansas to the former place through the Community Club of that city. Dr. Oberg is a graduate of Harvard, and has done graduate work at St. Mary's Lying-in-Hospital of Boston and other places.

At a special meeting last week the Ramsey County Medical Society recommended Dr. John C. Staley as the successor of Dr. A. B. Ancker to be superintendent of the A. B. Ancker Hospital, formerly the City and County Hospital of St. Paul. The appointment is made by the St. Paul Board of Control.

The Sioux Valley Medical Association will hold its midsummer meeting at Sioux Falls, So. Dak., on Thursday, July 12. Although the Society's custom is to hold only a one-day session at its midsummer meetings, the hospitals of Sioux Falls will present clinics on Friday for members of the Association who remain another day.

At the annual meeting of the South Dakota State Medical Association held last week, the following officers were elected: President, Dr. F. E. Clough, Lead; first vice-president, Dr. R. L. Murdy, Aberdeen; second vice-president, Dr. W. R. Ball, Mitchell; third vice-president, Dr. T. F. Riggs, Pierre; secretary-treasurer, Dr. R. D. Alway, Aberdeen.

The twenty-first semi-annual meeting of the Sioux Valley Eye and Ear Academy will be held in Omaha, Neb., on Monday, July 9. Dr.

L. N. Grosvenor, of Huron, S. D., the Secretary of the Academy, says all fellows and visitors attending the meeting are promised a good program and a good time; including a visit to "Absarben" in the evening. "Let's go."

The Tri-State Hospital Association, made up of hospital officials from Minnesota, North and South Dakota, Wisconsin, and Iowa met in Minneapolis on May 17 and 18. The attendance was large, the papers by local and not a few distinguished outsiders were excellent, and the discussions were worth while. Such meetings greatly advance the interests of both the hospitals and the public.

Dr. William P. Baldwin, formerly of Casselton, N. D., died last month at Oconomowoc, Wis., at the age of 47. Dr. Baldwin was a graduate of the Medical School of the University of Minnesota, class of '01, and went to North Dakota soon after his graduation, where he practiced a number of years. He was a former president of the North Dakota State Medical Association, and had been an active member for many years.

The following medical men outside of South Dakota spoke at the annual meeting of the State Association last week at Watertown: Dr. J. E. Rush, of the American Society for the Control of Cancer; Dr. Gordon B. New and Dr. W. B. Meeker, of the Mayo Clinic; Dr. Warren A. Dennis, of St. Paul; Dr. H. J. Prentiss, of Iowa City; Dr. F. E. Sampson, of Creston, Iowa; and Dr. Charles A. Parker, of Rush Medical College, Chicago.

Dr. Kenelm H. Digby, Dean and Professor of Medicine of the Hongkong Medical College, Hongkong, China, and Dr. Oskar Frankl, Professor of Gynecology, University of Vienna, gave Mayo Foundation lectures on May 10, 1923, to the staff and Fellows of the Mayo Foundation. Dr. Digby's subject was "The Functions of the Tonils and Appendix." Dr. Frankl's subject was "The Relation of Cancer of the Stomach to the Female Sexual Organs."

The Minnesota State Homeopathic Institute held its annual meeting in St. Paul last month. The following officers were elected: President, Dr. Glenn R. Matchen, Minneapolis; vice-president, Dr. A. J. Hammond, Minneapolis; secretary, Dr. Ida A. MacKeen, Minneapolis; treasurer, Dr. Florence E. Richardson, Minneapolis; delegate to the national convention, Dr. H. O.

Skinner, St. Paul. St. Paul apparently got a homeopathic dose of officers or officer.

Dr. Hiram E. McNutt died last week at Huron, S. D., at the age of 75. Dr. McNutt graduated from the Dartmouth Medical School with class of '72, and soon came West. He practiced a number of years at Aberdeen, S. D., and was prominent in the medical work of the state until his retirement a short time ago.

Dr. Horace Newhart has returned from Atlantic City where he has been attending a meeting of the American Otolaryngological Association, of which he is a member.

The Consulting Staff of the Lymanhurst School for Tuberculous Children will hold regular semimonthly meetings on June 12 and 26. At the former meeting Dr. A. T. Rasmussen, Associate Professor of Neurology, University of Minnesota, will speak on "The Innervation of the Organs of the Chest." At the latter meeting Dr. Ruth Boynton will present a paper on "Vital Lung Capacity in College Women"; and Dr. W. P. Shepard will present one on "Vital Lung Capacity in College Men." All physicians are invited to attend these meetings, which are held at the School in Minneapolis.

Professor K. F. Wenckebach, head of the Department of Medicine at the University of Vienna, and internationally known for his work in disorders of the heart, will give three lectures at the University of Minnesota Medical School under the auspices of the Graduate School. On Monday, June 4, at 4:30 P. M., Tuesday, June 5, at the same hour, and on Wednesday, June 6, at 11:00 A. M., he will lecture on "Clinical Significance of Cardiac Irregularity," and on other topics relating to the heart. The lectures will be open to the medical profession and everyone interested in cardiac disorders should not fail to attend.

THE SOUTHERN MINNESOTA MEDICAL ASSOCIATION

The midsummer meeting of the Southern Minnesota Medical Association will be held on June 11 at Faribault. That there may be as large an attendance as possible, the officers of the Association have decided upon a one-day session, and the proceedings will be of a more clinical character than ordinarily. Headquarters will be at the Minnesota School for the Deaf where all sessions will be held and the luncheon and banquet served. Dr. D. E. McBroom, Senior

Physician to the Minnesota School for Feeble-Minded and Colony of Epileptics, will conduct a clinical demonstration of the leading types, including morons, idiots, microcephalics, hydrocephalics, Mongolians, cretins, and epileptics, with a discussion by Dr. Charles R. Ball, of St. Paul. Dr. O. W. Rowe, of Duluth; Dr. H. F. Helmbolz, of Rochester; Dr. Walter Ramsey, of St. Paul; and Dr. F. C. Rodda, of Minneapolis will conduct pediatric clinics on focal infection which will prove of interest and value to the profession. Dr. J. N. Tate, Superintendent of the Minnesota School for Deaf, will speak on the education and care of the deaf. Dr. Tate is especially well qualified to handle this subject. A medical clinic on diabetes and its control by the new therapeutic agent, insulin will be held by Dr. S. Marx White, of Minneapolis, and Dr. R. M. Wilder, of Rochester, and will include a demonstration of patients treated by insulin. This phase of treatment will be instructive and interesting to the general practitioner.

Surgical clinics will be conducted by Drs. Archibald McLaren, St. Paul, on gastric ulcer, with a demonstration of patients and by Dr. A. W. Adson, of Rochester, on neurological lesions. Dr. E. Starr Judd, of Rochester, will present a paper on "Management of Infections of the Biliary Tract," and Dr. Archa Wilcox, Minneapolis, one on "Problems of Industrial Surgery." At the banquet, in the evening, Dr. C. H. Mayo will give a paper on "Clinical Observations from the European Clinics of To-day." Dr. Mayo is at present in Europe and will return about June 1. The Association will thus have an opportunity to hear first hand Dr. Mayo's impressions of medical Europe as it exists today. The officers have endeavored to present a program that will be of unusual interest, and they believe the professional standing of the men on the program will guarantee this. It is the aim of the committee to have the program finished by 9:00 or 9:30 p. m., in order that those who auto to Faribault may be able to start for home the same evening.

ULTRA-VIOLET RAY LAMP FOR SALE

One medical Ultra-Violet Ray Lamp, used less than 10 hours with best of care. Burner guaranteed by maker 1,200 hours. Lamp cost complete \$350. Will sell for \$280 cash, or for \$300 on a year's time, payment plan. If interested, write for particulars, reasons for selling, etc., and expect an honest deal on our part if we trade. Address McCullough Mfg. Co., 2632 Central Avenue, Minneapolis, Minn.

X-RAY TECHNICIAN WANTS POSITION

A young woman who has been for over two years at the head of the x-ray laboratory of a group of hospitals desires a position in the Twin Cities. Can give x-ray treatments and do high-grade x-ray work. Best of reference. Address 253, care of this office.

LOCATION WANTED

A qualified physician of pleasing personality having many years of hospital and sanatorium experience, wishes to locate over a drug store in some outlying district. Has for many years specialized in nervous, mental, and chronic diseases. Has good equipment. Has used the new glandular remedies with wonderful results. Would like to locate at once. Address 352, care of this office.

PEDIATRIC PHYSICIAN WANTED

A young man capable of taking charge of the Pediatric Department and doing general work, to take a salaried position with a clinic group associated with a hospital in a South Dakota town. State qualifications and references in reply. Address 351, care of this office.

MINNEAPOLIS OFFICE SPACE FOR RENT

Two small corner rooms; tiled; 3 windows; with use of reception room; in one of the best buildings in city; \$80.00 per month, including light, gas, telephone and office assistant for answering telephone. Enough professional work will be turned over to practically cover rent. Address 349, care of this office.

PRACTICE FOR SALE IN SOUTHWESTERN NORTH DAKOTA

General practice, \$5,000 cash, average for several years without surgery; large territory; unopposed; modern town of 900. First-grade high school, good churches, and fine progressive people. \$4,500 with \$2,000 cash for complete office equipment and residence. Do not write unless you mean business and will visit prospect. No one looking for location can afford to pass this up. Address 345, care of this office.

FOR SALE—WHY PAY MORE?

"Tice's Practice of Medicine, with International Medical Digest," paid to 1924. Cost \$115.00; price \$90.00. McCasbey's System, with almost complete set of supplies, in first-class shape; cost \$175.00; will sell for \$60.00 f. o. b. Minneapolis. In speciality and cannot use. Address 350, care of this office.

MINNESOTA PRACTICE FOR SALE

An \$8,000 general practice in a prosperous Minnesota community. \$3,500 will handle the property proposition. German-speaking or Catholic physician preferred. Ideal location. Will introduce successor. Good reason for selling. Address 348, care of this office.

SURGICAL INSTRUMENTS FOR SALE

A nearly complete set of surgical instruments in fine condition is offered at a bargain. Address F. D. Rowe, 4617 Stevens Ave., Minneapolis, or telephone Colfax 9967.

THOROUGHLY COMPETENT WOMAN
WANTS POSITION

As secretary and assistant, good stenographer; can do routine laboratory work and can take and develop X-Ray pictures. Age thirty. Worked two and one-half years with a very high-grade surgeon and diagnostician. Recommendations of highest character. Address 344, care of this office.

HOUSE PHYSICIAN WANTED

Single man having just completed internship preferred. Must be familiar with X-Ray technic. Salary \$2,000 per year, with full maintenance. Excellent opportunity for advancement to right party. Address Mudcura Sanitarium, Shakopee, Minn.

X-RAY MACHINE FOR SALE—CHEAP

1 Scheidel Western transformer, 220 volts, A. C.; 1 Tube Stand, S. W.; 1 Helium Tube, new, fine focus; 1 Hand Fluoroscope; and 1 Oak Room Lamp. Will sell for \$250 if taken at once. Address Henry A. Thoney, Administrator, Glencoe, Minn.

PHYSICIANS LICENSED AT THE APRIL (1923) EXAMINATION TO PRACTICE MEDICINE
IN THE STATE OF MINNESOTA

UPON EXAMINATION

Name	Graduated	Address
Daly, Joseph	Toronto, M. B., 1915	Rochester, Minn.
Dickey, Lloyd Blackwell	U. of Minn., M.B., 1923	429 Union St. S. E., Minneapolis
Hemingway, Robert Wing	Rush, 4 Yr. Cert. Med, 1923	Mattoon, Wisconsin
Hofto, Jalmar Melvin	Rush, 4 Yr. Cert. Med., 1923	City Hosp. St. Paul, Minn.
Kernohan, Jas. Watson	Queens, Ireland, M.B., 1920	Rochester, Minn.
Kretzschmar, Karl Emil	U. of Rostock, Ger., M.D., 1911	Red Wing, Minn.
Lagersen, Raymond Wesley	U. of Minn., M.B., 1923	St. Barnabas Hosp. Minneapolis
Miller, Walter Herman	U. of Ore., M.D., 1922	City Hosp. St. Paul, Minn.
Simenstad, Lien Otis	Rush, 4 Yr. Cert. Med., 1923	Grand Forks, N. D. (Box 734)

THROUGH RECIPROCITY

Dumas, Alex. Geo.	Creighton, M.D., 1921	3201 43 Ave. So., Minneapolis, Minn.
Fuerste, Frederick	U. of Iowa, M.D., 1920	Proctor, Minn.
Gardiner, David Greth	Georgetown, M.D., 1920	City Hosp. St. Paul, Minn.
Gilliam, Randolph Moore	U. of Va., M.D., 1919	Rochester, Minn.
Gray, Ellis Barksdale	Harvard, M.D., 1918	623 Wash. Ave S. E., Minneapolis
Hanson, Millard Charles	Rush, M.D., 1923	Wahpeton, N. D.
Hendricks, Wm. Anthony	U. of Pa., M.D., 1918	Rochester, Minn.
Holloway, Jackson Kenneth	U. of Pa., M.D., 1920	Rochester, Minn.
List, Walter Edward	Ohio Med. Coll., M.D., 1907	Gen. Hosp. Minneapolis, Minn.
Matthews, Adelbert Claude	Baltimore Med. Coll., M.D., 1903	Becker, Minn.
Mayfield, Alfred Lisle	Rush, M.D., 1917	Rochester, Minn.
McMurtry, Walter Campbell	McGill, M.D., 1905	Virginia, Minn.
Muhme, Norman Benedict	U. of Mich, M.D., 1921	Rochester, Minn.
Sahr, Walter Geo. C.	Loyola, M.D., 1921	2522 Fremont Ave. No., Minneapolis
Schipfer, Lloyd Albert	U. of Iowa, M.D., 1907	Bismarck, N. Dak.
Smith, Benjamin Franklin	Tulane, M.D., 1919	St. Peter, Minn.
Synhorst, John Benjamin	U. of Iowa, M.D., 1921	Rochester, Minn.

THE JOURNAL-~~L~~ LANCET

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TREATMENT OF CONSTIPATION IN INFANTS*

BY CLIFFORD G. GRULEE, M.D.

Assistant Professor of Medicine, Rush Medical College.

CHICAGO, ILLINOIS

I suppose I owe the Association an apology for choosing such a subject to present to an intelligent audience, but I found out that there are some things I do not know about constipation, and I thought maybe you could help me. In consideration of a subject like this it seems to me that the best plan is to try to get at basic conditions, and work from these out. If we start to think about bowel action we must realize that there are two basic things to be considered. The first of these is the bowel content and the second is the bowel musculature. These are the two factors. In constipation, properly so-called, there is a failure of the proper co-ordination of these two factors in that either the bowel content is too inspissated (dry or hard) or the bowel musculature is inefficient, or there is a combination of both.

CONSTIPATION IN THE BREAST-FED INFANT

There is really no such thing as constipation in breast-fed infants, per se. Constipation in breast-fed infants may occur after a fashion from sluggishness of the bowel, but a breast-fed infant never passes a hard stool. If the breast-fed infant gets no other food than from the breast it never has a hard stool. We might as well dispose of that subject right off. It does no harm for a breast-fed infant to go seventy-two hours without stool, provided it has no accumulation of gas nor evidence of colic.

The breast-fed infants who do have sluggishness of the bowel usually have that brought about by efforts to produce bowel action early through the use of cathartics. The initial cathartic, the initial dose of castor oil to a new-born baby is a mistake. There is absolutely no reason for it. And the giving of castor oil to new-born babies frequently is sufficient to produce a constipation or a sluggishness of the bowel which will take quite a while to get over. It is of no very permanent value in the treatment of colic, and it should not be used. If you want to produce a stool in a breast-fed infant use a suppository. Now, it is the easiest thing in the world for any of you to manufacture a suppository if you do not happen to have one. In the first place you can use an oiled paper cone. Maybe that will help. If it is not sufficient you can take a piece of soap and mold it into a suppository and introduce it rectally, and that will work. You need nothing else in the breast-fed babies. A cathartic is one of the worst things you can use.

In the artificially fed baby, where we do get true constipation, let us look into the existing conditions. Here we have a combination usually of the two factors: first, the inspissation or hardening of the bowel content, and second, the slowing or inaction of the bowel musculature. What produces this hardening of the bowel content? We know by examination of the stools of these babies that the stool consists very

*Presented before the Sioux Valley Medical Association at its mid-winter meeting, January 25 and 26, 1923.

largely of calcium soaps. These calcium soaps of course are formed in one way, and that is by the combination of the calcium salts in the food with the fatty acids which are produced from the fats of the milk. In other words, for that individual case you have too much fat in the food to meet the requirements of the child. You may not be giving a cream mixture; you may not even be giving a whole milk mixture; you may have taken some of the cream off of the milk. Still there is too much fat in that food for the purpose of that child. How do you meet that? These children are not awfully sick. They are frequently pale; they are usually peevish; they have a fair amount of gas accumulation within the bowel; they do not sleep well; they cry out at night.

Now you can meet this and meet it very easily, so far as the hardness of this stool is concerned. It is not wise to reduce the total quantity of food in the young baby. The fats, to the amount of the caloric value in the food, should be replaced by carbohydrates, but in doing this you must take into consideration certain things: I will try not to get too deep on this. Sometimes if you are explaining things you go a little bit deeper than you think you do. There are, from the standpoint of infant-feeding, really three types of carbohydrate. The first type is represented by milk sugar and cane sugar. The second type by the various combinations of dextrin and maltose, such as Mellin's Food, Horlick's Food, Dextrin Maltose Nos. 1, 2, 3, Borchardt's Dri-Malt Soup Extract, and the various liquid soup extracts, and, third, the starches. If you wish to give a child food which will not be irritating to it, where the fermentation in the bowel will not occur all in one place, you give not a single one of these three types of carbohydrate, but you give a combination of all three.

What results? The lactose and the cane sugar are broken up and early form their products of fermentation (their fatty acids). These fatty acids are satisfied by the alkalis; further along the dextrin is broken up; and still further along the starches are. It requires less digestive action to break up maltose into absorbable products and into fatty acids. Then comes cane sugar; milk sugar; dextrin and starches. That has a practical value. In order to meet the conditions, to overcome constipation, you must

use all three of these carbohydrates. The first of these is represented in the milk, lactose. You pay no more attention to that. The next is in some dextrin maltose mixture. But here is the crux of the whole situation, the point that must be driven home, and that is that it depends altogether on the type of dextrin-maltose mixture that you use, as to whether you relieve that constipation or not. The dextrin-maltose preparations may be regarded as laxative in about the following relations: the least laxative named first, Dextrin-maltose No. 1 and No. 2, Horlick's Food, Mellin's Food, Dextrin-maltose No. 3, Borchardt's Dri-malt.—Soup Extract, and then the liquid malt extracts and malt soup extracts. Of these you can draw a pretty definite line between the first four and the last three. The Dextrin-maltose No. 1 and No. 2, the Mellin's Food, and the Horlick's Food are absolutely non-laxative in their action. The Dextrin-maltose No. 3 is slightly laxative in its action. The Borchardt's Dri-malt Soup is quite laxative, and the liquid malt soups are very much more laxative in their action than any of the others.

Why do I mention all of these? Because it is possible by a proper combination of two or more of these, to regulate the bowels from day to day, and my mothers do it. They do it themselves. They do not need advice after the first two or three times.

Let us take a case in point. Suppose a child is on an ordinary milk mixture, and is getting an ounce of dextrin-maltose in the food, and the mother tells you that the child is constipated. All right. We will say that an ounce of dextrin-maltose represents twelve level teaspoonfuls. What do you do? You find out first how long the child has been constipated and how hard the stools are. If the stools have been very hard, you tell the mother instead of using twelve teaspoons of the Dextrin-maltose No. 1 to take six and six of the Borchardt's Dri-malt Soup Extract. What is the result? Well, you get one of three things: maybe you get what you want. Probably you do not the first time, because it is a pure guess as to how much of each you want to use. Second, you get a constipation with an increased gas, and the child is miserable. Third, you get a diarrhea. In the first instance you do not have to do anything. You are all right. Go ahead that way, and if the stools get too hard or too soft you vary accordingly. In the second instance what do you do? Do

you decrease the malt soup? No. Then is the time to go ahead, push up the malt soup, and push down the dextri-maltose. When you get gas with constipation you have to increase the malt soup, increase the laxative element, and there is where most people fail. If you get a loose stool you decrease the malt soup and increase the dextri-maltose.

Gentlemen, you will say that sounds too simple. It is exactly as simple as that if you will just take the time to do it.

I said we wanted three carbohydrates. We come to the starches. There is a vast difference in the laxative values of the different starches. The most laxative of all the starches is oatmeal. If you want to get laxative results, the most laxative results, you get that by a combination of your malt soup with your oatmeal. Barley is a little more laxative than wheat flours, but oatmeal does add a certain element which is quite definite, and oatmeal is much more laxative than the other starchy foods.

But how far can we go by the change of foods? Here is another place where most people fall down. You can not do any more than soften the bowel content to advantage. That does not mean that you have necessarily produced a stool. You can soften the bowel content. For the production of the stool, it seems to me that the easiest and simplest thing is the use of the glycerine suppository, the long glycerine suppository; and to my way of thinking the simplest way to use it is to hold the large end in the fold of the diaper and introduce the other an inch or an inch and a half into the rectum, holding it there until you get action. You will get the maximum amount of action by the irritation of the mucous membrane right at the anal sphincter.

Another thing about the use of the suppository: if you want to get permanent results, the thing to do is to use the glycerine suppository at the same time each day, produce a habit, get the child to having a stool at the same time each day.

Other means have been used. For instance, enemas. To my way of thinking they are not of the same value as suppositories, though they are less harmful than the use of cathartics. Cathartics tend only to reproduce your trouble. The more cathartics the more constipation.

It is much easier when they get older to get results from one standpoint, and from another

standpoint it is harder. Constipation in the older child has usually existed longer; therefore it is more entrenched, and, as a consequence, it is harder to overcome. On the other hand, the means at your disposal are more numerous and varied, and as a consequence you can use them to better advantage. In children ten to eleven months old you can certainly start out by giving them bulky food, give them oatmeal. Do not strain your oatmeal. Give it whole with the husks. Let them have that irritating portion of the oatmeal, which is so necessary. Give them spinach or celery, which has been put through a colander, something that has the cellulose in it, that will hold the water, and then (even in infants that are younger), if you fail by a trial of all these means to get results, you can use petroleum oil, a teaspoonful to a tablespoonful twice a day. You can not expect to get results for four or five days by this means. Sooner or later by the use of these things you can do it.

First, the dietetic changes, such as the change of carbohydrates, of the reduction of fats, the giving of bulky food, and then the mechanical means, the use of suppositories, the use of petroleum oil—if you faithfully try out all of these I dare say that there is not one here who will give more than two carthartics a year for constipation. Occasionally, yes, you have to give cathartics, but it is so occasional that you will be surprised yourselves. It is so simple to do things the other way, and the results are so much more satisfactory.

I shall be very glad to answer anything I can. I won't promise to answer everything. Thank you. (Applause.)

DR. JONGER: While the rest of you are thinking what to ask the doctor maybe I can say something that will ask him a question also. I told you yesterday that where I come from we have pretty much a foreign condition. And for that reason I thank the Lord every time I think about it that I am in such a place, because I certainly have not got the problems that a lot of these men have with the babies. We have plenty of babies. Do not forget that. But we have not got these problems. Back home in the old country I never heard of constipation, in baby or grown-up—never. Now, if that is so, why is it so? My mother did not have a medical degree. She did not know scientifically how to feed babies, but somehow I got all these different

kinds of maltose-dextrins, beef extracts, that were going. She always had it ready for me. And no doubt I thrived on it. We did not have to call on outside assistance. I think in the old country we had those containers where they keep that mixture. Somehow they were functioning better. We had some containers over there. And if those did not satisfy us between meals they would fix up oatmeal or some kind of coarse grit, wrap it in a cloth, and give it to us, and we would keep busy between meals with these things. That, no doubt, had something to do with us kids over there, because we all grew up without any help. In my country, down in my country, where we have mostly foreign people, where we have 7, 8, 10, 12, 13 children or more in a family, the mothers do not have any time to get very anxious about the babies. They feed them in the natural way—warm meals at all hours, and between times the mothers are busy. If the children are cross they throw them a piece of bread or a bone and they throw them anything they have got, and the children will have to look out so the cat does not get this portion, or the dog does not get it. Pretty soon they really can take their own part in the world, fight for themselves. They come along all right, pretty well. (Laughter.) So I feel sorry for some of the rest of you folks that live in Chicago and other places. I am going to stay where I am. (Laughter and applause.)

DR. PERKINS: Dr. Grulee is an old teacher of mine, and I have been following his instructions ever since I left him, practically. I have been using exactly the same methods that he has taught here this afternoon. I think we were very fortunate to have Dr. Grulee with us.

DR. ROBBINS: Does it hurt to give the babies water between meals? I think that would help these cases. I think that is neglected. They do not get enough water.

DR. ZIMMERMAN: We have enjoyed Dr. Grulee's talk and we are very fortunate to have him with us.

DR. MELGAARD: I have nothing to say. I surely enjoyed Dr. Grulee's paper. We are indeed fortunate in having such a practical presentation of the subject. I am sure that it will be helpful to every one.

DR. PERKINS: One thing I would like to ask in regard to petroleum oil. It seems as though petroleum oil forms a great deal of gas. I never had much success with it, anyway, in eliminating that formation of gas.

PRESIDENT GROSS: I would like to ask Dr. Grulee his opinion of magnesia as a laxative. We find that used very frequently.

DR. CRAMER: How about fruit for the younger babies, three or four months on?

PRESIDENT GROSS: Another question is in regard to colitis, if he finds that a causal factor.

DR. GRULEE: I do not know that I have very much to say about Dr. Jonger's discussion. I can only say that I do not believe that such complacency is likely to lead to very much scientific effort. (Laughter and applause.) I think that we would have a good deal of trouble now bringing up babies in our cities according to the method which he notes. There are too many factors that enter in. Of course, if you have a large family of twelve or thirteen children, the mother has no time to get nervous about the children or anything else, and, of course, the maternal factor, the maternal nervousness about the children, is a great big factor in infant feeding. You must not under-estimate that. I was going to say nearly half—a good big proportion of the trouble with our infants to-day—is not the infants or their digestive tracts: it is the mothers who take care of them. I proved that to my own satisfaction definitely, from the fact that I take these babies from their homes, put them in a ward in the hospital, on the same sort of food and ordinary care, regulation of regime, taking out the pump method and putting the baby in a bed, and get results. It is half in the way they are taken care of.

Now, as to water between meals: Personally I do not believe it makes any difference. I am sorry to disagree with my colleague in that respect. Some babies require a lot of water; some take a little. I offer them water between meals. If they want it, all right; if they do not, all right. If they take it, well and good; if they do not, leave it alone. Do not put any sugar in it, though, because that is very likely to cause disturbance, and you never estimate the amount of sugar you put into water in the caloric value of your food.

As to the matter of petroleum oil and gas: My experience with petroleum oil has not been large, only a few cases. I have not had much trouble with gas, so I can not answer that question.

Milk of magnesia is a laxative, and I do not use it. I have discarded milk of magnesia from my armamentarium for some time. I do not use it continually as a means of treatment of

constipation. A child comes to me that has not had a stool for three or four days and is sick as a result of constipation. I do what any other man with any sense, and I hope I have a little, does, that is, give it a cathartic and clean out the gastro-intestinal tract. That is a whole lot different from treating constipation with cathartics. That is overcoming an acute condition in the way indicated. Milk of magnesia is like any other cathartic. The more you use, the more you have to use and the more constipation you have.

My experience with fruit juices has not been as happy as the articles and books I read would lead me to think. I find out that the giving of fruit juices has comparatively little value in young infants in the overcoming of constipation, and that it does have a great deal of effect in the production of gas and a certain amount of disturbance in the child. And I can not advise you to use, for instance, orange juice indiscriminately in your babies. I think it is just as well to try, but I find a large proportion of my babies, not the larger proportion, but a good big proportion, can not take orange juice without a certain amount of disturbance; and I find

I have to take orange juice out of the diet in a very, very large proportion of the babies I take care of.

Now, colitis is certainly a causative factor in the production of constipation. Following colitis, just the same as following the over-use of cathartics—and the two seem to be on the same basis—there is a tendency to a sluggish bowel, due to the fact that you have over-stimulated in all probability the intestinal mucosa, and the consequence is that the sluggishness that develops, demands much stimulation of the mucosa to produce a stool. The same action is present in colitis as is present in cathartics. If you want to get results with cathartics you have to have enough irritation to produce mucus. It is not at all uncommon to see in a patient that has been given a cathartic because of diarrhea, that the cathartic produces a large amount of mucus and a green stool, and it is given another cathartic in order to get rid of the green stool and the large amount of mucus, and the cathartic produces a large amount of mucus and green stool, and you give a cathartic to get rid of that again.

THE WARFARE OF SCIENCE AGAINST DISEASE*

BY REV. M. D. SHUTTER, D.D.

MINNEAPOLIS

The occasion which calls us together tonight is something more than a memorial which dismisses, with a few dates and a few formal words, a group of noble men into oblivion. It is a memorial, indeed; but one in which we shall try to set the lives and deeds of these men against a background of historic achievement. They were citizens; they were members of fraternal societies; they belonged to churches. Some of them carried their ideals of citizenship into politics, and took active service in public life. Another was a great lover of children, and was one of the earliest advocates and promoters of school nurses and medical supervision. Others, in their earlier years, carried the gospel of medicine to the mines and logging camps. One, at least, is blessed by the mothers and children of two continents, and literally worked himself

to death after his return from France. Every name upon your roster was an embodiment of civic virtue and professional honor. It is fitting, therefore, that we think of them, not in their isolated practice, but as parts of a great movement for the welfare and happiness of mankind.

The late Dr. Payne remarked that "the basis of medicine is sympathy and the desire to help others, and that whatever is done with this end is medicine." And yet, as Dr. Wilbur says, "while the treatment of the sick and injured human body has gone on since man first got upon his hind legs and threw stones at his enemy, it has been only a short half century since the broad basis of modern scientific medicine was laid." Nothing can be more interesting than the story of the warfare of science against the ills of the flesh. That story chronicles mistakes and bigotries, failures and disasters; but, upon the whole, it is a record of progress. The

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debt of the world, the debt of each community, to the profession of the physician and surgeon, is one which may be feebly described; but which can never be computed. That profession has written one of the most glorious chapters in history.

I am making this review tonight, not for the information of this Society upon matters of which you know much more than I, but as a tribute to a profession in which I have always taken the keenest interest and upon which I look as one of the redemptive forces for mankind.

I

THE BANISHMENT OF SUPERSTITION

To begin close at hand: the religious world is indebted to the medical profession because it has done so much to banish superstition from among men. The science of healing and the speculations of theology have had some queer contacts in history.

1. When the germ theory of disease, after careful testing and experiment, was adopted first by surgeons and then by physicians, it produced a revolution, not only in medical practice, but also in religious thought.

That theory is that certain epidemic diseases are due to minute living organisms, plants and animals; that for each definite malady there is a specific organism; that these organisms secrete what is called by the Greek word for poison, *toxins*, which are the direct cause of the disease. This is the great fundamental fact. It has been demonstrated over and over, till it is certain as Science can make it. What is its bearing upon the subject before us?

The introduction into the world of Christianity exerted a twofold influence upon the healing art: (a) The first of these came from the spirit of Jesus Christ, promoting self-sacrifice for the sick and wretched, and taking shape in hospitals like that of Lyons in the sixth century and that of Paris in the seventh; infirmaries like that of Monte Cassino; and great fraternal and charitable organizations, like the Order of St. John of Jerusalem. (b) The other came from the letter of our sacred books and gave rise to the theory that disease was caused by the wrath of God or by demoniacal possession. Plague and pestilence, in particular, were regarded as manifestations of the divine displeasure, while individual ills were more generally

looked upon as the work of devils. Job attributed his boils to Satan; and people who have been afflicted with boils in more modern times have sometimes been inclined to think that the patriarch's theory was not without merit. St. Augustine said: "All diseases of Christians are to be ascribed to these demons; chiefly do they torment fresh-baptized Christians; yea, even the guiltless, new-born infants." Gregory, of Nazianzus, declared that bodily pains are provoked by demons and that medicines are useless. Luther ascribed his own physical ills to devils' spells, affirming that "Satan produces all the maladies which afflict mankind, for he is the prince of death." If one had a pain anywhere, it was because there was a demon making it,—in the stomach, in the side, in the joints. If one had a headache it was because there was a devil pounding away behind the skull. In this connection there is an extraordinary practice that goes back to the Neolithic age, and still exists among savage tribes. Neolithic skulls, with disks of bone removed, have been found in nearly all parts of the world, showing that the operation of trephining was one of early date. Scientists have investigated the means by which the operation was performed and the object of it. "The operation," they say, "was done for epilepsy, infantile convulsions, headache, and various cerebral diseases believed to be caused by confined demons, to whom the hole gave a ready method of escape." In the minds of the thoughtful, at least, these superstitions were swept away when the new theory was proved; and it was demonstrated that sickness is produced, not by supernatural agency, divine or devilish, but by the poison secreted by a specific microscopic organism introduced in various ways into the human system. From that moment the fierce anger of God no longer burned in the pestilence; the demons vanished from disease.

2. It is only fair to say, too, that one great reason why medical and surgical science made so little progress through so many centuries was *the opposition it encountered from priests and theologians*. The Church, through its representatives, assumed the control and cure of disease by miraculous methods, "based upon modes of appeasing the divine anger or thwarting the Satanic malice."

So that prayers, incantations, and such like remedies were employed; and these were in the hands of the Church. Relics especially were a

source of great profit. This sort of thing checked medical science. St. Ambrose declared that "the precepts of medicine are contrary to celestial science, watching, and prayer." Anatomical study was hindered because it was thought that dissection would somehow interfere with the future resurrection of the body; some parts of it might be lost. The attempts of scientific men to stay plague and pestilence, which were uniformly caused by filth, were arrested by the Oriental notion "that had been poured into the thinking of Western Europe * * * that indignity to the body may secure the salvation of the soul; hence, that cleanliness betokens pride, and filthiness humility." Living in filth was regarded by many holy men as an evidence of sanctity. The lives of saints "dwell with complacency on the statement that, when sundry Eastern monks showed a disposition to wash themselves, the Almighty manifested His displeasure by drying up a neighboring stream until the bath which it had supplied was destroyed."

But hundreds of years before St. Ambrose and the Eastern monks, before Luther and protestantism, far back in the history of Judaism, the ecclesiastical prejudice existed against doctors. In 2 Chronicles, xvi: 12 and 13, we read: "And Asa, in the thirty and ninth year of his reign was diseased in his feet, until his disease was exceeding great; yet in his disease he sought not to the Lord, but to the physicians. And Asa slept with his fathers." And centuries after Ambrose and Luther, even as late as 1847, James Young Simpson was denounced by all the pulpits of Edinburgh for using anesthetics in cases of childbirth. Texts were cited from all parts of the Bible to prove that chloroform was used "to avoid one part of the primeval curse upon woman." But Simpson was equal to the occasion: "My opponents forget the twenty-first verse of the second chapter of Genesis. It is the record of the first surgical operation ever performed, and the text proves that the Maker of the Universe, before he took the rib from Adam's side for the creation of Eve, caused a deep sleep to fall upon Adam." The most inveterate Scotch theologian could not stand up against argument like that. And now operations may be performed without even the sleep. So, in one way or another, the medical profession has conquered ecclesiastical prejudices and flung the javelins of truth and light among the shades of superstition. And it has done this because

it has observed the dictum of Claude Bernard, "When entering a laboratory, one should leave theories in the cloak-room."

II

THE PROLONGATION OF HUMAN LIFE

Without taking into account the recent war, which has profoundly modified vital statistics, a few years ago Professor Irving Fisher, of Yale, made the statement that "in the sixteenth century the average length of life in European countries was between eighteen and twenty years. Today (at the time of his statement) it is between forty and fifty years. During the seventeenth and eighteenth centuries when hygiene and sanitary science had not yet been born, the rate of increase was four years per century. During the first half of the nineteenth century, when those sciences were taking the first uncertain steps, the rate of increase was extended to nine years. During the latter half of the nineteenth century, when they had attained a fairly robust growth, the rate of increase practically doubled." What was true in Europe was equally true of this country. Let us mention some of the ways in which medicine and surgery have wrought these marvels of extension.

1. First of all, we note *the discovery of the antiseptics and antitoxins*, from the days of Jenner down to the days of Pasteur and Koch and Lister, of whom the commercial doctor said, "He (Lister) was the originator and founder of Listerine."

A century or two ago smallpox was one of the scourges men dreaded most. It caused about one-fifth of all deaths. In the year 1707, out of Iceland's 50,000 inhabitants, 18,000 perished of this malady. In London, at the beginning of the 18th century, one-fourteenth of the inhabitants died of smallpox, and during the last thirty years of that century the mortality increased to one-tenth. Prescott tells us that at one time in Mexico 3,500,000 inhabitants were stricken down, the epidemic sweeping over the land like fire over a prairie. "Medicine," according to Sir John Simon, "was baffled and helpless," but in 1798 a village doctor, Edward Jenner, suggested the practice of vaccination, which some one at the middle of the last century described as "the greatest physical good ever yet given by Science to the world." Wherever it was adopted the death-rate dropped at once, and today smallpox has been practically banished

from most quarters of the civilized world. This is the fact, whatever the later modifications of Jenner's discovery.

It has also been proved that there are now fewer deaths from diphtheria and croup than there were before antitoxins came into general use, and that the diminution of the death-rate is in proportion to their use. It used to run from 62 to 74 per cent of all cases affected; it is now being reduced from 18 to 15 per cent, and Dr. Behring states that "if the remedy could be administered to the patient on the first day of the disease, there would be practically no mortality from diphtheria." Hydrophobia has had a similar history since the discoveries of Pasteur. Equally encouraging are the results of the serum against snake-bites in India, where 20,000 people used to die annually as the result of the poison of serpents. Just a few years ago Dr. Simon Flexner, of the Rockefeller Institute, discovered an antitoxin for meningitis. There is hope that tuberculosis and cancer will yet be conquered by the weapons of Science,—just as diabetes is now being overcome by insulin, and syphilis by salvarsan.

2. *The discovery and eradication of the causes of disease* has been as wonderful as the cures, and has played a tremendous part in the prolongation of human life.

I spoke at the outset of the banishment of superstition by science; but the skeptics are still with us. Mr. Fred C. Kelley, in the *April Current History*, thinks that the decline in death-rates would have happened anyway,—just as I suppose some people think that the world has grown better in spite of the preachers; and Mr. Vernon Kellogg, in the current *North American*, relates that a lady declared to him positively that "a certain disease was not caused by bacteria because there are no such things as bacteria." He offered to show her some bacteria through his microscope. She did not care to look. There could be nothing to see.

At the International Medical Congress held in London, during August 1913, Sir David Bruce reviewed the progress of what he called "Tropical Medicine," and showed how many of the diseases which used to be so fatal to colonists and soldiers had disappeared. He said that when King George was in Malta, a few years before, he spent a long time in the naval and military hospitals. In the Naval Hospital he turned to his staff and told them that when he

was stationed in Malta as a young lieutenant, no sailor could go into that hospital without being struck down by "Malta fever"; no matter what his complaint was, he was sure to be attacked, and in the end invalided to England. "And now" continued the King, "thanks to the doctors, Malta fever is as extinct as the dodo." Tribute was paid to two Americans, Smith and Kilbourne, for the wonderful work they did in 1889 upon Texas fever, a work which contributed more to advance tropical medicine than the work of any other men during the half century. And now, after two hundred years of conflict, the yellow fever, of which one out of ten of the inhabitants of Philadelphia died in 1793, is robbed of its terrors. In September, 1907, medals were granted by a British society for "research in tropical medicine," and one of the medals went to Dr. Carlos Finley, chief sanitary officer of Havana, in 1880, under the Spanish régime. That medal commemorated the fact that he first advanced the startling, and what was then considered the ridiculous, theory that yellow fever was transmitted by a certain kind of mosquito. He failed to prove his point; but other men, twenty-five years later, did prove it. The prompt measures taken for the extermination of this mosquito have practically cleared certain regions of West Africa of malaria and Cuba and Panama of yellow fever. After Major Gorgas had been so successful in Panama, the government of Brazil took up the matter. Dr. Oswaldo Cruz carried on the warfare at Rio. Up to April, 1903, the monthly toll of the yellow fever in that city was 150 lives. In April they cut it down to eight, and in June to four. In 1905 "the forces of the United States wiped out a growing epidemic in New Orleans, with an ease which astonished the people of this country; for the work of the fighting legion, Walter Reed, Carroll, Lazear, Cruz, and Agramonte, and of the hosts that followed where they blazed the way, was buried in records, and the people of the United States did not know that the kingdom of the yellow fever had fallen."

3. *The work of the surgeon*, no less than of the physician, has had a notable effect in the prolongation of human life. The triumphs of surgery, within the last fifty or even twenty-five years,—or in connection with the World War,—have been fairly miraculous.

It is the thing done that constitutes the miracle—if we are still to retain that name—rather

than the way of doing it. It is as much of a miracle to do a thing with an instrument as without it. The surgeon who opens the blind eyes and who causes the lame to walk is in the direct line of the predicted Messianic ministry. It matters not how he does it—it is the doing that counts. It is the work itself that is divine. The scalpel may carry on the work of the gospel. Every agency for making mankind healthier and happier has God behind it. Surgery today, not only removes the abnormal growths and obstructions that hinder the normal growth of the human body, but it practically makes the body over. It forms new joints for the limbs, puts new hinges into the jaws, sews up rents in the heart, transplants the organs of the body, introduces new tissues, grafts in new flesh where the old has been taken out, pours new currents of blood through exhausted veins. It changes the mental and moral character of defectives, removing the adenoids that cause so much stupidity and inefficiency among children; and sometimes by relieving undue pressure upon the brain it gives free play to the conscience and transforms an incorrigible into an upright and honest human being, for the mental and spiritual are ever dependent upon the physical. I have in mind the statement of one surgeon who has a thousand successful operations to his credit, each one, as he reckoned, adding about twenty years to the life of the patient. If one man has added to a thousand human lives twenty thousand years, the old miracle of stopping the sun and moon to lengthen a single day, by only a few hours, has been vastly undone. I look with reverence upon a profession that has rebuilt so many shattered wrecks of human kind; that has filled so many homes with joy; that has restored so many disabled workers to the tasks they love.

4. These are some of the achievements of medical and surgical science up to date; but the term of human life will be further extended *when the problems of prevention are solved.*

These are the problems that are enlisting the efforts of science today. What has already been accomplished shows how much may yet be done. The mortality-rate from tuberculosis has been falling steadily ever since the campaign against it was inaugurated. The typhoid mortality in Munich fell 97 per cent when the old cess-pools were filled up and pure water was brought to the city from a distance. In Lawrence, Mass., the introduction of a water filter reduced the

number of typhoid deaths from 105 in 1892, to 22 in 1896. The number of cases of typhoid on record in Pittsburgh in October, 1907, was 638. During the ensuing year the new filtering plant was put into operation. The number of cases on record in October of 1908 was 96. As Dr. Wilbur says, in the article to which I have already referred, "The rate of typhoid has been dropping in civilian population since the public health authorities effected protection of our water and food supply from the excreta of typhoid patients. Civilized man has stopped drinking the discharges of other patients, because the doctors have taught him."

Professor Fisher says that, with the assistance of Mr. Scott McNutt, he has proved the correctness of Hazen's theorem that, for every life saved from typhoid, two or three lives are saved from other causes. It is estimated that the hook-worm could be wiped out in the South forever through the expenditure of between one and two million dollars. It has been wiped out of Porto Rico at a cost of about 50 cents for each person cured. General Leonard Wood has said that the discovery of the mosquito as the carrier of the yellow fever germ is saving more lives annually than were lost in the Spanish-American War, and that it is protecting the commercial interests of the world from annual losses exceeding the whole cost of that war. The problems of prevention are the problems of today.

III

HEROISM AND MARTYRDOMS OF SCIENCE

The world is indebted to the profession of the physician and surgeon for some of its *most eminent examples of unselfishness and heroism.* It risks life, as surely as it is ever risked on the battlefield,—to find or test some curative agency.

I have spoken of the theory of Dr. Finley about the mosquito's responsibility for yellow fever, a theory which he did not prove; but which was demonstrated by others, among them Jesse Lazear, who experimented upon himself, and died, that thousands upon thousands of his fellow men might live. I am thinking of Thomas Brown McClintic, who, with the spirit of the crusader, traced the Rocky Mountain spotted fever to its fatal germ, and found a serum to counteract it, then died of the disease he had taught the world to conquer,—another martyr to humanity. Among the heroes of the Boer

War was a man who had come to the Transvaal as medical officer. He had already checked an epidemic of typhoid fever which had been raging through the military hospitals and concentration camps, when he became interested in a leper hospital at Pretoria. After the war he began a systematic study of leprosy. He gave up all his spare time to work among lepers, laboring among them for years without pay of any sort, and doing all he could to ease their lot. He would inspect the cases of leprosy twice a day, and then spend the rest of his time in research work. His chief ambition was to find a cure for the disease. On reaching the age limit, Dr. Turner—for such was his name—was retired from active service, but he refused to discontinue his studies and examinations, and finally discovered that he himself had become a victim of the disease he had worked so hard to check. Despite this he still labored on in his investigations, though life now meant ever-increasing disfigurement and consequent seclusion. He died about a year or two ago; but he gave his own life to find some way by which the hopeless leper might live. I am thinking of Colonel Waring who cleaned up Havana and opened a highway to health that at last stretched over his tomb. Then there was Dr. James F. Donnelly, of New York, who, with his helpers, exterminated typhus fever in Serbia. But Donnelly paid the price of the service he rendered with his own life, and the grave where he lies has become a sort of shrine for those who honor heroism that wins the crown of martyrdom.

“Wherever thru the ages rise
The altars of self-sacrifice;
Where love its arms has opened wide
And man for man has calmly died,
I see the same white wings outspread,
That hovered o’er the Master’s head.”

The changed attitude of the churches whose stupid opposition did so much, during so long a period, to retard the progress of science, is indicated by the fact that the Christian missionary has today summoned the physician and surgeon to his assistance. “If, at Christmas time,” says a writer in the *World’s Work* for December, 1907, “we ask the man who has seen all that is worth seeing in the world, what is the most beneficent work he has witnessed in any quarter of the earth, he will probably name the work of men and women who carry the gospel of

Jenner and Pasteur and anesthesia. If he shall have faced the on-sweep of a pestilence, or watched beside a child whose throat was fast closing with a diphtheritic membrane, the work of the educator, the engineer, the philanthropist, even of the minister himself, will have shrunk into the commonplace beside the work of the physicians.” This may seem an extravagant statement; but the facts upon which it is based are remarkable. For example, “the foreign medical staff of the Presbyterian church numbers about 100, nearly half of them being women. Their hospitals are in China, Korea, India, Siam, Persia, the Turkish province, and West Africa. This force last year treated nearly half a million patients in these lands, practically all of them with no other hope of sympathetic and scientific treatment. The American Board, with a staff about half as large, ministered to nearly 350,000 sick people * * * * They have 13 hospitals exclusively for women and 3 for lepers.” The Baptists have done a work as large and important. The New Testament tells of half a dozen blind persons restored to sight; a single hospital in the capital of Persia, in one year, restored 83 persons by operations for cataract. At Ping-tu, China, a Southern Baptist physician treated an average of more than 30 patients a day,—7,000 for the year. “Report after report from hospitals in the Far East tells how the work of healing went forward in the midst of fearful outbreaks of cholera and smallpox. Not a physician nor a nurse deserted, and none died from the plague. Native cholera corps and vaccinators were organized by the American physicians and authorized by the government to fight the epidemics. Dr. Coughlin, of the Presbyterian Mission to the Philippines, had charge of the corps that, in the island of Negros, vaccinated 45,000 persons by government authority.” No records, either sacred or secular, contain a page of nobler achievements.

And so we come to the close of this imperfect record,—of this sincere tribute. All honor to your fallen comrades,—Murdock, McDonald, Knights, Anderson, George, Hill, and Sedgwick,—whose stars have taken permanent place in the galaxy of humanity and mercy. And honor to you who remain, who will walk in their light and in the light of all the stars of science. Your profession has given birth to a new hope for the world—a hope that disease will be finally conquered. That hope may never

be realized in its fulness; but it will come nearer than it is today. The years immediately before us will witness triumphs as marvelous as those by which smallpox and diphtheria have been practically subdued. The profession is only upon the threshold. It stands upon the steps of the temple. It belongs to that vast army of workers, who, in one way or another, through the ages, have been carrying out the plans of the Almighty for mankind, whether by appealing to conscience through the lips of the prophet; by touching the sense of beauty through the brush of the artist or the chisel of the sculptor;

by awakening the inner harmonies through song and instrument of music; or by giving health for disease and soundness for deformity. If the Greek philosopher, Prodicus, was right, "That which benefits human life is God," we may see in this new gospel a link between us and the crowning race of those who, eye to eye, shall look on knowledge, and in whose hand nature shall be an open book. And so we exclaim of all the marvels wrought, and yet to be wrought, by Science:

"This also is the Lord's doing and it is marvelous in our eyes!"

SOME DISEASES OF THE MOUTH, JAWS, AND FACE SURGICALLY TREATED*

IN TWO PARTS—PART II

BY MATTHEW N. FEDERSPIEL, B.Sc., D.D.S., M.D., F.A.C.S.

MILWAUKEE, WISCONSIN

Cementomas.—Cementomas are tumors which are developed from an excessive development of cementum. They are frequently mistaken for a tooth-growth called *exostosis*. This latter form of growth is due to an infection and is laminated, while the cementoma is non-laminated.

Little is known as to the cause of these tumors. They may grow to a large size and invade the antrum.

The following case was one of a cementoma attached to the roots of an upper second molar:

The patient, a woman, had an infection of the maxillary sinus, which was of long standing. The upper first molar had been removed several years before. Following the removal of this tooth pus would discharge through the socket. On examination of the antrum it was found to be filled with polypi.

She was operated on for the cure of this trouble. When the antrum was opened into, through the buccal wall, and the polypi removed, the floor was found to be irregular, especially in the region of the second molar. Further investigation of this area disclosed a cementoma attached to the second molar. The tumor and tooth were removed by cutting away the surrounding bone.

The operation was then completed in the usual way.

The oral opening was closed, and the cavity packed with gauze, which was allowed to protrude through the permanent opening in the lower meatus. (Caldwell-Luc operation.) The patient made a complete recovery and has had no further antrum trouble.

*Presented at the annual meeting of the Soo Surgical Association.

Syphilis.—Tertiary syphilitic processes of the mouth are frequent. They usually manifest themselves in the underlying bone or periosteum leading to necrosis. Usually the patient has little or no pain. The first symptoms are redness and a slight doughy swelling of the mucous membrane, then later there appears a slough from which exudes pus. The rough surfaces of the bone can easily be detected by a probe. If these cases are not given immediate treatment, a large ulcer may develop and an extensive necrosis follow. In severe cases the entire palate and nasal bones may be destroyed. The bony floor of the antrum is often involved to such an extent that the antrum and oral cavities become one.

The following is a case of a gummatous inflammatory process extending into the antrum:

The patient was referred to my clinic complaining of trismus dentium. He gave the following history:

His health was fair, but he had always been suffering from loose teeth. In January, 1917, he called on his dentist to have a loose upper first molar extracted. A few days after the operation he noticed a swelling in the region of the extracted tooth. He called on his dentist, who referred him to a physician. Operation was advised, which was refused. The swelling increased rapidly, and in a short time it was of such size that it prevented jaw movement. He now felt very weak, and had lost considerable weight. Examination showed a tumor quite firm and immovable, and painless upon pressure, except over the region of the maxillary sinus. Upon ex-

amination of the oral cavity, it was observed that all of the upper teeth had been lost, except the upper right first and second premolars, and these teeth were very loose, with pus flowing from the gingival margins. A silver probe passed into the pus pockets of the loose teeth would travel upward to the external surface of the maxilla. By probing I could ascertain that there was considerable bone destruction. Upon inquiry into the history of this case, the patient admitted that he had had a chancre twenty years ago, but denied ever having had secondary symptoms. A serum diagnosis was made, which showed a positive Wassermann reaction. The patient was then placed under anti-syphilitic treatment, and within two weeks we succeeded in inducing the tumor to break down. The patient was operated on shortly afterwards. The right maxillary bone was found to be considerably necrosed. We, therefore, removed the entire degenerated mass and packed the cavity with gauze, which was later removed to allow the wound to heal by granulation. The patient made splendid progress, and ten days later he was given an injection of salvarsan. He has made an uninterrupted recovery.

This patient for almost twenty years had frequently consulted a dentist in regard to his loose teeth, yet at no time was an attempt made to diagnose his case, except that he was told he had pyorrhea, just because his teeth were loose.

Inflammatory conditions upon the gums at the gingival margins of the teeth are frequently ulcerations of tertiary syphilis; however, they may be mistaken for tuberculosis, actinomycosis, or carcinoma.

The carelessness of dentists in diagnosing such inflammatory processes as pyorrhea because the adjoining teeth are loose is contributory negligence. Such conditions, if not given early care, will lead to extensive destruction of tissue and oftentimes lead to death.

Carcinoma.—Carcinoma occurs frequently in the upper jaw and invades the floor of the antrum. The paradental epithelial rests, which so often exist in the jaw, may be the starting of the malignant growth.

Chronic irritations involving the gingivopericemental tissue and edges of old fistulous tracts about the jaws are sometimes the starting points of cancer. The patient usually has no pain. Sometimes there is a slight burning sensation, and the teeth are sore. Later the teeth become loose, and this inflammatory tissue surrounding the teeth appears reddened and bleeds easily.

The extraction of the loose teeth gives no relief. The growth will continue to invade the alveolar process, and later the bulging of the antral wall is very noticeable.

It is important that ulcerations of the gum

should always be considered as danger signals. It is at this time that a complete removal with a liberal wide margin of healthy tissue is conservative surgery to obtain a cure.

If the antrum becomes invaded there is little possibility of a cure.

The course of carcinoma of the jaws is rapid. Death may follow within twenty months after the appearance of the growth.

Dentists have a splendid opportunity to discover early growths of the jaw. They should advise patients of the danger of such inflammatory new growths, and the possibility of a cure before the disease invades the deeper tissues.

Sarcoma.—Sarcoma of the upper jaw in the alveolar process is not closely adherent to the soft tissues. The tumor feels firm, yet springy. Later the outer covering becomes inflamed and ulcerated. It then bleeds easily. The teeth become loose. The antrum, when involved, will become infected and show signs of bulging. There is then a discharge from the nostril on the affected side, which is putrid. Later on glandular enlargement may be found to exist in the submaxillary region. The general health now breaks down, emaciation soon manifests itself, and the patient dies.

Sarcoma usually is a disease of the young. The prognosis is unfavorable in most cases.

Extensive removal of tissue with the tumor may prevent further progress of the disease. Early recognition of the growth and immediate removal with a large area of surrounding healthy tissue may insure the patient a cure.

Actinomycosis.—This disease in the jaw usually begins in the region of a broken-down diseased root.

An illustrative case where the disease appeared in the region of a decayed and broken-down upper left first molar:

The antrum soon became involved with the soft tissues overlying it; numerous cutaneous fistulas appeared on the side of the face. After repeated opening of the area involved, providing drainage, and the use of iodid of potassium for internal use, the patient was cured after several months of care.

Usually there is an edematous swelling in the region of the face and neck. The antrum will be frequently involved. Hot applications and prescribing iodid of potassium for internal use and laying open all soft parts, scraping out the necrotic tissue and packing with iodoform gauze, usually cure the infection in a short time. Sometimes the disease is stubborn to treatment and

may run a persistent course with infiltration in the surrounding area.

Accidental opening of the antrum.—Sometimes it is impossible to avoid opening into the antrum when removing teeth that are close to the antrum. When this happens and is not treated, usually acute inflammation will follow with considerable pain being felt.

Later a foul-smelling discharge will ooze from the oral opening. If, however, the opening should close, the pus will escape from the corresponding nostril.

Infection of the antrum following an accidental oral opening in the maxillary sinus can sometimes be treated successfully in a short time by washing out the antrum twice daily, through an opening in the mouth. For this purpose a metal water syringe with a large barrel holding two ounces of solution and a long metal tube, is best suited to irrigate the antrum through the oral opening.

A solution of one part of peroxid of hydrogen and three parts of sterile water, at blood temperature, serves for irrigating the antrum.

The teeth should be given the proper attention by removing deposits of tartar and by brushing. All diseased roots should be extracted and the mouth kept scrupulously clean.

If, however, the infection in the antrum fails to clear up, it is then necessary to do a Caldwell-Luc operation in order to promptly cure the disease.

Forcing a root into the antrum.—During extraction of teeth close to the antrum, namely, the second premolars and molars, a root may be accidentally forced into the antrum. This may happen in cases where the area surrounding the root end is necrosed and the tooth is fragile. It is then that an accident of this kind may happen.

It is, therefore, important that the operator should not attempt extracting teeth close to the antrum until he has given these teeth considerable study. A radiogram should always be taken in order to ascertain the position of the tooth, and its relation to the antrum, and the tissue surrounding the periapical area. If the findings are such that the tooth may slip into the antrum during extraction it is best to remove it by first removing the buccal plate and then dissecting the tooth out of its bed. Once the root is in the antrum it must be removed, or else an inflammation of the mucous membrane will ensue.

The removal of the root should be done by

stripping away the mucoperiosteal covering over the buccal plate, then cutting an opening into the antrum large enough to see clearly in the antrum. By using an electric head-light the antrum cavity can be inspected. When the root is located, it should be picked out with a pair of tissue forceps. The cavity is swabbed with a 25 per cent solution of argyrol, and the soft tissue over the bony opening is closed with a few stitches. Usually healing takes place promptly. If, however, infection should follow, it is then necessary to irrigate the antrum by puncturing the nasal wall in the lower meatus. If a chronic empyema arises as the result of a root in the antrum, it is then necessary to do the usual antrum operation. (Caldwell-Luc operation.)

DISCUSSION

DR. JOHN H. RISHMILLER (Minneapolis, Minn.): A few years ago Dr. F. Gregory Connell, in discussing mouth infection, presented in illustration two cases in which an internist and himself made a diagnosis and advised extraction of teeth. In one case the teeth were accordingly extracted, but the patient did not improve. In the other case in which extraction was also advised the patient refused, and she recovered. I have thought a great deal about those remarks.

In discussing this question with oral surgeons they suggested curettement. For the past two years I have sent patients with infected teeth to dentists who I am confident, will curette out the pyogenic membrane, and under this procedure we are getting better results. It is the thorough oral surgeon who will get the result.

Among the disabilities which complicate injury, I believe one of the most insidious is that of carious roots, or infected snags and I am not passing applicants for employment with this defect any more. Anybody who comes up for examination and has an old snag that one can put part of an egg into and which one can smell three or four feet away, I just hold him up and tell him to go and have his rotten snags extracted. But, he will say, he has no money. I tell him to go to the University Clinic, where they are glad to take them out gratis.

Then, again, there are many tooth-pullers in every town. What do they do? The man sits in the chair, and, under novocain, out comes the snag, and nothing further is done to disinfect the socket. I am simply speaking of 'snags—not teeth'—in regard to which there is no question as cavities, large or small, can be remedied by an inlay or filling. I am referring to dead bone—carious roots in the jaw. All these should be removed. I wish the examining surgeons would take more interest in tooth and root infection and have these old snags out. Focal infection costs the Company a great deal of money every year. For instance, in the case of a man with fractured pelvis and ruptured bladder,

who has some old snags in his mouth with infection present, is he going to make a good recovery? Would not he make better recovery if this condition were corrected? Surely he would. So far as I am personally concerned, in cases of injury which are in danger of being complicated by oral sepsis I have a dentist come in and extract those snags under gas anesthesia. The expense for this work may be \$15, but it is money well spent. If we did not do this the patient's assimilation would be below par, recovery would be impeded, and the chances are that he would be away from his work for a longer period than would be the case if he had his oral sepsis cleared up. I believe that many old men could remain in service longer if all infection were given proper early dental attention.

There is another factor: When a man has a little discharge from his urethra he goes to the physician and is put under treatment immediately, but he can swallow $\frac{1}{2}$ ounce of pus every day and no attention whatever is paid to it.

Every year railroad companies are paying out sums of money in cases of infection to which no attention whatever has been paid, no matter whether the infection is of mouth, gall-bladder, urinary system, or what not. We have to admit that recovery in any case of injury is delayed by the presence of infection, and we hasten recovery when we have eliminated the infection.

DR. ARTHUR E. SMITH (Chicago, Ill.): I was particularly impressed with what Dr. Rishmiller said in his discussion. It is worth a great deal to me to have had the opportunity to hear his discussion, and I wish to congratulate him on the broad statement made with reference to advice given employes of the railroad in regard to their teeth. During the war a large percentage of European troops were suffering from toothache and infected areas in the jaws brought about by conditions in the trenches, and it is self-evident that a soldier suffering from such lesions will leave a very bad impression upon his fellow men. So the American medical officers were extra careful to see that the teeth of American soldiers were put in the best possible condition, and the medical men of Europe were amazed at the vast difference in condition of the mouths of American and European soldiers. Osler stated that the great gateway of disease was the oral cavity, in fact he stated that 90 per cent of internal ailments are caused by infection entering by way of the mouth. Dr. C. H. Mayo, in an address before the Chicago Dental Society, said that the next great step in the medical profession was to be made by the dental profession. So in the last few years research workers have proved that focal infection, be it in teeth, tonsils, or the adjacent areas, is one of the causal factors in general systemic disease. I can not see why it is not just as important for a railway employe to have a thorough physical examination of his teeth as to have his heart examined or his blood pressure taken.

Dr. Rishmiller made the statement that some dentists extract teeth. I wish to state that the modern dentist and oral surgeon do not "pull" teeth. It is true that many operators do still pull teeth, but it is just as essential to have teeth, especially

those that are infected, removed in accordance with the principles of surgery as it is to have tonsils taken out or an antral operation performed or an appendix removed in accordance with the principles of surgery. In our office we try to the best of our ability to remove teeth and adjacent areas in accordance with the principles of surgery. We have one operator in this community, a man of national reputation, who states that only one case in a thousand needs curettage following removal of teeth. I cannot agree. The slides Dr. Federspiel has shown illustrate what the specialist meets in every-day practice, and I am quite sure that none of you would care to sit in a dental chair and have teeth removed, then have the operator allow the infected area to remain. First, an x-ray examination with intelligent interpretation of the film by the operator, thorough physical and clinical examination, then careful operation, removing as much of the pathological area as possible.

I wish to make the statement that very few people, even those who have had expensive dental work performed, are free from focal infection. In the month you may see beautiful crowns, inlays, fillings, etc., but the mechanical end of the work means little as compared with what may be disclosed by the x-ray. The dentist of the past has been too prone to consider only the mechanical side, making a beautiful bridge and inserting it, possibly, upon teeth that should be removed.

The paper presented by Dr. Federspiel is worth a great deal to us, for it treats of conditions that are on the border-line between medicine and dentistry. One point he has particularly touched upon is the subject of fractures. Several cases have come under my observation where medical men have reduced fractures and left infected teeth situated near the line of fracture. In some cases the teeth were infected just as the slides exhibited here have shown. By all means should the infected teeth situated near the line of fracture be removed.

I also agree with the essayist that the time is past to approximate the ends of the fragments with wire by the external method. The jaws can easily be wired or bandaged together, with, preferably, proper bands made to fit the teeth and the ends of the bone brought in contact and held.

One of the vital points connected with focal infection is the fact that in many cases it does not produce pain. Were I to x-ray the teeth of every man in this room, I will wager that 50 per cent of you have infection. Possibly you have no devitalized teeth, but the gingival margin may be involved with so-called pyorrhea. However, I am quite sure that in 75 per cent of those who have had dental work performed the x-ray will reveal pathological areas around the apices of the roots of the teeth. I admit that I am very enthusiastic about the thorough removal of focal infection. If you will pardon a personal reference, I think the point will be well taken. About fifteen months ago a number of my medical friends in Chicago said to me, "What is the matter with you?—you don't look right." I was examined by a number of our best men, not only in Chicago, but in other cities. Laboratory tests were made, but the trouble could not be lo-

cated. Something over a year ago my teeth were x-rayed, and four of them were found to be infected. Those teeth were removed immediately, and since then I have gained over thirty-five pounds in weight. If it was not focal infection, I would like some one to tell me what was wrong. It might have been a coincidence. Several men of reputation made these examinations, and within sixty days after the teeth were removed I never felt better in my life. So I am very much enthused over the removal of infected teeth.

I wish to emphasize the point of no pain in many of these cases. In my own case I had no pain, and I had some beautiful crowns and bridges, and they served well. But the x-ray told a different story. In actual practice I know that many times it is difficult when patients are referred to us to explain to them what we have found and convince them that it is necessary for their health that these teeth be removed. Two or three cases in point, which I will relate simply to bring out the necessity of closer co-operation between the medical and the dental profession.

About two months ago a woman 25 years of age, was referred to me.

Brief history: There had developed what she called toothache in the lower third molar on the right side. She suffered with extreme pain for three or four days, which then subsided. Ankylosis of the jaw developed, and she went to her physician. The physician said to her, "You will be all right, it is a little toothache; just go home and apply antiphlogistin to that part of the jaw," and he also gave her a prescription for a mouth wash. In about ten days she had a fistula discharging on the angle of the jaw. We x-rayed the lower jaw and found a purulent third molar. Under nitrous oxide-oxygen anesthesia the tooth was removed without curettage. During the next two weeks the condition became worse; we took her to the hospital, the part was laid open, the bone curetted, and the patient went on to uneventful recovery.

Recently we saw the case of an employe of the Rock Island road, who came to us suffering excruciating pain in the region of the right ankle. He had developed a neuritis, and the history was that he had had a tooth removed some three or four months ago. Upon x-ray examination we found the root of the second bicuspid tooth in the antrum. The antrum was opened, and the tooth removed, followed by subsidence of symptoms.

With reference to osteomyelitis of the jaw: at the present time I have in the hospital a case with that diagnosis. Six weeks ago a man, 52 years old, had the right lower central incisor removed. The area became swollen, and there was a great deal of soreness. He returned to the dentist, who removed the remaining lower teeth on the right side. Several days later the teeth on the opposite side were removed. The patient came under my observation two weeks ago. Upon palpation I would get the same feel as if one placed his finger upon a soft piece of rubber, involving the entire floor of his mouth from third molar to third molar, full of pus, and his temperature was 103°. He was sent to the hospital. Laboratory tests were made, and the

pathologist found that he had a slight amount of sugar in the urine. We decided upon drainage. Last Saturday, under nitrous oxide-oxygen anesthesia, the part was laid open, but no curettage was done. Following drainage x-rays were taken, which disclosed a bone involvement in the angle of the right jaw from the second bicuspid to the other. We then removed almost the entire lower jaw. The diagnosis was streptococcal osteomyelitis, which developed following the removal of a tooth.

Dr. Federspiel brought out the fact that there exists to-day a difference of opinion, not only among members of the dental profession, but in the medical profession as well, as to the question of removal of teeth and foci of infection. We still have some men who do not believe in focal infection, and some may even say, Pull them out! The other men are conservative; they remove the teeth surgically, and if, after proper laboratory tests and physical examination have been made, it is found that there are diseased sockets, these are curetted. While it is probably true that some of our operators have been a little radical, this should cast no reflection upon the operator who avails himself of laboratory tests, considers the condition of the patient, and then adapts his treatment according to the principles of surgery.

DR. CLIFFORD E. HENRY (Minneapolis): In regard to the subject of meningopolio-myelitis: I was called to see a patient complaining of severe headache, with some rise of temperature and evidently symptoms of grip. The next day he was worse and was sent to St. Mary's Hospital. The nervous symptoms being in preponderance, I called in consultation Dr. Charles E. Nixon, who concurred with me in the diagnosis of meningopolio-myelitis.

We made a spinal puncture and blood culture. No report from the blood culture could be secured before the patient died. We asked for a post-mortem and secured consent, and the Pathological Department of the University of Minnesota conducted the post-mortem. What was our surprise on opening the skull to find an abscess in the posterior portion of the cerebrum, the size of a small hen's egg.

We made further inquiry into the case and found that three weeks before the onset he had had a number of teeth pulled, since which time he had acted very much like a man intoxicated. He was a druggist, and the relatives were rather suspicious that he was imbibing too freely. He had been brought home the night before I saw him first, complaining of an intense headache. It was the consensus of our opinion and the opinion of the pathologists of the University that this man's condition was induced by throwing bacteria into the blood stream. We later got a positive bacteremia in the blood report. Of course, we changed our diagnosis, and the death certificate was made out with proper diagnosis in it.

DR. FEDERSPIEL (closing): We sometimes find that there is a reaction after the removal of infected teeth. This is largely due to the failure of the dentist to remove the inflammatory growth that remains in the jaw after the tooth is extracted. It is important that all the diseased area should be thoroughly removed.

SIGHT-SAVING CLASSES IN THE MINNEAPOLIS PUBLIC SCHOOLS*

BY DOUGLAS WOOD, M.D., C.M., F.A.C.S.

MINNEAPOLIS

Compulsory education laws, with medical school-inspection, has brought to the attention of school and health authorities the fact that a certain proportion of pupils are seriously handicapped in their school work by reason of marked defects of vision, jeopardizing not only their sight but their general health.

In 1913 the city of Cleveland organized special classes, known as classes for the conservation of vision, or sight-saving classes. Later Boston and several of the Ohio cities took up this work. Much credit is due Mr. R. B. Irwin, himself blind, of Cleveland, for the wonderful progress of the work.

The object of sight-saving classes is to instruct the pupils, with a minimum of eye strain, to teach them how to conserve the vision they possess and to provide such vocational guidance and vocational training as will enable them to fill the most useful place in the community their power will permit. These classes are under a special teacher, whose function it is to assist them to keep pace with pupils of normal eye sight. The written work is done in the special room, and the oral work in the regular grade room with the other children. Care is taken in choice of the school room, as regards ventilation, light, black-boards, etc. Special text books are employed. Raised maps, typewriters, etc., are used, and in fact everything is done to relieve eye strain.

The State of Minnesota in the year 1915, passed a law, providing \$100.00 a year for special teaching purposes, for every blind child in the public schools. This was a dead letter, as nothing was done in the schools with it, the amount being too small to accomplish anything. In 1917 efforts to raise the amount were taken, but without success. In 1919 the amount was raised to \$200.00 per year per child, provided a class of five blind was established in a school, the money to be used for transportation, salaries of special teachers, equipment, etc. A blind child is one who cannot safely or profitably be educated in an ordinary class-room way.

In 1921 this amount was raised to \$300.00

per child. The cost to the State for each child at the State School for the Blind at Faribault is \$638.00 per year, so that you can readily see how much our local classes are saving the State.

In May 1919 the Minneapolis Society for the Blind started a survey to see how many children in Minneapolis needed aid in sight-saving classes. Upon examination of over 300 prospects, or suspected prospects, it was decided to establish classes the following fall. In September, 1919, a unit of 13 was entered at the Longfellow School; in October a unit of 9 at the Corcoran School; and in December of the same year a unit of 8 at the Washington, and so the work went on. There are now over 60 pupils enrolled, 13 of whom are blind. These are cared for by a Superintendent, George Meyer, who is blind, and 7 teachers. There are 8 pupils in the High School, 3 blind and 5 partially blind, 4 of whom act independently with readers. The other 4 are in Junior High. They use readers with the aid of teachers.

During April, 1920, an eye clinic was established at the Adams School, the object of which was to pick out, as far as possible, candidates for the sight-saving classes. In 1922 this clinic was turned over to the school. It was financed by the Woman's Club of Minneapolis. The children are brought in to the eye clinic by the visiting nurses upon the recommendation of the school principal, who vouches for the child being a charity case. A complete record of the condition of each child is made, and the teacher is instructed as to the amount of eye work a child may safely do. Each child is watched and examined every three months. Where the child is under the care of a family oculist, he makes out the case report and continues the care of the child.

The following standard, or unit is used:

1. Myopes of 6 diopters or more.
2. Myopes whose vision cannot be brought up to 6/12 or 1/2 normal vision.
3. Progressive myopia.
4. Children having macula or leucoma of the cornea, with vision less than 6/15.
5. Children with optic atrophy, with vision less than 6/15.

*Presented before the Hennepin County Medical Society April 11, 1923.

6. Astigmatism with glasses, with vision of $6/21$ or less.
7. Hyperopes with more than 8 diopters, with symptoms of asthenopia.
8. Keratitis: In the interstitial type, if the vision remains low after the eye has been quiet for three months, or in persistent recurrent conditions, and while under treatment.
9. In congenital cataracts or secondary cataracts, where no acute condition is present, with vision $6/15$ or less.
10. Congenital malformations where vision is $6/21$ or less.
11. In all chronic diseases of the uveal tract, where the vision is $6/12$ or less.

No hard or fast line can be followed, as each child is treated as an individual case.

Braille, or finger-reading, is taught to the blind and those who cannot read *Jagar* No. 3., that is, ordinary newspaper or book print; also in progressive cases, as high myopes and where the pathology shows that the progress is not hopeful.

In looking over the histories we find the following etiology in 100 cases:

- Congenital myopia 20 per cent.
- Hyperopia of 8 diopters or more 11 per cent.
- Mixed astigmatism 3 per cent.
- Ophthalmia neonatorum 11 per cent.
- Arrested development (amblyopia) 10 per cent.
- Primary optic atrophy 8 per cent.
- Bulbar phthisis (cause?) 1 per cent.
- Interstitial keratitis 7 per cent.
- Congenital cataracts 6 per cent.
- Trachoma 2 per cent.
- Choroidoretinitis 5 per cent.
- Injury with sympathetic ophthalmitis 1 per cent.
- Retinitis pigmentosa 3 per cent.

In the ophthalmia neonatorum cases, 8 were born before the state law, in regard to the use of silver nitrate in the new-born came into affect. The next ten years ought to reduce the cases of ophthalmia neonatorum to 0.5 per cent.

In looking over this list we see that at least 75 per cent of this blindness and poor vision is not necessary. Nearly all of this blindness can be prevented, providing we have sufficient medical knowledge and sufficient control over sanitary conditions. Both environment and heredity play important parts, but on the whole, environment has been stressed in this country, to the neglect of heredity. The idea of increasing population indiscriminately, whether by immigration or birth, finds little favor with those who look beneath environment to the biological forces that do so much to make people what they are.

There have been four sight-saving cases that have so improved that they have been able to go back into the regular school classes. Instead of 60 children in these classes there should be 160, if we can find them, but to do this we need the co-operation of this Society and every oculist in the city, as well as the different clinics; for if, in the conservation of vision and the prevention of blindness among school children, we cannot have the sympathetic interest and generous co-operation of the eye specialists, there is danger of the work slipping into the hands of the optician, in which case many of the children will suffer. To the ophthalmologists as a group is intrusted the care of the eyes of the community.

There is need of an eye examination of all school children in this city, and I would like to see this done under the jurisdiction of the Hennepin County Medical Society with examination free, but where treatment is necessary the patient should go to his own specialist; if charity, to a clinic. The object of the school clinic is not to take business from the doctor, but to see that the eyes of all children needing correction or treatment receive such, through their own doctor, if possible, or through the clinic, if without means. If the children are to receive a square deal, as to eye sight and education, the school clinic should be under the supervision of a recognized professional group, such as a committee from this Society.

THE CLINICAL LABORATORY: II. BLOOD*

BY WALTER E. KING, A.M., M.D.

SAINT PAUL

(a) CHEMICAL EXAMINATION:

Among the divisions of clinical laboratory work, perhaps none is receiving so much attention at the present time, as blood chemistry. It is only within the last two or three years that blood chemistry has become generally regarded as a useful procedure in the laboratory. Now it is definitely recognized that certain chemical examinations of samples of blood are of practical value in the diagnosis and prognosis of several important diseases. Such intensive experimental study is being given to the chemical analyses of blood that a very rapid development in this line of work is taking place. It is, therefore, apparent that the busy practitioner should become familiar with the practical significance of certain blood-chemistry tests. Moreover, he should keep in touch with the advancement in this line of work.

It is logical to assume that a careful study of the blood should afford valuable clinical data. The blood is one of the tissues of the body, and it has received less intensive study and consideration than many other body tissues. In connection with the study of nutritional diseases, especially, and of the metabolism of the body, the blood tissue constitutes one of the most fertile fields for investigation. Blood serves as a medium which carries nutritive material from the digestive tract to the various tissues and organs. The blood also is directly concerned in carrying waste products from different parts of the body to the various excretory organs. Blood, therefore, constitutes the medium which acts as a carrier of various chemical matters, the identification and quantitative estimation of which often provides the solution of intricate clinical problems. It is readily understood that, should any of the excretory organs fail to function, there will result certain chemical changes in the blood due to the failure of the given excretory organs to carry off various waste products. It is also apparent that the chemical study of the blood, with relation to the quantitative analyses of the retained waste products, offers data of

more value than the quantitative chemical analyses of the excretions themselves. This is well illustrated by blood studies, which are conducted in relation to diabetes mellitus, nephritis, and gout,—three diseases in which blood chemistry is of considerable importance.

In the present consideration of the clinical significance of various findings in blood chemistry, the suggestions are presented under two distinct heads. First, the significance of blood-chemistry tests which are more or less generally used, and which are of proven practical value. Second, the significance of certain chemical elements in the blood, the chemical manipulations for which are more or less complicated, or the interpretations of which are not thoroughly understood.

Finally, the attention of the physician will be directed toward a summary of significant blood-chemistry results, as related to various diseases.

THE SIGNIFICANCE OF BLOOD CHEMISTRY TESTS,
WHICH ARE MORE OR LESS GENERALLY USED,
AND WHICH ARE OF PROVEN PRACTICAL
VALUE

It is now generally recognized that much desirable information regarding certain nutritional diseases cannot be obtained from urinalysis alone. Much dependence, therefore, is placed upon the study of blood sugar, urea nitrogen, uric acid, creatinin and CO₂ combining power, alkali reserve, or acid base balance.

The development of microchemical, colorimetric methods in the laboratory has simplified the procedures involved in tests for these substances, so that the same can now be employed readily in routine laboratory practice. These are laboratory tests which are in every-day use, and, therefore, the average physician is interested in learning something as to their nature, and the clinical significance of the corresponding findings.

COLLECTION OF SPECIMENS FOR BLOOD
CHEMISTRY TESTS

For each of the following tests about 10 c.c. of blood are necessary: for sugar, creatinin, and urea, each, 5 c.c.; for uric-acid tests 15 c.c. The blood should be collected in clean, preferably sterile, glass containers in which has been

*This is the second of a series of articles by Dr. King on the Clinical Laboratory. The third article will soon appear.

placed a small amount of potassium oxalate. This is used of course for the purpose of preventing coagulation of the blood and should be present in the proportion of about 20 mg., or approximately 0.5 gr. per 10 c.c. of blood. One drop of a 20 per cent solution of potassium oxalate per 2 c.c. of blood is sufficient.

In collecting the blood the syringe must be perfectly dry. No moisture should be present either in the syringe or the glass container, as this will interfere with some of the tests.

Specimens of blood should be taken preferably in the morning before the patient has breakfasted. Specimens should not be taken after a hearty meal.

BLOOD SUGAR

One of the oldest laboratory tests is that of examining the urine for the presence of sugar. It is now known, since the advent of the chemical study of blood sugar quantitatively, that in a given case of diabetes much more can be found to assist in the diagnosis and prognosis by determining the sugar content of the blood.

The positive finding of sugar in the urine is neither invariably specific, nor is it sufficiently delicate in many cases to afford reliable data upon which to base diagnosis and treatment. Ordinarily, glycosuria is indicative of a pathological condition; on the other hand, it does not always mean diabetes mellitus.

At the same time, the absence of sugar in the urine does not always mean a negative diagnosis of diabetes mellitus.

As progress is being made in the study of blood sugar, it is becoming more apparent that glycosuria is not a safe criterion regarding the state of the disease. Numerous cases of renal glycosuria are being reported in the literature, and in these cases there is no evidence of diabetes mellitus, but only an increased permeability of the kidneys for sugar.

Under these conditions, therefore, it is clearly apparent that the blood-sugar determination, compared with urinalysis, is a far more accurate laboratory test and a far better criterion regarding the diagnosis of diabetes mellitus, and the progress of the condition in positive cases.

All forms of pathological glycosuria, or sugar in the urine, are accompanied by hyperglycemia or an abnormal amount of sugar in the blood.

The normal sugar content of the blood is .08 to .12 per cent. Sometimes blood sugar may be found .13 under normal conditions. Hypergly-

cemia, or the presence of an abnormal amount of sugar in the blood, depends upon the presence of more than 0.12 per cent. The concentration of blood sugar, as after the ingestion of carbohydrates, usually attains .16 to .18 per cent, before sugar is excreted by the kidneys and is found in the urine. *Therefore, .16 to .18 per cent blood sugar is regarded as the renal threshold.*

The renal threshold varies in different cases of diabetes. In early cases there is a more or less direct ratio between the hyperglycemia and the glycosuria. In older cases this relationship may not be so constant, and in many only a slight glycosuria may be present when a marked hyperglycemia is found.

With these conditions in view it is advisable that all patients showing glycosuria at any time should be subjected to blood sugar tests. If the blood sugar is found to be normal, that is, below .12 per cent, and the glycosuria persists, the patient should be given a glucose-tolerance test. In conducting this test, the patient should fast for approximately twenty-four hours. If a twenty-four-hour starvation period is not convenient the patient should be subjected to the glucose-tolerance test in the morning, breakfast being omitted. A specimen of blood should then be taken for test, after which 100 gm. of glucose in 200 c.c. of water should be administered. The patient should not be directed to eat a half pound of candy or allowed to choose some form of confectionery. He should receive 100 gm. of glucose in the presence of the physician or pathologist. Specimens should then be taken from the patient thirty minutes after the administration of the glucose,—one hour after, one and one-half hours after, and two hours after. In other instances blood specimens may be collected at one hour intervals after the ingestion of glucose.

Coincident with the collection of blood specimens for blood-sugar determinations, specimens of urine should be obtained for sugar tests. On the day following the tolerance test, a twenty-four-hour specimen of urine should be tested for sugar.

From the results of the blood-sugar tests of the above specimens, the blood-sugar curve pertaining to the glucose-tolerance test will show whether the condition is diabetic.

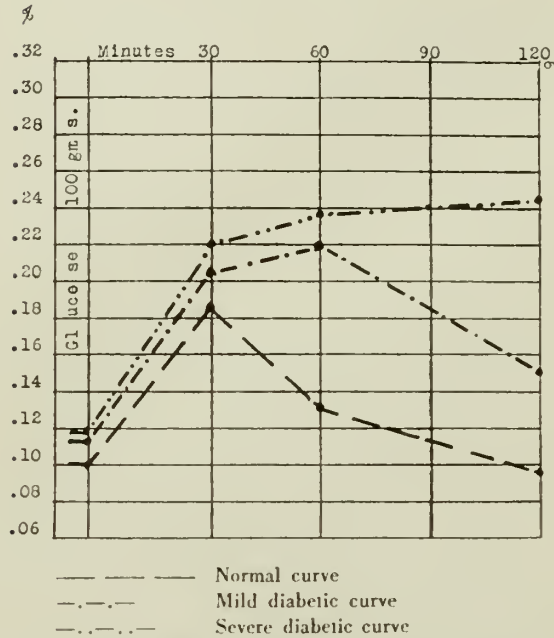
The marked diabetic curve will show a normal blood-sugar content before the glucose test meal

and a rise of blood sugar up to approximately .2 per cent after the administration of glucose, which may persist for several hours.

In the mild diabetic patient the blood-sugar content will show a rise in the half-hour and one-hour specimen of blood after which time the curve tends to drop to normal.

In the normal individual, or a so-called renal glycosuria case, the blood-sugar content one-half hour after the glucose test meal will show a rise perhaps to .2 per cent, which will quickly drop to normal at the end of one or two hours.

Typical Curves



The diagnosis of renal glycosuria should be made with caution and only after careful and re-

peated observations. Blood-sugar findings which are not normal, even though they be only slightly above normal, call for careful observation of the cases.

Cases have been reported in the literature indicating the value of the glucose-test meal or sugar-tolerance test.

1. John: The Interpretation of Blood Sugar Estimations That Are The Normal. Journal of Lab. & Clin. Med., vol. 8, 1922, p. 145.

John¹ records six cases in which the findings were as follows:

Case No.	Blood Sugar	Sugar in Urine
1	0.127	plus
2	0.151	neg.
3	0.130	neg.
4	0.124	neg.
5	0.123	neg.
6	0.161	neg.

In the above cases glycosuria was present in only one and blood-sugar was not far from normal in all. Glucose-tolerance tests were made in the above cases, and a diabetic curve was established in all cases.

SUMMARY

After conducting tests for blood sugar, in the average case, the presence of more than .12 per cent blood sugar indicates diabetes mellitus. In order to determine accurately whether or not diabetes mellitus is present and to differentiate the condition from that of renal glycosuria, the glucose-tolerance test should be utilized.

In nephritis the blood sugar may be increased, but the condition is differentiated from diabetes by clinical symptoms and also by an increase in the blood of urea nitrogen, creatinin, uric acid, and chlorides.

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THE FEMININE BARRAGE AGAINST MEDICAL MEN

Physicians are learning "day by day in every way" that they are being talked about, sometimes lied about, and frequently slandered, not because of their morals but because of their inability to cure disease. Consequently, when two or more women are gathered together, for justifiable purposes, including committee meetings, social functions, bridge parties, afternoon teas, and almost any form of non-intellectual exercise, they commonly begin to criticize the doctors. They do this thoughtlessly, naturally, because there is not one woman in a hundred that knows anything about a doctor's life or what he has to go through in order to prepare himself for his life work or to carry on his practice successfully, professionally, and ethically. Then, too, a good many of these critics have a pet theory, or a pet healer whom they esteem, not for his educational qualifications or his preparation for the healing art, but for his personality, perhaps, and not infrequently because some other woman has said that such and such a healer can cure disease when the doctors can't.

Doctors openly admit that temporarily there is a wave of health going over the country in which there is less preventable disease, per-

haps less organic disease, than has been known for many years; and this wave may last for one or two years longer before it recedes and some form of physical or mental disorder resumes its scourge. There is no question, too, that among the doctors there has been an effort to improve the education of the people as to the care of themselves. Our various journals devoted to health are doing everything they can to enlighten the people in the common ailments of life, their prevention, care, and cure. This doubtless has contributed somewhat to the depreciation of the medical man's business; and other questions, mainly financial, have decreased his yearly income. But for all that there is no reason why he should be attacked by a thoughtless band, when if they did but stop to think for a moment they would realize what a medical man has to undergo and how much self-sacrifice and time he gives to the care of the impoverished and indigent sick. This condition does not prevail in the cities alone, but is widespread. The man in the country does a certain amount of charity work; but the man in the town and the city is called upon for more of his medical efforts. He does a good deal in the various traveling clinics that go over the country. He does a great deal of free work in the small hospital; and in the larger cities he does a tremendous amount of work either on the staff of a hospital or the board of managers on medical attendance for many charitable organizations. He does surgery, obstetrics, internal medicine, and many of the special branches of work for nothing; and the time has now come when the privilege is much abused. People who can pay a physician patronize a clinic managed by the State or by the city, and get their medical attention and operations without cost, and they think they are clever in so doing. Consequently it has been necessary to make an investigation of the relationship of the doctor to the city and county hospital as to whether they are dealing fairly with the medical man and his patients; whether they are not accepting patients in general hospitals maintained by the State or county that should be classed among the pay-patients of the physician.

Of course, the doctor began many many centuries ago to take care of the sick; and during that time there was more or less variation in the healing art, from the copper-and-zinc tractor back to mesmerism, the bone-setter, and many

other almost inconceivable and absurd theories which have long been lost except as they are recorded in history. But from time immemorial the doctor has worked for the poor and the needy because he looked on it as a privilege, as a part of his duty to his fellow-men. And now when he comes to the present decade he is handicapped by the many cults that have sprung into existence, composed largely of the uneducated classes, who dare to deal with human life and its miseries. The solution of this problem is not an easy one. You cannot stop people from talking, from slandering, and from thoughtlessness because the majority of people are on the borderline. They are able to think only about so far and no farther because, if they try to go beyond a certain point, it strains their poor brains. Consequently, the doctor must let this traffic in human ills go on until it winds itself up into a knot and until the people have some realization and some appreciation of what a doctor's life means; what it means to compensate him, what it means to pay their bills promptly, and to encourage him in his efforts to acquire further knowledge in order to give them better care. In the meantime the surgeon and the physician must be more careful in their examinations, and must take into account the personal equation of each individual and not minimize the pet complaints, but rather seek the cause and treat the patient in order to remove the splinter in his mind or foot, adopt the optimism of his antagonist.

LOST—THREE BILLION DOLLARS!

According to the National Health Council, which is to inaugurate a nation-wide health drive on the Fourth of July (this has nothing to do with the Dempsey-Gibbons fight at Shelby, Montana) there is an annual economic loss to this country from preventable diseases that reaches a stupendous amount,—three billion dollars; and out of this \$3,000,000,000 \$1,800,000,000 is the loss among those who are gainfully employed. The question of a solution for this problem will come up for very active discussion, for it means a year's campaign, and, unquestionably, the first item will be the suggestion that every year, so far as it is possible, every individual should undergo a physical examination. This will require not only the support of the insurance companies' efforts to prolong life, but will have to be sponsored by State, Federal, and local author-

ities; and we should all pledge ourselves to help them in every possible way. So far a pledge has gone out that at least ten million persons during the year, starting July first, will be medically examined. This will determine whether preventable mental or physical defects are among the liabilities of the individual, and the country and will teach us in some way how they may be removed. But what about the other one hundred million people who inhabit this country? When we realize that there are but 150,000 doctors to take care of 110,000,000 people it is imposing an almost superhuman task on the medical profession. But it can be done if it is systematically undertaken and the chiefs of departments are sufficiently organized.

It has been established, not only by statistics, but by actual showing, that the period of life has been lengthened in this country in the last fifty years by ten years. And by systematic and yearly investigation of the individual and his disordered state of health it is likely that five years more may be added to this period within the next decade. The only difficulty about such a thing is the lack of co-operation and support by the people. The medical authorities and State officials are usually ready to conserve economic life, but for some reason or other the people are rather indifferent about it. The insurance companies, however, have done very important work in starting this yearly or semiyearly or quarterly investigation of its policy-holders, so that they keep in very close touch with many individuals and are able from this large group to make very valuable suggestions as to what is essential for the prolongation of life and for the removal of causes that are preventable.

THE PATHOGENESIS OF LEUKEMIA

THE JOURNAL-LANCET has recently had the pleasure of publishing several papers of a highly scientific character written by Dr. A. C. Massaglia, Professor of Pathology and Bacteriology in the University of North Dakota, which maintains a medical school giving a two-year course to its students. These papers show the high character of the research work being done. Dr. Massaglia, who is now studying the pathogenesis of leukemia with exceedingly promising results as follows, as described by him:

The experiments were performed on monkeys of the species "Macacus Rhesus" which have almost

the sanguine crisis as that of man. These monkeys were inoculated with the blood of a patient suffering with acute splenic leukemia (enormous enlargement of the spleen, 250,000 leucocytes per c.mm.); one monkey was inoculated in the basilic vein, the other monkey received an inoculation into the spleen (laparotomy previously having been performed). The monkeys recovered "per primam" from the wound of the operation, that is to say, without any pus formation.

Three days after the inoculation, the blood of the monkeys showed a marked leucocytosis of about 30,000 cells per c.mm.; the polymorphonuclear neutrophils had reached almost 84 per cent; the remaining cells were large mononuclear transitional forms and lymphocytes. Fifteen days after the operation the number of leucocytes dropped somewhat to an average of 25,000 cells per c.mm. However, the leucocytary formula had been completely inverted, that is to say, there was an average of 70 large mononuclears and transitional forms, 10 per cent of lymphocytes, and the remaining 20 per cent polymorphonuclear neutrophils.

Three months after the inoculation of the monkeys and the animals were apparently in good health; the spleen could be felt upon palpation and offered some tenderness; the blood showed the above-mentioned average leucocytosis with kind of cells as indicated.

The results of the experiments apparently may be interpreted in the following way:

1. The marked leucocytosis which arose after the inoculation must be interpreted as a leucocytosis which arose due to results of the operation, and essentially as a reaction of the body against the introduction of the patient's blood. Although the human blood is almost equal in composition to that of the above-named monkeys and therefore should cause no reaction, the blood in the present case was from a patient suffering with a disease which essentially affects the blood (spleen leukemia); therefore the introduction must be considered as an introduction of abnormal blood.

2. The secondary leucocytosis which arose almost 10-15 days after the inoculation of the leukemic blood and which is, to date, permanent (three months after the operation) must be interpreted as a leucocytosis which reproduces in a moderate manner the disease of the patient, that is to say, a leucocytosis which resulted from the inoculation of the leukemia. The phenomenon appears to be true for the following reasons:

- a. Similar to the condition of patients at the beginning of mild cases of leukemia, the animals are apparently in good health.
- b. After the operation no pus was formed; if pus had been formed the leucocytosis should have consisted of polymorphonuclear neutrophils and not of large nonnuclear leucocytes and transitional forms as in our cases.
- c. The leucocytary formula of the blood corresponds to the formula which we have in the

splenic leukemia of the patient; these changes in the blood of the animals are accompanied by an enlargement of the spleen.

The results of my experiments have led me to conclude that I inoculated, or transplanted, the acute splenic leukemia into monkeys.

A MEMORIAL MEETING OF THE HENNEPIN COUNTY MEDICAL SOCIETY

For the doctors who died during 1922 and the first half of 1923 the Hennepin County Medical Society decided to hold a memorial service, and with that plan in mind they had a special meeting in the Church of the Redeemer, where a few, too few, of the members, gathered to hear a tribute paid to the men who had completed their medical lives. Dr. Fred L. Adair, the president of the Society, spoke briefly, reviewing the work done by these men in the field of medicine and surgery and in the cause of general hygiene in the schools and in the community. And the secretary, Dr. R. T. Lavake, read from the records of the Society a memorial that is preserved therein. The men who died during this period were Dr. Richard J. Hill, Dr. Julius Parker Sedgwick, Dr. Hugh N. McDonald, Dr. Frederick A. Knights, Dr. John D. Anderson, Dr. James Woodward George, and Dr. Albert Jasper Murdock.

The Journal-Lancet calls the attention of its readers to the special memorial address given at the meeting by the Rev. Marion D. Shutter on the "Warfare of Science Against Disease," a very glowing and happy reminder of what has been done in medicine. Dr. Shutter's address was a fitting tribute to what the medical profession has undertaken, not only in the past, but in the present.

Co-incidentally with this meeting, the editor was privileged to talk in a public meeting at Alexandria, under the auspices of the Minnesota Northern Medical Association on "The Education of Doctors and Nurses and Their Attitude Toward the Public," in which he had an opportunity to tell the people something of the trials and anxieties and the long period of preparation which doctors have to undergo and incidentally to detail some of the handicaps which every doctor meets and also, regretfully, to state that not infrequently the doctor and his services are not fully recognized by the people.

BOOK NOTICES

PHYSICS AND CHEMISTRY FOR NURSES. By A. R. Bliss, Jr., A.M., Phm.D., M.D., Lecturer on Chemistry and Materia Medica, Grady Hospital Training School for Nurses, and A. H. Olive, A. M., Ph.Ch., Phm.D., Lecturer on Chemistry, Hillman Hospital Training School for Nurses. Third edition. Cloth. Price, \$2.50. Pp. 190, with 70 illustrations. Philadelphia: J. B. Lippincott Company, 1923.

The book "Physics And Chemistry For Nurses," by Bliss & Olive, is a clear, concise, and well-chosen piece of work. It handles two difficult subjects with a maximum of clearness and a minimum of puzzlement. The whole subject is handled with reference to its application to the life of the nurse and to her duties and so the interest in the subject matter is rendered more valuable to her by having the so-called moral drawn in each case.

The experiments are simple and interesting and, in a hospital which boasts a training laboratory with equipment, they should add considerable to the understanding of and the interest in the subject.

The book should be of value to the nurse even after she has finished her training, as a reference book, and the appendix is of particular value in this respect.

The one criticism of the book might be that it is a little more detailed and scientific in the chemistry section than seems to be required in a nurse's course, and parts of it would very probably be entirely beyond her, unless she has had a good preliminary course in chemistry in her High School or College work.

The book, in the hands of an instructor who knows exactly what to emphasize and what to leave untouched, should be a very valuable one.

—EDITH HESSMER,

Superintendent of Nurses,
Northwestern Hospital.

—MARGARET I. SMITH, M.D.,
Pathologist
Northwestern Hospital.

NUTRITION OF MOTHER AND CHILD. By C. Ulysses Moore, M.D., M.Sc. (Ped.), Instructor in Diseases of Children, University of Oregon Medical School. Including Menus and Recipes by Myrtle Josephine Ferguson, B. S., In H. Ec. Professor of Nutrition, Iowa State College, Ames, Iowa. Pp. 234, 33 illustrations. Philadelphia and London: J. B. Lippincott Company, 1923.

The list of books written for the mother, to guide her in the care of herself and child during pregnancy and infancy, is rapidly becoming a long one. There is a great similarity in most of these books, and, although the above work is written in a pleasing manner, in a way which can be well understood by the mother, nevertheless the reviewer does not feel that it adds much to the books of this kind that have already been written.

The first part of the book is taken up with a discussion of the different food elements and their place and importance in nutrition. Great emphasis is placed upon vitamins and their need in a proper diet. Although no one can question their importance, nevertheless the author over-emphasizes this phase of nutrition in a book of this kind.

The chapters on breast feeding and its importance are practical and helpful. The chapters upon the common fallacies in the care and feeding of children, is instructive as well as interesting, and to the mind of the reviewer is the best chapter in the book.

The diets given for normal infants and children are good, and are written in a concise, practical manner. The recipes, which are given by Myrtle Josephine Ferguson, include most of the foods included in feeding children.

For the nurse, medical social worker, or mother who has no book of this general character in their library, this book will be of value.

—EDWARD DYER ANDERSON, M.D.

AN INTRODUCTION TO THE PRACTICE OF PREVENTIVE MEDICINE. By J. G. Fitzgerald, M.D., F.R.S.C., Professor of Hygiene and Preventive Medicine and Director Connaught Antitoxin Laboratories University of Toronto. Assisted by Peter Gillespie, M.Sc., C. E., M.E.I.C., Professor of Applied Mechanics, University of Toronto and H. M. Lancaster, B.A.Sc., Director of Division of Laboratories, Provincial Board of Health, Ontario, and Demonstrator in Sanitary Chemistry, Department of Hygiene and Preventive Medicine, University of Toronto, and chapters by Andrew Hunter, M.A., M.B., F.R.C.S., J. G. Cunningham, B.A., M.B., D.P.H., and R. M. Hutton; with appendix articles by various contributors. St. Louis: C. V. Mosby Company, 1922.

The introduction is a fitting expression of the present field, progress, needs, and appreciation of preventive medicine.

The first chapter affords the analysis of data and classification of matter for treatment. Their various diseases and groups are treated fully and with the utmost clarity. With chapter XIII begins the consideration of water, milk, foods, deficiencies; domestic and community sanitation; school hygiene; public health clinics and centers; ventilation; industrial hygiene; demography and vital statistics; public health organization; public health education.

Without evident condensation this volume is less prolix by one-fourth than its recent fellows.

The appendix has vital worth covering 80 pages,

The index is exceptionally fine, one will at once say the same of every part and feature of the book.

The illustrations, graphs and tables are very numerous and excellent.

The literary quality and constant appeal to one's confidence and taste are unsurpassed.

The scientific spirit controls. The author is led by analogic method even to assume the route of infection for measles. Only twice we find items of treatment of the sick,—the use of quinine in malaria and, with the apology of the author, the use of

ethyl carbinol in the acute suffocative catarrh of measles. One could wish that this observation could have had all the protocols that Koplik presents in the use of alcohol in the pneumonia of children, ending in its rejection.

Beside the satisfactory presentation of other matters that of the public health activities both official and voluntary, with their coördination and with due regard to the family practitioner is worthy of high praise.

In a comparison with recent books on same subject Fitzgerald's is worthy of high esteem.

—GEO. D. HAGGARD, M.D.

EXERCISE IN EDUCATION AND MEDICINE. By R. Tait McKenzie, M.D., LL.D., Late Major R.A.M.C. Professor of Physical Education and Physical Therapy and Director of the Department of Physical Education, University of Pennsylvania. Price \$5.00. Philadelphia: W. B. Saunders Company, 1923.

Part I deals with exercise in education, the physiology of exercise, and a discussion of the functional capacity of organs as judged by exercise tests.

The German, Swedish, and French systems of gymnastics and the American playground, high school, and college athletic sports are thoroughly treated from the standpoint of physical needs and the preservation of health. This part of the book could be profitably followed by athletic directors. Injury from physical strain could be foreseen and prevented by an understanding of the principles discussed in this section of the book.

Part II takes up the application of exercise to physical re-education in pathologic conditions. The author has had wide experience in the reconstruction of the war maimed in the British, Canadian, and American camps and hospitals. Extensive revision of the text was made necessary through knowledge gained in this field. Orthopedic conditions are discussed in detail. Medical and neurologic diseases, which may be benefited by physical measures, have received due consideration.

The book is an unique and valuable addition to medical literature.

—E. F. G.

NEWS ITEMS

Dr. G. W. Callerstrom, of Northwood, N. D., has moved to Minneapolis.

Dr. R. M. Erwin has moved from Mandan, N. D., to Portland, Oregon.

Dr. Gisle Biornstad, of Minneapolis, has gone to Europe for three months.

Dr. A. H. Ahrens, of St. Paul, was married last month to Miss Jane Hayner, of Minneapolis.

The Montana State Medical Association holds its annual meeting at Butte on July 11 and 12.

Dr. Oscar Peterson, of Northwood, N. D., has joined the staff of Trinity Hospital at Minot, N. D.

Dr. G. H. Walker has moved from Minneapolis to St. Paul, where he has his office at 1879 Carroll Ave.

Dr. James M. Flinn, a recent graduate, has entered into partnership with Dr. B. V. McCabe, of Helena, Mont.

Dr. H. G. Mertens has withdrawn from the Dodd Clinic of Ashland, Wis., and entered private practice in Ashland.

The Homeopathic and Electric physicians of South Dakota held a joint annual meeting in Sioux Falls last month.

Dr. E. M. Morehouse was elected city physician of Yankton, S. D., last week to succeed the late Dr. James Roane.

Dr. Francis Kingsbury, of the Department of Physiology of the University of Minnesota, has moved to New York City.

Dr. H. L. Goss, formerly with the Mayo Clinic and Foundation is now located at 910 Donaldson Building, Minneapolis.

Dr. Olaf Haraldson has moved from Watertown, S. D., to Minot, N. D., where he goes to join the staff of Trinity Hospital of that city.

Dr. F. V. Willhite, Assistant Superintendent of the Yankton (S. D.) State Hospital, has moved to Redfield, S. D., and taken up general practice.

Dr. Earnest Mariette, of the Glen Lake Tuberculosis Sanatorium (near Minneapolis), was married last week to Miss Anna Jones, of Minneapolis.

Dr. L. A. Fritsche, of New Ulm, is one of the numerous candidates for the Minnesota senatorship made vacant by the death of Senator Knute Nelson.

Dr. Berdez, who spent several months in the Section of Pathologic Anatomy of the Mayo Clinic, is now pathologist at the St. Mary's Hospital, Duluth.

Dr. Lester A. Dickman, of Hills, died last week at the age of 46. Dr. Dickman was a graduate of the Medical School of the University of Minnesota, class of '01.

Dr. Francis Carter Wood and Dr. James B. Murphy, of New York City, gave Mayo Found-

ation lectures at the Mayo Clinic, June 11 and 12, on "Radiotherapy in the Treatment of Cancer."

Dr. L. W. Larson has located at Northwood, Iowa, and formed a partnership with Dr. L. G. Hewitt. Dr. Larson is a recent graduate of the Medical School of the University of Minnesota.

Dr. Chester J. Sturges, a recent graduate was married last week to Miss Lillian Thompson, of Omaha, Neb. Dr. Sturges has formed a partnership with Dr. J. J. Catlin, of Buffalo, (Minn.).

The wedding of Miss Edith Mayo, daughter of Dr. and Mrs. C. H. Mayo, and Dr. Fred Wharton Rankin, of Louisville, Kentucky, took place June 12 at Maywood, the country home of Dr. C. H. Mayo.

Dr. George Earl, of St. Paul, who recently made a South American trip with a group of surgeons, has given an interesting and informing talk on "My Impressions of South America" before several organizations.

It is announced that a tuberculosis sanatorium for Faribault, Steele, and Freeborn Counties is a practical certainty. The building will cost about \$100,000, half to be paid by the three counties and half by the State.

Dr. E. G. Senty, who received graduate degree in Medicine from the University of Minnesota left the Mayo Foundation and Clinic June 1 for Davenport, Iowa, where he becomes associated with Dr. Paul A. White.

Dr. Robert A. Scott, of Crystal, N. D., who has just completed a special course at the New Orleans Polyclinic, has become associated with Dr. H. M. Waldren in the Drayton Hospital at Drayton, N. D., to which place he has moved.

Dr. E. P. Lyon, Dean of the Medical School of the University of Minnesota, has gone to Europe for a three months' trip. He will attend this Physiological Congress at Edinburgh, and will visit England, Norway, and Sweden.

Dr. Gilbert J. Thomas, of Minneapolis, was elected a member of the American Association of Genito-Urinary Surgeons at its annual meeting last month. The Association has but fifty active members, and it is an honor to be elected to membership in it.

Dr. F. W. Raiter, of Cloquet, has purchased the Cloquet Hospital from Dr. James Fleming, and will open it to all physicians. Dr. Roy

Raiter, of Cincinnati, Ohio, brother of Dr. F. W. Raiter, will become the resident physician of the Cloquet Hospital.

The following officers were elected for the current year at the annual meeting of the Blue Earth Valley Medical Association last month: President, Dr. A. F. Hunte, Truman; vice-president, Dr. F. P. Silvernail, Elmore; secretary-treasurer, Dr. R. C. Hunt, Fairmont.

A group of physicians of Butte, Mont., have organized to test the right of the Government to limit the number of prescriptions for liquor that a physician may give in a stated time. They claim that the limitation is an infringement on the practice of medicine.

Professor K. F. Wencke, of the University of Vienna, gave Mayo Foundation lectures before the Staff and Fellows of the Mayo Clinic and Foundation June 7 and 8, on "Arythmias of the Heart and Their Therapeutic Control" and "Angina Pectoris and Its Surgical Treatment."

Dr. James Roane, a South Dakota pioneer physician, of Yankton, died last month at the age of 63. Dr. Roane graduated from the Georgetown School of Medicine, class of '82, and soon moved to South Dakota, where he took a prominent part in medical and social circles.

Prof. K. S. Wenckebach, of the University of Vienna, gave a series of lectures at the University of Minnesota last week, and made an address before the Hennepin County Medical Society. He lectured on diseases of the heart, of which he in one of the world's foremost specialists.

The next examination of candidates for license to practice in North Dakota will be held on July 3-6 at Grand Forks. Dr. G. M. Williamson, of Grand Forks, is the secretary of the Board. The South Dakota examination will be given on July 17 at Deadwood. Dr. H. R. Kenaston, of Bonesteel, is Director of the Board.

Dr. Thor. Moeller, who has practiced in Devils Lake (N. D.) for many years, has decided to locate on his farmstead in the Turtle Lake Mountains sixteen miles from Rolla. He will continue to practice, covering a territory of fifty or sixty miles in length and a good many miles in breadth, and he will go "a fishing."

Most of the members of the American Surgical Association, which met in Rochester last week, visited the Twin Cities at the close of the meeting, coming to St. Paul in Dr. W. J. Mayo's yacht, the "North Star." In St. Paul they were the dinner guests of Dr. A. McLaren, of St. Paul, and Dr. A. A. Law, of Minneapolis.

The Northern Minnesota Medical Association held its annual meeting at Alexandria last week. The meeting was well attended. The editor of THE LANCET gave an address, in which he sketched the career of the modern physician, contrasting his character, his education, and his work with like elements in the modern quack.

Dr. H. J. Rowe, of Lisbon, N. D., has moved to Minneapolis, where he has two sons, one practicing medicine and one practicing dentistry. Dr. Rowe has been secretary of the North Dakota State Medical Association for nearly twenty years, and he was re-elected this month in spite of his notice that he intended to move to Minneapolis.

At its first meeting last month, Dr. Fannie Dunn Quain, of Bismarck, N. D., was elected president of the new Public Health Advisory Commission of North Dakota. This Commission was created by the North Dakota legislature last winter. The Commission has large powers in the health matters of the State, and its work will be closely observed, and fully aided, by the medical profession. It has already chosen Dr. A. A. Whitmore, of Bowman, full-time health officer of the State.

The annual memorial service of the Hennepin County Medical Society was held June 4, at the Church of the Redeemer in Minneapolis, with Dr. F. L. Adair, President of the Society, presiding. The memorial address was given by the Rev. Marion D. Shutter, and appears on another page of this issue. The members of the Society who died within the past year were Dr. A. J. Murdock, Dr. Hugh N. McDonald, Dr. F. A. Knights, Dr. J. D. Anderson, Dr. J. W. George, Dr. R. J. Hill, and Dr. J. P. Sedgwick.

The North Dakota Academy of Ophthalmology and Oto-Laryngology held its annual meeting in Grand Forks on May 31, when the following officers were elected: President, Dr. Andrew

Carr, Minot; vice-president, Dr. J. D. Miller, Grand Forks; secretary-treasurer, Dr. G. Golseth, Jamestown; councilors,—Dr. A. M. Carr, Minot; and Dr. J. G. Gislason, Grand Forks. Papers were presented by Dr. J. G. Gislason, Grand Forks; Dr. W. M. Lancaster, Wahpeton; Dr. L. A. Schipfer, Bismarck; Dr. A. M. Carr, Minot; and Dr. J. P. Miller, Grand Forks.

At the North Dakota State Medical Association's annual meeting, held at Grand Forks on May 31 and June 1, the following officers were elected: President, Dr. James Grassick, Grand Forks; president-elect, Dr. W. C. Fawcett, Starkweather; vice-president, Dr. John Rindlaub, Fargo; vice-president elect, Dr. H. O. Altnow, Mandan; secretary, Dr. H. J. Rowe, Lisbon; treasurer, Dr. W. W. Wood, Jamestown; councilors,—Dr. F. R. Smythe, Bismarck; Dr. G. M. Williamson, Grand Forks; and Dr. Paul Burton, Fargo. The 1925 meeting will be held at Bismarck.

One of the outstanding features of the recent annual meeting of the South Dakota State Medical Association was the presentation of a portrait of the late Dr. Frederick A. Spafford, of Flandreau, S. D., to the State by the Association. The presentation remarks were made by Dr. J. W. Freeman, of Lead, in which the splendid services of Dr. Spafford to South Dakota in many capacities were briefly mentioned. The portrait was unveiled by Miss Harriet Anne Rolf, of Flandreau, and accepted on behalf of the State by the State Historian, Mr. Roane Robinson.

The meeting of the Association of Resident and Ex-resident Physicians of the Mayo Clinic was held in Rochester June 4, 5, and 6. The officers elected for the coming year are as follows: President, Dr. T. M. Joyce, Portland, Ore.; vice-president, Dr. R. P. Sullivan, New York City; general secretary, Dr. Harold L. Foss, Danville, Penn.; program committee, Dr. Clyde Roeder, Omaha, Nebraska, (chairman), Dr. G. J. Thomas, Minneapolis; Dr. A. J. Scholl, Rochester; Local Arrangement Committee, Dr. Lee Pollock, Rochester, (chairman), Dr. P. A. O'Leary, Rochester; Dr. B. E. Hempstead, Rochester; secretary and treasurer, D. R. D. Mussey, Rochester.

RUSH GRADUATES AT THE SOUTH DAKOTA MEETING LAST MONTH

The Rush Medical College graduates, attending the forty-second session of the South Dakota State Medical Association at Watertown last month, gathered around the lunch table Thursday noon at the Grand Cafe and had a right royal reunion. Professor Charles A. Parker, of Chicago, who presented a paper before the State Association, told us all about Rush of to-day—how they are going to tear down the old college building on the corner and put up a magnificent modern building in its place made possible by the gifts of Banker Rawson and Mrs. Norman Bridge.

The oldest graduate present, Dr. F. H. Staley, class of '86, told stories of his time, of Moses Gunn and Charles Parkes.

Dr. W. R. Meeker, class of '20, of the first five-year class, related many incidents of this time and the thorough five years of his training.

Dr. F. E. Clough, class of '02, the newly elected President of the State Medical Association, told of his experience at Rush and how he was going to call upon every Rush fellow in South Dakota to help him make the best meeting of the State Medical Association this coming year ever held.

Because of his name Dr. J. E. Rush, of the American Society for the Control of Cancer, joined us after presenting his paper to the Medical Association. He said he regretted very much that he did not have a chance to graduate at Rush.

The next meeting of the State Association will be held in Dr. W. R. Ball's bailiwick, Mitchell, in May, 1924. "Rush" papers were presented to the State Association by Drs. F. E. Clough, '02; F. E. Sampson, '91; W. R. Meeker, '20; and Professor Charles A. Parker.

The following South Dakota Rush fellows were present at the luncheon: Dr. W. R. Ball, '02, of Mitchell; Dr. M. E. Clough, '02, of Lead; Dr. F. M. Crain, '91, of Redfield; Dr. J. H. Crawford, '01, of Watertown; Dr. L. N. Grosvenor, '02, of Huron; Dr. O. Haraldson, '12, of Watertown; Dr. J. C. Ohlmacher, '01, of Vermilion; Dr. J. E. Schwendener, '02, of Bryant; Dr. F. H. Staley, '86, of Vienna; Dr. G. H. Twining, '10, of Mobridge; Dr. J. R. Westaby, '13, of Madison; Dr. A. A. Heinemann, '01, of Wasta; Dr. R. A. Buchanan, '19, of

Wessington; Dr. C. A. Parker, '91, of Chicago; Dr. F. E. Sampson, '91, of Creston, Ia.; Dr. W. R. Meeker, '20, of Rochester, Minn.; and Dr. J. E. Rush, '19, of the University of Pittsburgh Medical School.

—L. N. GROSVENOR, '02, of Huron, S. D.

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One medical Ultra-Violet Ray Lamp, used less than 10 hours with best of care. Burner guaranteed by maker 1,200 hours. Lamp cost complete \$350. Will sell for \$280 cash, or for \$300 on a year's time, payment plan. If interested, write for particulars, reasons for selling, etc., and expect an honest deal on our part if we trade. Address McCullough Mfg. Co., 2632 Central Avenue, Minneapolis, Minn.

X-RAY TECHNICIAN WANTS POSITION

A young woman who has been for over two years at the head of the x-ray laboratory of a group of hospitals desires a position in the Twin Cities. Can give x-ray treatments and do high-grade x-ray work. Best of reference. Address 253, care of this office.

LOCATION WANTED

A qualified physician of pleasing personality having many years of hospital and sanatorium experience, wishes to locate over a drug store in some outlying district. Has for many years specialized in nervous, mental, and chronic diseases. Has good equipment. Has used the new glandular remedies with wonderful results. Would like to locate at once. Address 352, care of this office.

PEDIATRIC PHYSICIAN WANTED

A young man capable of taking charge of the Pediatric Department and doing general work, to take a salaried position with a clinic group associated with a hospital in a South Dakota town. State qualifications and references in reply. Address 351, care of this office.

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Two small corner rooms; tiled; 3 windows; with use of reception room; in one of the best buildings in city; \$80.00 per month, including light, gas, telephone and office assistant for answering telephone. Enough professional work will be turned over to practically cover rent. Address 349, care of this office.

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OSTEOMYELITIS*

BY A. J. OCHSNER, M.D.

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CHICAGO, ILLINOIS

Mr. President and Gentlemen: The most important point in the consideration of acute osteomyelitis, is a very early diagnosis, because the very early diagnosis indicates immediate treatment, and immediate treatment means a recovery with either no destruction of bone or only a very slight amount of destruction; therefore the importance of making the diagnosis almost immediately upon the first appearance of osteomyelitis.

Unfortunately, many cases of acute osteomyelitis are diagnosed as rheumatism until the osteomyelitis has advanced and has caused a destruction of a considerable amount of bone. In order to understand the importance of this point, we must remember the structure of bone. We must remember that the most vascular portion of the bone is the marrow, that then we get the cancellous portion of the bone, with the haversian canals containing the blood vessels and the lacuni containing the spaces for the storage of blood and the canaliculi, extending from those, forming a network of the vascular system, the bone becoming more and more dense as it extends from the marrow to the periosteum, where it is quite dense, and then remembering the dense covering of the bone by the periosteum.

If we have a clear conception of this structure then it becomes at once perfectly clear that when we have an infection in any portion of this

vascular system, whether it be in the marrow of the bone, or whether it be in one of the vessels, one of the haversian canals or whether it be underneath the periosteum, we must remember that here, as well as elsewhere, when we have an inflammatory condition we shall have swelling. This swelling will extend from the primary infection further and further. We have the facility here through these haversian canals, lacuni, and canaliculi for the inflammation to pass on and on, until sometimes the entire shaft of the bone has been infected.

At the beginning of an osteomyelitis the infection is circumscribed. You can always distinguish this from rheumatism, because, provided you make a careful physical examination and do not simply hear the mother say that the child has a sore knee, the child has a pain in its leg, but expose that leg and go over every portion of it. When you reach one point that is especially painful, that point contains the primary infection. If you want to be very scientific you will make an x-ray picture of it, but pay no attention to it whatever, because it will mislead you every time. You will always make the wrong diagnosis on an x-ray picture in acute osteomyelitis until the condition has advanced to such an extent that it is far beyond the point at which the child should be well, if you had not made the blunder of depending upon an x-ray picture, because the x-ray picture cannot show the presence of osteomyelitis until there

*Presented before the Sioux Valley Medical Association at Sioux City, Iowa, January 25 and 26, 1923.

has been destruction of bone, and at first there is no destruction of bone—there is a simple inflammation at first.

Having determined the location of this inflammation you should immediately make drainage. The child may have come to you at the very beginning, or the mother may have treated it with home remedies for some days, a week or longer. You may be called later on when there is edema on the outside, when the whole leg or arm, or a portion of it, is edematous. Then the infection has advanced beyond the circumscribed area, has affected the tissue underneath the periosteum, or it may have gone through the periosteum and infected the tissues beyond that, but in whatever condition the patient is brought to you, and you have made this proper examination and have paid no attention to the x-ray plate, if you have made one, it is your business to protect against infection the portions of the bone that have not yet been infected. Some people feel that children have not been treated right unless they have had an x-ray plate made, and in those cases, of course, you should make an x-ray plate for your own records.

How can you protect that portion of the bone that has not as yet been infected? That can be done by changing the direction of the lymph stream, by simply laying open the periosteum and the over-lying tissues, and the lymph stream will go out into your dressings, instead of going along the Haversian canals, or along the marrow of the bone, or underneath the periosteum. No matter whether the child has been sick since yesterday or for six weeks, that is the first thing to do, and that is all you need to do in the primary treatment of any case of acute osteomyelitis. There was a time when the surgeon would examine the case and cut down upon the bone, and find infection, and then inspect the bone, and determine the extent of the infection, and then proceed to remove as much of the bone as he found infected. At that time it was found necessary to make bone-grafts afterwards to replace the bone that had been destroyed, by the osteomyelitis, presumably, but by the surgeon, in fact, because in all cases of acute osteomyelitis, if the lymph stream is directed away from the original point of infection, only relatively a very small portion of the bone that is primarily infected will ever become necrotic. The sequestrum will amount to only a very small portion of the entire amount of bone which was primarily infected. It is true

that in very early cases you may occasionally find a circumscribed area, and if you will take a very sharp gouge and simply scoop out that little area you will at once remove all of the infected portion, and will have almost primary healing. But that is only in the very earliest cases.

However, when that infection has progressed beyond that point, you should simply split the over-lying tissues together with the periosteum for a distance of an inch or an inch and a half beyond the point at which the infection seems to be limited, then the lymph stream will escape through the wound and will carry the infectious material out with it. The periosteum will nourish the under-lying bone, which will act precisely as a bone-graft would if you removed that bone unnecessarily and later on implanted a portion of the fibula, only it will have a much better form, be much more substantial, and you will have a much more rapid recovery.

I have seen a metatarsal bone that was black from end to end, so that upon making an incision over it and splitting the periosteum from end to end, it seemed that within a month or two or three I would have to remove the entire metatarsal bone, and that undoubtedly the sequestrum would include the entire bone, and still by simply splitting the periosteum and applying a large moist boric acid and alcohol dressing over this, and putting an electric light over it, to keep it warm, not one particle of that bone formed a sequestrum. The periosteum nourished the entire bone and that patient is now 35 years old. I see her now and then. I removed a uterine fibroid from her a few months ago, and she still has that same bone in her foot. Had I removed that bone which was perfectly black, she would necessarily have a crippled foot.

Leaving the infected area without proper drainage, of course, exposes you to the risk of having infectious material carried to other portions of the body, and your patient may suffer from pyemia as a result of insufficient drainage, and it is for that reason that we invariably make the incision much longer than the apparently infected portion in the bone. We must bear in mind that in every infection the element of directing the stream of lymph away from the point of infection, and absolute rest, and encouraging the stream of lymph with a moist dressing are very important matters in the form of treatment. The nutrient arteries in most

bones, excluding the femur and the humerus, enter the bone at the center, and the veins escape from the ends, so that the normal flow of blood is from the center of the bone in both directions, and an infection in the center of the bone, where some infectious material may have been carried through the circulation, which causes the osteomyelitis, is of course likely to be carried towards the ends of the bone, and cause further infection, unless we overcome it by this form of treatment. The infection, which goes beyond the epiphyseal lines, is usually carried through underneath the periosteum. By splitting the periosteum insufficiently, or not splitting it at all, treating the condition with medicine as happens so often, the infection is likely to be carried along underneath the periosteum, and then sometimes at the operation, very rarely before the operation, the infection will go into the joints, which is another reason for making a very extensive incision to begin with.

Sometimes in advanced cases you find so much destruction that it may seem to you that a simple incision is not sufficient. When I made this abstract I had 151 cases of osteomyelitis that I had treated at the Augustana Hospital. In that list of osteomyelitis there was one death, and that one was for the reason that I have just mentioned. A child about eight years old came in with an osteomyelitis. It had been treated for rheumatism, and there was a very extensive infection and edema all over the leg, and there was so much discolored tissue that it seemed to me proper to go farther than this primary incision, and I removed with the curet quite a considerable amount of necrotic tissue. The child died of shock. I am very positive that if I had carried out the rule which I carried out for years before, and ever since, of simply establishing drainage and later on looking after the rest of it, that child would be alive to-day.

The infection in these cases is most commonly due to staphylococcus. You may, however, find many other forms of micro-organisms. We have found the pneumococcus, the colon bacillus, the typhoid bacillus, and the streptococcus. You may find a variety in one case, but the staphylococcus is most common, and you know the staphylococcus is the least virulent ordinarily of all the forms of infection that we have. There is a peculiar fact. We find three cases of osteomyelitis in boys to every one case in girls. When we come to analyze this fact we find that boys are more commonly exposed to care-

lessness in getting wet and in taking cold, and they are more commonly exposed to traumatism.

It happens in many cases where you do not learn the facts definitely. At first you find after you have investigated for a long time, that a child was struck by something and that the osteomyelitis occurred at the point where the bone was bruised. In other words, the microbes evidently were in the circulation, and at the point of bruising they found food and consequently started their infection. Girls are not nearly so much exposed to these traumatisms as boys are, so that three boys suffer from osteomyelitis to one girl.

As regards location, we have 39 of the femur to 31 in the tibia, to 9 in the humerus, to 7 in the fibula, and in the radius and ulna we have 2. Thus the proportion is very much greater in the femur and the tibia; that is, those are the two bones that are most likely to be traumatised.

We have for an etiological factor most commonly the exanthemata, then typhoid fever, then pneumonia, pleurisy, tonsillitis, abscess of the teeth, and, of course, trauma and exposure and exhaustion, and furunculosis. In a considerable number of cases we find that the patient had furuncles in different portions of the body, and that following exposure and possibly traumatism the infection was located in some bone causing an osteomyelitis. In 12 to 15 per cent of the cases we have secondary involvement. We may have an infarct in some portion of the body or metastatic abscesses, particularly where the infection is confined to the primary location. Pyemic abscesses occur very much more seldom now than they occurred years ago, because in very many more cases we have drainage established early, so that the lymph stream carries the infectious material away, and it is not carried about in the circulation.

Why should we have osteomyelitis in patients who have had scarlet fever or measles, particularly? I believe that the reason why we have osteomyelitis more commonly in those cases is because in a considerable proportion of those cases there remains an infection in the tonsils. We have had many experiences like this: that a patient has had one or two or three or four operations for osteomyelitis, and, singularly enough, usually he had his recurrences of osteomyelitis, either directly after or about the time of the year when he had tonsillitis. We have a whole series of those cases in which

there had been from one to six or more previous recurrences, in which we found the tonsils perfectly filled with infectious material. We had one patient lately who had been operated on in Russia, then in Sweden, then in New York, and then he came to us and his tonsils were enormous and jammed full of infectious material, and he had a recurrence when he came to us. Having had the tonsils and the infectious material removed, he has now been free from recurrence for a long time. Had his infected tonsils been removed with the first osteomyelitis operation I am sure he would not have had any recurrences at all, because evidently he carried this infectious material in his tonsils and distributed it over the body with each recurrence.

The same is true about furunculosis. A patient having furunculosis chronically is liable to have recurrences, so that this again should be corrected. All causes such as abscesses about the roots of teeth, should be disposed of when the osteomyelitis is being treated.

Supposing, however, that the patient comes to you after the bone has become necrotic, with a tibia containing a sequestrum six or eight inches long. He has had his osteomyelitis treated possibly with a little drainage, which was not made until the bone had been hopelessly destroyed. What shall we do then? Shall we immediately remove that sequestrum? That would be very poor treatment, because you would not leave the substance necessary to stimulate the formation of an involucrum. Again, we simply split the periosteum from end to end, leave the sequestrum in place, and dress it antiseptically. The presence of this sequestrum will stimulate the periosteum to the formation of an involucrum, which will have exactly the form of the bone, and in six or eight months you can chisel away the front portion of the involucrum, and lift out the sequestrum, and clean out all of the fragments of dead bone and remove the infected granulations, and you will have a bone that in a few years can hardly be distinguished from the bone in the opposite limb.

On the other hand, if you should remove the sequestrum before a satisfactory involucrum has formed you will have a badly crippled leg.

Supposing you find an osteomyelitis in the lower end of the femur, a very favored location for osteomyelitis. The patient has been treated, has had the abscess opened, and the acute osteomyelitis has subsided, and the lower

end of the femur has been destroyed by the osteomyelitis, and the involucrum has formed around this, and you have now the sequestrum in the center of the lower end of the femur. You can chisel open this femur from one side or the other, or both sides, and get out the sequestrum. But then you have a femur with a hole through it, and a hole that will never heal. In those cases we determine whether the front portion or the back portion of the bone is the stronger. Then we cut away all of the weaker portion and leave only the stronger portion of the bone, and we apply a plaster-of-Paris cast, so that the patient cannot break the portion that has been left by making a quick motion. Within a few months, the bone will be almost perfect again. The soft parts will fall against the space left by the bone that has been cut away and you have a perfect result.

In osteomyelitis of the tibia in which a large portion of the bone has been destroyed, we chisel away enough so that the tissues from the sides will come in and come together. In some cases the destruction has been so severe, and the trough is so deep that it does not seem safe to do this, and in these cases we wait until granulations form in the bottom of the trough, then put a strip of skin directly on the granulations in the bottom of the trough. Within a year that strip will have been lifted and the bone will be round again, and there will be very little left of the depression that you had formed by the removal of the sequestrum.

But in all of those cases, no matter when they come, we invariably look after the primary location of the infection. Sometimes you can find it in the mastoid cells. Sometimes you have a suppurating middle ear. But in by far the greatest number of cases you will find the infection in the tonsils, or the roots of teeth, or the appendix, or the gall-bladder, or in furuncles of the skin, but, wherever it may be, it should invariably be removed at the time that you treat the patient for osteomyelitis.

DISCUSSION

DR. TOWNSEND: This is an important thing from the standpoint of my own experience with osteomyelitis. Every doctor ought to eventually get rich—and I have thought perhaps eventually out of my oil stock and gold-mining stock I should accumulate enough so that I would establish a chair in the medical school and label it not some particular subject, but "Experience" and to that end I would invite such men as Dr. Gross and Dr. Maxwell and Dr. Warren, and I would have them come per-

haps just for one hour once a year, and out of the things which they had accumulated in their years of practice tell these men things in such a way, if possible, that it would cling to them.

There is one thing that impresses me, that rings in my ears yet from my own day of surgical teaching. It may be helpful to some of you. It has been to me. No child has rheumatism in one joint. A child has bilateral arthritis, that is, a bilateral rheumatism. That is usually a symmetrical rheumatism. No child has a rheumatism in the lower end of the femur or upper end of the tibia. Whenever you are called to a case of a temperature of 104° or 105°, even, at twenty-four hours, there is delirium at forty-eight hours. Dr. Ochsner paints these cases to me as being the sort that are easily transportable, on the face of it do not present any serious symptoms. You go out in the country and find a child eight years old that, when you approach him, instead of being decently mannered and fairly easy to examine, as he might be with rheumatism, the minute you touch his tibia, attempt to expose his leg, he screams "Don't touch my leg." Yesterday he came home with a severe chill, a temperature of 104°. The most serious mistake anybody on earth can make with him is to leave him some doses of sodiosalicylate and come back day after tomorrow. If the man in the country has enough knowledge so that when he finds he has that condition in the lower end of the femur—if he has enough knowledge to take a knife and cut down upon it and open the periosteum, and if he can find any sort of drill, an iron or brass drill, with which he can bore into the medulla of that bone, and get out and quit, he has saved that boy's life, in all probability. I have seen these children die in forty-eight hours. It has been but a short time since I had a child brought in with a diagnosis of acute articular rheumatism. He was dead within twenty-four hours. It was only two weeks ago that I saw a child delirious with a lack of bowel control, urinating in the bed, with extreme pain in the upper end of the right humerus, and the father said, "The doctor is going to take this boy over tomorrow for an *x-ray* picture."

We have two good *x-ray* men in Sioux City. They have guided me along lines that have been good for me. You cannot tell an acute osteomyelitis in forty-eight hours from the onset with any *x-ray* on earth. It can not be done. You can not tell until he has destructive bone enough to show. This business of carting some seriously crippled youngster to the machine to determine whether he has osteomyelitis is all poppycock. They have died for me. I have seen a dozen cases. I have known three patients that died of the pyemia that followed the osteomyelitis. There is no place for the pus to get to except in the canaliculi of the bone. I am afraid as death of them. I am not afraid the patients are going to be crippled. I am afraid they will lose their lives. I have had them do it. I have had them go to a point of almost having spontaneous fracture from osteomyelitis, the lesion break open. It is the well ones—and the Doctor was not plain to me in that which to me has been the important thing—I understand that he mentioned it;

in long periosteum stubs. I bore all these bones. You say how foolish that is. If you go into a periostitis which shows in the early stage, you bore into the medulla, you carry in an infection it should not have. You do not do anything of the kind, in my opinion. The flow is from the medulla. I believe you can have a boy bump his leg and develop a periostitis without osteomyelitis, but these youngsters get seriously ill and do it at once. They get decidedly ill from the bump. You do not find them with a temperature of 103° to 104°—I have seen quite a number of them in the twenty-five years that I have hunted around for osteomyelitis. I have made the mistake myself. I have made the mistake within two months, of making a diagnosis of acute articular rheumatism in a young woman sixteen years of age, who I believe had acute osteomyelitis with metastatic abscesses in half a dozen places. I said it could not be osteomyelitis because the patient had pains in every part of her body. I said to the father, "If you are going to get any help from sodiosalicylate you have got to give her bigger doses than two grains." This shows how you get your foot in it. He said, "Doctor, what do you think the outlook is for this girl?" "I do not see any reason why she will not get well," in spite of the fact that the girl was using all of her accessory muscles to breathe. She was profoundly septic. I was goose enough to tell him that. Twelve hours afterwards she died. He said, "We gave her too much of that medicine. She perhaps would have lived." I think he said "Who was that man from Sioux City you had out here to see my girl that did not know any more than that?"

This boy I have seen has been sick only two or three days, and already delirious, already with the lack of bowel control, and I am going to say to you again, the thing I fear is that those youngsters are going to die. There is a man here now sitting in front of me that will vouch for this. A number of years ago we went out in the country. I happened to be in consultation with him. He said, "I have a case of acute articular rheumatism. He is awfully sick. He has a temperature of 104° and is delirious." "Where is his pain?" "In the lower end of his leg above the knee, not in the knee." I said, "He has an osteomyelitis." "What are we going to do?" "I do not know. What do you want to do?" "Open his leg." We compromised on going to the country with him. When we got to the farm there was nothing to do with except the little stuff the doctor had. Just to show what they will do, we finally took a bit as big as my little finger and opened down on the femur, split the periosteum, and bored three or four holes into the medulla, from every one of which pus exuded. The boy's temperature went down. He got well. Perhaps he would have got well by splitting the periosteum. The proof of the pudding was that the boy got well. Osteomyelitis to my mind is one of the tragedies, the awfulest tragedy, of childhood; and the tragedy of the doctor going out, looking after him day after day, saying to him he has acute articular rheumatism, giving him a dose of sodiosalicylate is one of the tragedies of medicine. (Applause.)

DR. WARREN: I was very much interested in Dr. Ochsner's paper. I have had somewhat of a different view from what Dr. Ochsner takes of osteomyelitis, somewhat the experience of Dr. Townsend. Dr. Ochsner tells you that there are different forms of micro-organisms causing this infection, that we may have a streptococcus. Now, I have had in the last few years but two cases of osteomyelitis that died, and, as Dr. Townsend says, these cases were tragedies, for the reason that within forty-eight hours after the pain became manifest these two boys had a temperature of 104° or 105° and were delirious. Now, why anybody can say that one of these cases has acute rheumatism is a mystery to me, because the joint is not affected. It is in the shaft of the bone, above the articulation. I have never seen a case of osteomyelitis where the joint itself was infected primarily, and very rarely secondarily. The cases of osteomyelitis that pursue the ordinary course of destruction, as we used to see them, twenty-five, thirty, or forty years ago, in my experience though the patients did not die, they had extensive destruction of bone, one or more sequestra with an involucrum formed; and, as Dr. Ochsner has cautioned you to never disturb that sequestrum until your involucrum has become complete, then you may attack it. Now, we may make that diagnosis from the clinical findings very early in these cases, if they are brought to the attention of a physician who is on his guard and has not got rheumatism on the brain. Suppose that, as Dr. Townsend says, whenever you expose that limb the boy says "Don't touch my leg; it hurts me," "Where does it hurt you?" you get from your answers some location as to where that point of inception is, the foci of infection. Now, then, if you carefully go above, if it is in the lower end of the tibia, commence at the knee and gradually go down, the minute you strike near that point of infection he will object to it.

As we go into the pathology of osteomyelitis we find that this infection starts in the medulla, and my teaching has been, and my practice has been, somewhat different from that of Dr. Ochsner, because I have held that point of foci of infection is in the medulla, consequently when I have these cases I have insisted that the periosteum near the location that the boy points out as that of being the most painful, as Dr. Ochsner pointed out to you, when you open that you will find a little point not bigger than a pea, possibly as large as a nickle, that is infected. If you bore a hole through that medulla you will invariably get pus. Why not liberate it from the point of inception? This may be bad practice, but it has been my practice for a number of years and of nearly every physician I ever came in contact with until I heard the discussion of Dr. Ochsner. I respect his opinion and will certainly adopt it if I have another case. (Applause.)

DR. PEACOCK: After one is used to seeing Professor Ochsner work one can not help but feel when he drops a word you just have to pay attention to it. The first case of osteomyelitis that I happened to see of Professor Ochsner's was a case of a little girl about eight years old. They all happen to be

about eight years, I guess. After performing the operation as he just described, incising the periosteum, the little girl in about two weeks and a half or three weeks time became perfectly well, the sinus healed up without any further operative work being necessary. At the time she was well I asked him if the child was ready for discharge. He said "Yes, look to the tonsils." For some reason or other I forgot it, and the child was going out of the hospital and he saw the child and said to the mother "Did the child have the tonsils out?" "No." "Where is that damn Peacock?" The Professor only swears when he is very much disgusted or when he is telling a story. (Laughter.) The next morning the child went up to the clinic and had her tonsils out.

The generally accepted teaching of osteomyelitis undoubtedly is to bore into the bone. I do not know of any one else who has ever either written or described Professor Ochsner's treatment of incising the periosteum only. However his cases do get well. It is the same as Professor Ochsner's treatment of appendicitis. There is no question but what there are more deaths in appendicitis in removing the appendix when there is a bunch of pus present than in merely draining and then going back and getting the appendix later. This same thing holds true in this type of case. We learned through our experience in the war, particularly with the very acute infections following influenza, it was brought out most prominently in the empyemias, and everybody has discussed that, that monkeying and exposing new area for absorption, particularly in streptococcus, that you very often get a sudden death or that the mortality rate in doing more than simply evacuating the fluid in an acute streptococcal empyema or acute streptococcal pleurisy, with effusion, that you get a much higher rate by doing a large operation, a classic operation of drainage, than by simply withdrawing the fluid or putting in a closed method of drainage. That holds true, I think, with a streptococcal infection or any severe infection for that matter. It is not always quite as easy as has been described by Dr. Townsend in telling just exactly, particularly from the point of pain, where the osteomyelitis is. Very often they complain of pain in the joint, that is, the pain is referred to the joint, in the region of the joint. They will say, "My knee hurts me." Of course by careful physical examination in perhaps 99 cases out of 100 you can elicit a definite point of tenderness. It is sometimes also difficult, where osteomyelitis develops immediately following an accident, a trauma, to localize and make the diagnosis of an acute osteomyelitis. Even with trauma to the bone the periosteum, particularly with injury to the nutrient artery, you do get a low-grade fever, especially if there is hemorrhage under the periosteum. You get a great deal of pain, and you will get along with it the swelling, of course, of the soft tissues. Sometimes it is very difficult to tell which is which, whether you have simple trauma or whether you have infection imposed on them. However, you have done them no harm if you simply incise the periosteum in the chronic cases. Of course, the treatment of the chronic cases merely means that you must be sure and take away tissue enough to get a saucer-shaped depres-

sion, taking out all scar tissue and infected tissue, so that the fresh muscle can be brought down onto the bone. Even with the presence of infection you can sew up in that type of case. If you get it well cleaned out, you can sew up with the drainage under the skin and practically every one of them will heal up.

DR. DEALS: I thought you said tin. I was wondering. I misunderstood you. Have you ever used tin—

DR. OCHSNER: No, skin-graft.

DR. DEALS: I thought you said tin. I was wondering. I misunderstood you. Have you ever used the Abrams method of diagnosis?

(Dr. Ochsner throws up his hands.) (Laughter.)

DR. ROBBINS: I would like to ask Dr. Ochsner if the white count would not be of considerable importance in arthritis, unilateral or multiform, in the case of rheumatism or osteomyelitis?

DR. AKER: I would like to ask the Doctor in regard to the importance of tenderness in the early stage. Dr. Murphy, I think, in his writings, makes the statement that you ought to make your diagnosis before you get local tenderness. After you have a tenderness you have waited too long. It is more likely to meet destruction at that time; at the real early stages, you do not get local tenderness.

DR. OCHSNER: I will begin with the last one. Theoretically, there is always a time after the infection has taken place before there is tenderness, but practically one never sees patients at that early time. Of course, when your thrombosis containing the infectious material first occurs there will be no tenderness because it is underneath the periosteum, and the periosteum has not been reached, and until the periosteum has been reached it will not be tender, but those few hours have practically always passed before you are called, and when you are called the tenderness is the most important symptoms.

As regards the next question of leukocytosis: We always make a blood count. We never look at it until after the operation. (Laughter.) When a patient is brought into the hospital we always make an x-ray plate, but we never look at it until after the operation. You do not want to cloud your judgment with anything of that kind. Supposing the patient had not a high leukocytosis when she comes—which she almost always has—you would waste valuable time in considering the leukocytosis. In the meantime the infection would extend.

The next point is in regard to opening the bone: Possibly once in ten times when I find just one circumscribed point in acute cases I take a very sharp gouge and with that drill out a hole half an inch in diameter, being careful not to traumatize the bone. In those cases in which you have a circumscribed painful point, you will practically always find pus, and of course when that has evacuated

you are through with it. But you should go on and try to find the end of the infection you'd almost always do harm; you get much more destruction than if you simply make a very long incision into the periosteum, extending an inch or an inch and a half beyond the point at which there is reddening of the bone, so that you surely extend beyond the extent of the deep infection.

The blood vessels extend up toward the periosteum and a lot of the blood vessels go directly into the periosteum, so that there is always drainage from the marrow of the bone, up through the Haversian canals, up through the periosteum, and as soon as possible incise the periosteum freely and the lymph stream will immediately pass that way. There was a time in the days of Dr. Gunn, for instance, thirty-five years ago, and in the early part of Dr. Parkes, when I was assistant to Dr. Parkes, we used to chisel open a trough in those cases of osteomyelitis, but later in Dr. Parkes' service and in Dr. Senn's service, when I was their assistant, that was abandoned. We have abandoned it ever since. Take the cases that Dr. Townsend described, the patients that are so terribly sick, and incise the periosteum freely immediately. You can do it under novocaine, or put them to sleep. They stand anesthesia splendidly. Make a long incision through the periosteum. The temperature goes down inside of six hours, even if they are so sick you think they will die immediately because, instead of absorbing septic material, it will go out through your incision. There is nothing to hold it. That bone is just like a sieve. The stream goes right along up to the surface of the bone, which now is no longer covered with the periosteum. You have made your incision and stripped the periosteum back half an inch on each side. You have perfectly free drainage. If one could always be sure about the exact location of the primary infection, then I think an opening that you make without traumatizing would be all right, but not if you traumatize. If you have a good gimlet I think that would be a very good way to do, because that would probably traumatize less. I am sure it was bad practice when we chiseled away the overlying bone because in shaking up the bone with the chisel you force the infectious material beyond where it would have gone otherwise. But I think the plan of taking a good-sized gimlet, so that you actually get a hole through which drainage can occur is proper treatment. But I know our patients did not do so well when we chiseled away as they did otherwise, and the fact of their being terribly sick doesn't interfere with their recovery if one establishes drainage. You know how terribly sick a person will get from a little infection in the tonsil. It is the same kind of infection. They feel sick all over and have a high temperature. You say to yourself that child is sick enough to die. As soon as you open the periosteum and get the stream of lymph away from the circulation and put on boric acid-alcohol dressing, preferably with an electric light over it, they get well like magic.

SOME THINGS THE GENERAL PRACTITIONER SHOULD KNOW ABOUT UROLOGY*

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The average practitioner has more trouble with the diagnosis and treatment of diseases of the urinary organs than with others. It is my opinion that this difficulty is due to incomplete urologic teaching of the practitioner during his student training. It is not possible or necessary to train every student as a specialist must be trained; nevertheless he must receive instruction so that he is able to recognize urologic conditions and differentiate them. He must know the use of a cystoscope and what data may be obtained with it and with the ureteral catheter. The student should be taught the indications for pyelography and must know what information may be obtained from such an examination. Above all, he must be taught that in no other branch of surgery or diagnosis is it possible to obtain such exact information concerning the pathology present.

I shall discuss in this paper urologic conditions which, in my experience, are most troublesome to the practitioner.

STRICTURE OF THE URETHRA

This lesion does not occur as frequently during the past ten or fifteen years. Strictures are seen more often during dispensary practice than in private practice. A physician who has not been taught to use a sound should not treat strictures. La Forte filiforms or guides should be used for tight strictures. These are made so that a sound may be screwed on to the guide after it has passed the stricture.

Do not be discouraged and advise some other method of treatment if you fail to pass a filiform or sound through a narrow stricture during the first attempt. Hot sitz baths, caudal anesthesia, and ballooning of the urethra with warm oil or glycerine are some of the methods which may assist in the passage of the filiform. Repeated attempts are usually successful. A small permanent catheter or guide which can be anchored in place is very helpful in the treatment. A stricture should never be enlarged more than three numbers of the French scale at one sitting.

The patient should not be seen oftener than once in five days, and then a treatment should not be repeated if bleeding or soreness are still present.

Open operations for strictures should not be done unless, after several attempts, the last one under caudal or general anesthesia, it is found impossible to introduce a filiform beyond the strictured area. Open operations are only done for stricture of the posterior urethra. Internal urethrotomy is occasionally indicated in the anterior urethra and should rarely, if ever, be done in the posterior.

Soft strictures of the pendulous urethra produce little or no narrowing, but are causes of chronic urethritis. They may not be felt with a steel sound so that a flexible bougie-a-boula should be used. Careful dilatation of soft strictures will clear the urine of shreds and permanently enlarge the urethra. If not properly treated, such lesions cause the infection to continue after which a connective tissue scar with permanent stricture results.

Strictures of the urethra following any method of treatment are not permanently cured. Patients must know this and should be instructed to see a physician for sounding at regular intervals.

HYPERTROPHY OF THE PROSTATE

Diagnosis: Hypertrophy of the prostate gland usually occurs after the fiftieth year. One cannot always make a diagnosis of hypertrophy of the prostate by rectal examination alone. The enlargement of the gland may not be toward the rectum. A median lobe may be small, but the enlargement may be in such a position that complete obstruction to the outflow of urine occurs while the prostate feels normal. Narrowing of the bladder neck, together with median bar enlargement and hypertrophy of the interureteric muscle, will produce residual urine and other symptoms simulating true prostatic hypertrophy.

It is necessary to catheterize the bladder after the patient has evacuated as much urine as possible to determine the presence or absence of residual urine. This finding, together with typical symptoms of prostatism, is usually sufficient to

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make a tentative diagnosis of hypertrophy. We should always be on the lookout, however, for spinal cord lesions, which may produce relaxation and anesthesia of the internal sphincter, posterior urethra and bladder together with all of the symptoms usually found with prostatic enlargement.

We should all remember that hypertrophy of the prostate may produce no pain. The obstruction and deformity in the urethra and the base of the bladder interfere with urination so that the bladder cannot be emptied. Residual urine collects, which distends the bladder and soon overcomes the ureteric muscle and causes backing up of the urine along the ureters and into the kidney pelvis.

We remove the prostate to relieve residual urine and to produce drainage. If an adenomatous prostate did not produce obstruction, it would not be necessary to do surgery, as this enlargement is a harmless type of tumor. Complete prostatectomy, however, is never done. Only the hypertrophied portion is removed. The capsule which forms the line of cleavage surrounding the enlarged adenoma is the portion of the prostate which has not hypertrophied. It is compressed by the constantly enlarging adenoma until it resembles fibrous tissue.

The Röntgen ray should be used to assist in the diagnosis of the complications with hypertrophy of the prostate. Both kidneys and ureters, the bladder, and the prostate areas should be rayed for evidence of stone.

Cystoscopy: It is my opinion that every patient with supposed hypertrophy of the prostate should be cystoscoped. This can be done through the urethra or through a suprapubic opening. With the cystoscope one will frequently find soft bladder stones that had been missed with the Röntgen ray. Diverticuli, deformities, foreign bodies, papilloma or carcinoma of the bladder, functionless or infected kidneys, and other lesions have been found with the cystoscope. In one or two instances I have discovered carcinoma of the prostate when palpation per rectum did not detect definite evidence of this lesion. Relaxation and anesthesia of the bladder neck and urethra can be differentiated from true hypertrophy.

One must not forget that the complications just mentioned may prolong the pre-operative treatment, and in some instances, contra-indicate prostatectomy.

Pre-operative Treatment: The pre-operative treatment of hypertrophy of the prostate is the

most important. The practitioner should be able to manage the pre-operative treatment of his prostate patient until operation can be done. No patient having residual urine should ever be operated on unless pre-operative measures are carried out.

When an individual has a large quantity of residual urine, it should be withdrawn fractionally. A catheter may be passed and a small amount of urine withdrawn once a day. If the patient does not show signs of approaching uremia, the catheterizations may be increased to two and eventually to four or five times within twenty-four hours.

If a dry, furred, and red tongue, loss of appetite, slowed mentality, or urinous breath occur, all manipulation per urethram and the removal of residual urine must be stopped. Constant attention should be given to the skin, the bowels, and the diet. The intestines and the skin should help the overburdened kidneys to eliminate the large quantity of urea present in the blood. When the residual urine has all been removed and the patient does not suffer with symptoms of uremia, an indwelling urethral catheter can be worn for several weeks or months. The catheter may be held in place by means of adhesive tape and the urine may run continuously, or a small clasp which compresses the end of the catheter and acts as a sphincter may be used. If it is impossible to pass a catheter for the relief of retention, a cannula may be introduced into the bladder just above the symphysis pubis, and a small amount of urine removed. This may be done repeatedly. One must remember, however, that the peritoneum frequently comes down in front of the bladder so that peritonitis may occur and bring about a fatal outcome.

Van Swalenburg's method which removes the residual urine slowly but continuously is as follows:

A soft rubber urethral catheter is passed into the bladder, and to this is attached, by means of a small glass connector, a long piece of rubber tubing. The distal end of the rubber tube is attached to one of the arms of a Y glass tube. The other arm of the Y is hooked over the edge of an enema can. The base of the Y is allowed to project into the air. When the drainage is started, the height of the can is raised so that at deep inspiration the urine comes out a few drops at a time. This prevents overdistention, but does not completely drain the bladder. The condition of the patient will indicate when the

can is to be lowered. In some instances it may require a week or more before the patient can withstand complete emptying of the bladder.

When suprapubic drainage is necessary, make a small incision through the skin, muscle, and fascia. See that the peritoneum is completely reflected, after which a trochar may be plunged into the bladder, and through this a catheter may be introduced and sewed into place. If the patient has not had complete bladder drainage and one is fearful of removing the entire amount of residual urine, the same technic as described for a permanent urethral catheter may be followed.

During the pre-operative treatment a constant check of the specific gravity of the urine, functional capacity of the kidneys, and blood chemistry should be made at least once a week. Such tests give valuable information concerning the condition of the kidneys and indicate when an operation may be safely done. The patient's general condition, however, is of the greatest importance. If he is able to eat and sleep well, has a clear tongue, and normal mentality, and has a stationary blood chemistry, he is a fit subject for operation in spite of an increased blood urea and a low phthalein output. Patients die following prostatectomy because they were not thoroughly prepared before operation was attempted and cannot withstand moderate infection and hemorrhage.

CATHETERIZATION

In many instances physicians have great difficulty passing urethral catheters. A catheter should be passed with the greatest of care. One can feel his way when working carefully and will produce little or no bleeding or trauma to the urethra. Force is unnecessary and always produces complications, which are hard to overcome. Catheters should be thoroughly lubricated. The thumb should follow the progress of the catheter through the pendulous portion of the urethra and until the bulb is approached. If difficulty is encountered, the index finger should be well lubricated and introduced into the rectum, so that the tip of the catheter can be carefully followed through the entire course of the urethra until it enters the bladder. The introduction of the finger into the rectum will also relieve spasm which facilitates the easy passage of the instrument. A double prostatic curve, metal catheter can be used when soft rubber or silk-web ones will not pass. This instrument will produce less dam-

age than a soft catheter, the end of which is never under complete control. The end of a metal prostatic curve catheter, if passed into the posterior urethra, and, if it is kept erect, will eventually find its way into the bladder. Soft or semisolid catheters may puncture the urethra in any direction producing damage to other organs, and may not find their way into the bladder.

CARCINOMA OF THE PROSTATE

Carcinoma of the prostate occurs in one-fourth of all men complaining of prostatic enlargement. This condition may be present without symptoms referable to the prostate or urinary tract. Metastasis may occur from carcinoma of the prostate before symptoms of prostatism develop.

Bumpus recently demonstrated that metastasis from carcinoma of the prostate had already occurred in 21 per cent of the patients that he examined.

This condition does not develop on an adenomatous base, so that symptoms of enlargement, or the enlargement itself, may not be present before prostatic cancer develops. Cancer in this locality metastasizes into the bones of the spine, the long bones, the lungs and the liver. Cancer of the prostate frequently begins in individuals before their fiftieth year. Pathological fractures occurring any place in the body may be due to secondary cancer from the prostate. Bleeding is not a primary symptom of carcinoma of the prostate. Low back pain may be the first symptom of a prostatic cancer. This occurs when the lower spine or the bones of the pelvis are involved by metastasis or may be due to involvement of the nerves of the pelvis with cancer by direct growth.

Treatment: Prostatectomy is not indicated except after thorough radium radiation wherein the character of the growth has so changed that complete removal seems possible. Partial prostatectomy to remove the obstructing portion of the prostate, together with radium radiation of the entire gland, is the treatment of choice. Suprapubic drainage should be done if the bladder cannot be drained through the urethra. Radium radiation should be thorough. In my experience suprapubic cystotomy is necessary to accomplish this. Control of prostatic cancer and relief from symptoms have been noted in many cases for two to three years.

Before radium treatment is started, all patients with cancer of the prostate should have a complete physical examination, which must include

x-ray of lungs, spine, and all long bones. If metastases are present, treatment, except to relieve bladder retention, is of no avail. Every male patient over forty years of age should have his prostate examined for evidence of beginning cancer.

HEMATURIA

I am quite surprised at the great number of individuals who seek relief from hematuria which has been present several months without investigation. In few instances has an attempt been made by the physician to locate the cause of hematuria. In many of these individuals we have found advanced carcinoma of the bladder and other malignancy, which might have been cured had the patient been examined earlier. I wish to emphasize the great importance of locating the cause of hematuria the first time blood is discovered. Causes of hematuria cannot be removed with urotropine or rest in bed. Nephritis rarely causes hematuria. The physician must realize that hematuria means trouble in the urinary tract. It is his duty to find its cause as soon as possible. Because a patient is rid of his hematuria after a few days of medical treatment and rest in bed it does not mean that the cause of the hematuria has disappeared. Every patient who has had or who has blood in the urine should have a complete urologic examination.

Diagnosis: The examination of an individual complaining of hematuria must include a complete history and physical examination. Röntgenograms of both kidneys, both ureters, and the bladder should be made. An urinalysis, together with a combined functional test and blood chemistry, should be done. After these data are at hand, the patient may be cystoscoped. Cystoscopy will include an examination of the urethra, together with ureteral catheterization. After ureteral catheters are in place, the character of the urine obtained from each kidney may be determined. Differential functional tests may be done and pyelograms made when necessary.

It is easier to make the cystoscopic examination when the patient is bleeding. Frequently lesions in the kidney or ureter bleed intermittently, and, in some instances, it has been impossible at the first examination to determine the affected kidney or ureter. After a complete urologic examination, however, which may include bilateral pyelograms, it is possible to definitely locate the cause of hematuria.

Essential hematuria is quickly disappearing

from urologic diagnosis. Pyelography, functional tests, recent advances in our knowledge concerning renal infection and other pathology in the pelvis and in the kidney, have made possible more accurate diagnosis concerning the causes of renal bleeding. Chronic infection in the kidney or its pelvis with granulation tissue, varicosities of lute vein of the pelvis and beginning papilloma are conditions which may produce hematuria. The diagnosis of such conditions may be impossible during the first examination of the patient. Bleeding from these comparatively rare lesions is frequently called essential hematuria.

CYSTITIS, PYELITIS, AND PYELONEPHRITIS

Cystitis is rarely a primary infection. A diagnosis of cystitis should not be made unless one will append the pathologic condition to which the bladder inflammation is secondary. This condition may be secondary to infection in the urethra, vagina, cervix, female pelvis, seminal vesicles, prostate, etc. Cystitis may be secondary to an enlarged prostate, to a foreign body, stone, tumor, deformity or diverticulum of the bladder. The most common cause of cystitis is renal infection. One should always make a careful search for evidence of renal involvement when cystitis is found.

I have observed many patients with tuberculosis of the kidney and secondary cystitis who have had bladder irrigations for months before a diagnosis had been made. Do not treat a patient for cystitis until after a complete diagnosis is made. Cystitis is very easy to relieve if the cause is removed. One may irrigate the bladder for months without relief if a kidney infection or other cause of the cystitis has not been removed.

Infections of the kidney and kidney pelvis are secondary to infection elsewhere in the body. Urologists sometimes have great difficulty convincing physicians and dentists that teeth abscesses are the primary focus for the greater number of renal infections. A focus may be in the tonsil, in the antrum, in the gall-bladder, and sometimes in the female pelvis. It is possible for infection to spread up the ureter, although our clinical experience does not indicate that renal infection occurs through this route. Practically all renal infections are blood-borne.

The first symptoms are those of cystitis. Duran acute attack high temperature, chills, and sometimes severe backache may be present.

Treatment of the acute cases consists of complete alkalization of the urine together with plenty of water, rest in bed, tepid baths, if the temperature is high, free catharsis and tr. of hyoscyamus to control bladder spasm. As soon as the temperature remains below 100° and the acute symptoms have subsided, pelvic lavage should be started. This should be done about every five days. I use mercurochrome, 1 to 2 per cent, in the acute case, and silver nitrate, 0.5 to 2 per cent, in the chronic case.

The search for and removal of all foci of infection should be done as soon as the patient's condition will permit.

Chronic pyelonephritis may be hard to recognize. In many instances no symptoms are observed that call the physician's attention to the kidneys. When the patient's urine is examined, it may be normal, but, if urine from such a patient is repeatedly examined, particularly after a cold, a few pus cells or a trace of albumin may be found. Patients with chronic pyelitis or pyelonephritis have attacks of frequency, urgency, etc., and then their symptoms disappear to recur again following any infection. The chronic type may require many months of treatment before the urine remains free of pus and the patient is relieved of his bladder symptoms. In many chronic cases, foci of infection are not easy to find.

PYELITIS OF PREGNANCY

When such infections occur during pregnancy it is very probable that the foci were present and possibly the renal infection before the pregnancy began. Poor renal pelvis and ureteral drainage caused by the enlarged uterus may predispose the patient to kidney infection, but, in addition to this, foci can usually be found in the teeth, tonsils, sinuses, etc. These have secondarily infected the kidneys, ureters, and bladder before or during the pregnancy.

To prevent this very troublesome complication, the expectant mother, as soon as the diagnosis of pregnancy is made, should be carefully examined for foci of infection. If any are found, they should be removed. When pyelitis or pyelonephritis is discovered late in pregnancy and the patient has symptoms caused by the infection and poor ureteral drainage, permanent ureteral catheterization may be done. In this manner a permanent complete drainage of the renal pelvis and ureter is possible for many days at a time. In addition to drainage, the infection may

be treated by irrigation of the pelvis with mercurochrome or silver nitrate.

A few pus cells in the catheterized urine from a pregnant woman are just as important as albuminuria. Pyuria should be thoroughly investigated as soon as possible so that the patient may go through her pregnancy without urinary infection.

Tuberculosis of the kidney produces symptoms referable to the kidney in only a small number of patients. This infection produces cystitis which is severe. The urine contains pus or blood, and the catheterized kidney urines contain tubercle bacilli in nine out of every ten cases of positive tuberculosis. In a great majority tubercle bacilli may be found in the bladder urine. One should suspect tuberculosis in every patient with symptoms of severe cystitis. The cystoscope, the x-ray, and the ureteral catheter are necessary for a differential diagnosis.

URINARY STONES

The majority of renal stones originate in the pelvis, rarely in the cortex.

Stones in the kidney may be symptomless for many years. Patients suffering with kidney stone may not complain of back pain. However, if the stone is loose in the pelvis so that it may engage in the ureter at the pelvic juncture, all ureter drainage is impossible so that pain may be pronounced. A stone in the kidney may grow to a large size without producing symptoms. When secondary infection is present, destruction of the kidney occurs, and then symptoms may be noticed. The Röntgen ray is our best diagnostic aid. Röntgen shadows must be interpreted and oriented by the shadow catheter and the pyeloureterogram.

Treatment: As infection plays a major part in the production of renal and ureteral stones, the eradication of all existing foci is necessary. Pelviolithotomy is the operation of choice for kidney stone. When stones are large or cannot be removed through the pelvis, nephrotomy is necessary. Recurrence of kidney stone is common (1) because they are not entirely removed, and (2) because the cause of stone-formation is not removed with the stone. The after-treatment of renal stone is important and consists of lavage of the kidney pelvis until all infection has been removed. Frequent röntgenograms should be made for evidence of recurrence.

Stone in the ureter is one of the most painful conditions that we have in urology. The char-

acter of the pain and its localization, however, are sometimes misleading. A stone in the upper ureter may cause pain to radiate down the ureter, into the testicle or end of the penis, while a stone caught in the lower end of the ureter will frequently produce pain in the kidney area. Ureteral stone may simulate pain due to pathology in any abdominal or pelvic organ. Many appendices and gall-bladders are unnecessarily removed because some physicians and surgeons do not think of the kidney and ureter when considering the differential diagnosis of any abdominal or pelvic condition. It is sometimes difficult to differentiate between appendicitis and right ureteral stone, although if the Röntgen ray, together with ureteral catheters, is employed, the differential diagnosis becomes comparatively easy. About 20 per cent of patients with right ureteral stones have had a previous appendectomy or gall-bladder operation without relief of symptoms, indicating that the ureteral stone was present at the time operation was done.

Ureteral stones may be so small that they do not cause an appreciable shadow on the röntgenogram. When tiny stones are suspected the passage of an ureteral catheter with a wax bulb, together with a pyelo-ureterogram, may assist in the diagnosis. In some instances the diagnosis is made from the history only. Frequently stones are so small that an ureteral catheter does not meet obstruction, and the *x*-ray may be negative.

Treatment: The majority of ureteral stones do not need surgery for their removal as they will pass through the ureter into the bladder. By manipulation I have frequently removed stones measuring two to three centimeters in diameter.

With ureteral catheters, bougies, and steel olives, we are able to dilate the ureter, particularly the bladder section, so that the passage of a stone is made easy. If caudal anesthesia is not used, it is necessary to anesthetize the ureter with novocain introduced through an ureteral catheter during these manipulations. The introduction of lubricants, such as sterile oil or glycerine, into the ureter is useful. Several attempts must be made to remove ureteral stones by manipulation before surgery is thought of. In the female bimanual manipulation will frequently be successful. This should be tried in the male.

If it is definitely demonstrated that the stone does not progress and is producing renal damage, surgery is indicated. When a stone is small

enough to get into the ureter, it will usually pass. One must remember that stones that are so tiny that they will not cast a shadow in the röntgenogram, may not be recovered after they pass. Little stones are just as capable of producing terrific pain as stones that are two or three centimeters in diameter.

Bladder stone may produce few symptoms, particularly if the stone is large and cannot ball valve into the urethra. I have examined patients with bladder stones who had a normal urine, although in the majority of instances blood or pus, or both, are found. Except in the presence of some type of urethral obstruction, enlarged prostate, or bladder malformation, the majority of bladder stones originate in the kidney. One should always attempt to obtain a history of kidney or ureteral colic. Severe bladder symptoms occurring after an ureteral colic may indicate that a stone has stopped in the bladder. Bladder stones may be multiple.

The diagnosis depends upon the history, Röntgen ray (which, however, may be negative with soft stones), urinalysis, and cystoscopy.

Treatment: Litholapaxy may be done if no urinary obstruction exists and the stone is not too large. Caudal anesthesia is ideal for this operation. Suprapubic cystotomy is necessary for large stones and when urethral obstruction is present.

TUMOR OF THE KIDNEY

The diagnosis of kidney tumors and their differentiation can be accomplished only with the cystoscope, the ureteral catheter, and the pyelo-ureterogram. Cystoscopy alone is not sufficient.

The contour of an injected kidney pelvis with malignant tumor is quite different from the normal or that found with ureteral obstruction or renal infection. Tumors of renal origin produce distinct individual pelvic outlines so that we are enabled to differentiate these from extrarenal tumors.

Pyonephrosis, with renal stones or with ureteral obstruction, and perirenal infections cause tumors in the renal areas. Tuberculosis frequently produces large tumors, particularly when the ureter has been occluded and an autonephrectomy has taken place. Stones obstructing the ureter may produce a large hydronephrosis or pyonephrosis. An anomalous blood vessel may obstruct the ureter just below the kidney so that a large hydronephrosis may result. Tumors of this character may not require a pyelogram to

differentiate them from other abdominal tumors. Observation of the ureteral meatus, plus the findings with the ureteral catheter, furnish sufficient data for a diagnosis. When in doubt and when the findings are negative, a pyelogram should be made. Hypernephroma is the most frequent malignant renal tumor. Carcinoma, papilloma, polycystic disease, sarcoma, and mixed tumors may occur.

CONCLUSIONS

1. Stricture of the urethra does not occur so frequently during the last fifteen years. Dilatation with guides and sounds will relieve this condition in the majority of instances. Surgery, if indicated, consists of external urethrotomy in the posterior urethra and internal urethrotomy in the anterior urethra. Strictures are never cured no matter how treated.

2. Pre-operative treatment is necessary with hypertrophy of the prostate. The reason for and methods of relieving a patient of residual urine should be known by the general practitioner.

3. Other obstructions at the bladder neck and lesions of the spinal cord may stimulate true prostatic hypertrophy. All prostatic patients should be cystoscoped so that prostatic enlargement may be differentiated from other conditions.

4. When difficulty in the passage of a urethral catheter is encountered, a double curve silver catheter will pass easier and cause less damage than a soft rubber or silk web one.

5. When suprapubic bladder drainage is necessary, always make the incision large enough so that the peritoneum may be pushed out of the way.

6. Cancer of the prostate may be present and may metastasize without prostatic enlargement or urinary difficulty.

7. One-third of all prostatic cancers when first seen have metastasized.

8. Treatment of cancer of the prostate consists of radium radiation and surgery.

9. Hematuria should be investigated as soon as the condition is noticed. If the patient stops bleeding, have a complete urologic examination anyway, for frequently lesions of the urinary tract may not bleed for months.

10. Cystitis does not occur as a primary infection. Always examine the urinary tract before treatment for cystitis is started.

11. Pyelitis of pregnancy is an acute exacerbation of an already present chronic pyelonephritis. Foci of infection are easily found. Before going to term, pregnant women should have all infected teeth and other possible foci of infection removed.

12. Chronic pyelonephritis may be symptomless at times. Frequently normal urine is found. A cold or other acute infection will cause an acute attack when the usual symptoms are observed.

13. Renal stones may be symptomless. In addition to surgery, treatment consists of removal of foci of infection together with regular pelvic lavage.

14. Ureteral stone should be thought of as a possible cause of any pelvic or abdominal pain. Surgery is rarely necessary to remove ureteral stones. Manipulation should always be tried before surgery is advised. Twenty per cent of right ureteral stones are wrongly diagnosed.

15. Bladder stone may be symptomless. Litholapaxy should be done if the stone is not too large.

16. Tumor of the renal area or upper abdomen can be differentiated only by means of the cystoscope, the ureteral catheter, and the pyelo-ureterogram.

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SANITATION IN RURAL AND SMALL URBAN COMMUNITIES*

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Much has been written in regard to the subject of sanitation, especially since the World War, which brought up new problems and gave a new insight into this wide and important field.

Less, however, has been noted of these problems as they pertain to the rural and small urban communities. In fact, some of the best literature in regard to such communities and their problems of sanitation has been written in relation to English and European districts. Con-

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ditions in other countries, while somewhat similar to those in our own, yet permit of no direct analogy being drawn, owing to the larger farming features, more progressive ideas in the small towns, and a real difference as regards to people and methods of agriculture in the United States.

Many features, though brought out in the camp-life and in the transportation and fighting areas during the late war, were excellent and can aptly be applied to civil conditions. Where the Government has been so particular in regard to the living conditions of its fighting men, surely the same care and precautions should be found desirable in relation to our civil communities.

Many of the provisions in regard to water supply, disposal of sewage, etc., have been empirically condemned as bad, but either no solution to the problem has been offered, or, if any, it has been so theoretical as to be impracticable of usage among the rank and file of our people.

This essay will deal chiefly with conditions throughout the great agrarian districts of the Middle West. Further, only certain features of sanitation deemed most important in relation to good sanitation in these communities, will be considered.

The important factors that we are concerned with are as follows:

1. General features.
2. Insects.
3. Water supply.
4. Sewage and waste disposal.
5. Houses and buildings.

In considering this subject the following points must be carefully noted in evolving a working sanitary plan, in regard to each of the divisions to be hereafter considered:

First, Density of population.

Second, General conditions and financial status of inhabitants.

Third, Local obstacles met with.

Fourth, Desire of people for co-operation and improved surroundings.

Fifth, Existing agencies to carry forward the work.

Contrary to popular belief, insanitary as many large city districts may be, I firmly believe that, except for three factors, such conditions are infinitely worse in many of our rural communities.

The factors that modify this statement are the following:

Density of population. Unquestionably, this is a factor that the urban communities have to

contend with that is not paramount in the rural districts and the small towns.

Better natural surroundings prevail in the rural districts, such as fresh, pure air, sunlight, outdoor work, etc.

However, the large cities are far in the lead over rural and small urban centers in the matter of water supply, sewage and waste disposal, frequent sanitary inspections, municipal control of sanitation, and building inspections.

As Major H. B. Hommon, United States Army, so aptly states in his article on "Water Supply Surveys" (as given in the *Military Surgeon*.) in speaking of conditions in France: "As a general rule all wells examined were found to be contaminated * * * This type of supply in France has not differed in any sense from similar types in the States. The wells in the rural districts and small towns of the States have never yielded a water that would pass our standards to-day, and it is doubtful if any water taken from shallow depths in the neighborhood of human habitations will ever be satisfactory."

Now, to consider the three main divisions and their relation to our population:

First, insects and their relation to spread of disease. It is needless to enumerate the diseases, so well known to all medical men, that are insect borne, or to enter into a discussion of the mode of transmission, or life-cycle of such insects. The monumental work that was done in Cuba, in the Canal Zone, and elsewhere, is common knowledge, and the work done in the late war is still fresh in our memories.

Two types of insects are paramount in importance,—the fly and the mosquito. We, in the northern climates, are not largely concerned with the latter problem in the transmission of disease; however, an illustration will not be amiss. In 1917, working under the able direction of Dr. D. S. Hillis, of Chicago, the Chief Sanitary Officer of the United States Naval Training Station at Great Lakes, Illinois, a campaign against mosquitoes was instigated. Surveys by the United States Public Health Department helped in this work. All small pools and pot holes were drained. Barrels, cans, etc., which might hold water were either disposed of or treated. For an area of five miles about the station all pools, sluggish streams, or wherever water collected were treated at least once in two weeks with crude oil sprayed on the surface of the water and repeated at intervals as necessary. Even with the camp bounded on one side

by Lake Michigan, it only needed a journey of twenty miles or less to note the difference in the number of mosquitoes. So noticeable was this that residents of the districts around the station frequently commented upon it.

As to the fly. Volumes have been written on this subject, campaigns waged, and societies organized, until "Swat the fly" is a household slogan. Yet to-day, especially in many of our rural communities, flies are a constant menace. Typhoid fever, intestinal diseases, and what not, have every means of spreading rapidly, with the menace of the fly always present.

I wish to cite a local instance of what can be done in fly eradication. In our community we have what might, in any community, be called one of the seven wonders of the sanitary world. A flyless meat market and slaughter-house. How many have seen one of these rare specimens? And yet this was made possible through the enterprise, pride, and initiative of a local merchant who saw the menace of the fly. I will cite this again in more detail. A campaign similar to the one on mosquitoes was also waged at the Naval Station against the fly.

Personal cleanliness, proper covering of waste receptacles, fly traps, and constant vigilance worked wonders. Special attention was paid to manure piles. Treatment with powdered hellebore, one-half pound to ten gallons water and ten gallons of the solution to eight bushels of manure, or borax, six pounds to eight bushels of manure and wet down, was successfully used, and it does not injure crops or chickens when the manure is used as a fertilizer.

It has only lately been noted in experiments by the Bureau of Entomology of the Department of Agriculture that house-flies may fly five or six miles in twenty-four hours, and with a wind, from Cuba to Florida, a distance of over ninety-five miles.

I have gone into the country to operate in emergency cases where nearly an hour was spent in killing flies before any work could be undertaken, and conditions in this locality are no worse than in many others. In typhoid cases a constant fight had to be kept up to keep the flies in the sick-room at least to a minimum.

The water supply of a community or household is one of the most important features. Yet if the water be palatable and clear to appearances, nothing is usually thought to be wrong with it. Where a city has its filtration plants, water inspection, etc., good water is usually the

result. In the small town with its well, spring, or even pumping-station, bacteriological examination is seldom, if ever, made of the water, and rarer still is such inspection in rural districts. Yet, if the supply be sufficient and not too far away, pig-styes, dirty pools, privies, and rubbish piles may drain into the water supply. In how many communities is a sanitary survey made by a qualified person? Yet men for whom in military life every precaution was taken against an impure water supply, returned home to untold dangers to which not only themselves, but also others, are constantly exposed.

Little better, or rather worse, is the sewage and waste disposal in the small communities and rural districts. Rare indeed is a sewer system in a village, and it is almost unheard of in the ordinary rural dwelling. Privies with all their objectionable features abound. Cess-pools are sometimes found. Sedimentation tanks, except in connection with public buildings or schools, are rare.

Waste disposal is varied. On the farms a certain amount is fed to animals. Water is poured on the ground, as are oftentimes other waste and garbage, to become an excellent fly attraction. Garbage collection as practiced in cities is impracticable. What pertains to the community, unfortunately, also pertains to depot and railroad surroundings. Toilet facilities are meager. Usually privies are provided, but are often found locked, and not infrequently it is better so. Drinking water is not supplied in a great many places.

To consider buildings and stores. Buildings in rural communities are usually erected in regard to convenient location, shelter, and handiness. Little regard is placed on their relation to sanitary conditions. In towns this is not as true. Fortunately, in North Dakota there is State inspection of buildings and premises by sanitary inspectors in places where food is handled. This includes stores, meatmarkets, confectioneries, restaurants, hotels, and the like. Each place is marked on a basis of 100 per cent. Permit me to again quote local conditions. In regard to the meatmarket before mentioned. Inspection was started in 1914 and a mark of 98 per cent obtained. Since that time a perfect mark of 100 per cent for sanitation and cleanliness for both meatmarket and slaughter-house has been given every year, this being the only instance in the state of North Dakota. This is an instance which merely shows what can be

done. A local restaurant has stepped into the record class and for the last three years has obtained 100 per cent. Other places show good records also.

But all is not darkness in regard to sanitation in the rural communities and small towns. I know of many farms nearly perfect in regard to the sanitary features throughout the Northwest, and the same applies to towns. It is not alone the fault of the people that insanitary conditions prevail. No sanitary inspections and no water analyses are required. No direct educational appeal exists. Boards of health are composed of laymen who happen to be members of town or township boards, and they lack authority to enforce sanitary provisions and correct evils; and there is also the financial inability to do so.

Would that we might have the help and instruction available that was present in the military forces during the war. What can be done to remedy these conditions? In regard to insect-borne diseases, probably education, instruction, and building up of local interest will accomplish most. The use of fly traps, fly swatters, and other devices and cleaning up dumps and garbage receptacles and treatment of manure piles will work for better results. The large conical trap made of wire mesh screen is an excellent device. The proper treatment of stagnant pools and the like will eradicate the mosquito evil to a great extent.

The water supply problem is a vast one, varying with every local need and condition. If a town has a municipal supply, then a check may be made of the same. Local chlorination of water supplies by the unskilled, or various appliances as the Berkefeld filter, Lyster bag, etc., are not practical at present for rural use, because of the cost, the lack of desire to better conditions, and the insufficient supply of water provided. Minnesota has started and has in operation a state supervision of municipal water supplies. This is very well, but it does not extend far enough to include the rural districts and towns without a municipal supply. Similar difficulties are met with in sewage and waste disposal, although a covered pit for waste disposal or one of many types of incinerators can be used with little cost and a minimum amount of labor. That the privy is unsanitary is not debatable; yet it will continue to be used. Proper care to have the box tightly fitted to the vault, with a screened air space provided, and

removal of the box and filling of the vault before its capacity is reached, are desirable. Covers that are so fitted as to automatically close and daily treatment with chloride of lime or crude oil and kerosene or burning out, will go a long way to improve conditions.

Cesspools are an improvement on vaults, but not the best. Care should be taken to ascertain their relation to the water supply. Consideration must be made of the soil in which they are dug. Cemented sides and base add to safety, but also to the cost. Septic tanks are much better. They are not difficult of construction, but are more costly and must be made correctly. The Imhoff tank, or its modifications, is the preferred type.

The great need for better sanitary conditions is imperative. The results cannot be expected from the people alone. Some agency, such as State or Federal supervision is needed. The chief fault with this at present is that it does not reach rural and small urban communities. Education is a vital factor, and coupled with sanitary surveys and actual financial aid will work wonders in these communities.

SUMMARY

The conditions that prevail in the rural and small urban communities in regard to sanitation are not generally good. Especially is this true in regard to control of insects and the location, inspection, and purification of water supplies. The disposal of sewage and waste products and their relation to the contamination of the water supplies is scarcely considered.

The provisions for inspection of stores and handling food products as carried out in North Dakota are good and should be extended in scope to cover other lines of sanitary work.

The relief for these conditions can be obtained chiefly by—

1. Educational propaganda and instruction.
2. Inspection of water supplies, sewage disposal, and general sanitary conditions by Federal or State agencies with the power to enforce recommendations.
3. Financial aid, if necessary, from the local, State, or Federal government, in carrying out this program.
4. Active co-operation, aid, and instruction by the medical profession and its societies.

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DISCUSSION

DR. JOHN J. MCGOVERN (Milwaukee, Wis.): The question of sanitation is of great importance. Milwaukee is engaged now with the solution of its sewerage problem and the supplying of its people with pure water. A person can hardly imagine a community of intelligent people dumping their sewerage into their drinking-water supply, but that is what people practically all over the world have done for a great many years. Milwaukee has done it and is still doing it. About ten years ago, under the leadership of Dr. Bading, we started to take care of our sewerage by rendering it as harmless as possible when it is allowed to flow into the lake. Two city campaigns were fought to a finish with the sewerage problem as the only subject under discussion, before the people of the city came to fully realize the importance to the health of the inhabitants of a pure water supply. Up to this time the sewers emptied into the river. It was necessary, therefore, to build intercepting sewers to collect the sewerage at a disposal plant. These intercepting sewers with the plant cost the city over fifteen million dollars. That work is nearly completed. At the present time we have in Wisconsin a state law which prevents any new community from dumping its sewerage into the body of water from which it draws its drinking water. Milwaukee's was started before that law was enacted, so now we have to meet the situation as we find it. We chlorinate the water, but chlorination is not sufficient. The water is sometimes so strong with the chlorine that

it can not be used. Since the present system of sewerage has been installed the amount of chlorine has been very much lessened. Milwaukee is at the present time working on a system of filtration. This will, I think, solve our problem completely.

A number of years ago, just before Illinois dug the canal from the lake south, Chicago suffered from an epidemic of typhoid fever. We had the same condition in Milwaukee until recently, but since chlorination was instituted we have had practically no typhoid.

DR. ALEXANDER J. McCANNEL (Minot, N. D.): The question of solving this problem in the rural communities is principally one of education. As soon as the people realize the results of a campaign for better water and for better sewage disposal and improved sanitary conditions generally, they become interested and try to follow better conditions. There is nothing that can be done along any other line that will be so effective. Just take the instance that Dr. Constans has mentioned: In the village of Donnybrook they have had for several years a meat market and a slaughter-house that have been rated at 100 per cent in the matter of sanitary condition. That one example has done more, I believe, for that town in the line of improving general sanitation than almost anything else. The people of that whole community are proud of that particular place, so proud that every time I have visited there somebody has come up to me and said, "Have you been in our butcher-shop?" And then almost next door to the butcher-shop is the restaurant referred to by Dr. Constans. The education afforded by the condition in the butcher-shop brought it up to 100 per cent, and while the building is not very expensive and the surroundings are not the highest priced, yet it is a pleasure to go into that restaurant and eat a meal. The last time I went to that town I had with me a friend from outside the state, and I made it a point to take him into both places. That kind of education is what is going to do a great deal for sanitation, and I believe the railroad companies can do much along that line, for they are in position to do it. For instance, we have heard of the septic tanks for disposal of sewage and for getting rid of outside privies. At many of the smaller stations a water tank is present, so they have the necessary water supply, and it is a very simple and not expensive matter to put in the small septic tanks. Every agricultural station is sending out models and plans and instructions for putting these in, and it could very easily be done, giving inside toilets even in our little country depots wherever the water tank is present. Then people in the rural districts would begin to realize that with their windmills and electric pumping outfits they could have a water supply. The building of a septic tank is a very simple and easy matter to be carried out even on the farm. So if we could get the right line of education and some one to take the lead the results would be far-reaching.

DR. MATTHEW S. HOSMER (Ashland, Wis.): We have the filter system at Ashland, and it was not a success. We increased the filter system and still it was not a success, but when we chlorinated the

water it was a success, and we have never had any typhoid fever since.

DR. CONSTANS (closing): I omitted the discussion of municipal sanitation in the larger cities, such as Milwaukee, as it does not apply to the case of small communities. However, a word in regard to large cities.^a Minneapolis has a very good system of water purification. They use the Mississippi river water, bringing it into reservoirs above the city, and from those it is taken down to a filtration plant

and run through chlorine and alum and also subjected to sand filtration. The water is then tested every twenty-four hours by bacteriological examination and incubated for bacillus coli. Consequently they can keep close check on it all the time, using from first one reservoir and then another. That seems to have largely solved their problem, while some other cities and small communities are still running sewage into the same stream as the source of their water supply.

TREATMENT OF TRAUMATIC WOUNDS OF THE KNEE-JOINT, WITH REPORT OF A CASE

BY R. C. WEBB, M.D., F.A.C.S.

MINNEAPOLIS

One of the greatest advances in surgery brought about during the World War is in the treatment of wounds of the knee-joint. Although in a few isolated instances to the writer's knowledge, notably in puncture wounds, primary closure had been applied with satisfactory result, such treatment was by no means generally recognized previous to the contributions of Willms and Delrez, during the war. A stiff joint was considered satisfactory, and disasters were numerous.

In a treatise on surgery of the knee-joint in Johnson's Operative Therapeutics, published in 1915, C. E. Farr, of New York, stated that "the joint is so large, so complex, and has so many communicating recesses that any departure from the most rigid aseptic technic is an invitation to almost certain disaster. Moreover, the resisting power of all joints to infection is notoriously slight."

McWilliams, writing in the same volume, advised immobilization and careful observation in puncture wounds. He says, "Incised wounds should be treated as though already infected. Drainage with perforated rubber tubes should follow through the incision or supplementary ones."

The injection of the joint with a twenty-four-hour-old solution of formalin in glycerin followed by two or three days rest was advocated before operations by J. B. Murphy.

Mondor, in a recent article, states that in the war of 1870 the mortality of knee wounds in the French army under a policy of surgical abstention was between 40 and 50 per cent, while in the German army under a policy of immediate resection the mortality was 80 per cent. Early

in the late war when arthrotomy for drainage was the method in general use in a series of 208 cases there were 52 deaths, 13 secondary resections, and 41 subsequent amputations in addition to numerous cases with ankylosis. In a series of 328 cases treated by mechanical cleansing of the joint followed by primary suture and active mobilization there were 312 recoveries without ankylosis.

It was the writer's privilege while serving with Evacuation Hospital Number Eight in the A. E. F. to operate upon several cases of this type and to observe many more. That the principles there applied can, and should, be carried out in civil surgery is illustrated by the following case.

Mr. C., aged 41, a railroad employe, was injured on November 10th, 1922, while getting off a moving train. His right knee-joint was torn open, presenting a transverse wound four inches long at the proximal edge of the patella on the anterior surface of the thigh. The quadriceps tendon was torn from the patellar base or proximal portion exposing the bony surface in the proximal fourth of the anterior surface of the patella, and the synovial capsule was torn from its attachment at the cartilaginous articular surface of the proximal or superior fourth of the patellar circumference. The wound was dirty and ragged and ground with dirt and débris, and there were cinders in the knee-joint. In addition to this wound there were three other wounds. His left leg had been nearly amputated by the car wheels, just below the middle of the leg and was hanging by a few tendons. There were two scalp lacerations. There was a large wound six inches long over the great trochanter of the right femur, which extended over the upper end of the femur and down to the region of the femoral neck.

He was taken to St. Mary's Hospital in an ambulance, and operation was performed three hours after injury.

Operation: The scalp wounds were cleansed and

sutured lightly. The wound in the right hip was débrided carefully and left wide open with four Carrel tubes in place passing to the deepest portions of the wound. The left leg was amputated as low as possible, the wound being left open with Carrel tubes in place.

With an entirely clean field the right knee was operated on. A very careful débridement was performed upon the soft parts, removing all foreign material. The knee-joint was thoroughly irrigated with normal saline. The raw portion of the patella where it was devoid of soft parts was painted with alcohol and again irrigated with saline. The synovial capsule was drawn down over the raw surface of the patella to a point where it could be sutured to the torn attachments of the quadriceps muscle on the anterior surface of the patella. The quadriceps tendon was then drawn down and sutured over this first line of sutures. The skin and subcutaneous tissues were left wide open, and a Carrel tube was placed in the wound. There were no splints applied.

Postoperative course: A special nurse was detailed to see that he carried out active motion of his knee, beginning as soon as he came out of his anesthetic and repeating every two hours during the day and two or three times during the night. There were three small areas in the knee wound which sloughed giving a very small but purulent discharge until the Dakin's solution finally dissolved them and they were replaced by granulation tissue. This required about two weeks. The Dakin solution irrigation occurred every two hours, day and night. During the first month the motion at the knee was very slight, possibly twenty degrees at most. Caution attended all procedures inasmuch as the quadriceps tendons was merely held to the patella by chronic catgut sutures. There was a slight accumulation of fluid in the knee-joint during the first week, but at no time were the symptoms such as to require aspiration. He was irrational at times during the first four days. He complained on beginning the knee motions, saying there was "quite a bit" of pain at first, which, however, passed away after five or ten minutes. Two weeks after injury he could flex his knee to an angle of 150 degrees. The knee wound was entirely healed five weeks after injury. He was in bed two and one-half months and was up on crutches using his right leg only on February 1, 1923. A temporary artificial limb was supplied March 15, 1923. He was discharged March 30, nearly five months after injury, walking with a cane. He was then able to flex his right knee to a right angle, and at times slightly beyond a right angle, and he was improving noticeably each week.

The principles of the modern treatment of lacerated wounds of the knee-joint are now well established, and the chief opportunity for the exercise of surgical judgment lies in the manner of closure of the wound. Primary closure of

the joint implies at least a closure of the synovial capsule. When the fascia, subcutaneous tissue, and skin are closed also there is always the possibility of a burrowing infection, which may travel inward and produce a purulent secretion in the joint cavity requiring opening of the joint. If this is recognized sufficiently early, and the joint is opened and active motion started according to the method of Willms, a satisfactory result may be obtained, otherwise any of the previously mentioned disasters may occur. When feasible, as, for instance, in a mere longitudinal splitting of the fascial fibers, a closure of the synovial capsule only offers the greatest safety from burrowing infections. When, however, there is much gaping of the fascial edges an approximation of these edges is desirable. With Carrel-Dakin treatment the closure of the skin and subcutaneous tissue is not necessary.

BOOK NOTICES

ORTHOPEDIC SURGERY. By Sir Robert Jones, Liverpool, England, and Robert W. Lovett, Boston, Mass.; New York: William Wood & Co., 1923,

It is very easy to write a review of this book because it may be said to be uniformly excellent from beginning to end. Anyone interested in bone and joint pathology and treatment must have this work at hand.

Some of the chapters are better than others, and they, of course, are those dealing with the subjects in which the authors have been most interested during their long and widespread practice. Among these are the chapters on "Traumatic Affections of the Joints," "Disabilities of the Knee-Joint," and "Scoliosis and Infantile Paralysis."

Nearly all of the illustrations are original, only a few having been "borrowed."

—EMIL S. GRIST, M.D.

PHYSICAL EXERCISES FOR INVALIDS AND CONVALESCENTS. By Edward H. Ochsner, B. S., M.D., F.A.C.S. President, Illinois State Charities Commission; Attending Surgeon, Augustana Hospital, Chicago, 1922. Price 75 cents, St. Louis, 1922, C. V. Mosby Company.

The author describes and clearly illustrates a system of light exercises especially designed for orthopedic and surgical convalescents. The exercises are also suitable to prescribe for medical convalescents or for anyone leading a sedentary life and those who are unable to do vigorous muscular exercise.

—B. F. G.

THE JOURNAL-LANCET

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THE FAMOUS "U" MEDICINAL-PLANT GARDEN

Comparatively little has been known about the medicinal-plant work carried on at the University of Minnesota for experimental purposes, and yet, for three or four years, the fact has been known that the College of Pharmacy prepares a tincture of digitalis from the digitalis grown in the medical garden, and furnished the faculty for research work.

The garden has been located for some time (thirty-one years, in fact) directly on the Campus and very close to the dentistry building. But now that a new memorial auditorium is to be erected near that site, this three-acre tract must be transplanted to some other locality, and all of the drug-bearing plants known to science must be dug up, root, leaf, and creeper, and transported to the new location.

During the war this garden was visited by a number of famous men of England and of other European countries. They came, not only to see the operation of the plant, but to see the garden for its intrinsic worth. Many colleges of pharmacy have sent representatives here to study the garden and to model new ones after it. This garden, of course, has been a very great joy to the students of the University, particularly those who have gone to the School of

Agriculture and the School of Pharmacy. In this way they become familiar with the plants at every stage of their growth, consequently they ought to be more or less expert in determining medicinal-plant life.

The Board of Regents are to be complimented on their assistance and the legislature on the distribution of moneys that will keep this garden famous and a lasting memorial to the College of Pharmacy of the University of Minnesota.

THE LEAGUE FOR THE HARD OF HEARING

The League for the Hard of Hearing which has been incorporated in Minneapolis, located at 1641 Hennepin Avenue, is evidently endeavoring to do something for its class members. Every Saturday afternoon the headquarters have open house; and they also have an Outing Club which is devoted to excursions, picnics, hikes, and sight-seeing trips. They have a Needle-Work Guild, also, that furnishes occupation to the members,—all of this in the way of social affairs. Then, too, they have an educational department, in which they have lip-reading practice classes which are held on the second and fourth Thursday afternoons at 2:30, and on the first, second, and third Wednesday evenings at 7:30. The League also has established a circulating library, and they maintain an employment bureau; and they present a monthly bulletin to keep Club members informed of the news and announce the Club's new activities.

The League attempts to "ameliorate the social and industrial condition of the deafened; to further by all available means the prevention of deafness; to promote co-operation between the deafened and the hearing in the solution of the problems of the deafened."

Any further information that is desired may be had through the executive secretary, Mrs. Harold Rypins, at the above-mentioned address. Anyone, however, may become a member of the League. It is not limited to those who are deaf or about to be deaf.

Something of this kind has been very necessary for a long time, and these leagues are springing up all over the country. Chicago, New York, Rochester (N. Y.), Jersey City, and other places are endeavoring to carry out the program that is outlined by the Minneapolis League.

THE NORTHERN MINNESOTA MEDICAL ASSOCIATION

The meeting of this comparatively new association, known as the Northern Minnesota Medical Association, was held at Alexandria on June fourth, fifth, and sixth, and it has shown that it is among the live, active, and growing societies of the state. It is quite refreshing to go up into the country and be away from the noise and the turmoil and distraction of the city to a northern meeting that attracted not less than seventy-five registered physicians. And if the society continues this sort of healthy growth it may soon outnumber the Southern Minnesota Medical Association.

The committee who had the society in charge, of which Dr. A. D. Haskell was chairman, decided that many of its visitors needed a little outing; consequently they not only provided an intellectual program, but they insisted upon people fishing, golfing, playing tennis, and enjoying a social hour that was made a particular feature. The open meeting, which was held in Alexandria at the Armory, in which there were music and two addressess by out-of-town speakers, wound up with a dance, a real, old-fashioned jazz-time band furnishing the music, which stimulated some of the older members to a point of almost unbelievable activity. The writer recalls one rotund man dancing on the floor with his wife, perhaps not an unusual occurrence, and he seemed to be enjoying himself hugely. He was dressed in the latest summer-resort clothes, and he golfed before and after the scientific program. The others had just as good a time as he did, but he did not know it.

The scientific program was made up of papers read by men from the Twin Cities, Fargo, Duluth, Fergus Falls, and Milwaukee (the last named in the person of Dr. G. V. I. Brown), and three men from Rochester. Some of these papers were really in the form of clinics, which were very interesting and gave the men a better opportunity to listen and discuss the subject than if they had been formal papers. Dr. A. J. Pacini, of Chicago, discussed the ultraviolet ray therapy; and he has offered to furnish THE JOURNAL-LANCET with some papers on this subject which will no doubt be very interesting, as we know so little about this method of treatment. There were two other Chicago men on the program: Dr. A. A. Goldsmith, who gave a stomach

clinic, and Dr. Paul B. Magnuson, who gave a clinic on back conditions, without invading the realm of the osteopath or the chiropractor. Apparently the participants on the program gave the best they had in them, consequently the whole thing was refreshing, instructive, and restorative.

The citizens of Alexandria were evidently glad to have the Northern Minnesota Medical Association meet there, as they did everything possible in the way of luncheons, fishing parties, and evening programs that made the visitors' stay in Alexandria a very delightful vacation.

ABRAMS AND HIS IMITATORS

The following is a summary of Abrams and his class which may be of more or less interest to some of our readers. But those who have followed the discussions in the *Journal of the American Medical Association* will understand that since this letter was written there have been many changes in the method of doing work. The Abrams' oscilloclast now has a circulation of three thousand, perhaps one should say a vibration of three thousand; that is to say, there are that many machines in the country, as we know them. Very naturally the opportunity of making money in this way would attract the attention of others beside the Abramsites. The result is that imitation machines are being manufactured in Chicago, and some are used in Minneapolis. We are appending a letter hereto received by a prominent man in Minneapolis telling about the imitation of Abrams' machine which is announced to be an imitation.

Another phase of the subject is that there is no modesty or hesitancy on the part of these irregular practitioners to advertise; and they, like men in some of the other cults, send out letters to prominent people, hoping to get them interested in this new method of treatment, whereas the medical man who has spent years in perfecting himself for his work, is absolutely debarred from any such advertising possibilities. Some of the cultists simply take the names of members of large clubs, and send each man a personal letter telling of the wonderful success in his special line of business, and doubtless a good many get into practice by this same method. Again, the medical man is debarred from participation in such a procedure.

The following is a summary of Adams' claims as set forth in a write-up of him:

SUMMARY OF DR. ABRAMS' CLAIM

1. Claims to have graduated at Heidelberg, Germany, at age of 18, 19, or 20. Graduation year given as 1882. Birth-date given 1862, 1863, or 1864, at various times.

2. In 1910 wrote a book on spondylotherapy. In 1912-1914 gave clinical courses on "Spondylotherapy" and throughout various parts of the country. The courses were advertised by an Ohio concern which makes a specialty of managing campaigns for bizarre and unusual medical quacks, and which handles any instruments and publications necessary to the proper practice of the special brand exploited. At the time handled various instruments for spinal treatment ("electroconcussor," price, \$120.00, f. o. b., cash only, etc.)

A. M. A. Journal review of the book (1910): "Is it an attempt to exploit osteopathy and chiropractic to the regular physician or to exploit the electrical percussing devices of Abrams, or is it true that the profession is ignorant of the cure of disease by spinal treatment?"

3. In 1917 began descriptions of his new and bizarre method of (a) making diagnosis from a drop of blood, and (b) claiming to cure disease by electrovibratory method.

Briefly, diagnosis made by putting specimen of blood on a white blotting paper in the machine and placing electrode on forehead of "normal" patient who faces west and is in a subdued light. By percussing the abdomen disease is located, and its severity determined in ohms of resistance. Diagnosis, when routine, limited to tests for tuberculosis, cancer, syphilis, and streptococcal infection, and localising the same as congenital syphilis, cerebrospinal type, tuberculosis of the genito-urinary tract, cancer of the colon, streptococcal infection of left upper jaw. May also determine religion of individual. The diagnosis is made on determination of the "vibratory rate" and the degree of severity in "ohms" of resistance. Other claims as to ability to diagnose conditions, such as whether or not a woman is pregnant and whether the child is to be a male or female. Electronic reactions of Abrams may be obtained from a sample of handwriting, usually autographs (often of men long since dead), which still give E. R. A. for disease and religion.

There is a companion instrument accompanying the diagnostic instruments which is therapeutic in construction and use. It proposes to produce vibrations of the identical wave length as that of the disease to be treated and in this manner to destroy the germ or diseased area presumably on the principle of wrecking a building by striking the particular vibrating note, as, with a violin, Curuso shattering a glass by singing at it, troops breaking down a bridge by keeping step, etc. Vibration rates which the machine is able to put out are variable to fit the disease.

4. Propoganda, advertising clinical tests, etc. Never any reference to Abrams' methods in any regular medical journals, such as State journals, Journal of the A. M. A., etc. Most of his stuff spread by (a) *word of mouth*—patient to patient type giving rise to an endless chain and the simplic-

ity of the test allows anyone to send in specimen; (d) *chiropractic channels*, (c) "Clinics" in which demonstrations of methods are given to visitors consisting mostly of (1) medical men in twilight zone between legitimate and quacks, (2) out-and-out-quacks, (3) older men whose practice is on the wane, (4) osteopaths, (5) chiropractors, (6) dentists; (d) *quarterly journal* at \$1.00 per copy or \$2.00 per year, published from Abrams' residence in San Francisco, called *Physico Clinical Medicine*, which consists of a lot of letters of recommendation, testimonials, various and sundry remarks by Abrams, all laudatory in nature, advertisements of Abrams' publications, apparatus, courses, etc.; (e) a book published by Abrams, "New Concepts in Diagnosis and Treatment."

5. Technique for collecting and sending blood: (a) patient must face west and stand in subdued light when specimen is taken; (b) specimen consisting of but a drop or two may be taken on any white (uncolored) blotting paper; (c) specimen wrapped in a ten dollar bill or certified check, etc. (Price increased to \$25.00 since about July, 1922, \$15.00 of which is to go to endowment fund to perpetuate the nonsense,—if the truth were known probably \$10.00 to Abrams and \$15.00 to the quack taking the blood).

6. Method of instructing prospective lessees of the therapeutic instrument, course, etc.

1. Nothing educational required save (a) desire to enjoy income of.....a week; (b) open or convinced mind for it—Abrams says that "if splanchnodiagnosis is approached with a prejudiced mind it is better not to attempt it as there are none so blind as those who will not see"; (c) necessary tuition (\$200 in advance). Prior to the first exposé in the Jour. of the A. M. A., March, 1922, only two osteopaths had had a machine and since then countless numbers have qualified and taken them on.

2. Courses open the first of each month, and the student may stay as long as he likes, that is, until he feels he is capable of putting it over. (Never over two months.)

3. Instruction seems to be largely limited to watching Abrams' thump the subject's abdomen and listening to the unguentum bovis, which is freely applied to the audience. The main thing is to teach the application of the machine. Not all of the disciples are taught blood diagnosis, apparently.

After depositing the initial \$200 the prospective lessee must recover it by depositing \$250 more and signing a contract for royalty of \$5.00 per month and agreement not to tamper with the machine.

7. Lessees of Oscilloclast. Prior to March 25, 1922, at which time the first article appeared concerning Abrams and his methods there were 166 physicians and two osteopaths who had machines. Of the physicians, nearly 100 have been listed with the Jour. of the A. M. A. propaganda files as being out-and-out quacks, such as advertising specialists, cancer cure experts, etc. A fair number of them are members or officers in various pseudo-medical societies,—Allied Medical Associations of America, American Medical Union, American Association for the Study of Spondylo Therapy, etc., or were Auto-

hemic therapy, orificial surgery, and other drugless cults.

Since March 15th, when Abrams withdrew from all regular medical societies, he has opened up to the osteopaths, chiropractors, and dentists, and 51 physicians and 130 osteopaths have been listed.

8. *Offers to check up the E. R. A.*—In 1917 Abrams was offered a chance to make good his claims as mentioned and refused to co-operate in any way where a check up was in order. On October 9, 1922, Abrams appeared before the Board of Medical Registration for a hearing, and, as described, his diagnoses consisted mostly of lesions, the proving of which would require postmortem examination. Boston M. & S. checkup quotes Abrams as stating that his method is either the greatest miracle of the age or the greatest fake. They are agreed that it is no miracle.

9. Recent reports of checkup on bloods. See December 30th, Jour. of the A. M. A. for a report on guinea-pig and sheep blood.

10. Summary of Abrams' stuff:

1. Establishes himself as an exponent of osteopathy and chiropractic, manufactures various instruments, gives courses, etc.

2. Concocts bizarre method for diagnosing disease and selects:

a. Cancer and tuberculosis which the public know are serious.

b. Syphilis, which the public know to be a "venerable" disease.

c. Streptococcus, which the public know as a focal infection from the teeth, tonsils etc.

3. Invents a machine to rob these diseases of their terrors, and has it adjustable so as to fit any other disease a patient may have. (Probably the osteopaths will be turning the levers to No. 7 or 11 and be producing abortions, either unwittingly or intentionally, inasmuch as the diagnosis of pregnancy can be made by "vibration" rate. Might also charge up some henpecking female with a million "ohms" etc. of No. 14 and have the husband coming home at lunch hour, eh, what?)

4. Plasters the country with popular ideas of novel stuff by the tel-a-woman method of spreading news. When they begin asking their favorite "osteo" about it he says (aside) "ha! I've been missing something," and asks what was that name and address, and he soon pulls out for California to be gone two months and comes back to enjoy \$1,000 to \$2,000 a week.

5. Treats the misguided public at \$5.00 per treatment and tests their blood to record or observe progress at \$25.00 per test.

6. Refuses to allow a scientifically control test to be made on efficiency of the method.

The following is a sample of letters distributed to well-to-do people in Minneapolis, perhaps by the thousands, by a follower of Abrams:

Minneapolis, May 16, 1923.

Dear _____

If you or members of your family have any ailment that has persistently resisted all known methods of treatment, this invitation is very important to you. Until you have seen the mighty works done by this science, you cannot correctly form an

idea regarding this much discussed Practice. Without belittling your intelligence, therefore, you cannot dismiss in a cursory manner so important a subject as this one. An investigation of Pathometry may do you much good.

I invite you to investigate Pathometry, originally known as Electronic Reaction of Abrams. A careful and scientific calculation through this method enables physicians to discover deep-seated infections which have never been suspected even by the very best diagnosticians who are not familiar with this method. Pathometry is the science that discovers disease through a single drop of human blood. For the first time in the history of medicines this science has discovered hidden infections by registering their radio vibratory rates as accurately and infallibly as the compass points to the north.

This message is addressed only to intelligent persons who are capable of weighing evidence and of drawing their own conclusions without being influenced by prejudiced propagandists and mongers of unsound opinions. I wish that you would read this message without permitting your preconceived ideas to interfere so that you may receive benefit from reading it.

Come and see apparently miraculous results obtained by Pathometry on cancer, tuberculosis, and all other diseases in their potential state and after they have developed and have persistently resisted every human effort. See with your own eyes the mathematical results obtained by this science.

Pathometry discovers the radio vibratory rate of every known human disease long before it manifests itself and long before it is suspected even by the individual that such a malady exists in his own body. After disease has been found either in its incipency or in its advanced stage, it is destroyed by the application of the principles of this science.

Some physicians, it is reported, have a counterfeit of this science. We know positively that two unauthorized schools pretending to teach Pathometry have sprung up. Undoubtedly some physicians and their patients are getting the counterfeit without realizing it. Permit me, therefore, to suggest that you select a physician who is duly qualified and authorized to practice this science.

Yours very truly,

NEWS ITEMS

Work has been begun on the construction of the building for the Community Hospital at Farmington.

The contract for the general construction work on the main building of Trinity Hospital at Minot, N. D., was let last week for \$105,000.

At an eye clinic held in Virginia (Minn.) last month under the direction of the St. Louis County Public Health Association twenty cases of trachoma were discovered.

Dr. William J. Mayo received the honorary M.D. from the Dublin University last month. Dr. Mayo is now in Europe.

Dr. J. L. McElroy, of St. Paul, assistant superintendent of the A. B. Ancker Hospital, has returned from a visit to France.

Dr. W. G. Magee, of the Watertown (S. D.) Clinic, was appointed county coroner to fill out the unexpired term of H. O. Haroldson, recently moved to Minot, N. D.

Dr. Samuel Mitchell, of Mapleton, N. D., died this month at the age of 64. He was a pioneer physician in Dakota, having practiced there about forty years.

Dr. Edward F. Maginn has moved from Butte, Mont., to Los Angeles, Calif., having been appointed a member of the staff of St. Vincent's Hospital of that city.

There are ugly rumors in the air about charges against prominent physicians in various cities of the Northwest for flagrant defiance of their legal rights in dispensing liquor.

Dr. Lawrence Gowan, who has just graduated from the Medical School of the University of Minnesota, was married last month to Miss Eleanor Schwerin, of Minneapolis.

The June issue of *American Medicine* is composed wholly of papers on high blood pressure, "The riddle of medicine"; and the subject is treated exhaustively by eminent contributors.

Dr. Walter R. Ramsey, of St. Paul, goes to Europe next week. He is an American delegate to the Third International Congress for Child Welfare, to be held this month at Geneva, Switzerland.

At a recent meeting of the Minneapolis Surgical Society the following officers were elected: President, Dr. James M. Hayes; vice-president, Dr. James A. Johnson; secretary-treasurer, Dr. A. A. Zierold.

Dr. James L. Lynch, of Winona, died last week at the age of 58. Dr. Lynch was a graduate of the University of Michigan Medical School, class of '01, and had practiced in Winona since his graduation.

Dr. John C. Staley, of St. Paul, has been unanimously elected superintendent of the Ancker Hospital (the former City and County Hospital) of St. Paul. The appointment was based upon

the recommendation of the Ramsey County Medical Society.

Dr. P. M. Hall, superintendent of the State Tuberculosis Hospital at Walker, announced in a recent report to the State Board of Control that only eight deaths have occurred in the institution since October 1, 1918, in twenty-three cases in the advanced stages of tuberculosis.

Dr. F. R. Hirshfield, a recent graduate of the Medical School of the University of Minnesota, has completed his year's internship at the Minneapolis General Hospital, and has gone to Berlin and Vienna for a year's postgraduate work.

Under a law recently passed in Minnesota a county commissioner can sign a certificate admitting a patient of his district to the University Hospital. The State and the county each pays one-half the cost of the patient's treatment and care.

Under the new law in North Dakota the State health work goes into new hands to-day, and Dr. A. A. Wittemore, of Bowman, the State's first full-time health officer, begins his work. He will have the loyal support of all the medical men in the state.

Dr. J. G. Parsons, of Sioux Falls, S. D., chairman of the Committee of the State Medical Association on eye conservation, gave an illustrated lecture on this subject before the State Association of Trained Nurses, which met at Madison, S. D., last month.

Drs. Trygve and Axel Oftedal, of Fargo, N. D., have just returned from London and Vienna where they did postgraduate work, the former in urology and the latter in eye, ear, nose, and throat work. Dr. Trygve has located in Minneapolis (503 Syndicate Building), and Dr. Axel has returned to Fargo to continue his work in that city.

Thomas Hospital, Minneapolis, which has during the past two years been devoted to the care of veterans suffering from tuberculosis will now be made available to private patients. This has become possible because of the present policy of the Government to discontinue the use of contract hospitals.

The public health authorities of Montana have a big problem on hand growing out of the health requirements of the million (?) men and women

who will visit Shelby, Mont., on July 4th to see a prize fight. Among the requirements are 300,000 gallons of water daily, with a surplus of 200,000 for emergency needs, and a field hospital of 25-bed capacity. We had supposed a 1-bed hospital was enough for the survivor of a real prize fight.

It is reported that Elk River is to have a clinic and a hospital, the clinic to be composed of four surgeons and two medical men, as follows: surgeons,—Dr. H. C. Cooney, Princeton, and Drs. George R. Dunn, C. A. Stewart, and H. B. Dornblaser, Minneapolis; physicians, Drs. C. B. Wright and A. B. Roehlke, Minneapolis. Dr. Roehlke, who is a recent graduate of the Medical School of the University of Minnesota, will be the resident physician of the organization when completed.

No stronger appeal was ever made to American physicians than that for aid for Russian physicians. The Quakers of America have organized for a national campaign to raise funds for this purpose and to distribute the same to Russian hospitals, medical schools, and physicians. In co-operation with the Quakers a like commission is seeking funds for antituberculous work in Austria. Dr. Pirquet, who is coming from Vienna to the Minnesota Medical School, to succeed the late Dr. Sedgwick, is especially interested in the latter work.

The University of Minnesota has received a gift of one million dollars from Mr. William Henry Eustis, a former mayor of Minneapolis, for the establishment of a hospital and convalescent home for crippled children, with which the Mayo Foundation and Clinic will heartily co-operate. A large and beautiful tract of land on the bank of the Mississippi River, in the city limits, is a part of the gift. Dr. Clemens Pirquet, director of the University Children's Hospital, of Vienna, comes to the University Medical School as professor of pediatrics, and will be at the head of the Children's Hospital. Dr. Pirquet was professor of pediatrics at Johns Hopkins before going to Vienna.

LOCATION WANTED

A qualified physician of pleasing personality having many years of hospital and sanatorium experience, wishes to locate over a drug store in some outlying district. Has for many years specialized in nervous, mental, and chronic diseases. Has good equipment. Has used the new glandular remedies with wonderful results. Would like to locate at once. Address 352, care of this office.

MINNESOTA LOCATION WANTED

By a physician doing all general surgery and one who is also an experienced hospital executive; aged 42, married; no children; have had five years post-graduate work in surgery. Best of references. Prefers Twin Cities, and will accept a salary or guarantee of \$3,000 net yearly in a hospital or surgical opportunity there. Other good hospital connections considered. Address 354, care of this office.

BOARD AND CARE OF A SEMI-INVALID OFFERED

An experienced nurse (hospital training) will receive in her home in Minneapolis, a semi-invalid by the week or month. Excellent room in modern house with a sleeping-porch in quiet neighborhood. Reference to physicians furnished. Telephone, Kenwood 4875, or address 355, care of this office.

NORTH DAKOTA PRACTICE FOR SALE

In a town of 1,000. A splendid opportunity to step into a large general practice. Railroad appointment. Purchase of office equipment necessary. Price \$1,000. Address 356, care of this office.

PEDIATRIC PHYSICIAN WANTED

A young man capable of taking charge of the Pediatric Department and doing general work, to take a salaried position with a clinic group associated with a hospital in a South Dakota town. State qualifications and references in reply. Address 351, care of this office.

X-RAY TECHNICIAN WANTS POSITION

A young woman who has been for over two years at the head of the x-ray laboratory of a group of hospitals desires a position in the Twin Cities. Can give x-ray treatments and do high-grade x-ray work. Best of reference. Address 253, care of this office.

POSITION WANTED

A recent Minnesota Graduate now practicing in a small village desires association or partnership in a large town with hospital facilities. References furnished. Address 357, care of this office.

THE JOURNAL-~~L~~ LANCET

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SOME PROBLEMS IN THE DIAGNOSIS OF PULMONARY TUBERCULOSIS*

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One might feel that after the years in which we have had an opportunity to study a disease as old as tuberculosis we should have become highly proficient in its diagnosis and mistakes would be very few. In this respect we as physicians have fallen short, and many mistakes are made even to-day. These have not all been made in failing to diagnose tuberculosis when it is present, but many times a diagnosis of tuberculosis is made when the disease is something else. Then, again, more than one condition may be present, one being diagnosed and the other overlooked. The tendency seems to be to diagnose any chronic disease of the lungs as tuberculosis without careful and painstaking study. If the symptoms and signs are referable to some part of the anatomy outside of the thoracic cavity, no matter what the lung condition may be the tendency is to diagnose it something other than pulmonary tuberculosis. It can thus be seen that mistakes are made, both of omission and commission.

Symptoms are often common simulating conditions outside of the lungs which are due to pulmonary tuberculosis. A discovery of the real condition at this time and the institution of the proper treatment offer an excellent chance for recovery. To incorrectly diagnose the con-

dition and neglect treatment or to subject patients to a surgical operation jeopardizes, if it does not destroy the chance for recovery.

Many conditions of a chronic nature with symptoms simulating tuberculosis frequently arise. While most of these are due to involvement of the lungs, some are due to conditions outside, most frequently involving the mediastinum or pleura. If they are accompanied by a chronic cough with expectoration the tendency is to call it tuberculosis and advise the patient accordingly. Many such cases are admitted to sanatoria every year on the incorrect diagnosis of pulmonary tuberculosis. Judging from reports of the different institutions it would seem that such cases would be from 20 per cent to 30 per cent of all patients admitted. This condition of affairs is a reflection on the medical profession; it is unfair to the patient and also to the institution intended primarily for the care of pulmonary tuberculosis. These mistakes are made, not because the physicians are incompetent, but more often because they fail to give time and careful study to the case sufficient to make a correct diagnosis. Many of these cases are difficult to diagnose, and often the diagnosis can be made only under the most favorable conditions and after a prolonged period of study. The proper place for the study of many of these cases is in the general hospital which offers the best opportunity. In order that the patient

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may be given the best chance for a correct diagnosis all general hospitals should have a department of diseases of the chest to which patients with other conditions of the lungs than apparent tuberculosis should be admitted to permit of proper study and correct diagnosis. Oftentimes patients admitted to a general hospital are discharged with a diagnosis of tuberculosis on symptoms without careful study, while with a proper examination the correct diagnosis would have been made. It is important in many of these cases that a correct diagnosis be made, for with early treatment recovery is sure and swift. It is not fair to place these patients in a sanatorium labeling them tuberculosis and delaying proper treatment. In this connection it may be well to cite a case which may be of interest. The patient had been operated on for appendicitis, and following operation a diagnosis of tuberculosis was made and the patient was admitted to a sanatorium. A diagnosis of this disease could not be confirmed in the sanatorium, but the patient had frequent attacks of epilepsy of a rather mild form. The general condition of the patient was decidedly under par, and after being in the sanatorium for several months there was a decided improvement and the epileptic attacks were fewer and milder. She was discharged, and the family physician was advised of her condition, the suggestion being made that if her epileptic attacks returned she should be placed in the State Hospital for Epileptics. Later application was for her re-admission as patient to the sanatorium. A letter was written to the physician asking if he was certain she had tuberculosis, and what was her general condition. The physician was frank enough to admit that he did not know the condition of patient, but stated that any information desired could be obtained by writing to the hospital where she had been under treatment. A letter was written asking for information on the case especially if tubercle bacilli had been demonstrated. The reply received from the General Hospital was unsatisfactory and gave no information of value regarding her condition. The question regarding the presence of tubercle bacilli was ignored. The whole thing seemed to indicate that the hospital had learned that the patient had previously been in a sanatorium and at once jumped at the conclusion that she should be returned there, even though her condition had not been studied. Either that, or it was decided that the patient was not suited

for the hospital, and it was considered that the easiest way of getting rid of her would be to return her, if possible, to the sanatorium.

Conditions such as this and many others might be cited. There is no excuse for such diagnoses, and every effort possible should be made to avoid them. A case of epilepsy certainly could not be benefited by treatment in a tuberculosis sanatorium, but, on the other hand, the presence of such a patient could do patients in the institution considerable harm, as a result of excitement caused by an epileptic convulsion.

Many of the mistakes made are due to hasty diagnosis based on the history. If a patient has ever been in a sanatorium, no matter what condition may arise later, the conclusion too often arrived at immediately is that the trouble is tuberculosis. The diagnosis is arrived at entirely on the history of the patient having had sanatorium treatment. The fact that a patient has once had tuberculosis, or even has it at the present time, does not by any means exclude the fact that some other disease may be present. Another conclusion that is too often drawn with a diagnosis made on it, is due to the fact that some other member of the family has, or has had, tuberculosis. To many the fact that a member of the family has had it seems to render it impossible for the other members of the family to have anything but this disease. As an example, I once had a typical case of diabetes mellitus admitted to the sanatorium, the family physician making the diagnosis of tuberculosis solely on the history that the patient's mother died of this disease. A case of lethargic encephalitis once came to my attention with the diagnosis of tubercular meningitis, the diagnosis being arrived at on the ground that an older sister was at that time in a tuberculosis sanatorium undergoing treatment.

I will admit that the cases cited are rather extreme, but such conditions should not arise. They frequently do, not because the physician is not competent to make a diagnosis, but because he jumps at a hasty conclusion from lack of evidence or from failure to take the time to study the case.

It is more particularly in the conditions in which there is really an excuse for mistaking them for tuberculosis that we are most interested and with which this paper intends to deal. These may be divided into two rather distinct groups:

1. Those with symptoms simulating tuberculosis, but with physical signs lacking.

2. Those in which the physical signs in the lungs are rather definite, but the symptoms are lacking.

I. Among those having symptoms resembling pulmonary tuberculosis may be mentioned hyperthyroidism, general asthenia, typhoid and paratyphoid fever, malaria, chlorosis, septic endocarditis, focal infections, fever of obscure origin, and gas cases. In many of these it is impossible to make a diagnosis at once. Some patients will require careful and prolonged study with laboratory test before a correct diagnosis can be obtained.

Hyperthyroidism is probably more often mistaken for tuberculosis than any other of this group. The patient is very often poorly nourished, is nervous, has rapid pulse, tires easily, and at times has a slight cough. Fine râles may be found at the apex on examining the lungs, making it appear as if the disease were early tuberculosis. The presence of tremor of the hands, together with the Getch test or a dose of five grains of thyroid extract, usually clears up the diagnosis.

There is an unusually large number of people especially young girls and women who seem under par generally. They have little strength and endurance, are of a nervous temperament, and are frequently subject to colds. While many of these may be infected with the germs of tuberculosis, and even break down later with the disease, excellent results can usually be gotten in this class of cases by keeping the patients under observation and seeing that they live a properly regulated life. These should not be considered tuberculous until definitely proven as such.

Patients suffering from typhoid and paratyphoid when the symptoms are of an obscure nature may be mistaken for tuberculous patients. This is especially true when the other symptoms are accompanied by bronchitis and cough. The temperature, however, differs from tuberculosis in that the morning remission is absent. The signs in the chest are not localized but usually found at both bases. With the appearance of rose spots and positive blood tests the diagnosis is usually cleared up. It should not be forgotten, however, that tuberculosis is often mistaken for typhoid or frequently follows this and other acute diseases which lower the general resistance of the patient.

Malaria is sometimes mistaken for tuberculosis, and especially is this true in parts of the

country where the former disease is rare. To find the plasmodium in the blood or the administration of quinine usually clears up the diagnosis.

Primary anemia, especially in young girls, is frequently accompanied by symptoms simulating tuberculosis, and the latter often develops during such a condition. It must also be borne in mind that secondary anemia due to tuberculosis may be present. Careful supervision of these patients, together with proper study of the blood and lungs, usually makes a correct diagnosis possible.

Septic endocarditis is frequently mistaken for tuberculosis, owing to the symptoms simulating the latter disease; and it is only after careful study that it can be eliminated, and the correct diagnosis made.

Focal infection with obscure symptoms, such as is so frequently the case in these conditions, is often difficult to diagnose. Frequently the symptoms simulate those of tuberculosis, and it is only after a prolonged and careful study that the real cause is ascertained. Brilliant results are sometimes obtained immediately upon removal of the focus of infection. The correct diagnosis in such a case is well worth the trouble it takes to make it, for a real service is rendered the patient, and most gratifying results are obtained from the proper treatment.

Patients often come under observation running a fever of an obscure nature the origin of which is hard to discover. It is only after the most careful study that the cause is found, thus clearing up the diagnosis.

Many ex-service men who were gassed during the World War complain of symptoms indicating active trouble. Many were at first of the opinion that being gassed would have a tendency to light up active tuberculosis. The physical signs, however, are usually absent in cases not accompanied by this disease. Tubercle bacilli are also absent. These cases need to be kept under observation and examined frequently before tuberculosis can be eliminated.

II. Among the conditions which may be diagnosed tuberculosis on account of the physical signs may be mentioned bronchiectasis, malignancy, syphilis, subacute or chronic bronchopneumonia, empyema, lung abscess, chronic non-tuberculous lung infection, foreign bodies in the lung, and mycotic infections.

It might be mentioned that most of these cases are diagnosed tuberculosis on account of the

cough and expectoration. The physical signs are often quite extensive, but usually not typical of tuberculosis. The base of the lungs is more frequently involved in these conditions than the apices, while in tuberculosis the lesion is most frequently in the apex. It should not be forgotten, however, that tuberculosis sometimes occurs in the base when there is no evidence of the apices being involved. The same may be said of the other conditions in that the physical signs may be found in the apex while there is no evidence of it in the base. The general rule, while not infallible, is that lesions involving the apices are usually tuberculous, while those involving the bases are usually due to some other cause.

It would also be well to remember that any patient expectorating profusely and whose sputum is negative for tubercle bacilli after careful and thorough examination, is usually suffering from some other disease. The sputum is often negative for tubercle bacilli when tuberculosis in a clinical form is present, but it is usually in the early case or one in which the patient has very little or no expectoration. When the expectoration is due to tuberculosis, and there is as much as an ounce coming from the lungs daily, tubercle bacilli can nearly always be demonstrated.

My experience has been that bronchiectasis, with malignant conditions of the lung a close second, is more frequently diagnosed tuberculosis than any other condition. The former is often accompanied by profuse expectoration, which is negative for tubercle bacilli. The patient usually gives a history of the trouble having started following one of the acute infections of the respiratory tract, most commonly whooping cough, pneumonia, or influenza. The patient usually appears well nourished, has a bad cough, and expectorates large quantities of sputum which is frequently quite foul. The physical signs are most usually located in the region of the angle of the scapula, although they may be present in other parts of the lungs. The fingers are often clubbed.

Malignant conditions, both carcinoma and sarcoma, are frequently mistaken for tuberculosis. These may be either primary or secondary. When the latter, the diagnosis is greatly simplified; when primary in the lungs, no signs or symptoms are typical of the condition, and most of them are found in other respiratory diseases. Pain in the chest is usually present, also some

cough with frequent expectoration of blood. This differs from the spitting of blood in tuberculosis in that the patient does not as often have a frank hemorrhage, but expectorates a small amount of blood frequently and over a prolonged period. Tubercle bacilli are absent. The mediastinum is most often the seat of the primary sarcoma, while carcinoma has its beginning most frequently in the lungs and bronchi.

Syphilis of the lung is quite common and may also accompany tuberculosis. When it is present it should not be overlooked, for with the proper treatment most excellent results can be obtained. In these patients the Wassermann is of a great help and should be used in all cases in which there is a doubt. It should not be relied on entirely, for, like all other tests, it is not absolutely infallible.

Subacute and chronic bronchopneumonia are frequently diagnosed tuberculosis. They are often accompanied by cough, expectoration, and sometimes hemoptysis.

The physical signs are at times extensive, but are most usually in the lower lobe. The condition may clear up in a short time or become chronic. The sputum is negative for tubercle bacilli.

One would hardly think empyema could be mistaken for tuberculosis, but I have seen many cases admitted to sanatoria with this diagnosis. This emphasizes lack of study of the case rather than lack of ability, for it would seem that any practicing physician should be able to diagnose this condition, especially in the usual form. Most of these cases should be diagnosed on either symptoms or physical findings, especially when the *x*-ray and exploratory puncture are used.

Abscess is another rather common condition which is not always easily diagnosed. They most frequently follow an acute respiratory disease or an operation on the upper respiratory tract. These lesions are most frequently located in the base of the lungs.

Foreign bodies in the lungs sometimes give symptoms and signs simulating tuberculosis. The patient gives a history of having inhaled a foreign body, but it is surprising how large a body sometimes gets into the lungs without the patient being aware of it. Children frequently inhale foreign bodies, such as buds, berries, or things of that nature, which they have placed in the nose while at play. With a deep breath or fit of laughing these may get

into the trachea and finally into the lung, often giving rise to symptoms simulating tuberculosis.

That condition termed "chronic non-tuberculous lung infection" has much in common with tuberculosis and at times is quite difficult to diagnose. In some cases the symptoms predominate, in others the symptoms are lacking, and the physical findings are rather marked. The physical findings are most often located in the base of the lungs. The patient may have considerable expectoration which is negative for tubercle bacilli. These cases often require prolonged and careful study before tuberculosis can be ruled out and the proper diagnosis made.

Mycotic infections of the lungs, while not common, are more often overlooked or termed tuberculosis than correctly diagnosed. Among these may be mentioned streptotricosis, actinomycosis, blastomycosis, coccidioidal granuloma, aspergillosis, and sporotrichosis. Several of these conditions seem to have a predilection for certain localities. The majority of cases of blastomycosis reported occurred in the vicinity of Chicago. Coccidioidal granuloma seems to be endemic in California, while the majority of the cases of sporotrichosis were in the district comprising the Mississippi River Basin. This fact might lead one to feel that although these conditions may have been present in other localities they were overlooked. Streptotricosis and actinomycosis are quite common and should always be considered in questionable cases of tuberculosis. The x-ray and bacteriological laboratory is of immense value in helping to clear

up the diagnosis in most of the conditions mentioned. It can not be too strongly emphasized that tuberculosis may also be present at the time of these other conditions, and its presence should not be overlooked.

My idea of a good tuberculosis specialist is one who is an expert in diagnosis. It is highly important that all associated or complicating conditions should be discovered early and properly cared for, in order to get the best results.

It would seem that a good plan to adopt is for everyone in tuberculosis work to look for everything else before considering this disease. The general practitioners and the specialists in other fields should think of tuberculosis first on account of its frequency. One group should eliminate from other conditions in the direction of tuberculosis, while the other should eliminate from tuberculosis to the actual condition. This would give many more correct diagnoses and much earlier than is often the case at present.

I hope this paper will not convey to any one the idea that we are becoming too enthusiastic to find the early case of tuberculosis, thus neglecting other conditions and being unfair to the patient. The urgent need for the early diagnosis of tuberculosis is still all too great, and everything possible should be done to improve our methods of finding the incipient cases when the greatest good can be accomplished. It is also important that other conditions which may be independent or associated with tuberculosis be discovered, thus giving the patient the best chance possible to regain his health.

TRAUMATIC RUPTURE OF THE KIDNEY*

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While it is true that no individual surgeon encounters a great number of these cases in his personal experience, traumatic rupture of the kidney is not of rare occurrence. It was formerly considered that all kidney injuries were dangerous, but present-day surgery has demonstrated that this fear was unfounded, for kidney wounds, like wounds of all highly vascular organs, heal rapidly.

Kidney rupture may occur as a result of

direct violence, such as a blow, a kick, a fall; or it may occur as a result of indirect violence, such as compression of the body between two surfaces, as in elevator-shaft accidents, compression of the body between the buffers of railroad cars, or by the passage of the wheel of an automobile or other vehicle over the costal-iliac space while the body is resting flat on the ground. Traumatic rupture of the kidney, no doubt has greatly increased in recent years, due to the universal use of the automobile and to the multiple bodily injuries incidental thereto.

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Another cause of kidney rupture is strong muscular contraction, as when the body is bent suddenly forward and to one side. A sudden concussion of the body may also produce the injury.

Traumatic rupture of the kidney occurs more frequently among men, owing to their exposure and their more frequent subjection to the external forces producing this kind of an injury. Greater immunity is afforded women because of the greater protection of the kidney area obtained by their particular clothing, the greater degree of mobility of the kidney in the female, the larger amount of perirenal fat, and the protection obtained from the iliac crests. Küster records an incidence as high as 94 per cent in men as compared with 6 per cent in women.

Slight injuries of the kidneys, such as contusion and attenuated degrees of rupture, undoubtedly occur more frequently than is realized, for they may not have been deemed of sufficient importance to call the physician. In these cases the external evidences of the injury to the kidney may be little or none.

The most susceptible age is from ten to thirty years, that is, during the ages of more active muscular activity when there is greater liability to accident.

It is stated by Küster that the mechanism of producing the injury in most cases is a force, hydraulic in nature, acting through a full pelvis and full vessels. Such force may cause the kidney to rupture along the line radiating from the hilum in the direction of the tubules. The impact of the external force may drive the distended kidney against the spine, or the transverse processes of the first two lumbar vertebrae, or the lower ribs, tending to rupture it at the point of greatest contact.

Kidney wounds, broadly speaking, are of two varieties. The first, with which we are concerned in this paper, is the closed or subparietal. They are usually due to a direct blow, a fall (striking on the kidney region), or to a crushing impact from the wheel of a vehicle. The second variety, or open wound, is due to a puncture or cut from some sharp instrument, such as a knife, sword, bayonet, or other foreign body, or to a projectile from a firearm.

Experimental surgery has taught us that the mechanism of wound repair in the kidney is essentially the same as in any other parenchymatous organ. Repair takes place by the proli-

feration of the interstitial connective tissue of the organ which bridges the gap between the two edges and then permanently replaces this temporary mending in the natural way with the aid of a clot. Connective tissue replaces the degenerated specialized elements of the gland. It has been shown that the formation of scar tissue is rapid in the kidney and that the process of repair is far advanced after five or six days. The parenchyma is replaced by newly formed capillaries. There is no regeneration of the tubules and glomeruli, for the kidney is no more able to replace its glandular elements than in any other highly specialized organ. Compensatory hypertrophy of the kidney may occur after a loss of substance from the organ, but this is not due to any regeneration of renal elements. Compensation in the remaining kidney following nephrectomy is established through an increase in size and functional activity of the surviving elements, for experimental surgery has here again demonstrated that we have normally in the body a much greater amount of kidney tissue than is necessary for the maintenance of life.

The pathology of traumatic rupture depends on whether the fibrous capsule is torn through or not. If the capsule is not torn through, the injury is classified as a *contusion*. In such a case there is but slight hemorrhage, a subcapsular ecchymosis, or hematoma, or irregularly shaped areas of hemorrhage within the parenchyma near the surface. Fissures are usually found on the anterior surfaces of the organ and are transverse in direction or radiate from the hilus. Infarcts of the usual wedge shape may follow kidney contusion.

True rupture exists when the capsule is torn and the laceration is deep enough to communicate with the kidney pelvis. The direction of the wound to the axis of the kidney is usually transverse, that is, parallel to the direction of the tubules (Keen), although the wound may be longitudinal through the whole extent of the kidney (Gunn). In true rupture of the kidney the organ may be divided almost symmetrically in two, or into many irregular fragments with complete and total detachment of some. Blood is extravasated into the perirenal fat or into the parenchyma, then passing down the urinary tubules into the pelvis of the kidney. Blood will be present or not in the bladder, dependent upon the intactness of the ureter. In cases of this character the hemorrhage may be severe, the perirenal and retroperitoneal tissues becoming

greatly distended with blood. Larger hematomata may be found.

Let us consider some of the complications of kidney rupture due to trauma. Fracture of the ribs frequently complicates renal injuries. The peritoneum may be torn in some cases of violent injury, an accident more apt to occur in children under ten years of age on account of the firm connection between the peritoneum and the kidney at this age. Other abdominal organs may suffer coincidentally with the crushed kidney. Rupture of the renal artery may occur, and the hemorrhage may be an active factor in the production of death.

The ureter may be torn across, and infection may follow the leakage of urine into the tissues, or there may be extravasation of urine into the perirenal tissues when the rupture extends deeply into the kidney substance. Infection of the extravasated matter or perinephritic abscess usually occurs and adds to the gravity of the situation. Infection usually occurs in from forty-eight to seventy-two hours following the extravasation of urine into the tissues, but this condition in some cases has not occurred until two or three weeks following the injury. In hematomas resultant from the attenuated organic injuries, absence of infection is the rule, and the fluid is absorbed within two or three weeks with spontaneous healing of the affected kidney.

The symptomatology of kidney rupture presents a rather well-defined picture. Following the receipt of the injury, there are evidences of shock, either moderate or profound, dependent upon the degree of injury and stability of the patient. Unless accompanied by hemorrhage, or otherwise complicated, the shock is not as prolonged or deep as in other visceral injuries. The shock is always greater when the injury is inflicted from the front, not because of the direction of the blow, but because of the fact that such forcible concussion results in other injuries or in laceration of the peritoneal surface of the kidney permitting free hemorrhage. Hemorrhage may be moderate, severe, or even fatal. Secondary hemorrhage occurs in some cases.

Anuria from shock may follow injury to the kidney. Morgagni says that when the kidney is severely lacerated the free hemorrhage from its substance so lessens the blood pressure that we have an arrest of renal secretion in the injured organ.

Secondary reaction with nausea, vomiting, and pain in the renal area and extending to the lower

abdomen and genitalia and even to the thigh, usually occurs.

Hematuria occurs in the great majority of cases, even in mild injuries. Hematuria coming on after an injury, does not always mean a contusion of the kidney in the sense we are considering; for, if a calculus be present, the bleeding may occur as a result of the traumatism of the stone within the kidney. Hematuria is, however, a most constant symptom of kidney injury and is always present unless the ureter is obstructed in some way, or the ureter is torn off. Obstruction may occur as a result of extravasated blood or urine pressing on the outside of the pelvis or ureter, or it may be present in rare cases where there is a stricture of ureter. The patient may also have typical renal colic caused by clots passing down the ureter.

Swelling in the loin is a quite constant symptom and is due to an accumulation of blood and urine in the tissue about the kidney. In some cases the tumor due to this cause may become very large. In cases where the capsule has remained intact, the tumor may be circumscribed and movable rather than infiltrating and diffuse. Septic infection usually arises from forty-eight to seventy-two hours, but in exceptional cases even two or three weeks may elapse after the receipt of injury before infection is evidenced by chills and irregular temperature. At this time pus may appear in the urine in considerable amount. A blood count of the white cells will show a high leucocytosis. The infection may occur circumscribed, or it may be diffuse, extending into all the surrounding tissues as a diffuse cellulitis.

The skin about the injured loin may be ecchymosed or lacerated. Ecchymosis may also follow the connective-tissue sheaths of the spermatic vessels and thus reach the external abdominal rings. In some cases it may extend over the external genitalia, but it is characteristic of renal injuries that this phenomenon does not appear until two or three weeks after the accident. The same condition, however, may be due to laceration of other vessels in the retroperitoneal tissues.

De Quervain noted that, owing to disturbances in the circulation of the colonic flexure on the affected side, a certain degree of meteorism was often present without any peritoneal involvement.

Certain conditions that affect the character and amount of urine passed occur as the lesion begins to interfere with the function of the kid-

ney. Oliguria and even anuria may result if a blood clot occludes the ureter. Later polyuria may result, compensatory in character or indicating the presence of a traumatic nephritis. Renal pain may last for weeks or months and the sensitiveness on pressure persist for a long time.

It is possible to make a diagnosis of traumatic rupture of the kidney in the great majority of cases. The history of the case, the presence of hematuria, and the existence of a perirenal hematoma will leave little doubt as to the nature of the lesion. In more obscure cases the cystoscope may be of great aid in showing from which side the hemorrhage comes. In exceptional cases the bleeding may continue slowly until a tumor resembling a watermelon in shape and size develops on one side of the abdomen, most marked in front. In these cases a lumbar incision in the ileocostal space behind, to evacuate the contents, should be made. This procedure will establish the diagnosis and will often relieve the patient of a great amount of extravasated urine.

Expectant treatment is to be instituted in all cases of traumatic kidney injury where the local symptoms are not marked, where there are slight constitutional symptoms, and where hematuria is of small amount. Operative treatment is to be instituted in all cases when there are marked symptoms of increasing loss of blood or when there are evidences that the peritoneal cavity has become involved. Operative treatment is also indicated where the tumefaction in the loin is increasing and where the amount of urine is diminishing. When exposure of the kidney has been instituted early, it may be possible to suture the fragments together, but when the kidney is severely lacerated and the vessels ruptured or the ureter torn away, the operator cannot escape a nephrectomy. When contemplating the latter procedure, however, the surgeon should always bear in mind the possibility that an anomaly may exist and that there may be but one kidney. The abdominal route is to be chosen only when we have reason to believe that there are intraperitoneal complications.

Finally, one word as to chronic traumatic nephritis. It is not certain that diffuse nephritis can follow such injuries, and it is probable that in the cases in which diffuse renal lesions were found at autopsy after contusions of the kidney, the patients had been suffering from chronic nephritis before their injuries. Circumscribed nephritic lesions may occur, however, in the

areas immediately involved. In some cases albuminuria and casts persist in the urine some time after the disappearance of the hematuria. Albumin has been found in small amounts for a year or more after the injury.

In looking up my personal records, the following cases were found:

CASE 1.—Mr. D. Mc. I., aged 30, was brought to St. Elizabeth's Hospital April 16, 1908. Several hours before he had jumped from the top of an iron structural windmill with suicidal intent. Upon examination, fractures of both tibiae and ossa calcis were noted and there was a large swelling in the right loin over which the skin was ecchymosed. The patient was in marked shock, his skin being pale, cold, and clammy, and his pulse rapid and feeble. Supportive treatment was instituted but delirium with high temperature followed with death three days later. A postmortem examination was not obtainable.

CASE 2.—Mr. J. E. B., aged 45, entered St. Elizabeth's Hospital on the evening of February 2, 1910. The afternoon of the same day he had been struck in the left lumbar region by a bursting circular grind-stone. Marked shock followed the injury. Blood appeared in the urine very soon after the injury. A marked hematoma became evident in the left loin and gradually increased in size. Because of the increase in size of the hematoma, it was deemed advisable on the following day to make an exposure of the kidney through a posterior incision. The lower pole of the left kidney was found detached, and there was free hemorrhage from the ruptured organ. The detached portion was ligated and removed. Mattress sutures were placed over the raw surface of the upper remaining portion, a drainage tube inserted, and the wound closed. The next day there were symptoms of peritonitis to which the patient succumbed two days later. A postmortem examination was denied.

CASE 3.—Mrs. J. A., an obese housewife, aged 40, was brought to St. Elizabeth's Hospital on the morning of July 4, 1921. An hour before she had been thrown from the automobile in which she had been riding when that vehicle collided with another. She complained of severe pain in the lower lumbar region and over the right kidney posteriorly. She was in a moderate degree of shock when first examined. Blood was found in a catheterized specimen of urine. Examination showed marks of discoloration over the lumbar vertebræ and over the renal areas, and there was moderate swelling in the right loin. There was marked tenderness over the right kidney. Expectant treatment was instituted. Blood disappeared from the urine in six days and the patient made an uneventful recovery, being discharged from the hospital July 23, nineteen days after the injury.

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DISCUSSION

DR. JOHN M. DODD (Ashland, Wis.): As my experience goes on with the years I feel more and more that every case of severe abdominal injury should be operated on if there are indications of shock or internal hemorrhage—and shock usually indicates internal hemorrhage—or if there are pain and tenderness indicating that there has been injury to the viscera or tissues within. It is a comparatively easy matter to explore the abdomen, and it does not add to the seriousness of the situation. I have very seldom had occasion to regret opening the abdomen in cases of severe abdominal injury, and I have many times been glad that I did so and felt that it was the means of saving life.

The kidney is a fairly accessible organ the way the technic of its approach has been developed in recent years, and it can be approached without difficulty or without particular danger to the patient. If we find that it is ruptured, the injury can be dealt with according to the indications found.

Dr. Marshall spoke of the possibility of doing nephrectomy. I would advise always that the peritoneum be opened and the hand passed across to the other side to ascertain the presence or absence of the kidney on the other side before even a seriously injured kidney is removed. We know that those organs, even though they are injured apparently beyond repair, often show a marked tendency to reconstruction, and very often organs and members that appear to be hopeless can be restored to usefulness by practicing conservative surgery.

The point I would make in the discussion of this

paper is that we do not wait for the fine points of diagnosis in these cases of abdominal injury, but go in and get at the seat of the trouble as soon as possible.

DR. LAWRENCE F. FISHER (Thief River Falls, Minn): A traumatic kidney will often set up a perinephritic abscess. A very important condition which enters into the discussion of differential diagnosis is subphrenic abscess. A perinephritic abscess may become subphrenic if it extends or ruptures into one of the subphrenic spaces. The space usually involved is the retroperitoneal on either side. Symptoms of infection appear in both, which are similar. There may be blood in the urine in a traumatic kidney, but this is not always the case.

A subphrenic abscess, in contradistinction to a perinephritic abscess, does not, as a rule, produce any tumefaction or other sign indicating the presence of tumor in the lumbar region, except that there is a point of tenderness at the end of the eleventh or twelfth rib on deep pressure. This appears usually late. The radiographic evidence in subphrenic abscess of the retroperitoneal type is very characteristic.

It would seem important to provide adequate drainage in each case of perinephritic abscess so that there is no possibility of the cavity closing untimely and causing an extension upwards into the subdiaphragmatic space. As a rule, it is stated that a perinephritic abscess, if left to itself, points and breaks through the loin. A subphrenic abscess evacuates spontaneously, usually into the pleural cavity if situated posteriorly or into an abdominal viscus, if in the anterior position.

EPILEPSY AS A CURABLE DISEASE*

From the Division of Nervous and Mental Diseases, Out-Patient Department, University Hospital

BY JOSEPH C. MICHAEL, M.D.

MINNEAPOLIS

Epilepsy is a disease with recurrent attacks of impaired, or loss of, consciousness with which are associated sensory, motor, or psychic symptoms.

As a body of officials and workers in state welfare you have gathered to-day in conference to give particular consideration to the ever increasingly formidable problems connected with the care of epileptics. Usually there is not much optimism aroused in our minds when we contemplate this distressing disease, yet I shall undertake to bring out the curable features which we have learned from experience. Let us review by way of introduction:

1. *Prevalence*.—On January 1, 1920, 14,937 epileptics were housed in special institutions. Varying estimates have been given, but it seems very probable that there are twenty-five times as many epileptics at large as there are confined in these institutions. Roughly, the incidence rate of epilepsy equals that of feeble-mindedness. Army examinations resulted in the rejection at the rate of 3.7 per 1,000 because of this illness. In grade-school children about 1 to 1,000 are epileptic. Among juvenile delinquents about one out of a hundred shows the presence of this condition.

The percentage of males affected is a trifle higher than females.

2. *Causation*.—About one-fourth of the feeble-minded are epileptic. Direct heredity occurs

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very rarely, about 1 to 5 per cent only; history in the family of neuropathic disease in from 30 to 50 per cent of the cases indicates the influence of heredity. Alcoholism in parents has been reported in percentages of from 10 to 50. Here we must recall that alcoholism may be merely a symptom of an unstable or imbalanced constitutional make up. Trauma to the head is often followed by epilepsy. Thus in a series of 100 head injury cases which I reviewed I found 36 suffering from epilepsy. Birth injuries, syphilis of the brain, inherited or acquired, arteriosclerosis, nephritis, auto-intoxication or other toxic or infectious conditions, worms, and emotional disturbances may bring on epilepsy. In one colony 11 per cent of the cases had infantile cerebral palsy. In about 60 per cent of all cases it is impossible to define an exact cause. Truly, there is no one cause for this ailment. The circumstance of the first fit, according to Turner, is to be looked upon as the cause; succeeding seizures occur quite without relation to any definite cause.

All in all, statistics on epilepsy vary somewhat because the different types are not uniform in the groups studied.

3. *Frequency of attacks.*—According to Spratling little over half of the cases have a seizure once a week or oftener. Two per cent have an interval lasting six months or longer. This authority gives a higher rate than we find in our out-patient service at the University.

4. *Age of onset.*—No period of a lifetime is exempt. About one-third have their onset during the first decade of life. Over three-fourths of the total number begin before the age of 20. Less than 5 per cent have their first attack after 40. The idiopathic forms, cases with unexplainable etiology, begin in the majority of instances during or after puberty up to about the age of 30.

5. *Relation to infantile convulsions.*—Because of the poorly developed inhibitory mechanism in the central nervous system of children, convulsions are easily induced during infectious diseases or toxic states. Not all children are alike in their tendencies to convulsions. Morse followed up 107 cases of spasmophilia in children and found that after reaching adulthood 10 per cent of these were feeble-minded and about 10 per cent epileptic. It is not incorrect to believe that epilepsy is more prone to develop in individuals who were spasmophilic, so called,

during childhood, yet actually that event is comparatively not very common.

6. *Course and complications.*—Epileptics rarely live to be over fifty years of age. The average age of people dying because of epilepsy is given as twenty-nine and one-half years by Block. Feeble-mindedness is very prone to follow epilepsy in childhood. Approximately one-fourth of the deaths occur in status epilepticus. Another fourth are due to pulmonary complications, chiefly tuberculosis. One-eighth die from accidents. Thus one of our cases, a young man, was found with his face on the ground at the shore of the river, dead. Another, a boy, died during status, a long series of successive convulsive seizures, some six weeks after a skull fracture sustained by falling on the ice while skating. The U. S. Census Bureau gives 3 per cent of all deaths as caused by epilepsy. Ten per cent become insane. Total amnesia of a temporary duration may follow a convulsion. Changes in the personality as irritability, suspiciousness, egocentricity, and memory impairment may set in. Violent mania, melancholia, stupor, paranoid states, or delirium are types of mental reaction noted.

TREATMENT AND CURABILITY

Of the idiopathic cases from 5 to 10 per cent get well. Of all cases about 20 to 25 per cent recover under careful medical treatment—rather, it would be more correct to say are “arrested.” In institutions where the most hopeless cases are congregated very few, if any, recoveries are noted. Spontaneous, unexplained permanent cures are known to have occurred. The grand mal type is most amenable to treatment, the petit mal less so, and psychical epilepsy is the most intractable. When permanent mental changes have developed the outlook is very hopeless. Reduction in the number of grand mal seizures in our treated cases is the rule. Occasionally we meet one who is resistive to all medical measures. Case No. 15066 after a year's course with improvement did very poorly in spite of treatment.

An ex-service man, aged 35, was struck in his temporal region by a steel pipe ten years ago. An operation at the site of the injury was performed. During his army service his first convulsive seizure came on. After returning home he succeeded in getting back his old job,—railroad conductor. When his employers learned of his condition they were forced to discharge

him; whereupon he submitted to another operation. He was placed on mild sedative medication, got back his job, and reports no trouble at all—no seizures in two years. However, old head-injury cases with epilepsy are, as a rule, not so favorably influenced by surgery.

A school-girl, aged 12, was referred to me last fall. The frequency of attacks was given as three per week. She had seizures for a year and a half. No determinable cause was found. After four months of treatment she has not suffered from a single attack, and she has been able to do her school work without difficulty up to the present time.

Another ex-service man was having idiopathic epileptic attacks four to five times weekly. When first coming to the hospital he suffered from a series of attacks which were followed by delirium. He threatened to kill an attendant and attempted to jump out of the window. His case was gotten under control, his mental condition cleared up, and freedom from attacks followed for three months, when he decided to get married one afternoon while on leave from the hospital. He told his prospective bride that he thought he was cured, and her enthusiasm for him could not have been very restricted for she secured and paid for the license. However, our patient was worse than ever according to the bride's story, given the next day, during the first conjugal night. This is a sample of what marriage may do to some epileptics. Further hospital treatment could not be avoided. Neither has his subsequent course been at all favorable; mental deterioration set in.

At the University we have some patients under medical treatment who have not had a seizure for two, three or four years. Some of our cured, or rather "arrested," cases fail to appear for further measures. We have not been able to check up on all these. I have been able in the short time available to look over the records of some thirty-five cases. I will quote the following to show the possibilities of treatment:

CASE No. 10092.—Idiopathic epilepsy; aged 32; ordinary frequency two or three per month. Since February, 1920, he had free intervals of two months, twelve months, and four months.

CASE No. 30082.—Idiopathic; aged 30; ten years duration; one per week to two weeks. No attacks in nine months, when he stopped medicine.

CASE No. 6738.—Idiopathic; aged 26; nine years duration; one per week to two weeks. Free intervals for seven months and fourteen months. Stopped medicine at the time of last seizure. Bromide therapy.

CASE No. 9264.—Aged 32; history of eight years duration. Four free intervals four months, then three months. (Idiopathic case.)

CASE No. 15066.—Aged 17; fifteen years duration. (Idiopathic.) Frequency from seven in one day to one per week. Bromide medication. First free interval ten days, attack came after being without medicine, second, two months; then four months; three months; five months, after which the condition has not been so satisfactory. Dull mentally. Outlook poor.

CASE No. 25873.—Aged 26; three years duration. Attacks came on after a month's interval when seeing her brother killed in an auto accident. First free interval five months; second, nine months; then pregnant. No attack during pregnancy.

CASE No. 29917.—Aged 24; three years duration. Seizures came on once a month. Used bromides for six months. No attacks. (Idiopathic.)

CASE No. 27394.—Aged 26; eighteen years duration. One attack every three weeks to one month; nearly finished high school; one free interval of four months since treatment was begun.

CASE No. 1855.—Aged 32; six years duration. Migraine and nervous spells in family. Free interval two years. Used bromides. During former pregnancy attacks increased.

The general management of these cases is important. An out-door life allowing fresh open air with free activity, preferably on a farm, is most advisable. There irksome influences of the "herd" are avoided. Auto-intoxication and exogenous intoxications are guarded against.

Foci of infection in the teeth, tonsils, sinuses, etc., must be removed. Indeed, all determinable bodily deviations should be treated. Emotional life should be without strain. Avoidance of hazardous situations (driving automobiles, handling machinery, rowing boats alone, etc.) is emphasized. For drugs the bromides or luminal are dependent upon; sometimes both are administered. Meat and eggs are removed from the diet. Salt is also advised against in bromide therapy. Medicinal therapy is only a small part of the treatment.

The colony treatment is the best solution for cases with frequent attacks. General management can be more effectively applied, and hygienic and specific therapeutic measures carefully supervised. The excitements of extramural life do not exist here, and seizures cause little embarrassment. The demented types are cared for, of course, in hospitals for mental cases.

But a great percentage of epileptics really are in many respects able to carry on on the outside with some help and guidance. Occupations should be selected. Agricultural or allied pursuits are the most desirable because of iso-

lation and absence of hazards, as mentioned above. Of about 300 ex-service men about 45 of the most favorable cases were placed in training before the difficulties of vocational adaptations were fully realized by the Government. However, about half of these in training are reported to be making satisfactory progress, a third are doing very poorly, and the remainder are holding their own with much difficulty. Of 36 cases following head wounds, one-third are making fair progress, one-third cannot even sustain themselves, and the other third can do some work at times, but need the continued support of their families or the Government. Not a small number of our University Dispensary cases are

getting along fairly well in an occupation while they are under treatment. Certainly, the vocational problems are quite difficult to meet for our epileptics in the community.

Sociologically, the advisability of marriage in epileptics is important to consider. The personality changes so frequent in these patients have a serious effect on the partner, making congenial married life often impossible. Excitements and responsibilities tend to increase the seizures in the patient. The liability to neuropathic offspring in approximately one-third of the progeny alone is a contra-indication to marriage; therefore in nearly all cases marriage should be advised against.

KIDNEY INFECTIONS DUE TO THE GONOCOCCUS

BY H. M. N. WYNNE, M.D., F.A.C.S.

MINNEAPOLIS

The number of published cases of gonococcal infections of the kidney which have been proven by cultural or staining methods in the kidney tissue or in excretions from the kidney, excluding cases of frank septicemia, is less than thirty. Norris, in 1913, made a very complete review of the literature and gave a brief history of a case under his observation, although he did not record the method by which the gonococci were demonstrated. In this review a number of probable cases were mentioned which he did not consider definitely proven. In the six cases of pyelonephritis reviewed by this author, all except one were due to mixed infection. Several urologists doubt whether the gonococcus alone ever produces suppuration in the kidney. Franco reported that on the first examination of his patient gonococci and a Gram-positive diplococcus were found and that on a second examination a pure culture of gonococcus was grown from the right kidney urine. The kidney was later removed and found to be a large pyonephritic sac. Kelly and Burnam state that definite kidney abscesses caused by the gonococcus have been reported by Tedenat and by LeFur.

Simmons' survey of the literature in 1922 yielded twenty-four cases, three of which were frank septicemia, and he added one case of his own. In nine of these twenty-five cases other organisms were present including the staphylococ-

cus, colon bacillus, typhoid bacillus, and tubercle bacillus. There are a few authentic cases not mentioned by Simmons. Gonococci in pure culture were obtained from the left kidney urine in Lehr's case. Kidd reported two cases, in one of which a pure culture of gonococci was grown from the right kidney urine, and in his second case the organism was demonstrated in urine from both kidneys, by cultures and films. It is interesting to note that both of Kidd's patients had profuse painless hematuria. In one case the bleeding was so severe that it was necessary to perform a nephrectomy as a last resort after other procedures had failed to stop the hemorrhage.

In the majority of the cases reported in which the gonococcus alone was found, treatment by lavage of the kidney pelvis with some form of silver salts was rewarded by a rapid cure. Some of these patients were also treated with vaccines which gave satisfactory results only when lavage of the kidney pelvis was carried out at the same time. Other foci of gonorrhoeal infection should also be treated to prevent a recurrence of the kidney lesion. Several cases required operation for relief. The case reported by Franco proved to be a pyelonephritis, for which a nephro-ureterectomy was performed with a successful result. Simmons' case was unique in that there was a traumatic rupture of the right kidney

which at operation was found to be an infected hydronephrosis from which gonococci in pure culture were demonstrated. The rupture wound was closed around drainage tubes, and the patient recovered. There is no record of the course of the infection after the patient left the hospital. Stanton's patient died of a ruptured spleen following operative drainage of the left kidney pelvis. The gonococcus only was reported in smears from this patient's kidney. In one of Nixon's cases gonococci were grown from an abscess in the left kidney, which was drained; a persistent sinus resulted from which tubercle bacilli were demonstrated and a nephro-ureterectomy was then performed. While tubercle bacilli were not found at the time of the first operation Nixon stated that the question of the primary invader could not be settled. Nixon's second case required a nephrectomy, and six abscess cavities were found in the upper two-thirds of the kidney from which gonococci were demonstrated by culture and smear. The urine obtained by ureteral catheterization prior to operation was cultured, and typhoid bacilli were grown. This patient gave a history of typhoid fever twenty-five years before. Nephrectomy followed by autopsy in Gerster's case revealed involvement of both kidneys, from which gonococci were demonstrated by culture and staining methods. This patient was a male ten years of age whose renal symptoms developed three weeks after the onset of a urethritis. *Staphylococcus albus* was also found. Lewis reported an autopsy at which a number of abscesses were found in the right kidney, from which gonococci were demonstrated by staining methods. Tuberculous cavities were also found in both lungs, but there is no record of examination of the kidney tissue for these organisms. Nephrectomy was performed in Weisswange's case, a moderate-sized abscess being found in the upper pole of the right kidney, in the walls of which gonococci were demonstrated by staining methods. Dozso's patient was cured by a nephrectomy. At operation it was found that an anomalous vessel had caused a large hydronephrosis which was infected with gonococci and colon bacilli, both of which were grown in culture.

In the cases outlined above, in which there was a mixed infection, the outcome has been rather serious. Just how much the gonococcal infection has to do with this we cannot state, but when it is the primary invader it may lower the resistance of the kidney and pave the way

for a more virulent organism. O'Neill thinks that gonorrhoeal infection of the kidney predisposes to renal tuberculosis.

Lehr and Hoover believe that some chronic recurring gonococcal infections of the lower urinary tract are caused by chronic gonorrhoeal pyelitis, and they report cases to support their views.

Kelly and Burnam reported gonococci found in the nucleus of a kidney stone examined by Dr. Gordon.

The literature shows very definitely that the most common lesion in the kidney caused by the gonococcus is a pyelitis. The results of treatment by lavage of the kidney pelvis with silver salts have been exceptionally good.

Routes of infection are through the bloodstream or ascending either directly through the ureter or by lymphatic connections of the bladder and kidneys. It is generally supposed that ascending infections along the mucosa of the ureter by a non-motile bacterium are rare.

It has been suggested that gonorrhoeal pyelitis may not be as uncommon as the literature indicates. Others believe the condition a rare one. In support of the first opinion the experience of many urologists has led them to conclude that gonorrhoeal cystitis is a self-limited disease of a few weeks duration and that gonorrhoeal pyelitis may go on to spontaneous cure. On the other hand urologists of large experience who are constantly catheterizing ureters and making careful examinations of the urine obtained by this method, report very few cases. It is worthy of note that, in the case herein reported, a urine full of pus and containing large numbers of gonococci within a week became almost free of pus and that very few organisms could be found in it. The bladder in this case was found to be normal on cystoscopic examination nine days after the onset of her symptoms of acute pyelitis. After one lavage of the kidney pelvis no gonococci were found on repeated examinations of the urine. This case might have cleared up spontaneously without pelvic lavage.

REPORT OF A CASE

A well-developed, well-nourished woman, aged 20, presented herself for examination April 20, 1920. She complained of a vaginal discharge and burning on urination following coitus four days before.

Past history is unimportant, and a general physical examination revealed no abnormalities.

Pelvic examination revealed very acute vulvitis, vaginitis, and urethritis. Gram-negative intracellular diplococci were found in smears obtained from the urethra and vulva.

The patient was under observation and treatment at intervals for fifteen months during which time several complications developed. She denied having coitus during this period until 1921.

April 26, 1920: The right wrist became moderately swollen, slightly reddened, and tender. This condition, however, rapidly subsided with complete recovery within two weeks.

May 10, 1920: Symptoms and signs of acute pelvic inflammatory disease developed, for which she was treated in the Minneapolis General Hospital for a period of sixteen days, with complete relief of these symptoms.

June 17, 1920: The uterus was enlarged and softened. She had not menstruated since the infecting coitus.

June 26, 1920: The patient induced an abortion.

Nov. 9, 1920: Complains of burning urination, which began two days ago. A smear from the cervix revealed intracellular and extracellular, Gram-negative, biscuit-shaped diplococci. In a urethral smear only extracellular organisms were found. The Wassermann was negative.

Nov. 12, 1920: She was confined to her bed with pain in the lower abdomen. Her temperature was 101.8°; pulse, 90. There was marked tenderness over the lower abdomen and in the vaginal fornices, but no masses were felt.

Nov. 17, 1920: There has been no pain since the 14th until to-day, when it returned. Bilateral masses were felt on bimanual examination.

Nov. 19, 1920: The patient was suddenly seized with an attack of violent pain in the right side below the ribs, which lasted a few minutes and recurred at intervals of about fifteen minutes. She cannot lie on her back during an attack. There was no nausea or vomiting. The pain in the lower abdomen had almost disappeared, but she had frequent and painful urination.

On examination the abdomen was normal in outline, very tender over the right upper quadrant, but there was very little tenderness over the lower abdomen except in the middle just above the symphysis. There was great tenderness in the right loin posteriorly. The kidneys were not felt, and no abdominal masses were felt. Her temperature was 99°; pulse, 70; respirations, 18. The leucocyte count was 8,200. A catheterized specimen of urine contained a considerable amount of pus and a large number of intracellular and extracellular, and Gram-negative, biscuit-shaped diplococci. No other organisms were found in the smear.

Nov. 23, 1920: The left shoulder joint became painful and tender and remained so for three days.

Nov. 28, 1920: There was some pus in the urine although the urinary symptoms and pain in the right side had disappeared. Cystoscopic examination showed a normal bladder with normal ureteral orifices functioning normally. The right ureter was catheterized and the pelvis found to hold 10cc. Injection of the right kidney reproduced the pain complained of on the 19th although not so severe. The urethra was narrowed 1 cm. within the external meatus by a thin annular stricture which was less than 5 mm. in diameter. This stricture was dilated before the cystoscope could be passed. Centrifugalized sediment from the right kidney urine and from

the bladder urine both showed some polymorphonuclear leucocytes, epithelial cells, and a few intracellular and extracellular, Gram-negative, biscuit-shaped diplococci. No other organisms were found in the smears. The right kidney pelvis was washed out with 0.1 per cent silver nitrate solution. Smears from the cervix and Skene's glands revealed organisms similar in morphology and staining properties.

February 24, 1921: Smears from Skene's glands showed typical gonococci for the last time on this date although a number of smears were examined at later dates. The urine was found to be free of organisms and pus cells on several examinations after the cystoscopic examination.

April 25, 1921: The patient was sent to the hospital with a provisional diagnosis of extra-uterine pregnancy on account of menstrual irregularities and pain in the left side of the pelvis with tenderness and the presence of a small mass in the left tubal region. On examination under an anesthetic small bilateral masses were felt, and a diagnosis of chronic pelvic inflammatory disease was made. This diagnosis proved to be correct when the abdomen was opened. Pelvic adhesions were released, and the tubes and appendix were removed.

July 14, 1921: The patient reports that she feels perfectly well and has worked every day since May 10.

CONCLUSIONS

1. Proven cases of gonorrheal infection of the kidney are rare.
2. The most common lesion in the kidney caused by the gonococcus is a pyelitis.
3. Pyonephritis may be caused by the gonococcus, but usually a mixed infection is present and the primary invader cannot be determined.
4. Results of treatment in cases of gonorrheal pyelitis by lavage of the kidney pelvis with solutions of silver salts, have been almost uniformly successful.
5. Vaccine therapy alone in these cases has been uniformly unsuccessful.
6. Gonorrheal pyelitis may cause recurring gonococcal infections of the lower urinary tract.

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STUDIES ON THE RESPIRATORY ORGANS IN HEALTH AND DISEASE

XI. A PRELIMINARY STUDY OF THE VITAL CAPACITY READINGS OF UNIVERSITY STUDENTS

From the Students Health Service and the Department of Internal Medicine, University of Minnesota

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MINNEAPOLIS

Since 1902 Dr. L. J. Cooke, director of the Department of Physical Education for Men at the University of Minnesota, has included in the routine physical examination of all entering students, a measurement of vital capacity. With the establishment of the University Health Service, in 1918, the two departments have enjoyed a close co-operation, and, among other measures intended for the betterment of the individual student's health, each department furnishes the other with information regarding defects discovered at the entrance examination and with advice concerning subsequent changes occurring in the student's physical condition. The following analysis of a small group of vital capacity determinations was undertaken with a view to the possibility of adding somewhat to existing knowledge of lung-capacity measurements in a definite social group of individuals and also to prepare the way for subsequent studies when more complete data become available. By means of a follow-up system now established at the University Health Service it is also hoped that any student showing abnormalities without apparent cause may be re-checked at intervals of 1, 3, 5, or 10 years.

METHODS EMPLOYED

For the entrance examinations in September, 1921, there were available records of 1,304 male students. These, of course, represented no selected group except that all were of college age and, for the most part, in good health. The vital capacity of each, which was taken by means of a water spirometer giving accurate readings, was compared to the weight of each and the percentage of normal was quickly computed by means of the table devised by Myers,¹ which is based upon Dreyer's^{2,3} formula: $W 0.72/V.C.=K$. The merits of this formula and the means of computing the table are fully discussed elsewhere and will not be taken up here.^{4,5} This served as an extremely convenient and, it is believed, fairly accurate means of arriving at the individual's vital capacity in terms of normal percentage. While the formula referred to takes into

consideration surface area, as well as weight, and while standing height in proportion to weight was considered in determining those students 7 per cent or more overweight, according to the Prudential Life Insurance tables, it is regretted that stem height measurements and fluoroscopic examinations of the chest were not also available. It is hoped to add these and other observations in subsequent studies.

In view of the likelihood of error in the examination of so large a number of persons in a comparatively short time all those falling below 90 per cent of a normal vital capacity according to the table were notified of that fact and requested to return for another examination. At this time height, weight, stem height, and lung capacity were re-checked, plenty of time being allowed to explain the mechanism of the spirometer to the student and the highest of a minimum of three readings being recorded. It was frequently found in doing this that the student would blow between 100 and 200 c.c. higher at each of three trials, finally reaching a maximum which he could repeatedly attain at all subsequent trials. If the corrected vital capacity reading was still below 90 per cent of the normal a careful history was taken and a complete physical examination repeated in an effort to determine any possible cause. A water spirometer made after the pattern of Peabody and Wentworth⁶ was used, weight was recorded stripped and height was measured in bare feet.

RESULTS

Table I gives the percentage groups, first, before re-examination of those below 90 per cent and, second, after re-examination of the subnormals. In the first column (before re-examination) it will be seen that the number below 85 per cent (12.68 per cent) and the number below 90 per cent (21.50 per cent) is comparable to the figures obtained by Hewlett and Jackson,⁷ who, however, had a group of 400 male college students selected as being free of physical defect. The percentages also vary only slightly from those recently reported by Myers and Myers.⁸

After re-examination, however, the number below 90 per cent of normal was reduced by almost one-third, leaving a corrected total percentage of 14.27 per cent of the 1,304 students who were still below 90 per cent of normal vital capacity.

TABLE I

Analysis of vital capacity readings of 1,304 men students before and after re-examination of those below 90 per cent of normal.

	Before re-check of subnormals		After re-check of subnormals	
Below 85% of normal capacity	165	12.68%	109	8.36%
85% to 89% of normal capacity	115	8.82%	77	5.90%
Total below 90% normal capacity	280	21.50%	186	14.26%
90% to 99% normal capacity	394	30.21%	435	33.36%
100% to 109% normal capacity	385	29.52%	418	32.05%
110% and over	245	18.78%	265	20.32%
Totals	1,304	100.01%	1,304	99.99%

Of the 186 students below 90 per cent of normal, only 109, or 8.36 per cent, were below 85 per cent of normal. It was in the group of 77 students between 85 per cent and 89 per cent that the largest number of undetermined causes for a measurement below 90 per cent occurred.

It will be seen further, that 853, or 65.41 per cent, were between 90 per cent and 110 per cent, and that a comparatively large number, 265 or 20.32 per cent, were above 110 per cent of normal. One or two of these went as high as 130 per cent.

Of the 186 students whose lung capacity was less than 90 per cent of normal even after re-checking their physical measurements and allowing each to attain his maximum reading on the spirometer by repeated trials, the following analysis was made of the probable causes in each case. The results are summarized in Table II. Underweight, acute infections, and glycosuria are only possible causes. War wounds are those of thorax, abdomen, and shoulder girdle.

TABLE II

Demonstrable causes of vital capacity below 90 per cent of normal in 186 men students

Condition	Per cent of 186	Per cent of total 1,304
Pleurisy and pneumonia (history or physical evidences)	32	17.20% 2.4%
Overweight (7 per cent or more according to table of		

Prudential Life Ins. Co.)	22	11.83%	1.7%
Cardiac Disease	19	10.22%	1.5%
†Underweight (7 per cent or more according to tables of Prudential Life Ins. Co.)	13	6.98%	1.0%
Gassed	4	2.15%	0.3%
Tuberculosis, pulmonary	4	2.15%	0.3%
War wounds	4	2.15%	0.3%
†Acute infections	3	1.61%	0.2%
Spine deformity	2	1.09%	0.2%
Pulmonary disease (type not determined)	2	1.09%	0.2%
†Glycosuria	1	0.53%	0.05%
	106	57.00%	8.15%
*Undetermined	80	43.01%	6.1%
Totals	186	100.01%	14.25%

†Only possible causes.

*This figure is probably slightly too high due to incomplete examinations of some students who were unable to meet the examiner at the appointed time.

From this table it appears that there was a demonstrable cause for a low vital capacity measurement in 106 of the 186 students; or, mathematically, there were 8.15 per cent who had physical defects contributory to low lung capacity. Of the 80 students in whom the cause of a low reading was undetermined many fell into the group between 85 per cent and 89 per cent, while several were unable to complete their examination for various reasons.

DISCUSSION

Since this is a preliminary study and to be followed by more complete work with necessary additional data, no conclusions will be drawn at this time. The danger of error in taking hasty spirometer readings is shown here in the fact that approximately one-third of the readings below 90 per cent of normal were found to be in error. This is due largely to the fact that the time for physical examinations of incoming freshmen is necessarily limited and that many of the students are suffering some nervous apprehension at the prospect of a medical examination. The lung capacity test, however, is one measurement which cannot be taken hastily.

The large number (20.32 per cent) who have a capacity over 110 per cent of normal is believed significant, in that any of these individuals might suffer a reduction of vital capacity through disease, varying from 15 to 30, and even in one case, 40 per cent, and still be considered normal if previous records of lung capacity were not available. The importance of taking early vital capacity measurements in suspected pulmonary disease and comparing them with subsequent

readings has already been emphasized.^{9, 10}

Pleurisy and pneumonia show a rather high incidence in men of this age (2.4 per cent of the total).¹¹ This may possibly be accounted for by the pneumonia complications seen in the influenza epidemic and also by the fact that the group examined contained quite a number of trainees from the United States Veterans' Bureau. The next most common cause of low lung capacity was overweight which was 1.7 per cent of the total. Closely following this was cardiac disease showing in 1.5 per cent of the total.¹²

Finally, it is interesting to note the coincidence of so close a similarity between the number of students having a vital capacity of less than 85 per cent of normal and the number in which a cause for low vital capacity was demonstrable. There were 109 students, or 8.35 per cent, having a reading below 85 per cent of normal, while there were 106, or 8.15 per cent, having apparent causes for a low vital capacity measurement.

Indebtedness is acknowledged to Dr. H. S. Diehl, who, as director of the University Health Service, has made possible the work now under way. Appreciation is also expressed to Dr. L. J. Cooke, who has placed necessary data of the Department of Physical Education at our disposal.

SUMMARY

The vital capacity measurements of 1,304 male college students were studied.

After careful re-examination of all those falling below 90 per cent of normal lung capacity, 8.36 per cent were found to be below 85 per cent of normal, 14.26 per cent were below 90 per cent of normal, and 20.32 per cent were above 110 per cent of normal.

Of those below normal, pleurisy and pneumonia were found responsible for 17.20 per cent, overweight for 11.38 per cent, and cardiac disease for 10.22 per cent.

Apparent cause for low vital capacity measurement was found in 8.15 per cent.

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RUPTURE OF THE BLADDER*

BY PIERRE C. PILON, LL.B., M.D.

PAYNESVILLE, MINNESOTA

When confronted with a severe case of trauma the surgeon usually makes a careful examination of the patient. The whole body is gone over in search of wounds, contusions, lacerations, and broken bones, but his duty does not end there, for he must also keep in mind the fact that severe injury of the internal organs is possible without any external physical marks. Rupture

of the intestine, the kidney, or of the liver and even laceration of the lung have been found where no indication of violence could be detected on the external surface of the body. The same can be said of lesions of the bladder, and I shall confine myself to the latter subject.

Rupture of the bladder sounds as a rather unusual thing, and yet a brief review of the literature of the subject shows many hundreds of

*Presented at the annual meeting of the Soo Surgical Association.

cases already reported, and medical literature presents reports of several cases of this injury every year, and it is the conviction of those who have experience that many go unrecognized with other similar injuries of the other cavity organs under the general caption of "internal injuries."

The frequency of the injury is said to be greater in the male than in the female because the hazardous occupations of the former expose him more frequently to severe trauma. Rupture of the bladder does not, however, depend entirely upon external violence. While there are cases in which after a severe fall or a crushing injury some bony part of the pelvis has penetrated the bladder, and also in which rupture has followed severe compression of the abdominal contents, there are also cases where rupture of the bladder has followed such apparent insignificant injury as a sudden jar caused by a fall or misstep or even over-distention. A case is reported in which violent muscular efforts of the patient in the early stages of anesthesia caused the rupture of a distended bladder. Turnure (*Annals of Surg.*, vol. lvi, p. 807) reports two cases without a history of trauma.

Several factors besides direct violence predispose to rupture of the bladder, among which are the condition of fullness of the bladder distended by urine or liquids sometimes used in the treatment of cystitis by irrigation, ulcers of the bladder, sometimes large, sometimes minute; also a condition of chronic cystitis which has engendered some degenerescence of the walls of the bladder. It is also the opinion of many writers that inebriety predisposes to rupture by numbing the bladder to the sense of distention. This conclusion is arrived at by the frequent observation of such an injury to persons found in the state of inebriety or drunkenness.

Classification.—Rupture of the bladder has been generally classified as *intra-peritoneal* and *extra-peritoneal*. It may vary in size from a simple puncture to a tear of several centimeters in length. In the *intra-peritoneal* variety the seat of greater frequency is found to be in the posterior wall. The *extra-peritoneal* generally takes place in the anterior wall into the prevesical space and more rarely in the vesicorectal tissues. A few cases have been reported where the laceration was both *extra-peritoneal* and *intra-peritoneal*.

Symptoms.—What are the symptoms of rupture of the bladder? I shall not here enter

into consideration of the cases accompanied by crushing injuries of the bones of the pelvis, but rather those of obscure origin. The symptoms vary according to the seat of the lesion. If of the anterior wall, there are usually prevesical pain, and eventually a distention of the suprapubic space by a mass varying in size. This mass does not disappear if the catheter is passed. If the rupture has been *intra-peritoneal* there will be no such manifestation, but rather a sense of vacuity to touch and palpation. The catheter will fail to draw urine, or this will be only in small quantity and usually tinted with blood. Both in the male and female, palpation, external and bimanual, should be made either through the vagina or the rectum to determine the condition of fullness or emptiness of the bladder and of infiltration of the tissues. The symptoms of rupture of the bladder may be immediate in their acuteness, and there usually follows pain of severe character in the lower abdomen with vomiting, rapid pulse, and shock. However, it sometimes happens that, owing to other concurrent conditions the pain does not appear immediately, as in the cases where drunkenness has been present or the rupture has been so small as to permit only minute quantity of urine to be effused into the peritoneal cavity or surrounding tissues. It is well known that normal urine will excite a non-septic plastic localized peritonitis. (Douglas.)

Two symptoms which are almost invariably present are dysuria and constant desire to void urine. The passing of a catheter at that stage may bring blood-stained urine or what seems to be pure blood. It has been suggested to test the capacity of the bladder by the injection of air or sterile liquids, measuring the quantity injected and the quantity returned, any diminution in the amount of the latter being considered a positive indication, but the practice is condemned because of the danger of carrying infection into the peritoneum or cellular tissue in case of perforation. For the same reason the use of the cystoscope is not recommended except possibly the Kelly in the female, but even this can not be considered with much favor owing to the genupectoral position it requires. In the cases in which the rupture has not been extensive urine may still be drawn in fairly large quantity up to several ounces. If the laceration has been extensive the catheter may bring only a few drops, but in all cases where the lesion is suspected the

use of the catheter should be relied upon to help clear the diagnosis.

Diagnosis.—The diagnosis lies mostly between rupture of the bladder and suppression of urine. In the latter case there is absence of vesical tenesmus, and the bloody discoloration will not be present.

Prognosis.—The prognosis of the lesion varies considerably as to the location of the tear and the promptitude of the surgical intervention, which is absolutely indicated in these cases. Among the cases reported, those which were operated on during the first twenty-four hours after the injury had taken place showed a recovery of nearly 50 per cent, while the cases operated on the second and third day almost invariably proved fatal.

Operative Procedure.—As to surgical intervention: It is the consensus of opinion that upon the diagnosis being made, or as soon as symptoms of peritonitis appear, the abdomen should be opened from umbilicus to symphysis so as to expose the bladder as largely as possible. If intraperitoneal rupture has taken place urine will be found in the peritoneal cavity. This urine should be carefully sponged away with sponges carried down into the pelvic cul-de-sac. After drying the peritoneal cavity, the patient should be placed in the Trendelenburg position, and large pads of gauze used to cover the intestines so as to prevent further distribution of the urine to the upper abdominal cavity. In that position the posterior wall can be exposed to view and carefully explored. The use of rectal balloons is looked upon with discredit by most of the reporters. It is better to expose the bladder by traction on its different portions to reveal the rupture. Cases have been reported in which rupture was so minute that it could be detected only by the use of intravesical injections to bring out the seat of the rupture; but this practice is to be considered only during the operative procedure. As a rule the rupture varies in size in the various layers of the bladder wall, being smaller in the mucosa than in the muscular and serous coats.

Closure of the laceration is done preferably by suture with fine silk. The first row of sutures takes up the muscular and serous layers, *carefully avoiding the mucosa*, and another row buries the first one Lembert fashion. Drainage with a cigarette drain through the abdominal wall or through Douglas' pouch in the female, is recommended. If the laceration has taken

place in the prevesical space the closure is effected in the same manner and with drainage also. If in the rectovesical space the injury is treated by perineal incision extending to the seat of the rupture and guided by the effusion of urine and blood. This is followed by simple packing with gauze.

Multiple ruptures will be found present only in cases of injuries by perforating wounds.

DISCUSSION

DR. ARTHUR N. COLLINS (Duluth, Minn.): If the symptoms of rupture of the bladder are clear, operation is indicated without doubt at once. Where there is any question concerning diagnosis, I personally feel that cystoscopic examination is in order. When, however, we can obtain but a few cubic centimeters of urine through the catheter, I see no reason for hesitating to operate.

By all means we should avoid using non-absorbable suture material in the bladder. I have seen a number of cases where stones have been found in the bladder with a core originating from non-absorbable suture material which had been used in a previous operation on the bladder.

DR. JOHN H. RISHMILLER (Minneapolis, Minn.): There are two points which strike one very forcibly in ruptured bladder: First, the profound shock or prostration in extraperitoneal rupture; and second, in operating for repair of a ruptured bladder, the closer one can keep to the technic of securing drainage following prostatectomy the better.

DR. FRANK S. WILEY (Fond du Lac, Wis.): I wish to report a case of extraperitoneal rupture of the bladder occurring a short time ago following a crushing injury of the pelvis in an automobile accident. The patient was brought in during the night in profound shock. He was unable to void urine in the morning. We catheterized and found a little bloody urine. He had sustained a fracture of the pelvis involving the pubis, the ischium, and the ilium, in which there was a slipping by of three-quarters of an inch, and the pubis had penetrated the bladder anteriorly. There was a large hematoma in the lumbar region and also in the left iliac region. Sixteen hours after the injury we opened him up and put in three large drains, making no attempt whatever at closing the urinary bladder. All the urine was drained off. The bladder healed very promptly, the patient has absolutely no vesical irritation, and he voids urine four or five times in twenty-four hours with no inconvenience whatever. I believe in going down and getting free drainage and lots of it, and this is why we obtained prompt relief in this case.

Under anesthesia we attempted to bring the bones down by traction, but did not accomplish a great deal and were unable even afterwards to accomplish a great deal in bringing the bones in apposition, although the x-ray to-day shows that good union has taken place, and the patient can move about quite readily.

DR. GEORGE F. THOMPSON (Chicago, Ill.): I think that extraperitoneal rupture of the bladder causes greater shock than does intraperitoneal rupture.

As to diagnosis: A very good way to determine that the bladder is not ruptured is to fill it with boric acid solution. While this is a good method, sometimes it does not work. I had a case in which we distended the bladder to a considerable degree. I do not remember how much of the solution we put in, but we recovered the whole amount of boric acid solution and still the symptoms of intra-abdominal injury persisted. We found a rent in the bladder an inch or an inch and one-half long, but no leakage had occurred. Where in a case of fracture of the pelvis we find blood in the urine, we should look for rupture of the bladder. Then again, these patients have much shock, and when we get this, look for trauma of the bladder.

In cases of intraperitoneal rupture of the bladder

I never drain, but simply sew it tight.

In regard to suturing the bladder: What Dr. Collins has said about the use of non-absorbable material is very true. In a case in the service of Dr. Nagle a patient who developed a cystitis following a laparotomy was cystoscoped, and a stone hanging from the anterior bladder wall was visible, but he could not dislodge it. There was a silk suture with the stone formed on it hanging like a berry on a bush, and one could knock it all around without dislodging it.

I do not think that intraperitoneal rupture of the bladder is so very serious if recognized and operated on reasonably early. I operated on one case nine days after rupture occurred, with the abdomen full of urine, and the man had nothing but a little plastic exudate and marked inflammation of the peritoneum. The bladder was sutured and the abdomen closed without drainage—complete recovery followed.

SOCIAL ASPECTS OF A TUBERCULOSIS DISPENSARY FOR CHILDREN*

BY HYMAN S. LIPPMAN, M.D.

Consulting Pediatrician, Lymanhurst School for Tuberculous Children.

MINNEAPOLIS

It is probably not generally appreciated to what extent the efficiency of an out-patient service rests upon the successful handling of its social aspects. In no case is this more obvious than in such a dispensary as ours at Lymanhurst. Practically the entire burden of this work is carried on by the Department of Public Health. The number of ways in which they assist in this work can best be realized by outlining the complex routine through which the patients are passed. It will be seen that the child is under the constant supervision of the public health nurses from the time the case is suspected, through its examination and treatment, and until discharge. The children that we see are either those who have been definitely exposed to tuberculosis or those who are suspected of tuberculosis because of malnutrition. They are brought in by the parent or by various social agents, but, in most cases, by the public school nurses and visiting nurses. Appointments for the examination of these suspected cases are made by Miss Sprague of the Tuberculosis Division of the Public Health Department.

The history is taken by the nurse in charge, who also charts the temperature, pulse, respiration, vital capacity, and weight before the patient is seen by the examining physician. Our charts illustrate the emphasis placed on the so-

cial aspects of the case, such as hygiene, home environment, and social status.

Following the physical examination, the von Pirquet test is routinely applied. The nurse then takes the patient to the *x*-ray department for chest plates. Two days later a public health nurse visits the home or school, in order to measure the diameter of the reacting areas in the von Pirquet test. If the home is visited, a superficial survey of the condition is made. The report of her visit, as well as the *x*-ray reading, is charted by her before the patient's second visit, one week later.

If the temperature is over 99.6° by mouth at the time of both visits, or if there is a history of afternoon fever, the afternoon temperature is recorded for one week by either the mother or the school nurse.

As soon as the clinical observations are completed, each case is placed in one of several groups for disposal as described below. Here, too, the nurse in our Department is called upon to see that the child arrives at his proper destination.

Before describing the classification for the disposition of our patients, it is advisable briefly to describe the sources to which they are sent:

1. *Glen Lake Sanatorium.* The Hennepin County institution has a separate hospital for tuberculous children. They do not accept children who have tubercle bacilli in the excretions.

*Presented before the Consulting Medical Staff of the Lymanhurst School for Tuberculous Children, March 27, 1923.

2. *Walker Sanatorium.* This is the State Sanatorium for actively tuberculosis patients. There are accommodations here for children, as well as adults. Cases with positive sputa and stools are accepted.

3. *Lymanhurst Ward.* Twenty beds are available here for diagnostic purposes. It serves as a temporary home until the diagnosis can be established.

4. *Lymanhurst School.* An open-air school where children receive, in addition to regular instruction, extra nourishment and constant medical observation.

5. *Trudeau School.* An open-air school without the medical observation.

6. *Orthopedic Hospitals, General Hospital, and dispensaries.*

During the past year we have used the following grouping of our material:

- I. Clinically positive to tuberculosis.
 - A. Pulmonary tuberculosis.
 1. Tubercle bacilli present in sputum or stool. (*Walker Sanatorium.*)
 2. No tubercle bacilli in sputum or stool. (*Glen Lake Sanatorium.*)
 - B. Bone and joint tuberculosis. (*Orthopedic hospitals after preliminary observation in Lymanhurst Ward or at General Hospital.*)
 - C. Gland tuberculosis.
 1. Acute. (*Lymanhurst Ward—Glen Lake Sanatorium.*)
 2. Subacute. (*Lymanhurst School.*)

When the above types become quiescent, if the patients are of school age, they are sent to Lymanhurst or Trudeau School unless they are sufficiently well to return to their regular school. Before they may return to their regular public school a report is sent to the health department, stating that the case is negative to tuberculosis.

We rarely see cases of tuberculosis of the genito-urinary, gastro-intestinal tracts or of the nervous system. Such cases would be referred to the Lymanhurst Ward until the diagnosis had been established.

- II. Clinically doubtful to tuberculosis. (This group will be more fully discussed in another paragraph.)
 - A. School children. (*Lymanhurst School—Trudeau School.*)
 - B. Below school age. (*Home, under advisement.*)

III. Clinically negative to tuberculosis.

- A. History of exposure—Normal child. (Regular school. Return to Lymanhurst Out-patient Department at stated intervals for observation.)
- B. Malnutrition with foci of infection. (General Hospital Dispensary.)
- C. Normal child—Pirquet positive. (Returns to Out-patient Department every three or four months for one year.)

In all cases when the patients have a private physician they are referred to him for treatment.

Our most difficult problem is the disposition of the border-line cases. One need only work with groups of such children as we meet at Lymanhurst to appreciate that there are no clean-cut differences between the doubtful cases and those free from tuberculosis.

The child that presents the greatest difficulty is the one who has been exposed to tuberculosis, is malnourished, and yet shows no clinical signs sufficient to make a definite diagnosis of tuberculosis. The malnutrition in many of these cases can be partly explained by infected tonsils, sinuses, and teeth. Others have just gone through an acute illness which has caused the poor state of nutrition. Despite the fact that we have causes other than tuberculosis to account for their physical findings, we must remember that they have been definitely exposed to a disease whose prodromal symptoms are dangerously difficult to recognize. Still others in this group of exposed cases, although physically in a fairly good state, give a history of fatigue on slight exertion, loss of appetite, loss of strength, and failure to gain. The home environment of such patients is investigated by our nurse. If there are no gross errors of hygiene or diet, we assume that these children have an early stage of tuberculosis, which requires treatment. We, therefore, recommend that they be admitted to Lymanhurst School for observation.

I have gone into detail in the question of disposition of patients because, in addition to emphasizing the degree to which we depend upon the public health workers, it may serve as a help to other out-patient departments of a similar nature.

More important to the community at large than the handling of the individual case, is the follow-up work in the home to discover the source of the infection. Shortly after a patient with active tuberculosis visits our Department, the nurse visits the home and makes

every effort to have the other children of that family, or of other families exposed, come into Lymanhurst for examination. In many instances she is met with an attitude of indifference or even resistance, so that several visits are often required in gaining their co-operation. The handling of the family is a problem in itself and demands tactful and diplomatic workers. The difficulties of the pioneers who struggled to get into the homes in the fight against tuberculosis have, fortunately, to a great extent, been overcome.

After the child has done well at school and is considered well enough to return to his regular school work, he is reported negative to tuberculosis by the school medical staff. One of the duties of our nurses is to see that he returns to the Out-Patient Department at frequent intervals, as we may request, until we feel that close supervision is no longer necessary.

Since the establishment of the Lymanhurst Out-patient Service more than a thousand children have been examined. Of this number, 259 were reported as having suggestive or conclusive clinical evidence of tuberculosis. During the previous years, an average of 100 was reported. The importance of reporting these cases cannot be over-emphasized since this is the initial requirement upon which preventive work in tuberculosis must be based.

Lymanhurst has been incorrectly considered an institution for isolating tuberculous children from their fellow-students whom they may contaminate. Because of this impression many mothers have dreaded sending their children to Lymanhurst. We should emphasize to the public and to the medical profession that active cases of tuberculosis are recommended to institutions where they can be treated as bed patients.

Lymanhurst School contributes its service to the students within its doors. The benefits to be derived are immediate ones. Ultimately the general community will also benefit from such a program.

If the health of the Lymanhurst School stu-

dent is to be insured, he must be completely removed from danger. He should not return to a home where the surroundings are conducive to infection. Often the few precautions at first observed in the home harboring a patient with active pulmonary tuberculosis are discarded when the children have been admitted to the open-air schools. The responsibility for the care of these children is suddenly shifted to those in charge of the school. In such homes poverty often necessitates the crowding of children in a manner that serious exposure cannot be prevented. The Children's Protective Society has attempted to board these children in private homes, but has usually met with difficulties. People are not eager to expose themselves to children who have lived with tuberculous parents. Such children are cared for in other cities in preventoria, where the same treatment given in the open-air school is continued throughout the entire day. Our problems would be simpler if a similar institution could be erected here. We feel confident that the same forces which have made Lymanhurst a reality can be successfully directed toward the promotion of such a home. It is very likely that under such conditions many of our students who have stubbornly refused to gain would react differently to the care they receive at Lymanhurst.

When we realize the value of the public health side of our problem, it is imperative that a sufficient staff be at the disposal of the tuberculosis division. At present, after considerable effort, six nurses have been obtained to care for the work that could with difficulty be handled by ten. It would seem that, inasmuch as such sums are being expended for the maintenance of the open-air schools, it would be advantageous to more thoroughly insure the investment.

I hope I have succeeded in leaving the impression that the success of our out-patient department rests in a great measure on the proper management of social problems.

Note.—My thanks are extended to Dr. Harold Rypins for helpful suggestions.

THE CLINICAL LABORATORY: III. BLOOD*

BY WALTER E. KING, A.M., M.D.

SAINT PAUL

UREA NITROGEN

Heretofore the condition of nephritis has been diagnosed by the presence of high blood pressure and the urinary findings, such as albuminuria, the presence of casts, pus cells, and other microscopic elements in the urinary sediment. These diagnostic signs, however, do not always indicate the true condition. Many cases of high blood pressure may be diagnosed as nephritis, unless blood chemistry is utilized.

Under normal conditions of metabolism the food nitrogen is carried through the circulating blood to various parts of the body, and through the kidneys the waste nitrogen is excreted. *After a hearty meal there is an increase of urea and uric acid in the blood in marked cases of nephritis. Only a transitory increase is found in the normal individual. Whereas, 12 to 15 mg. of urea nitrogen per 100 c.c. of blood are found in the normal blood, it is estimated that in early interstitial nephritis 12 to 30 mg. are present.* In severe interstitial nephritis, late in the course of the disease a large amount may be found, up to 300 mg. There is also an increase of urea nitrogen in parenchymatous nephritis. As a diagnostic aid in such cases, either the urea nitrogen or non-protein nitrogen should be determined. As urea represents the larger part of the non-protein nitrogen, and as the tests for urea nitrogen are less complex than those for non-protein nitrogen, the former is usually used.

High urea content is also found in the presence of malignant growths, in lead and mercuric chloride poisoning, in intestinal and prostatic obstruction, gastric and duodenal ulcer and severe pneumonia, and severe cases of late diabetes. In gout the urea nitrogen together with uric acid is increased.

In prognosis the urea determination is of special value in nephritis and prostatic obstruc-

tion. It is stated that in the latter condition the prostate may be subjected to careful surgery with favorable prognosis, when the urea content of the blood does not exceed over 30 mg. per 100 c.c.

In cases of nephritis careful comparison should be made between the urea content of the blood and the urine. For instance, if a patient shows a high blood urea level with high urea content in the urine, a rather favorable prognosis can be made, because it is evident that the kidneys are functioning fairly well. On the other hand, if the urea content of the urine is low, while the blood urea level is relatively high, it is clearly indicated that the kidneys are functioning very poorly, and that the condition is not of good prognostic value.

Schmitz² has reported some interesting data showing that there exists a fairly definite ratio between the urea content of the blood and that of the saliva. This author studied the urea content of the blood and saliva of a number of cases, including diabetes, chronic nephritis, prostatic obstruction, cardiac disturbances, chronic secondary anemia, chronic cholecystitis, and other conditions. As a result he found that from forty-five specimens of saliva and blood from various pathological conditions that the urea content of the saliva averaged 90 per cent of that found in the blood. He concludes, therefore, that the saliva may be utilized in the laboratory for this purpose whenever it is found inconvenient and impracticable to obtain blood specimens.

SUMMARY

A high urea content of the blood is found in early interstitial nephritis, in parenchymatous nephritis, the presence of malignant growths, lead and mercury poisoning, gastric and duodenal ulcer, severe pneumonia, prostatic and intestinal obstructions, late diabetes, and gout.

The normal blood urea level is 12 to 15 mg. per 100 c.c. of blood.

*This is the third of a series of articles by Dr. King on the Clinical Laboratory. The fourth article will soon appear.

2. Schmitz: Journal of Lab. & Clin. Med., vol. 8, 1922, p. 78.

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AS OTHERS SEE US

The attached long quotation is given our readers for several reasons, and we are sure our readers who may not have read the compliments and thrusts in the quotation will enjoy it. In the first place the writer, Mr. John D. Barry, commands a wide hearing in the column which he contributes almost daily to the *Minneapolis Tribune*, under the heading "Living the Life." Our quotation is Mr. Barry's second of two discussions of doctors which have appeared within a few days, and the second is not unlike the first.

It is with certain fallacies, mainly in the form of inferences that seem upheld by Mr. Barry, that we wish to deal. All sorts of inferences will be drawn from the statement that medical men too readily make war on ideas that they consider outlaw and are led to courses of action worthy the Dark Ages. No doubt medical men have acted in the past, and will act in the future, in the spirit of the age in which they lived and are to live; and if martyrs strew the path of civilization they were the victims of the Dark Ages when the science of modern medicine and the spirit of the present age were unknown. The same is true in both science and religion; and it is wholly wrong to include the physicians or the clergymen of to-day with the same classes of

men in the Dark Ages.

The statement that the medical profession must not be allowed to maintain an iron grip on legislation, as it would like to do, is amusing, and yet the inferences that may be drawn from it are exceedingly harmful. The only general legislation asked for by the medical profession is that all men who practice medicine (medicine as defined by the State itself) shall obtain the education that common sense says is demanded of men who deal with health and life. The doctors of America have well-nigh made tools of themselves in their efforts to keep the practice of medicine in the hands of educated men. They know well the limitations of medical science and that only the educated mind can deal, with any degree of success, with the problems that confront the physician; and the States recognize this fact by establishing courses of training in their medical schools, as most states do, that will enable such schools' graduates to render the best service possible in their line. If the people are too ignorant to recognize the superior fitness of the educated man over the uneducated one, then the State must protect the health and life of such people by so-called medical-practice laws. Are physicians getting "an iron grip on legislation" when they ask the State to establish a medical school and to enforce a medical-practice act which simply demands that education be a qualification for a license to practice medicine?

The doctors are accused, by inference at least, of total ignorance of the influence of the mind over the body. We venture to assert that the chief charge brought by educated people against their family physicians is that their physicians do not give enough medicine, but depend upon nature to heal both body and mind. It is the presence of this feeling, in one form or another, that has made the financial success of the faith and the mind healers so great. These healers are just as ignorant of the influence of the mind over the body as is the man who does surgical operations or gives drugs with a limited course of surgical or medical education, of the time to do surgery or give medicine.

It is in inferences drawn from such statements as those made in our long quotation that send people, educated and uneducated, to the charlatans in medicine.

Physicians are largely to blame for the public's ignorance of the problems they deal with and of the limitations of the science of medicine. Mr. Barry's jolts will do them good.

LIVING THIS LIFE

* * *

THE MEDICAL PROFESSION

By John D. Barry

"There's something about doctors. You can often pick them out in the street."

These words, spoken by a woman, a shrewd observer, I've been reminded of frequently during the past few days. I'm inclined to think they're true. There really is something about most doctors that sets them apart. The explanation isn't to be found merely in their way of dressing. They dress very much as other people do. Perhaps a little more soberly than most men. Among a good many doctors there's a tendency, perfectly laudable, to take themselves and their work seriously and to play up.

* * *

Perhaps the distinctive quality is the professional air of doctors, altogether different from the air of lawyers, for instance. It's not easy to define and yet it's plain enough. It comes, very largely, at any rate, from intimacy of relation with other people, from sense of responsibility and from a fine kind of assurance, the kind related to self-respect and to the feeling of concern with work of importance.

Here is where most doctors are to be envied, it seems to me. They think their work is worth while. They love it for its own sake. They have an immense advantage over those, a pitifully large number, by the way, who think their work isn't worth while and long to be doing something else even though what they are actually doing may be financially profitable.

* * *

In another way doctors are lucky. Their work tends to keep them from growing stoddy. If they are good for anything at all, they have to exercise their wits. The mere routine practitioners, of course, aren't to be counted here. They're like all routine workers. They reach a certain point and there they stick. By sticking there they may do a good deal of mischief. The progressive doctors, for instance, realize that their work is changing all the time. Discoveries are made every day, some of them revolutionary. The best men are always on the track of what is new. And yet they have to watch out to avoid mere faddishness and blundering experimentation.

Here, as all observers of what is going on now in the way of health study are well aware, is a ticklish subject. Though individual practitioners realize the importance of being alert and open-minded, the medical profession as such is of all professions one of the most hide-bound and narrow and tyrannical. It stands on certain principles that it regards as fundamental without being absolutely certain whether those principles are fundamental or not. Only too readily it makes war on ideas that it considers outlaw and on systems out of harmony with established practice. In its very devotion to the maintaining of high standards it may be led to courses of action worthy of the Dark Ages. The history of medicine is strewn with records of martyrdom. In its concern to head off the influence of false gods it sometimes goes to extremes of ruthlessness.

* * *

At this time of all times, there is need of a wider range in freedom for the iconoclasts, the breakers down of those traditions that have hardened into impositions operating like dogmas. There's no place for dogmas in medicine. And the medical profession, immensely useful as it has been and it's bound to be in the future, must never be allowed to maintain an iron grip on legislation as it would like to do.

During the past half century there has been an astonishing change in the relation between doctors and the world. Once they were concerned almost wholly with the body. They placed their chief reliance on drugs. The mind and the spirit they left to the educators and to the clergy. With the decline in the appeal of religion, so notably illustrated, for example, by the popular indifference today to the reading of the Bible, the doctors began to take on something of the authority so long held by the church and by the schools. At the same time they were beginning to appreciate as they had never done before the way the body and the mind work together and influence each other.

* * *

What a tumble drugs have been taking. And yet it's safe to assume that it isn't nearly so great as it's going to be during the next quarter of a century. Many of the very doctors that used to be scornful of the claims made for mental influence are now waking up to the power of that influence and utilizing it in their practice. They are seeing that it's in the field of the mind the most significant revelations are being made.

There's the present-day talk about glands. It may seem as if what has already been found in regard to glandular control were merely physical. It goes much deeper. When it points out the effect of glands on the mind it indirectly calls attention to the effect of the mind on glands. It shows that there's interplay there, and that, no matter how strongly the individual may be influenced by his physical endowment, he nevertheless has within himself the means of remaining the captain of his soul.

* * *

Some one has called the doctors "the new confessors." The description is apt. In some ways they have more power than the most orthodox of the clergy. There's the matter of operations, for instance. Now that we've passed out of the period when drugs were the chief reliance of doctors we are in another period very similar, when surgeons are having their own way and casually sending people to the operating table. Is it at all unlikely that the not far distant future will look back on the present with amazement as the era of the flesh and bone cutters? Already it looks as if, even in the realm of surgery, the mind might be about to work an influence almost magical. In the medical profession itself echoes are heard of a questioning about the widespread use of the knife and its effect on organisms so nicely balanced, so complex and, in spite of science, as yet so imperfectly understood.

* * *

BOOK NOTICES

THE SURGICAL CLINICS OF NORTH AMERICA. Vol. II, No. 5, Southern Number: Philadelphia and London: W. B. Saunders Co.

To say the least, this Southern number has fully maintained the high standard set by the preceding numbers of the Clinics. It would be impossible to justly review all the forty-six clinics of the fourteen contributors to this issue in the space at our disposal. The reader is sure of pleasure and profit through a perusal of the contributions of such men as Matas, Parham, and Martin, of New Orleans; Haggard, of Nashville; Horsley and McGuire, of Richmond; and Thompson, of Galveston. A few examples from among the clinics might be mentioned:

The second clinic of Dr. Matas is an operative one,—arteriovenous fistula of the femoral vessels. Before operation the Branham bradycardiac phenomenon was demonstrated, and tests for the efficiency of the collateral circulation were performed. At operation the two vessels are separated and each is closed by lateral angiorrhaphy. In the discussion after the operation the operator emphasizes the importance of postponing the vascular repair until the collateral circulation has been established and developed to a fair degree of efficiency. On the other hand, the prognosis is affected by the great disturbances of the heart, arterial vessel walls, and veins caused by the short-circuiting of the bloodstream. The various methods of repairing the injury are discussed, especially emphasizing the methods which allow the preservation of one or both of the main vessels.

Dr. Horsley's first case is one of duodenal ulcer and is treated by performing a pyloroplasty. The operation, as in the preceding case, is fully described and illustrated. After the operation the surgical and medical features of the treatment of duodenal ulcer are discussed by Drs. Horsley and W. T. Vaughan. Three types of operation are discussed: pyloroplasty; gastro-enterostomy, and simple excision of the ulcer. Each has its place according to the conditions present. The importance of post-operative rest for the stomach is emphasized, and Dr. Vaughan gives the post operative régime in detail.

The reviewer has enjoyed the other clinics of the volume but a description of them all would require much more space than is at his disposal.

The volume has 326 pages and 126 illustrations.
—THEODORE H. SWEETSER, M.D.

DISEASES OF THE THYROID GLAND. By Arthur E. Hertzler, M.D., F.A.C.S. Professor of Surgery in the University of Kansas School of Medicine; Surgeon to the Halstead Hospital, Halstead, Kansas; Surgeon to St. Luke's Hospital and St. Mary's Hospital, Kansas City, Mo., and to Provident Hospital, Kansas City, Kansas. With a chapter on the hospital management of goiter patients by Victor E. Chesky, A.B., M.D. Associate Surgeon

to Halstead Hospital. One hundred six original illustrations. St. Louis, Mo.: C. V. Mosby Company, 1922.

This book is a distinctly valuable contribution to the subject of diseases of this gland and the remedial measures to be employed in their management. The observation of these cases in a hospital thoroughly equipped, but remote from densely populated centers, where quietude and salubrity of environment may be secured, is properly stressed. Drawing, as it does, patients from its immediate vicinity, largely permanent residents, offers opportunity for follow-up work, even to extending intimate observation over a long term of years and to the ultimate termination of the cases, which urban hospitals might not afford.

As to the etiology of goiter, the author does not seek to offer much that has not already been recorded and states that, "Leaving pelvic lesions and gonadal deficiency out of the question as etiological factors in the sudden transition from a quiet and apparently harmless, to a violently toxic form of goiter, we are evidently far from the cause."

The morphology and histology of the thyroid gland are succinctly delineated, without verbosity in an interesting and illuminating manner. The pathological grouping of goiters is an approach to systematizing them in a manner of inestimable value to the beginner, if not to the older and more experienced operator, as enabling him to recognize, at the time of operation, tissue to be removed, as well as the properly functioning parts to be left. The author's opinion regarding macroscopic appearances in certain forms of fibroid degeneration (p. 54 et seq.) is not ambiguous, from his statement that the neurogenic origin is far from being an established fact. The number of hypotheses as to the cause of exophthalmos indicates a wide divergence of opinion. The author considers basal metabolism as of value, only as an adjunct to a careful and competent clinical examination, as one not, per se, infallible as to operative risk and clinical course, a conclusion which seems eminently reasonable. His statements throughout are characterized by refreshing frankness, and with truth he states that removing a part of a generally bad gland does not leave a good one behind, and that, therefore, a latent cause of sudden and even fatal flaring up of the disease is always to be reckoned with.

The subject of pre-operative and postoperative hospital treatment is well presented by Dr. Victor E. Chesky.

The plates are clear, showing the regional anatomy and the various steps of the operation for partial or complete extirpation of the gland, as practiced by the author.

—THOS. F. QUINBY, M.D.

NEWS ITEMS

Dr. F. S. Selle has moved from Winthrop to Milwaukee, Wis.

Dr. R. W. Allen has moved from Crary, N. D., to Tower City, N. D.

Dr. John L. Montgomery, of Minneapolis, has moved to Seattle, Wash.

The new St. Vincent's Hospital building at Billings, Mont., began to receive patients last week.

Dr. O. M. Lanstrum, of Helena, Montana, has returned from an extended visit to China and Japan.

Dr. Walter T. Anerson, of St. Paul, was married last month to Miss Emily Canby, of the same city.

The Moody County Hospital Association at Flandreau, S. D., has incorporated with a capital of \$25,000.

The Sioux Valley Eye and Ear Academy held its twenty-first semi-annual meeting at Omaha, Neb., last week.

Over thirty subscriptions of \$1,000 or over have been obtained for a new hospital building at Valley City, N. D.

Dr. C. E. McCauley, of Aberdeen, S. D., has been appointed grand medical examiner for the A. O. U. W. of South Dakota.

Lieut-Col. Craig R. Snyder, of the Medical Corps, U. S. Army, has been transferred from Fort Wayne, Ind., to Fort Snelling.

Work on the building for the George Chase Christian Cancer Institute of the University of Minnesota will be begun in the fall.

In June, 1922, the Ancker Hospital of St. Paul admitted 421 patients, and in June of the current year it admitted 640 patients.

The sale of "filled milk" is now prohibited in Minnesota. "Filled milk" is milk in which coconut oil has been substituted for butter fat.

Dr. C. T. Ekelund, formerly of St. Paul, who has practiced for several months in New Ulm, has joined the staff of the Rood Hospital at Hibbing.

The new Barrett Hospital at Dillon, Montana, was opened last month. The building cost \$100,000, and is one of the best hospital buildings in the state.

The Sioux Valley Medical Association held a one-day midsummer meeting last week, with clinics on the second day given by the surgeons of Sioux Falls.

Dr. Willmar H. Thorwaldson, a graduate of the Medical Department of the University of North Dakota and later of Northwestern, was drowned at Elgin, Ill., last month.

Dr. W. A. Jones, editor of the LANCET is home from the meeting of the American Medical Association. He will comment in our next issue on the work done at that meeting.

The South Dakota Association of Graduate Nurses held a three-day meeting in Madison, S. D., last month, with an attendance of 120 nurses. The 1924 meeting will be held in Yankton.

Our correspondent (our own editor) at San Francisco has failed to furnish us a list of physicians from this territory who attended the meeting of the A. M. A. We hope to publish the list in our next issue.

Dr. J. T. Bowers, of Thief River Falls, has purchased the interest in the Physicians' Hospital of that city, owned by Dr. J. T. Fisher, who has gone into Government service and is now stationed at Chicago.

Dr. O. A. Oredson has succeeded Dr. E. Z. Shapiro as head of the free municipal clinic conducted four nights a week at St. Mary's Hospital, of Duluth, with an attendance of two hundred or more patients a week.

Representatives of the Catholic Hospitals of Minnesota, North Dakota, and Ontario will meet in Duluth on July 18 and 19 to consider standardization of hospital work, results of scientific research, and methods of training nurses.

The St. Louis County Public Health Association is conducting free nutritional classes for mothers whose children are found defective at the public school health examinations. The lessons are given at St. Luke's Hospital.

Dr. David M. Siperstein, of Minneapolis, was married last month to Miss Helen Weingarten, of New York City. Dr. Siperstein is a recent graduate of the University of Minnesota, and is now doing postgraduate medical work in New York City.

Dr. G. G. Morehouse, of Owatonna, was elected secretary of the Tri-County Tuberculosis Commission, which held its first meeting in Owatonna last month. The Commission will supervise the erection of a tuberculosis sanatorium for Steele, Freeborn, and Faribault Counties.

Drs. C. L. Sherman and C. O. Wright, of Luverne, have purchased from the estate of the late Dr. Spalding all the property of the Luverne Hospital, which Drs. Wright, Sherman and Thorson have conducted under a lease for some years. Improvements in the equipment and furnishings of the hospital will be made.

There is more promise of successful child welfare work in South Dakota than ever before, in spite of the fact that the last legislature cut the appropriation for this work from \$2,500 to \$500. The third child welfare conference in the state held under the new law, was held in Deadwood last month, and others are planned. Distinguished workers in this line from outside the state attended the Rapid City meeting.

Dr. Walter R. Ramsey, of St. Paul, has announced the early establishment of a children's hospital which shall become a model, not only for the care and treatment of sick children, but for the study of "all measures pertaining to the welfare of children." Dr. Ramsey has contributed ample grounds, and some of his friends have donated the money to erect a suitable building. The staff will represent all the specialties, medical and surgical, in children's diseases.

Dr. C. M. Jackson, head of the Department of Anatomy of the University of Minnesota, has a year's leave of absence to work for the U. S. Government as head of the Medical Division of the National Research Council. He will spend the year in Washington, and will direct an investigation as to the medical and healing properties of bathing in and drinking the water of the hot springs of Hot Springs, Arkansas, which springs are owned by the Government.

The American Child Health Association has completed its annual survey of the mortality rate among infants under one year of age. The report covers the death rate among two and a half million babies. The lowest rate in any city, which was in Seattle, was 49 per 1,000 births. Minneapolis was second, with a rate of 53. The highest death rate was 143, which was in San Antonio, Texas. In 1910 Minneapolis showed a rate of 104, its highest in fifteen years. For the past six years it has not exceeded 72. Infant welfare work alone makes a low death rate.

PRACTICE FOR SALE

In a town of 800; center of a rich farming district in Eastern South Dakota on the Great Northern Railway. Office of 7 nice rooms over a drug store

and bank, with electric lights, city water, and hot water heated, the rent of which is \$40. One other physician. Practice will pay from \$8,000 to \$10,000 a year. Equipment of office, auto, etc., with good-will for sale at low price. I am obliged to sell because of ill health. Address 359, care of this office.

PRACTICE FOR SALE

General practice in South Central Minnesota; modern county-seat town in prosperous farming section; average competition; collections good; no real estate; will sell for price of part of equipment. Address 358, care of this office.

MINNESOTA LOCATION WANTED

By a physician doing all general surgery and one who is also an experienced hospital executive; aged 42, married; no children; have had five years post-graduate work in surgery. Best of references. Prefers Twin Cities, and will accept a salary or guarantee of \$3,000 net yearly in a hospital or surgical opportunity there. Other good hospital connections considered. Address 354, care of this office.

BOARD AND CARE OF A SEMI-INVALID OFFERED

An experienced nurse (hospital training) will receive in her home in Minneapolis, a semi-invalid by the week or month. Excellent room in modern house with a sleeping-porch in quiet neighborhood. Reference to physicians furnished. Telephone, Kenwood 4875, or address 355, care of this office.

PEDIATRIC PHYSICIAN WANTED

A young man capable of taking charge of the Pediatric Department and doing general work, to take a salaried position with a clinic group associated with a hospital in a South Dakota town. State qualifications and references in reply. Address 351, care of this office.

POSITION WANTED

A recent Minnesota Graduate now practicing in a small village desires association or partnership in a large town with hospital facilities. References furnished. Address 357, care of this office.

THOROUGHLY COMPETENT WOMAN WANTS POSITION

As secretary and assistant, good stenographer; can do routine laboratory work and can take and develop X-Ray pictures. Age thirty. Worked two and one-half years with a very high-grade surgeon and diagnostician. Recommendations of highest character. Address 344, care of this office.

NORTH DAKOTA PRACTICE FOR SALE

In a town of 1,000. A splendid opportunity to step into a large general practice. Railroad appointment. Purchase of office equipment necessary. Price \$1,000. Address 356, care of this office.

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TRANSACTIONS OF THE SOUTH DAKOTA STATE MEDICAL ASSOCIATION—FORTY-SECOND ANNUAL MEETING

1923

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- H. J. BARTRON, M. D.....Watertown

PLACE AND TIME OF NEXT MEETING—MITCHELL, MAY, 1924

PROCEEDINGS OF THE HOUSE OF DELEGATES

FIRST SESSION—TUESDAY, MAY 22, 1923

The House of Delegates met in the Lincoln Hotel, Watertown, S. D., and was called to order by the president, Dr. G. G. Cottam, of Sioux Falls. The Secretary called the roll, and the following responded:

- Dr. J. B. Vaughn Castlewood
- Dr. R. S. Westaby Madison
- Dr. F. C. Kidd Woonsocket
- Dr. F. S. Hohf Yankton
- Dr. J. W. Freeman Lead
- Dr. A. E. Bostrum DeSmet
- Dr. J. F. D. Cook Langford
- Dr. T. F. Riggs Pierre
- Dr. L. N. Grosvenor Huron
- Dr. Frederick Treon Chamberlain
- Dr. F. I. Putnam Sioux Falls
- Dr. J. P. Isaacs Freeman
- Dr. J. C. Waterman Burke
- Dr. N. K. Hopkins Arlington
- Dr. R. D. Alway, Secretary...Aberdeen

The Secretary presented his report on membership as follows:

Aberdeen (First) District.....	84
Watertown (Second) District.....	32
Madison (Third) District.....	10
Pierre (Fourth) District.....	7
Huron (Fifth) District.....	22
Mitchell (Sixth) District.....	35
Sioux Falls (Seventh) District....	63
Yankton (Eighth) District.....	32
Black Hills (Ninth) District.....	37
Rosebud (Tenth) District.....	14
Kingsbury (Eleventh) District ...	10
Total	346

The President appointed the following committee on nominations:

- Dr. F. I. Putnam, Sioux Falls.
- Dr. J. B. Vaughn, Castlewood.
- Dr. R. S. Westaby, Madison.
- Dr. L. N. Grosvenor, Huron.
- Dr. S. M. Hohf, Yankton.
- Dr. J. W. Freeman, Lead.
- Dr. T. F. Riggs, Pierre.
- Dr. A. E. Bostrum, DeSmet.
- Dr. J. F. D. Cook, Langford.
- Dr. F. C. Kidd, Woonsocket.
- Dr. J. C. Waterman, Burke.

He also appointed Drs. S. M. Hohf, F. S. Kidd, and J. F. D. Cook, as a Committee on Necrology.

AMENDMENT TO BY-LAWS

Dr. F. I. Putnam introduced the following amendment to the by-laws:

Section 1, Chapter 4, under the heading of "House of Delegates," shall read:—The House of Delegates shall meet at 12 o'clock noon on the day fixed as the first day of the annual session. It may adjourn from time to time as may be necessary to complete its business, but shall conflict as little as possible with the general meeting. Also, Section 1, Chapter 7, under the heading of "Council." The Council shall meet at 1:30 p. m. on the day fixed as the 1st day of the annual session. The rest of the paragraph shall read the same as in the by-laws.

CHANGE IN PROGRAMS

The Secretary requested the House of Delegates to take under advisement the matter of programs for the future meetings of the Association, and, after considerable discussion, it was moved by Dr. F. C. Kidd, seconded by Dr. J. B. Vaughn, and carried, that the program committee be instructed whenever possible to divide the program into clinical and scientific parts.

ENDORSEMENT OF ACTION OF VETERANS' BUREAU

It was moved by Dr. R. S. Westaby, seconded by Dr. J. F. D. Cook, and carried, that the Secretary be instructed to draw up a resolution commending the Director of the Veterans' Bureau for his action in curtailing chiropractic training by it and urging him to carry it to the limit absolutely discontinuing chiropractic training, and to send a copy of this resolution to the President, the select committee of the U. S. Senate on the investigation of the Veterans' Bureau, to both U. S. Senators and Representatives in Congress from South Dakota, and to the American Medical Association. The following is the resolution:

Be it resolved that it is the sense of the South Dakota State Medical Association assembled in annual session at Watertown, May 23 and 24, 1923, that the Director of the Veterans' Bureau should be highly commended for the action he has taken in curtailing the training of Veterans in chiropractics: and—

Be it further resolved that it is the sense of the Association that Chiropractic training by the Veterans' Bureau should be absolutely discontinued and a copy of this resolution is hereby sent to the President, a select committee of the U. S. Senate on the Investigation of the Veterans' Bureau, to both U. S. Senators and each Representative in Congress from South Dakota, and to the American Medical Association.

REPORT OF THE COMMITTEE ON EDUCATION

Dr. Riggs, chairman of the committee, reported that he had no detailed report to make except suggestions in the way of health measures. He believed that the society should take up the matter of education along the lines mentioned at the afternoon scientific session.

REPORT OF THE HOSPITAL COMMITTEE

Dr. C. E. McCauley, chairman of this committee, reports as follows: The Hospital Committee has not had a meeting the last two years and nothing has been done since the original survey of all hospitals in the state about three or four years ago.

There being no further business, the meeting adjourned.

SECOND SESSION—MAY 23, 1923

The House of Delegates was called to order by the First Vice-president, Dr. F. E. Clough. The Secretary called the roll, and a quorum being present, the President declared the House duly constituted for the transaction of business. The minutes of the preceding meeting were read and approved. It was moved by Dr. R. D. Alway, seconded by Dr. Hohf, and carried, that the incoming President should visit each District Society in the state during the year, working with the Councilors and Secretaries of each district in an effort to increase the membership, and that the Society should pay his expenses.

It was moved by Dr. Hohf, and seconded and carried, that the amendment introduced by Dr. Putnam the day before be adopted.

Dr. Cottam presented his report on the Spafford Memorial, which on motion was adopted. The report is as follows:

REPORT OF THE COMMITTEE ON THE SPAFFORD MEMORIAL

After giving the matter very careful consideration, the committee decided that the most appropriate manner to perpetuate the career of Dr. Spafford

would be by placing a large portrait of him in the capitol at Pierre and utilizing the balance of the fund subscribed to purchase a suitable bronze tablet to be placed in the State University at Vermilion. Arrangements were accordingly made with Mr. Louis Janousek, of Yankton, to paint such a portrait and also a smaller one to be presented to Mrs. Spafford. The total amount received to date (May 22, 1923) is \$619.00; the expense (postage, stationery, and stenographer) \$27.64, leaving a net balance of 591.36, with a few subscriptions yet to be received.

The cost of the paintings is to be \$300.00, so that there will remain a balance of approximately \$300.00 to defray the cost of the bronze memorial tablet.

Respectfully submitted,
GILBERT G. COTTAM, M.D., Chairman
R. D. ALWAY, M.D.
J. W. FREEMAN, M.D.
GEORGE A. PETTIGREW, M. D.
EUGENE SAENGER, M. D.
T. W. DWIGHT, M.D., Treasurer
H. W. FOGHT, M.D., Secretary

REPORT OF COMMITTEE ON NECROLOGY

Dr. S. M. Hohf, chairman on the committee of Necrology presented the following report, and the same was adopted:

WHEREAS, An All-wise Providence has called from our midst during the past year five honored members of our profession and of this Association, namely; Doctor C. M. Hollister, of Pierre; Doctor F. W. Hess, of Estelline; Doctor H. E. McNutt, of Huron; Doctor J. D. Herman, of Conde; and that sterling pioneer of the profession in this state and an active member of long standing in this Association, Doctor James Roane, of Yankton, and

WHEREAS, It is most desirable to express a deep and sincere feeling of loss on the part of the members of this Association, and our appreciation of the efforts and example of each and every one of them;

Now, Therefore *Be It Resolved*, by the South Dakota State Medical Association when its forty-second annual session convenes, that this Association has suffered a real loss in the death of these five members; and that they have left to us an heritage of worth and merit that can never be fully expressed.

And *Be It Further Resolved*, and in further appreciation of our departed members, that this resolution be spread upon the minutes and records of the Association and a copy furnished to the family of each of these, our well-beloved fellows in the profession.

The foregoing Resolution is presented, and its adoption moved by:

S. M. HOHF, M.D.
F. S. KIDD, M.D.
J. F. D. COOK, M.D.

THIRD SESSION—MAY 24, 1923

Dr. G. G. Cottam, President, presided. The Secretary called the roll, and, a quorum being present, the President declared the House duly

constituted for the transaction of business. The minutes of the preceding meetings were read and approved.

Dr. F. I. Putnam read the report of the Nominating Committee, which was as follows:

PRESIDENT

F. E. CLOUGH, M. D. Lead

FIRST VICE PRESIDENT

R. L. MURDY, M. D. Aberdeen

SECOND VICE-PRESIDENT

W. R. BALL, M. D. Mitchell

THIRD VICE-PRESIDENT

T. F. RIGGS, M. D. Pierre

COUNCILOR—FIRST DISTRICT

J. F. D. COOK, M. D. Langford

COUNCILOR—SECOND DISTRICT

H. W. SHERWOOD, M. D. Doland

COUNCILOR—FOURTH DISTRICT

A. A. McLAURIN, M. D. Pierre

COUNCILOR—EIGHTH DISTRICT

J. P. ISAACS, M. D. Freeman

COUNCILOR—NINTH DISTRICT

F. W. MINTY, M. D. Rapid City

DELEGATE TO THE AMERICAN MEDICAL ASSOCIATION

G. G. COTTAM, M. D. Sioux Falls

ALTERNATE

J. C. WATERMAN, M. D. Burke

It was moved by Dr. Kidd and seconded that the report be adopted. The President asked if there were any other nominations.

PLACE OF NEXT MEETING

Dr. Isaacs nominated Mitchell as the next place of meeting and Dr. Freeman nominated Vermilion. There being no further nominations, it was moved by Dr. Isaacs that nominations be closed. The President announced that balloting on the place of meeting was in order, and appointed Drs. Alway and Hohf as tellers. The result of this ballot was 16 votes cast, 10 for Mitchell, 3 for Madison, and 3 for Vermilion. Mitchell having obtained a majority the President announced that the next meeting place would be Mitchell.

The President announced that the next order of business would be the election of officers. Dr. Hohf moved, and the motion was seconded and carried, that the rules be suspended and the Secretary be instructed to cast a unanimous vote for the officers nominated for the ensuing year and then declared by the President to be elected.

The Secretary read a letter received from Dr. Koren, president of the State Committee for the Prevention of Cancer, requesting the endorsement of the South Dakota State Associa-

tion of the work of the American Society for the Control of Cancer. It was moved by Dr. Billingsley, seconded by Dr. Riggs, and carried, that the State Association go on record as approving the work of the American Society for Control of Cancer.

The President requested the Secretary to get reports from the various standing committees so that they might appear on the records.

As this concluded the business of the House of Delegates the meeting was adjourned *sine die*.

PROCEEDINGS OF THE BOARD OF COUNCILORS

FIRST SESSION—TUESDAY, MAY 22, 1923

3:30 P. M.

The meeting was called to order by the chairman, Dr. T. F. Riggs. The Secretary called the roll, and the following responded:

Dr. J. F. D. Cook Langford
 Dr. L. N. Grosvenor Huron
 Dr. Frederick Treon . . . Chamberlain
 Dr. F. I. Putnam Sioux Falls
 Dr. J. P. Isaacs Freeman
 Dr. J. C. Waterman Burke
 Dr. N. K. Hopkins Arlington
 Dr. G. G. Cottam Sioux Falls
 Dr. F. E. Clough Lead
 Dr. R. D. Alway Aberdeen

The Secretary presented his financial report for last year as follows:

FINANCIAL REPORT OF THE SECRETARY-TREASURER

Balance brought forward	\$1,912.61
May 19, 1922, F. D. Gillis, Sixth District	6.00
June 3, 1922, W. H. Saxton, Fifth District	6.00
June 12, 1922, P. R. Billingsley, 7th Dist.	6.00
June 17, 1922, J. E. Bruner, First District	18.00
June 30, 1922, J. A. Hohf, Eighth District	12.00
July 3, 1922, J. E. Bruner, First District	6.00
July 23, 1922, Geo. B. Irvine, Eleventh Dist.	6.00
July 19, 1922, F. D. Gillis, Sixth District	6.00
Aug. 18, 1922, P. R. Billingsley, 7th Dist.	21.00
Oct. 13, 1922, P. R. Billingsley, 7th Dist.	5.00
Nov. 16, 1922, J. E. Bruner, First District	24.00
Nov. 25, 1922, J. A. Hohf, Eighth District	12.00
Jan. 8, 1923, H. B. Martin, Fourth District	42.00
Jan. 29, 1923, R. V. Overton, Tenth District	60.00
Jan. 31, 1923, R. V. Overton, Tenth District	6.00
Feb. 1, 1923, R. V. Overton, Tenth District	6.00
Feb. 27, 1923, R. V. Overton, Tenth District	6.00
Mar. 24, 1923, Geo. B. Irvine, Eleventh Dist.	60.00
Apr. 2, 1923, P. R. Billingsley, 7th Dist.	318.00
Apr. 7, 1923, R. B. Fleeger, Ninth District	192.00
Apr. 11, 1923, R. B. Fleeger, Ninth District	6.00
Apr. 13, 1923, C. E. Sherwood, Second Dist.	186.00
Apr. 14, 1923, L. N. Grosvenor, Fifth Dist.	120.00

Apr. 16, 1923, P. R. Billingsley, 7th Dist.....	42.00
Apr. 17, 1923, J. A. Hohf, Eighth District....	162.00
Apr. 18, 1923, R. V. Overton, Tenth District	6.00
Apr. 24, 1923, J. R. Westaby, Third District	48.00
Apr. 24, 1923, R. B. Fleeger, Ninth District	6.00
May 3, 1923, C. E. Sherwood, Second Dist.	6.00
May 14, 1923, R. A. Kelly, Sixth District....	168.00
May 19, 1923, W. A. Bates, First District....	504.00
May 19, 1923, P. R. Billingsley, 7th Dist....	24.00
May 20, 1923, R. A. Kelly, Sixth District....	12.00
May 20, 1923, J. R. Westaby, Third District	12.00
May 25, 1923, R. B. Fleeger, Ninth District	6.00
May 25, 1923, J. A. Hohf, Eighth District....	30.00
May 26, 1923, R. A. Kelly, Sixth District....	30.00

Total.....\$4,099.61

Disbursements

May 23, 1922, Warrant No. 10, Programs, American Prtg. Co.,.....	270.50
May 23, 1922, Warrant No. 11, Postage & Express, Abdn. Clinic.....	17.96
May 23, 1922, Warrant No. 12, Overdraft, Moody Co. Bank.....	3.28
May 23, 1922, Warrant No. 13, Salary Mrs. H. E. Spafford.....	250.00
June 16, 1922, Warrant No. 1, Hed Wilson Ins. Co., Treasurer's Bond.....	2.50
July 3, 1922, Warrant No. 2, Wm. Whitford, Reporter transactions.....	168.74
July 11, 1922, Warrant No. 3 Journal-Lancet, Subscription Jan. 1st, to June 30th	270.00
Aug. 2, 1922, Warrant No. 4, American Prtg. Co., Constitutions & Letterheads	102.50
Aug. 17, 1922, Warrant No. 5, Journal-Lancet, Copies of Treasurer's & Workmen's Comp. Report.....	26.60
Nov. 3, 1922, Warrant No. 6, J. G. Parsons, for expenses conservation of Vision.....	100.00
Dec. 19, 1922, Warrant No. 7, Journal-Lancet, Subscription.....	350.00
Apr. 3, 1923, Warrant No. 8, Letterheads and Lcdger sheets.....	25.50
Apr. 3, 1923, Warrant No. 9, Postage.....	13.06
May 14, 1923, Warrant No. 10, American Printing Co., Programs.....	189.39
May 14, 1923, Warrant No. 11, Lilly Co., badges.....	21.85

Total.....\$1,811.88

Balance cash in bank.....\$2,287.73

Audited and found correct,
(Signed) L. N. Grosvenor,
F. E. Clough,
Committee

The chairman appointed the following auditing committee: F. E. Clough and L. N. Grosvenor.

It was moved and seconded that the meeting adjourn at the call of the chairman.

SECOND SESSION—MAY 24

Dr. T. F. Riggs called the meeting to order, and, a quorum being present, the chairman declared the Board duly constituted for the trans-

action of business.

Dr. Clough reported that the auditing committee had examined the books and found them to be correct.

It was moved by Dr. Cook, and seconded and carried, that Dr. Fred Treon be elected chairman of the Board of Councilors for the ensuing year and that Dr. L. N. Grosvenor be reelected clerk.

There being no further business, the Councilors adjourned *sine die*.

PROCEEDINGS OF THE SCIENTIFIC MEETINGS OF THE ASSOCIATION

FIRST DAY, WEDNESDAY, MAY 23

MORNING SESSION

The first session of the forty-second annual meeting of the South Dakota State Medical Society was called to order at the Metropolitan Opera House, Watertown, Wednesday, May 23, 1923, at 9:40 A. M. by the President, Dr. G. G. Cottam, of Sioux Falls.

Dr. R. S. Westaby, Madison, addressed the Association on "Surgical Clinics of South America," with lantern slides.

Dr. George E. Johnson, Avon, read a paper on "Pyelitis in Infants and Children," which was discussed by Dr. D. A. Gregory, Sioux Falls; Dr. J. P. Isaacs, Freeman; and the discussion closed by Dr. Johnson.

Captain William Beers, Sioux Falls, addressed the Association briefly on the "Organized Reserves and Officers Reserve Corps."

Dr. D. A. Gregory, Sioux Falls, presented a paper on "Blood Groupings," and the paper was discussed by Dr. M. A. Stern, Sioux Falls; Dr. R. S. Westaby, Madison; and the discussion closed by Dr. Gregory.

Dr. S. M. Hohf, Yankton, read a paper on "Malignant Disease of the Lymph Glands," which was discussed by Dr. A. J. Moe, Sioux Falls; Dr. D. A. Gregory, Sioux Falls; Dr. J. P. Isaacs, Freeman; and, in closing, by the essayist.

As Dr. A. G. Allen, Deadwood, was not present; his paper was passed.

The meeting adjourned at 12:00 M. to reconvene at 1:30 P. M.

FIRST DAY—AFTERNOON SESSION

The second session of the Association was called to order at the Metropolitan Opera House, Watertown, at 1:45 P. M. by the Vice-president,

Dr. F. E. Clough, Lead.

Dr. G. G. Cottam, Sioux Falls, presented the Presidential Address, after which he assumed the chair.

Dr. J. W. Freeman, Lead, read an appreciation of Dr. Frederick A. Spafford, after which Harriet Anne Rolfe, a grand-daughter of Dr. Spafford, unveiled a portrait, which had been prepared to hang in the State Capitol at Pierre.

Hon. Doane Robinson, State Historian, Pierre, presented an address on "Antiquarian History of Medicine and Medical Practice in South Dakota."

Dr. J. E. Rush, Field Director of the American Society for the Control of Cancer, New York City, addressed the Association on "What the Medical Profession is Doing for the Control of Cancer."

Dr. J. B. Gregg, Sioux Falls, presented a paper on "Bronchoscopy," and the paper was discussed by Dr. C. C. Hoagland, Madison; Dr. J. W. Freeman, Lead; and the discussion was closed by Dr. Gregg.

Dr. R. D. Alway, Aberdeen, presented a paper entitled "Lung Abscess Following Tonsillectomy," and the paper was discussed by Dr. J. G. Parsons, Sioux Falls; Dr. L. N. Grosvenor, Huron; Dr. R. L. Murdy, Aberdeen; Dr. H. C. Peabody, Webster; Dr. A. J. Moe, Sioux Falls; Dr. J. P. Isaacs, Freeman; Dr. Port McWhorter, Miller; and the discussion was closed by Dr. Alway.

Adjournment was taken at 5:00 P. M. to reconvene Thursday morning.

SECOND DAY—MORNING SESSION

The third session of the Association was called to order at the Metropolitan Opera House, Watertown, Thursday morning, May 24, at 9:15 by the President, Dr. G. G. Cottam, Sioux Falls.

Dr. G. B. New, Rochester, Minnesota, presented a paper on "The Congenital and Acquired Defects of the Face and Neck," with lantern slide illustrations.

Dr. Warren A. Dennis, St. Paul, Minnesota, presented a paper on "Goiter."

Dr. H. J. Prentiss, Iowa City, Iowa, presented a paper on "Abdominal Anomalies in About 250 Cases Found in the Anatomical Laboratories in the State University of Iowa," illustrated with charts.

Dr. F. E. Clough, Lead, presented a paper on "Abdominal Injuries," which was discussed by

Dr. R. L. Murdy, Aberdeen; Dr. T. F. Riggs, Pierre; and the discussion closed by Dr. Clough.

Dr. D. S. Baughman, Madison, presented a paper on "The Surgical Kidney," and the paper was discussed by Dr. M. A. Stern, Sioux Falls, and the discussion closed by the essayist.

Adjournment at 12:00 M. to reconvene at 2:00 P. M.

SECOND DAY—AFTERNOON SESSION

The fourth session of the Association was called to order at the Metropolitan Opera House, Watertown, Thursday afternoon, May 24, 1923, at 2:00 P. M. by the President, Dr. G. G. Cottam, Sioux Falls.

Dr. F. E. Sampson, Creston, Iowa, presented a paper on "The Medical Profession and the Community."

Dr. C. P. Lommen, Vermilion, presented a paper on "Some Problems of a Medical Education," and the paper was discussed by Dr. H. J. Prentiss, Iowa City, Iowa.

Dr. W. R. Meeker, Mayo Clinic, Rochester, Minnesota, presented a paper on "Regional Anesthesia in Surgery of the Prostate and Bladder."

Dr. Charles A. Parker, Chicago, Illinois, presented a paper on "The Treatment of the Pathological Flexed Knee."

The President stated that the Committee on the Spafford Memorial was through collecting contributions for the portrait, but desired, if possible, to have a bronze tablet or bust of Dr. Spafford and that contributions might be sent to the treasurer of the fund for that purpose.

President Cottam then announced the result of the election of officers for the coming year and the meeting place, and said:

"I now take pleasure in turning over the office to my successor. He needs no introduction, and if he needs any proof of his honesty of intention you certainly had it this morning in his paper when he reported four fatal cases of traumatic abdomen, to one that got well because there was nothing the matter with him. (Laughter and applause.) I take pleasure in introducing Dr. Clough."

Dr. Clough made a few appropriate remarks in accepting the office, and moved a vote of thanks on behalf of the Association to the profession of Watertown and their wives, and the citizens for the courtesy shown the Association.

As this concluded the program and the business of the Association, the meeting was declared adjourned at 4:00 P. M. *sine die*.

DISTRICT AND COUNTY ROSTER

ABERDEEN DISTRICT MEDICAL SOCIETY—NO. 1

PRESIDENT		Dinsmore, W. E. Claremont	Mayer, R. G. Cresbard
Chichester, J. G. Redfield		Dunn, J. E. Groton	McCauley, C. E. Aberdeen
SECRETARY		Elward, L. R. Ashton	Mertens, J. J. Gettysburg
Bates, W. A. Aberdeen		Farrell, W. D. Aberdeen	Miller, J. F. Andover
Adams, B. A. Bristol		Flett, Charles Milbank	Miller, Frank Aberdeen
Adams, J. F. Aberdeen		Freyberg, F. W. Aberdeen	Murphy, B. C. Aberdeen
Aldrich, H. H. Orient		Gerdes, O. H. Eureka	Murphy, R. L. Aberdeen
Allen, J. M. Rosholt		Harris, H. G. Wilmot	Murphy, T. W. Pierpont
Alway, R. D. Aberdeen		Hart, B. M. Onida	Olson, C. O. Groton
Baer, T. H. Timber Lake		Hart, R. S. Groton	Peabody, H. C. Webster
Bailey, F. C. Redfield		Hayes, C. E. Waubay	Peabody, Percy D. Webster
Baldwin, F. M. Redfield		Herman, H. J. Webster	Pittenger, E. A. Aberdeen
Baskett, E. D. Aberdeen		Hill, Robert Ipswich	Potter, Geo. W. Redfield
Bates, W. A. Aberdeen		Hurley, S. E. Gettysburg	Ramsey, E. T. Clark
Batterdon, J. Y. Eagle Butte		Jackson, E. B. Aberdeen	Raney, T. P. Aberdeen
Bonney, T. C. Aberdeen		Jenkins, P. B. Waubay	Rice, D. B. Briton
Brosseau, J. E. Frankfort		Johnston, M. C. Aberdeen	Rosenthal, S. Aberdeen
Brown, A. E. Webster		Jones, R. R. Britton	Seeman, C. A. Tulare
Bruner, J. E. Frederick		Jones, T. D. Bowdle	Seeman, H. J. Rockham
Chapman, W. S. Redfield		Katz, O. W. Tolstoy	Seneseall, C. R. Veblev
Chase, A. E. Northville		Kettner, J. C. Leola	Severide, A. L. Webster
Chichester, J. G. Redfield		King, H. I. Aberdeen	Sornsen, A. A. Aberdeen
Cliff, F. N. Milbank		King, Owen Aberdeen	Sutton, Dewey Redfield
Cook, J. F. D. Langford		Kleger, S. A. Mellette	Twining, G. H. Mobridge
Countryman, G. E. Aberdeen		Kraushaar, F. Aberdeen	Von Wohlleben, Geo. Herried
Crain, F. M. Redfield		Kutnewsky, J. K. Redfield	Weishaar, C. H. Aberdeen
Creamer, Frank H. Dupree		Lavery, C. J. Aberdeen	White, W. E. Ipswich
Curtis, J. E. Lemmon		Langstreth, W. Sisseton	Whiteside, J. D. Aberdeen
Deertz, J. J. Brentford		Lowe, C. E. Mobridge	Whitney, L. D. Aberdeen
		Lundquist, C. C. Leola	Wilson, R. D. Aberdeen

WATERTOWN DISTRICT MEDICAL SOCIETY—NO. 2

PRESIDENT		Green, B. T. Brookings	Parsons, H. C. Watertown
Haroldson, Olaf Watertown		Gross, D. W. White	Paulson, A. J. Watertown
SECRETARY		Gueffroy, H. A. Frankfort	Pugh, G. F. Florence
Sherwood, C. E. Watertown		Hammond, M. J. Watertown	Richards, G. H. Watertown
Ash, J. C. Garden City		Haroldson, Olaf Watertown	Sherwood, C. E. Watertown
Bartron, H. J. Watertown		Haskell, H. I. Clark	Sherwood, H. W. Doland
Bates, J. S. Clear Lake		Hendrickson, Paul, Vienna	Smith, S. W. Watertown
Campbell, R. F. Watertown		Johnson, A. Einar Watertown	Staley, F. H. Vienna
Crawford, J. H. Watertown		Kenny, H. T. Watertown	Tarbell, H. A. Watertown
Fleeger, A. B. Willow Lakes		Koren, Finn Watertown	Vaughn, J. B. Castlewood
Freeburg, H. M. Watertown		Lockwood, J. H. Henry	Williams, C. A. Doland
Frink, O. G. South Shore		McIntyre, P. S. Bradley	
		Magee, W. G. Watertown	

MADISON DISTRICT MEDICAL SOCIETY—NO. 3

PRESIDENT		Allison, B. S. Sioux Falls	Kellogg, H. E. Madison
Jordan, L. E. Chester		Baughman, D. S. Madison	Torwick, E. E. Volga
SECRETARY		Hickman, G. L. Bryant	Westaby, J. R. Madison
Westaby, J. R. Madison		Hoagland, C. C. Madison	Westaby, R. S. Madison
Ahern, J. J. Oldham		Hovde, C. H. R. Madison	
		Jordan, L. E. Chester	

PIERRE DISTRICT MEDICAL SOCIETY—NO. 4

PRESIDENT		Hollister, C. M. Pierre	Northrup, F. A. Pierre
McLaurin, A. A. Pierre		Martin, H. B. Harrold	Riggs, T. F. Pierre
SECRETARY		McLaurin, A. A. Pierre	Stout, Trent Pierre
Martin, H. B. Harrold		Minard, R. W. Midland	

HURON DISTRICT MEDICAL SOCIETY—NO. 5

PRESIDENT		Launspach, G. W. Huron	Sewell, H. D. Huron
Grosvenor, L. N. Huron		Leach, W. O. Huron	Shirley, J. C. Huron
SECRETARY		McGarvey, F. B. Cavour	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
Burman, G. E. Carthage		Saxton, W. H. Huron	Tschetter, J. S. Huron
Cogswell, M. E. Wolsey		Saylor, H. L. Huron	Wheelock, D. O. Miller
Grosvenor, L. N. Huron		Scheib, A. P. Hitchcock	Wood, T. J. Huron
		Schwendener, J. E. Bryant	Wright, O. R. Huron

MITCHELL DISTRICT MEDICAL SOCIETY—NO. 6

PRESIDENT		Crawford, R. A. Chamberlain	McManus, Clara Gann Valley
Ball, W. R. Mitchell		Delaney, W. A. Mitchell	Maytum, W. G. Alexandria
SECRETARY		Dick, L. C. Spencer	Mizner, Mark Parkston
Kelly, R. A. Mitchell		Farnsworth, C. P. Chamberlain	Smiley, T. B. Mt. Vernon
Auld, C. V. Plankinton		Gifford, A. J. Alexandria	Stockdale, C. P. Ethan
Ball, W. R. Mitchell		Hoyne, A. H. Salem	Templeton, C. V. Woonsocket
Beukelman, W. H. Stickney		Hunt, Wm. Murdo	Tobin, F. J. Mitchell
Bobb, B. A. Mitchell		Jenkensen, H. E. Wess. Springs	Treon, Fred Chamberlain
Bobb, C. S. Mitchell		Jones, E. W. Mitchell	Waldner, J. L. Parkston
Bobb, E. V. Mitchell		Kelly, R. A. Mitchell	Wallis, S. R. Armour
Carney, J. G. Pukwana		Kenton, Chas. Artesian	Willy, R. G. Kimball
Clauser, G. A. Bridgewater		Kidd, F. S. Woonsocket	Young, E. M. Mitchell
Cochran, F. B. Plankinton		Kimble, O. A. Murdo	
		Lloyd, J. H. Mitchell	

SIoux FALLS DISTRICT MEDICAL SOCIETY—NO. 7

PRESIDENT		Grove, A. F. Dell Rapids	Putnam, F. I. Sioux Falls
Donahoe, S. A. Sioux Falls		Grove, M. M. Dell Rapids	Reagan, R. Sioux Falls
SECRETARY		Hanson, O. L. Valley Springs	Rider, A. S. Flandreau
Billingsley, P. R. Sioux Falls		Harmon, L. J. Hartford	Roberts, W. B. Sioux Falls
Barnes, Wm. Sioux Falls		Hill, L. G. Sioux Falls	Rock, H. J. Sioux Falls
Billion, T. J. Sioux Falls		Housman, W. Mc K. Sioux Falls	Rundlett, D. L. Sioux Falls
Billingsley, P. R. Sioux Falls		Hummer, H. R. Canton	Sackett, Roy Parker
Bliss, P. D. Colton		Hyden, A. Alcester	Schwein, B. O. Sioux Falls
Brandon, P. E. Sioux Falls		Jones, T. E. Sioux Falls	Sherwood, H. H. Humbolt
Cottam, G. G. Sioux Falls		Jordan, A. A. Hudson	Siedenberf, F. Sioux Falls
Craig, D. W. Sioux Falls		Kammerling, T. S. Sioux Falls	Schwartz, Jos. Sioux Falls
Culver, C. F. Sioux Falls		Keller, S. A. Sioux Falls	Stegeman, S. B. Salem
De Vall, F. C. Garretson		Keller, W. F. Sioux Falls	Stenberg, E. S. Sioux Falls
Dickinson, W. E. Canastota		Klaveness, E. Mpls., Minn.	Stern, M. A. Sioux Falls
Donahoe, S. A. Sioux Falls		Lokke, P. R. Egan	Stevens, G. A. Sioux Falls
Donahoe, W. F. Sioux Falls		Mintener, J. W. Sioux Falls	Stevens, R. G. Sioux Falls
Eagan, J. B. Dell Rapids		Moe, A. J. Sioux Falls	Thompson, T. G. Sioux Falls
Egan, M. H. Sioux Falls		Mullen, R. W. Sioux Falls	Trail, C. J. Sioux Falls
Erickson, O. C. Sioux Falls		Nessa, N. J. Sioux Falls	Tufts, A. H. Sioux Falls
Fisk, R. R. Flandreau		Pankow, L. T. Sioux Falls	Van Demark, G. E. Sioux Falls
Gage, E. E. Sioux Falls		Parke, L. L. Canton	Vaughn, L. B. Hurley
Gregg, J. B. Sioux Falls		Parsons, J. G. Sioux Falls	Zetlitz, K. A. L. Sioux Falls
Gregory, D. R. Sioux Falls		Perkins, E. L. Sioux Falls	Zimmerman, Goldie Sioux Falls
		Putnam, E. D. Sioux Falls	

YANKTON DISTRICT MEDICAL SOCIETY—NO. 8

PRESIDENT		Cruickshank, Thos. Vermilion	Keeling, C. M. Springfield
Beall, L. F. Irene		DeVries A. Platte	Landmann, G. A. Scotland
SECRETARY		Duguid, J. O. Springfield	Moore, F. A. Lesterville
Hohf, J. A. Yankton		Eagon, Alonzo Turton	Morehouse, E. M. Yankton
Adams, G. S. Yankton		Freshour, I. M. Yankton	Newby, H. D. Sioux City, Ia.
Beall, L. F. Irene		Frink, R. P. Wagner	Payne, R. H. Tripp
Berry, S. G. Tyndall		Gross, C. C. Yankton	Roane, James, Yankton
Bigler, Lottie B. Armour		Hohf, J. A. Yankton	Smith, F. C. Yankton
Blezek, F. M. Tabor		Hohf, S. M. Yankton	Stansbury, E. M. Vermilion
Burkland, P. R. Vermilion		Isaac, J. P. Freeman	Swezey, F. A. Wakonda
Bushnell, Wm. F. Elk Point		Johnson, G. E. Avon	Trierweiler, J. E. Yankton
Creelius, H. A. Volin		Kalayian, D. S. Parker	Willhite, F. V. Redfield
		Kauffman, E. J. Marion	

BLACK HILLS DISTRICT MEDICAL SOCIETY—NO. 9

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Jackson, A. S.Lead		Freeman, J. W.Lead	Moffitt, T. W.Deadwood
SECRETARY		Harc, CarlyleSpearfish	Morse, W. E.Rapid City
Fleeger, R. B.Lead		Hargens, C. W.Hot Springs	O'Toole, T. F.New Underwood
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Ayer, F. R.Lead		Hennings, A. J.Kadoka	Pemberton, M. O.Deadwood
Bentley, W. H.Rapid City		Hodges, V. R.Lead	Radusch, FreidaRapid City
Chassell, J. L.Bellefourche		Hultz, EugeneHill City	Ramsey, GuyPhilip
Clough, F. E.Lead		Ince, H. J. T.Rapid City	Stewart, J. L.Lead
Crane, H. L.Lead		Jackson, R. J.Rapid City	Walsh, J. M.Rapid City
Crouch, J. A.Bellefourche		Mattox, N. E.Lead	Wheeler, R. M.Hot Springs
Ewald, P. P.Lead		Mesirow, M. E.Wall	Williamson, W. R.Nemo
Fasser, A. C.Philadelphia		Miller, GeorgeSpearfish	Young, B. A.Hot Springs
		Minty, F. W.Rapid City	

ROSEBUD DISTRICT MEDICAL SOCIETY— NO. 10

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Waterman, J. C.Burke		Matousek, W. J.Dallas	Schaefer, J. F.Colone
Bryant, F. A.Herrick		Murnan, H. A.Winner	Vaughn, F. W.Gregory
Carmack, A. O.Colome		Overton, R. V.Dixon	Waterman, J. C.Burke

KINGSBURY DISTRICT MEDICAL SOCIETY—NO. 11

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Dickey, J. B.Iroquois		Bostrom, A. E.De Smet	Grove, E. H.Arlington
SECRETARY		Butler, C. A.Lake Preston	Hopkins, N. K.Arlington
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		Dickey, J. B.Iroquois	Jamieson, G. V.De Smet

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Adams, G. S.Yankton	Brown, A. E.Webster	Dick, L. C.Spencer
Adams, J. F.Aberdeen	Buchanan, R. A.Wessington	Dickey, J. B.Iroquois
Aldrich, H. H.Orient	Bruner, J. E.Frederick	Dinsmore, W. E.Claremont
Ahern, J. J.Oldham	Bryant, F. A.Herrick	Dickinson, W. E.Canitota
Allen A. G.Deadwood	Burkland, P. R.Vermilion	Donahoe, S. A.Sioux Falls
Allen, J. M.Rosholt	Burman, G. E.Carthage	Donahoe, W. E.Sioux Falls
Allison, B. S.Sioux Falls	Bushnell, Wm. F.Elk Point	Duguid, J. O.Springfield
Alway, R. D.Aberdeen	Butler, C. A.Lake Preston	Dunn, J. E.Groton
Ash, J. C.Garden City	Campbell, R. F.Watertown	Dyar, B. A.De Smet
Auld, C. V.Plankinton	Carmack, A. O.Colome	DeVries, A.Platte
Ayer, F. R.Lead	Carney, J. G.Pukwana	Eagan, J. B.Dell Rapids
Baer, T. H.Timberlake	Chapman, W. S.Redfield	Eagon, AlonzoTurton
Bailey, F. C.Redfield	Chase, A. E.Northville	Egan, M. H.Sioux Falls
Baldwin, F. M.Redfield	Chassell, J. L.Bellefourche	Elward, L. R.Ashton
Ball, W. R.Mitchell	Chichester, J. G.Redfield	Erickson, O. C.Sioux Falls
Barnes, Wm.Sioux Falls	Clauer, G. A.Bridgewater	Ewald, P. P.Lead
Bartron, H. J.Watertown	Cliff, F. E.Milbank	Farnsworth, C. P.Chamberlain
Baskett, E. D.Aberdeen	Clough, F. E.Lead	Farrell, W. D.Aberdeen
Bates, J. S.Clear Lake	Cochran, F. B.Plankinton	Fasser, A. O.Philadelphia
Bates, W. A.Aberdeen	Cogswell, M. E.Wolsey	Fisk, R. R.Flandreau
Batterton, J. Y.Eagle Butte	Cook, J. F. D.Langford	Fleeger, A. B.Willow Lake
Baughman, D. S.Madison	Cottam, G. G.Sioux Falls	Fleeger, R. B.Lead
Beall, L. F.Irene	Countryman, G. E.Aberdeen	Flett, CharlesMilbank
Beukelman, W. H.Stickney	Cowgill, C. H.Iroquois	Frecburg, H. M.Watertown
Bentley, W. S.Rapid City	Craig, D. W.Sioux Falls	Freeman, J. W.Lead
Berry, S. G.Tyndall	Crain, F. M.Redfield	Freshour, I. M.Yankton
Bigler, LottieYankton	Crane, H. L.Lead	Freyberg, F. W.Aberdeen
Billion, T. J.Sioux Falls	Crawford, R. A.Chamberlain	Frink, O. G.So. Shore
Billingsley, P. R.Sioux Falls	Crawford, J. H.Watertown	Frink, R. P.Wagner
Blezek, F. M.Tabor	Creamer, F. H.Dupree	Gage, E. E.Sioux Falls
Bliss, P. D.Colton	Crcelius, H. A.Volin	Gerdes, O. H.Eureka
Bobb, B. A.Mitchell	Crouch, J. A.Bellefourche	Gifford, A. J.Alexandria
Bobb, Clyde S.Mitchell	Cruikshank, Thos.Vermilion	Gregg, J. B.Sioux Falls
Bobb, E. V.Mitchell	Culver, C. F.Sioux Falls	Gregory, D. R.Sioux Falls
Bonney, T. C.Aberdeen	Curtis, J. E.Lemmon	Grcen, B. T.Brookings
Bostrom, A. E.De Smet	De Vall, F. C.Garretson	Gross, C. C.Yankton
Brandon, P. E.Sioux Falls	Deertz, J. J.Brentford	Gross, D. W.White

Grosvenor, L. N.	Huron	Launspach, G. W.	Huron	Rosenthal, S.	Aberdeen
Grove, A. F.	Dell Rapids	Lavery, C. J.	Aberdeen	Rundlett, D. L.	Sioux Falls
Grove, M. M.	Dell Rapids	Leach, W. O.	Huron	Sackett, Roy	Parker
Grove, E. H.	Arlington	Lockwood, J. H.	Henry	Sargent, C. E.	Isabel
Gueffroy, H. A.	Frankfort	Longstreth, W.	Sisseton	Saxton, W. H.	Huron
Hammond, M. J.	Watertown	Lokke, B. R.	Eagan	Saylor, H. L.	Huron
Hanson, O. L.	Valley Springs	Lloyd, J. H.	Mitchell	Schaefer, J. F.	Colome
Harmon, L. J.	Hartford	Lowe, C. E.	Mobridge	Scheib, A. P.	Hitchcock
Harris, H. G.	Wilmot	Lundquist, C. C.	Leola	Schwartz, Jos.	Sioux Falls
Haroldson, Olaf	Watertown	McCauley, C. E.	Aberdeen	Schwein, B. O.	Sioux Falls
Hare, Carlyle	Spearfish	McGarvey, F. B.	Cavour	Schwendener, J. E.	Bryant
Hargens, C. W.	Hot Springs	McIntyre, P. S.	Bradley	Seeman, C. A.	Tulare
Hart, B. M.	Onida	McLaurin, A. A.	Pierre	Seeman, H. J.	Rockham
Hart, R. S.	Groton	McManus, Clara	Gann Valley	Severide, A. L.	Webster
Haskell, H. I.	Clark	Mc Whorter, Port	Miller	Sewell, H. D.	Huron
Hayes, C. E.	Waubay	Magee, W. G.	Watertown	Senescall, C. R.	Veblen
Heinemann, A. A.	Wasta	Malster, R. M.	Carter	Sherwood, C. E.	Watertown
Hennings, A. J.	Kadoka	Martin, H. B.	Harrold	Sherwood, H. H.	Humbolt
Hendrickson, Paul	Vienna	Matousek, W. J.	Dallas	Sherwood, H. W.	Doland
Herman, H. J.	Webster	Mattox, N. E.	Lead	Shirley, J. C.	Huron
Hickman, G. L.	Bryant	Mayer, R. G.	Cresbard	Siedenberf, F.	Sioux Falls
Hill, L. G.	Sioux Falls	Maytum, W. G.	Alexandria	Smiley, T. B.	Mt. Vernon
Hill Robert	Ipswich	Mertens, J. J.	Gettysburg	Smith, F. C.	Yankton
Hoagland, C. C.	Madison	Mesirow, M. E.	Wall	Smith, S. W.	Watertown
Hodges, V. R.	Lead	Miller, Frank	Aberdeen	Sornsen, A. A.	Aberdeen
Hofer, M. M.	Dallas	Miller, George	Spearfish	Sprague, B. H.	Huron
Hohf, J. A.	Yankton	Miller, J. F.	Andover	Staley, F. H.	Vienna
Hohf, S. M.	Yankton	Minard, R. W.	Midland	Stansbury, E. M.	Vermilion
Hollister, C. M.	Pierre	Mintener, J. W.	Sioux Falls	Stenberg, E. S.	Sioux Falls
Hopkins, N. K.	Arlington	Minty, F. W.	Rapid City	Stern, M. A.	Sioux Falls
Housman, W. McK.	Sioux Falls	Mitchell, Fred L.	Newell	Stegman, S. B.	Salem
Hovde, C. H. R.	Madison	Mizner, Mark	Parkston	Stewart, J. L.	Lead
Hoyme, A. H.	Salem	Moe, A. J.	Sioux Falls	Stevens, G. A.	Sioux Falls
Hultz, Eugene	Hill City	Moffitt, T. W.	Deadwood	Stevens, R. G.	Sioux Falls
Hummer, H. R.	Canton	Moore, F. A.	Lesterville	Stockdale, C. P.	Ethan
Hunt, Wm.	Murdo	Morhouse, E. M.	Yankton	Stout Trent	Pierre
Hurley, S. E.	Gettysburg	Morse, W. E.	Rapid City	Sutton, Dewey	Redfield
Hyden, A.	Alcester	Mullen, R. W.	Sioux Falls	Swzey, F. A.	Wakonda
Ince, H. J. T.	Rapid City	Murphy, B. C.	Aberdeen	Tarbell, H. A.	Watertown
Irvine, G. B.	Lake Preston	Murdy, R. L.	Aberdeen	Taylor, E. B.	Huron
Isaac, J. P.	Freeman	Murnan, H. A.	Winner	Templeton, C. V.	Woonsocket
Jackson, A. S.	Lead	Murphy, T. W.	Pierpont	Thomas, Benj.	Huron
Jackson, E. B.	Aberdeen	Nessa, N. J.	Sioux Falls	Thompson, T. G.	Sioux Falls
Jackson, R. J.	Rapid City	Newby, H. D.	Sioux City, Ia.	Tobin, F. J.	Mitchell
Jamieson, G. V.	De Smet	Northrup, F. A.	Pierre	Torwick, E. E.	Volga
Jenkins, P. B.	Waubay	O'Toole, T. F.	New Underwood	Trail, C. J.	Sioux Falls
Jenkinsen, H. E. Wess.	Springes	Olson, C. O.	Groton	Trierweiler, J. E.	Yankton
Johnson, A. Einar	Watertown	Overton, R. V.	Dixon	Treon, Fred	Chamberlain
Johnson, G. E.	Avon	Owen, N. T.	Rapid City	Tschetter, J. S.	Huron
Johnston, M. C.	Aberdeen	Paddleford, J. F.	Miller	Tufts, A. H.	Sioux Falls
Jones, E. W.	Mitchell	Pankow, L. T.	Sioux Falls	Twining, G. H.	Mobridge
Jones, R. R.	Britton	Parke, L. L.	Canton	Van Demark, G. E.	Sioux Falls
Jones, T. D.	Bowdle	Parsons, H. C.	Watertown	Vaughn, J. B.	Castwood
Jones, T. E.	Sioux Falls	Parsons, J. G.	Sioux Falls	Vaughn, L. B.	Hurley
Jordan, A. A.	Hudson	Paulson, A. J.	Watertown	Vaughn, F. W.	Gregory
Jordan, L. E.	Chester	Payne, R. H.	Tripp	Von Wohlleben, Geo.	Herreid
Kalayjian, D. S.	Parker	Peabody, H. C.	Webster	Waldner, J. L.	Parkston
Kammerling, T. S.	Sioux Falls	Peabody, Percy	Webster	Wallis, S. R.	Armour
Katz, O. W.	Tolstoy	Pemberton, M. O.	Deadwood	Walsh, J. M.	Rapid City
Kauffman, E. J.	Marion	Perkins, E. L.	Sioux Falls	Waterman, J. C.	Burke
Keeling, C. M.	Springfield	Pittenger, E. A.	Aberdeen	Weishaar, C. H.	Aberdeen
Keller, S. A.	Sioux Falls	Potter, Geo. W.	Redfield	Westaby, J. R.	Madison
Keller, W. F.	Sioux Falls	Pugh, G. F.	Florence	Westaby, R. S.	Madison
Kellogg, H. E.	Madison	Putnam, E. D.	Sioux Falls	Wheeler, R. M.	Hot Springs
Kelly, R. A.	Mitchell	Putnam, F. I.	Sioux Falls	Wheeler, D. O.	Miller
Kenaston, H. R.	Bonesteel	Quinn, J. F.	Gregory	Willy R. G.	Kimball
Kenney, H. T.	Watertown	Quinn, R. J.	Burke	White, W. E.	Ipswich
Kenton, Chas.	Artesian	Quinn, W. M.	Winner	Whiteside, J. D.	Aberdeen
Kettner, J. C.	Leola	Radusch, Freida	Rapid City	Whitney, L. D.	Aberdeen
Kidd, F. S.	Woonsocket	Ramsey, E. T.	Clark	Willhite, F. V.	Redfield
Kimble, O. A.	Murdo	Ramsey, Guy	Philip	Williams, C. A.	Doland
King, H. I.	Aberdeen	Ranney, T. P.	Aberdeen	Williamson, W. R.	Nemo
King, Owen	Aberdeen	Reagan, R.	Sioux Falls	Wilson, R. D.	Aberdeen
Klaveness, E.	Minneapolis	Rice, D. B.	Britton	Wood, T. J.	Huron
Kleger, S. A.	Mellette	Richards, G. H.	Watertown	Wright, O. R.	Huron
Koren, Finn	Watertown	Rider, A. S.	Flandreau	Young, B. A.	Hot Springs
Kraushaar, F. J.	Aberdeen	Riggs, T. F.	Pierre	Young, E. M.	Mitchell
Kutnewsky, J. K.	Redfield	Roane, James	Yankton	Zetlitz, K. A. L.	Sioux Falls
Landmann, G. A.	Scotland	Rock, H. J.	Sioux Falls	Zimmerman, Goldie	Sioux Falls
Langstrath, W.	Sisseton	Roberts, W. B.	Sioux Falls		

PRESIDENT'S ADDRESS: THE RELATIONS OF THE PROFESSION AND THE PUBLIC, BASED ON THIRTY YEARS' OBSERVATION

By GILBERT GEOFFREY COTTAM, M.D., F.A.C.S.

SIoux FALLS, SOUTH DAKOTA

Mindful of the fact that when a man approaching his fiftieth year begins to grow reminiscent he is supposed to need the services of an alienist, I shall occupy but little of your attention with the past, recounting only those things that are necessary to emphasize the needs of to-day and the problems of tomorrow; for it is in the present that we live and for the future that we build, and these are the matters that concern us most and demand our closest consideration.

Thirty years ago, owing to the limitations of professional knowledge as it existed at that time, it was neither a lengthy nor a difficult process to acquire a medical education sufficient to enable one to secure the legal right to practice. A fundamental grounding in the arts and sciences was not considered a prerequisite, and an internship, while thought desirable, was by no means obligatory. Consequently, in those days, a young man with health and energy could pass through the average medical course with very limited financial outlay, often earned as he went, and having obtained his credentials and finding himself short in purse and experience he did, in the majority of instances, the most logical thing under the circumstances: he went to where he could most quickly gain both livelihood and experience—the smaller place. And so, throughout the length and breadth of this fertile land, the villages and smaller towns received their quota of the output of professional men from year to year, a generation ago; and as these little centers developed and improved, these same men, if they had the right stuff in them, developed and improved also and became creditable representatives of their profession. Not only did men of this type worthily represent their craft in their various communities, but in some instances they rose to dizzy heights and became outstanding figures in American medicine and surgery. Not a few of the men whose names we conjured with in the past began their careers as country practitioners.

To-day things appear to be taking a different trend. With improved methods of anesthesia and bacterial control surgery has greatly widened its scope. Diagnostic refinements, helped by the

x-ray and laboratory technic, have vastly increased the field of internal medicine. Hospitals have become scientific institutions working under uniform standards. Obstetrics has been taken from the midwife and placed on the same level with other fields of professional activity. To be in a position to grasp all this demands a trained mind. The medical student now must be a high school graduate and then go through a six year combined course before he can see his name on a diploma. He must serve an internship of at least one year, and, besides this, a three-year fellowship is highly desirable. State examining boards have shared in the upward trend and are constantly increasing their requirements and standards. The result is obvious. The medical graduate of to-day, with the amount of training he has had and the actual experience he has acquired during his latter part of training feels, naturally enough, that the place for him is in a city large enough to permit him to begin to specialize from the very start, especially if he has been fortunate enough to have been able to take graduate or fellowship work in the specialty in which he is interested. He has served his novitiate, and nothing but financial stress will drive him to one of the smaller places, and even that does not seem to force him to do it. He has the added inducement that the larger places are growing in population, thereby increasing his field of opportunity, while the smaller ones are either growing more slowly or remaining stationary.

The problem is a serious one for both the small towns and their tributary farming communities. It is true that with improved roads, automobiles, and telephones the isolation of people so situated has been greatly reduced, but these will never render the competent family physician obsolete. And yet it cannot be denied that he is passing. Many of the old guard still survive and are doing splendid service, but, as they pass, their places are not being taken by the younger men of the type I have described.

Where is the fault? Is it in the teaching? I think not, for the curriculum of to-day is simply the crystallized knowledge which has ac-

cumulated in the past thirty years, plus that which has survived the ordeal of fire from former generations. I do not see how any of it can be eliminated without detriment; in fact, I will go farther and say that all of it is necessary in order to fit a man properly to carry out his professional obligation to the public. I do think, however, that we of the profession have been partly responsible for bringing about this condition. If we had studied the methods of those in other walks of life we would have learned that loose business methods and prodigal expenditure of time and energy are wholly incompatible with the best results in our work, and this applies with especial force to general practice where, through irregular hours, working under stress of fatigue and below cost, it is small wonder that the public is not always satisfied with the quality of services rendered, and the medical man, on his part, wonders whether or not the game is really worth the candle. No, there is not much that is attractive about general practice as it is now carried on. There is too much wear and tear in proportion to the results achieved, and a man must be a good deal of an enthusiast to feel that he is able to keep it up indefinitely. This, I am sure, is why men leave general practice to take up specialized work and this is why so few nowadays take it up as a matter of choice.

There is, of course, a certain amount of compensation in any work which entails sacrifice, but the trouble with general practice is that the sacrifice is disproportionate. No other trade or profession requires so much or receives so little in return, and there must be an adjustment somewhere or the breed will become extinct.

Another disquieting thing is that diagnosis and preventive medicine are at once the most important and the least appreciated branches of our profession. A spectacular operation attracts attention, but the carefully worked out diagnosis that leads up to it and make it possible is often overlooked. Preventive medicine likewise excites a strange reaction. You administer a serum or a vaccine to prevent or initiate a quarantine to curb the spread of disease, and at once there is some hostility to overcome.

Taken as a whole, is the relationship of the profession to the public 100 per cent ideal to-day? Evidently not, if we consider the multitude of types of irregular practice that rise and flourish every little while. I am not satisfied that this is a fair criterion, for we see exactly

the same thing happening in all other fields of activity. Religion is split a thousand ways into sects and denominations, with their myriad subdivisions, many diametrically opposed on vital points. Politics contains all kinds of parties, and not infrequently the freakish and wholly untenable idea of one man is sufficient basis for the formation of a new party. Law is a reasonably fixed proposition, but there are all kinds of lawyers, from the man of high attainments, sound judgment, and unsullied reputation down to the fellow whose livelihood would cease if ambulances were discarded. Small wonder, then, that the people easily follow strange gods in medicine. The important thing for us to determine is how much of this is our own fault and how it can be remedied. I am satisfied that there are three main sources of weakness which contribute to this condition:

1. Individual inefficiency. This constitutes the strongest argument in favor of high standards of training and stringent restrictions against incompetent or careless practitioners. The man who dismisses a slightly debilitated patient with a tonic after a superficial examination and overlooks a pernicious anemia or an incipient pulmonary tuberculosis, the surgeon who removes an appendix and leaves behind an impacted ureteral stone, the man who prescribes phenacetin for the headaches and reducing exercises for the physical over-development without recognizing the underlying pituitary tumor—these and all of their kind not only reflect discredit upon themselves but hand a body blow to the whole profession.

2. The second source of weakness is our tendency to ride fads. It is by no means confined to extremists but crops out most unexpectedly among those of common sense and sound judgment, among specialists of every kind, not even excepting the general surgeon. We should, I feel, adopt an attitude of uncompromising conservatism toward revolutionary methods of treatment or radical departure from accepted standards. Medical science does not progress by leaps or bounds but follows the steady upward course of evolution rather than revolution. Let us keep the red flag out of our work, just as we try to keep it out of our national life. The usefulness of many valuable discoveries is to-day being lessened by their over-zealous advocates, and again the whole profession suffers by the distrust that is bred in the public mind.

3. Lastly, we have suffered much from lack

of professional unity. Things are much better than they were, but there is still far too much petty jealousy among men of our craft who ought to be big enough to be above anything of the kind. Medical societies, I am convinced, have done much to bring about this improvement, for there is no remedy for this condition equal to that of rubbing shoulders with one's fellows and finding that their troubles are our troubles and that there is room enough for all of us in this wonderful world if we but make the best of our opportunities.

It remains for me to express my deepest sense of obligation to you for permitting me to function and address you as your president. In what I have said now and done through the year I have tried to stay strictly within constructive

lines, for I have had no axe to grind, no animosities to cherish, and only the upbuilding of the organization and the welfare of its members at heart. This great profession of ours, born in the dim light of the dawn of history, struggling through the ages against ignorance and superstition, emerging through clouds of empiricism and doubt, has come down to us as a sacred heritage and the greatest opportunity for service in the realm of human endeavor. Let us, then, treat it as such, forgetting the trials and tribulations which accompany it in the light of the glorious achievements which adorn its long and honorable record, giving it the best that is in us, profoundly thankful that we have been permitted to participate, no matter how humbly, in its tremendous influence.

SURGICAL CLINICS OF SOUTH AMERICA*

By ROBERT S. WESTABY, M.D., F.A.C.S.

MADISON, SOUTH DAKOTA

It would be highly presumptuous on my part to try to cover the subject indicated by the title of my paper as it appears on the printed program, for it would be comparable to trying to cover the surgical clinics of North America in a similar way. I had not returned until after the programs had gone to press, or I should have changed the title to: *Some Observations of the Clinics of South America.*"

During a nine weeks' cruise on the S.S. *Vandyck*, a ship especially chartered by the American College of Surgeons, we visited hospitals and clinics in the port cities of Cuba, Panama, Columbia, Venezuela, Brazil, Uruguay, Argentina, and the islands of Trinidad and Barbados in the British West Indies.

The object of this cruise might be summed up as follows: To visit our professional brothers of the southern continent, the institutions in which they teach, the hospitals in which they work, and, finally, to establish more friendly relations with them. In this paper I shall try briefly to cover the subject under these four heads and show slides made from snap-shots which will save considerable time in description and give a better mental picture than would be possible in any other way.

THE SOUTH AMERICAN DOCTORS

The same splendid courtesy which characterizes the people of the republics of South America is also found in the professional men, only it seems to me they have developed it even to a higher degree. We were royally received not only by the members of our profession but also by the presidents of the republics visited. I will mention a part of the reception program of one of these places which is typical of them all. We spent five days in Argentina at Buenos Aires, a city of 1,600,000 people. The mornings were spent in the clinics in the various hospitals. Three noon-day banquets were tendered our party, and at these one had placed before him everything that could be desired. One afternoon as guests of the city we were placed on express street cars and shown the principal sights. Another afternoon the Jockey Club entertained us in the members' stand at the races at Parlermo, where fifty-thousand spectators were enjoying the sport. Following the races we were given refreshments at the club house, which is located in the heart of the city. This is possibly the most exclusive club in South America, and I was told that the entrance fee was \$10,000 with a long waiting list. Many of the physicians speak fluently two or three languages besides their own native Spanish, and English is usually one of them.

*Presented at the forty-second annual meeting of the South Dakota State Medical Association, Watertown, S. D., May 23 and 24, 1923.

THE MEDICAL SCHOOLS

In each of the capital cities visited we found medical colleges which, as a rule, were very well equipped with curricula equal to those of our own country. All require six and many seven years above the high school to complete their courses. It is possible for foreign physicians to become licensed to practice in these South American countries, but it is quite difficult, as will be seen by the rules in Argentina, which require the alien physician to take his examinations in four groups of subjects, each group given one year apart. Thus it takes practically four years to get by the board. Needless to say one does not run across many North American doctors.

One could not leave this subject without mentioning the Oswaldo Cruz Institute, named for the Gorgas of Brazil, Dr. Oswaldo Cruz, who freed Rio de Janeiro of yellow fever and plague by following the principles laid down by our own General Gorgas in Cuba and Panama. This institution, facing one of the many beautiful bays of the Rio harbor, has a group of buildings which from an architectural standpoint might well pass for an art gallery. The interior is elegantly finished and furnished with every modern apparatus for clinical study and research. Thirty scientists are employed, and a school of pathology is conducted which is equal to any anywhere. Much original work is done especially in tropical diseases, and the present director, Dr. Carlos Chagas, has completely established the disease as well as the cause of the disease which bears his name.

Another institution of keen interest is the Instituto Butantan, which is commonly known as the "snake farm." Here every venomous reptile in Brazil is found. From the venom of these snakes is made a polyvalent anti-snake-bite serum for the treatment of persons bitten by poisonous reptiles. The process of making this serum is interesting enough to bear describing briefly. The snake is caught by the keeper, held just back of the head, mouth open wide and fangs exposed. A small dish is placed in the mouth of the snake and the venom caught as it drips through the hollow fangs. A given amount of this venom is injected at regular intervals into healthy mules, which are made quite sick at first, but they gradually develop an immunity. When this is complete large injections do not affect the mules. The mules' serum is then collected and put up in vials, one dose in

each sufficient to neutralize one snake bite. These snakes do not live long in captivity, and new supplies arrive daily coming in from the interior of Brazil where the natives catch them and as a reward receive three doses of anti-snake-bite serum per snake. The director stated that before the use of the serum 75 per cent of the persons bitten died, but with the use of the serum those treated with it have only a 3 per cent mortality.

THE HOSPITALS

Very closely allied to the medical schools are the public hospitals, and in general these differ very greatly from our own, not so much in architecture and equipment as in their lack of nursing service. It is the exception rather than the rule to find trained nurses in a hospital. This statement can best be comprehended when I say that in Brazil, a country with an area equal to that of the United States, there is not a single training school for nurses with one exception, and that is in the San Francisco Hospital in Rio de Janeiro, and that had just begun its first nursing class two weeks before our visit there. This school is subsidized by the Rockefeller Foundation, and it has taken a nurse especially trained in this work eighteen months to get a class of sixteen students enrolled and classwork started. How, then, are the patients cared for? In the public hospitals the nursing such as the poor patient gets is done by medical students and male or female attendants, the latter mostly of the illiterate class. Many of the surgeons have private hospitals of their own in which they treat their wealthy patients. Here the nursing situation is handled a little differently. The patient engages a room or suite of rooms, as the case may be, depending on how many of the relatives are going to be employed in the care of the case. The patient's bed averages six dollars a day, with a charge of five dollars per day for each extra person for cot in room and meals. The doctor or his assistant does what nursing requires skill, and the relatives police the case.

In covering the nursing situation one should not fail to mention the work done in the education of nurses in the British Hospital in Buenos Aires, where a training school has been conducted for the past ten years and now has a splendid class of thirty-five, all recruited from the British colony of that city. Until recently this training school has been the only source of trained nurses found in South America.

A large amount of the operating is done under spinal anesthesia, and one simply marvels to see how a surgeon with no nurses in the operating-room, with one assistant, will do the most difficult major operation without a slip in the most exacting technic of sterility. The usual technic is about as follows: Surgeon and assistant enter scrubbed; attendant lifts cover from drum of sterile goods, each gowns himself, head-gear and mask being previously applied; gloves are put on; surgeon drapes instrument stand and arranges instruments; threads such needles as he will need, but the Reverdin needle was almost universally used in the clinics I visited; patient walks in with attendant and sits on the operating table with back exposed to the surgeon; cover is lifted off anesthetic tray by attendant; six inch square space about site of injection is painted with iodine or picric acid; needle is inserted and spinal fluid allowed to drip out; Luer syringe is attached to the needle and the barrel filled with spinal fluid; spinal needle is left in place, and the contents of the syringe is placed into receptacle containing 15

cg. of novocain powder; this being thoroughly mixed the barrel is refilled with the spinal fluid and novocain and again attached to the still dripping spinal needle. The contents of the syringe is discharged into the spinal canal, the plunger being drawn back and forth a few times to more thoroughly distribute the anesthetic.

The patient is then arranged on the table and draped, having no sensation below the shoulders. The operation proceeds with remarkable skill with no one present besides the surgeon, his assistant, and the patient, all three wide awake.

In conclusion I will state that I have barely touched this interesting subject, but I feel that it is well worth any man's time to spend three months in South America during our severe winter weather, enjoy the splendid hospitality of the people, drink in the scenic beauty of the natural paradise of a tropical continent, and finally return home with a greater admiration for the leaders in medicine and surgery who have made such marvelous progress under conditions we would call handicaps.

A TREATMENT FOR GREENSTICK FRACTURES AND FOR DISLOCATIONS OF THE CLAVICLE*

BY WILLIAM A. FULTON, M.D.

BURLINGTON, WISCONSIN

Greenstick fractures come within the province of the railway surgeon rather infrequently, and the same may be said of dislocations of the clavicle, for they are of comparatively rare occurrence. The former are easily handled, but the latter present real problems.

It is now twenty-eight years since I treated my first greenstick fracture. The patient was a boy of five, and the fracture was the most usual one (in the forearm), the bones being bent backwards. I used the method I had been taught, straightening the bones forcibly and applying anterior and posterior splints. While the results were perfectly satisfactory, an anesthetic was required, and the father, who was standing near by, winced when he heard one of the bones snap as it straightened. I confess the sound was not a cheerful one.

The second case, a duplicate of the first, was that of a little girl of two and a half years,

who came a few days later. In the meantime I had pondered somewhat over the first case, and concluded that if a greenstick fracture could be partially straightened without much pain, that constant moderate pressure might result in complete reduction. The little patient, being so young, was a favorable one on whom to try my theory. There was no difficulty in straightening the bones sufficiently to make the application of splints possible, in fact the little tot did not even cry.

The splints were made from thin wood and were the width of the forearm; they were padded with cotton and bound with a bandage. The posterior splint, or the one to be applied to the concave flexure, had an extra padding of wool bound to each end. The anterior splint was similar, except that it had but one wool pad, so placed as to make contact with the most prominent point of anterior flexure.

In applying the posterior splint the wool pads made contact with ends of bone only. The

*Presented at the annual meeting of the Soo Surgical Association.

anterior splint extended from the flexure of the elbow to the wrist, and made contact with convexity only. The splints were parallel, of course, and were held in place, moderately snugly, with encircling strips of adhesive tape placed near the ends and making contact with the skin, to prevent rotation. The constant pressure was secured by using encircling rubber bands near the ends of the splints, and placed over the adhesive tapes, to prevent pressure irritation of the skin. In two days the bones were straight, and padded splints, made to conform to the other forearm, were used till the forearm was strong enough to need no support.

This is a good example of the method of treatment for the average case. In fractures of the femur a very short splint may be used for the convexity of the bone until straightening is complete. The amount of pressure used need not be uncomfortable, and can be graduated to the needs of the case by varying the number and the size of the bands used. Any or all of the rubber bands can be removed at any time and replaced or changed without disturbing the original dressing. Children with very fair, thin, and sensitive skins may well be protected with one or more layers of adhesive plaster placed over pressure points. Wool is superior to cotton for pressure pads, as it is more elastic and does not pack and harden so quickly.

Fractures of the clavicle are more difficult, and require a modified technic. This method is not applicable to depressed fractures, but they are rare, and generally are caused by direct violence. The most frequent site of fracture is in or near the middle third, and the treatment is comparatively simple for this region. But one pressure splint is used. It should be oval in shape, slightly curved, and long enough to extend a little to each side of fracture. The splint may be cut from tough splint cardboard, split sole-leather, or a thin plate of metal. It must be padded, of course, and held in position over the site of the fracture with adhesive plaster tape. The pressure is applied with rubber bands, in loops of adhesive tapes, stretched tightly over the splint and held by means of adhesive tapes applied to chest and back. The forearm should be placed in a sling.

The details of this procedure need some elaboration. It is well to first apply a strip of adhesive plaster, from two to four inches in width, from the costal margins in front to within an inch of the clavicle, and another similar strip

to the back, from the waist up. These plasters are for the purpose of providing large tension areas, to reduce creeping to a minimum. They should be applied from below upwards and under tension, to avoid wrinkling under an upward pull. It is on these tension plasters that the tapes carrying the rubber bands are applied, with extra tapes, in the form of an inverted V, to distribute tension. The tapes carrying the rubber bands should have the inner parts of the loops surfaced so as to be non-adhesive, and pinned with a small safety-pin, to avoid creeping. All rubber bands should be held in position with adhesive tape; and wherever possible adhesive plaster under tension should be bandaged for an hour or more, to insure good adhesion.

The treatment of fractures at the acromial end is the same as for fractures of the middle third.

A fracture near the sternal end requires a narrow splint with a pad, as heretofore described, with a long lower end extending diagonally across the sternum and held firmly with adhesive plaster. The upper end of this splint should extend about an inch above the fracture. The rubber bands are attached to upper end of splint and from there to the back in the manner previously described. In some cases a hinge in the splint, just below the pressure pad, is necessary, in order to secure pressure in the right direction. These details may be wearisome, but they are essential for satisfactory results.

I have been able to use this treatment in fractures of the metacarpals, radius and ulna, humerus, clavicle, tibia and fibula, and femur—all the long bones in the body, excepting the phalanges, metatarsals, and ribs. While this type of fracture of the phalanges and metatarsals does occur, I have never seen one. Greenstick fractures of the ribs need only a supporting bandage or adhesive plaster.

This, in general, is the method I have used with entire satisfaction for twenty-eight years. I have further evidence that the method is worth while in the fact that Dr. Wesley Grove Vincent, of New York City, published a paper on "Greenstick Fractures of the Forearm" in the *Journal of the American Medical Association*, January 12, 1918. His method, as I remember it, is the same as the one just given. Very likely many others have used a similar treatment, it seems so very simple and natural.

Now, the application of this method to treatment of dislocations of the clavicle may be taken up. These dislocations are unique in being among the easiest to reduce and the most difficult to retain in position. Their treatment, after reduction, has really been described, as it is the same as that of greenstick fractures near the sternal or acromial ends. So the part of this discussion that will be of most interest to you will be brief.

The pressure splint for either end of the clavicle must be placed directly over the reduced dislocation. Patients with sternal dislocations should be kept on their backs for at least two weeks, and have full dressing on for three or four weeks.

Dislocations at the acromial end are much easier to control. They should be dressed in position as for ordinary fractures. I can see that in some cases of sternal dislocations this position might be necessary also. The adhesives and splint should be applied with shoulder in position, or the plaster will be wrinkled and the splint misplaced when the shoulder is put up and back. In three or four weeks the forearm may be carried in a sling with dressing off.

My experience with dislocations of the clavicle has been limited to three cases; therefore I am unable to speak with much authority, but I have the feeling that practically all recent cases can be cured without an open operation. All injuries of the clavicle are fussy cases, but even after operation a dressing is required that will immobilize the shoulder.

You may be interested in a report of the outcome of my cases. They were all seen within the last five years:

CASE 1.—Farmer's son, aged 17. Dislocation at sternal end. This young man's injury was the result of being thrown to the ground while leading a horse. Outcome, perfect.

CASE 2.—Man of 45, mason by trade. Dislocation at acromial end, caused by a motorcycle accident. Outcome, perfect.

CASE 3.—Retired farmer, aged 71. Dislocation at sternal end, caused by a fall from a load of hay. Result, failure.

In spite of my best efforts at persuasion I was utterly unable to control the patient. On the fifth day his wife telephoned me that he disappeared, and she found him in the basement sawing wood. She added, "I think there is no use trying to do anything with him." I agreed with her.

The literature on the subject of dislocations of the clavicle is very interesting reading. It shows that many surgeons have had difficulty in holding these dislocations in place, and they have devised various means to this end, some of which have been successful. One method used in a case of sternal dislocation, which seemed fairly rational, was to apply a spring truss with the pad placed over the sternal end and extending around to the back, the strap being brought up and snapped on the pad, the same as it would be applied in a case of hernia. Of course, adhesive plaster has been used to hold these in place with pads under the plaster. The only difficulty with adhesive plaster is that it creeps, it is bound to do so if under tension, and in a short time your pressure is relieved, while with the rubber bands under tension we have a constant pressure which decreases only very slowly from creeping, and in case the bands lose their elasticity they can be replaced, or if the pressure is not sufficient more can be applied. For acromial dislocations I must say it is very efficient from the limited experience I have had with this type of dislocation. I find that it controls the acromial dislocations more effectively than the sternal dislocations.

DISCUSSION

DR. LYMAN R. CRITCHFIELD (Kenmare, N. Dak.):

1. I would heartily endorse the use of the wool pressure instead of cotton pads to lessen the risk of causing serious injury to the tissues lying between the pad and the bone. I have never used the rubber bands to maintain continuous pressure as described but the method certainly sounds good and, it seems to me, could be used successfully, many times.

2. One word of caution might not be amiss at this time, and that is, be sure that the greenstick fracture is greenstick and not one that has been impacted.

3. Dr. Fulton makes a good point regarding dislocations of the clavicle when he cites the patient who did not follow instructions. Many of these cases of dislocation of either end of the clavicle have a long period of partial disability. This is due to the nature of the injury and also, in nearly every case, to the patient's not allowing the injured part to rest for a long enough time. The fact that nearly all of the cases of clavicle dislocations come from the class of active strong men, such as laborers, miners, section hands, foot-ball players, and so forth, makes the matter of sufficient rest very difficult. The practice of putting these injuries at rest and maintaining rest by a pressure dressing and plaster cast, aids materially in impressing on the patient the seriousness of his injury and is, as well, essential to the shortest and surest convalescence.

THE CLINICAL LABORATORY: IV. BLOOD*

BY WALTER E. KING, A.M., M.D.

SAINT PAUL

URIC ACID

Urea is produced chiefly by the liver and is the result of chemical changes of the amino-acids resulting from digestion.

Uric acid is produced from the oxypurins and aminopurins. *The normal uric acid content of blood is from 2 to 3 mg. per 100 c.c.* In other words, it is found in the blood in very small amounts. As uric acid is not excreted easily, its presence in the blood in abnormal amounts is one of the early indications of poor kidney function; *therefore the presence of uric acid in the blood in excess of 2 or 3 mg. per 100 c.c. of blood is an indication of early stages of nephritis.* It may occur early in the disease in amounts as high as 10 to 12 mg. per 100 c.c.

The uric acid content of the blood, therefore, provides one of the most delicate diagnostic blood-chemistry tests and should be utilized more frequently for the early diagnosis of nephritis. Many cases which fail to show an abnormal urea content in the blood, reveal relatively high levels of uric acid.

For many years it has been known that gout may be differentiated from arthritis by means of determination of the uric-acid content of the blood. Owing to the complicated tests necessary, utilization was not made of this means of diagnosis until the introduction of various colorimetric methods for the detection of uric acid in the blood.

In gout the increase of uric acid may reach as high as 10 mg. per 100 c.c. In arthritis the uric-acid content remains normal. Attention should be called to the possible appearance of an abnormal amount of uric acid in conditions other than gout. *For instance, the report of a high uric-acid content should not be taken to indicate that the condition is gout, unless nephritis is ruled out. In many cases of nephritis, however, there will be shown an increased creatinin and urea content, and these findings, together with other diagnostic procedures, should enable one to differentiate between gout, nephritis, and arthritis, and between gout and arthritis with*

beginning nephritis.

SUMMARY

The normal uric acid content of the blood is very low, only a trace being present. This is represented by 1 to 3 mg. per 100 c.c. of blood. The presence of more than this amount in the blood indicates gout and differentiates it from arthritic conditions. It should be borne in mind, however, that an increased uric-acid content may be present in beginning nephritis.

CREATININ

It is assumed that creatinin is formed in the muscle from creatin. The kidneys readily excrete creatinin. In any altered function of the kidneys, creatinin is not found in abnormal amounts in the blood until after uric acid and urea are found in abnormal amounts.

The normal findings of creatinin in the blood are from 1 to 2 mg. per 100 c.c.

Creatinin is supposed to be produced from creatin at a fairly constant rate. Whenever more than 3.5 mg. are found in the blood there may be found also a retention of urea. In cases involving pathological conditions, a creatinin content of below 5 mg. may show subsequent improvement, but the appearance of more than 4 or 5 mg. constitutes an unfavorable prognosis.

Wang and Dentler,³ in the study of the constancy of creatinin output, show that the range of creatinin in different normal subjects was from .96 to 1.65 mg. per 100 c.c. of blood, the average normal creatinin content being 1.30 mg. In women no appreciable variation was found during menstrual and intermenstrual periods.

When a level of 4 mg. of creatinin per 100 c.c. of blood is found, it indicates that the kidney function is very much impaired. Such a finding is therefore diagnostic of severe nephritis.

SUMMARY

The normal creatinin content of the blood is very low, reaching not over 2 mg. per 100 c.c. Uric acid, urea, and creatinin, in the order mentioned, are retained in the blood in nephritis; therefore the appearance of an abnormal amount

*This is the fourth of a series of articles by Dr. King on the Clinical Laboratory. The fifth article will soon appear.

³ Wang & Dentler: Creatinin in the Blood, Jour. of Bi. Chem. vol. 45, 1920, p. 237.

of creatinin in the blood indicates serious kidney impairment or severe nephritis. A creatinin content of below 4 mg. indicates that improvement in a given case may be secured. A creatinin content of above 4 mg. affords data indicating a grave prognosis.

CARBON DIOXIDE COMBINING POWER

Acidosis is a broad term as it is generally used and refers to a condition in which the blood becomes depleted of fixed bases or in which the normal alkalinity of the blood becomes lowered. Acidosis, therefore, may indicate an abnormal formation of acid substances, such as diacetic acid and acetone bodies (diabetes), or a decrease in some of the chemical constituents of the blood (nephritis), which may result in lowering the normal alkaline reaction.

The carbonates, phosphates, and body proteins normally are among those substances which tend to neutralize acid bodies and thus maintain the alkaline equilibrium of the blood.

The acid product which is normally present in the blood is carbon dioxide. This is present in the plasma, partly in solution and partly in combination with carbonates. When the alkali reserve of the blood or the means through which acid bodies are neutralized, tends to become depleted the non-volatile acids combine with the carbonates. The carbon-dioxide combining power as yielded from the plasma becomes increased; therefore it is apparent that tests for the CO₂ combining power of the blood, which, fortunately, have been sufficiently simplified for practical use, afford definite data regarding the condition of acidosis present in a given case.

In normal blood the bicarbonate carbon dioxide absorbed, as found in the plasma, is approximately 53 to 75 c.c. per 100 c.c. of blood plasma. In conditions of acidosis this carbon-dioxide combining power falls very far below the figures given above.

In testing the blood for CO₂ combining power in cases of diabetes, much can be learned which is of practical assistance as a guide in treatment and in prognosis. For instance, cases of diabetes which show low combining power, such as 0.12 c.c. to 0.25 c.c. per 100 c.c. of blood are usually in the terminal stages of diabetes, when coma is present or is approaching. Cases showing as low combining power as 0.30 c.c. to 100 c.c. of blood may be classed as severe. Those which are in the process of improvement constantly show an increase in CO₂ combining power.

In nephritis the same thing is true. Severe acidosis, as indicated by the results of tests, showing lowered CO₂ combining power indicates nephritis and the severity of the case often may be gauged by these laboratory findings.

Severe cases of pneumonias as well, in which the prognosis is bad, show acidosis as indicated by the results of the CO₂ combining power test.

SUMMARY

The determination of the carbon-dioxide combining power of the blood plasma is one of the commonly accepted routine laboratory procedures, by means of which acidosis may be detected. ...The CO₂ combining power of normal blood plasma is between .53 and .77 c.c. of CO₂ per 100 c.c. of blood plasma. When results from given specimens of blood plasma show a combining power below these figures, acidosis is indicated. The detection of acidosis and, therefore, the severity of the case, the results of treatment and the prognosis depend upon the extent of decrease of CO₂ combining power as compared to the normal. This blood-chemistry test is, therefore, of practical value in the diagnosis, treatment, and prognosis of diabetes and nephritis, as well as in other conditions, such as severe pneumonia, and in certain diseases in children, such as gastroenteritis and malnutrition.



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THE SAN FRANCISCO MEETING OF
THE A. M. A.

The former session of the American Medical Association in San Francisco was held in 1915, at the time of the World's Fair, and yet the last meeting, beginning June twenty-sixth and ending June twenty-ninth, 1923, was in some ways a better meeting than the one in 1915 in that the registration reached a total of nearly four thousand. It is apparently very necessary for the Association to meet in the West occasionally, for it brings together many of the men who live in the West, and it gives the men from the Middle-West and the far East an opportunity to see what the far West can do. Although it must be to many a real burden to travel from Boston to San Francisco, that part of the East was fairly well represented. Naturally, too, the Sections were made up mainly of Middle-West and Western men, and there were comparatively few papers by men in the far East, owing partly to the fact that the American Specialties Association have their meeting a month earlier than the American Medical Association, thus giving the Eastern and Middle-West states an opportunity to represent their societies and clear themselves of the necessity of going to the American Medical Association meeting.

One interesting feature of the whole situation

is the great auditorium in the civic center of San Francisco. This has been commented upon before, but it happens to apply now very clearly to the needs of Minneapolis,—the necessity of having a large auditorium that will house such bodies as that of the American Medical Association. That San Francisco has, with its enormous central hall with a seating capacity of from 12,000 to 15,000 which, during the meeting-time, gives abundant space for the office work, the registration bureaus, and the exhibits. This hall is so large that all of these exhibits occupied only a part of the floor space. Surrounding the main hall and occupying the second and third floors of the building were rooms of sufficient capacity to house every Section comfortably; even the larger Sections of Medicine and Surgery had no difficulty in accomodating the attendants. Then, too, they have large rooms for committee work, and all under one roof. This building is not so enormous as it may seem, because it is admirably planned and equipped for just such occasions.

The citizens of San Francisco, as well as those of Berkeley and Oakland, across the Bay, offered all sorts of social and other activities for the visiting men and women. The reception to the President, at the Fairmont Hotel, and the open meeting, which was held at an auditorium that was a semi-open space, had a capacity attendance, and all others, including the reception at Stanford University by President and Mrs. Ray Lyman Wilbur, showed the activity of the Committee on Arrangements. The visiting women were given a luncheon at the celebrated Tait Restaurant out on the beach, and for beauty of arrangement, for wealth of entertainment, and for the bounteous food supply it is no wonder that it was attended by more than a thousand women. Then, too, the drives about San Francisco are attractive, and since the last meeting the Twin Peak Drive has been opened up so that one gets an admirable view of the entire city, the Golden Gate, and the Bay.

As is usual in most of these meetings, there was occasion for the same old comment on the inability of the reader of a paper to make himself heard even in the smaller Section meetings, and it is surprising how inadequately prepared men are to present a paper and to read it with emphasis and clearness, and with a sufficient carrying power of voice to keep the audience attentive. In one of the important Sections two men read papers that could not be heard more

than four feet from the platform, and it caused a great deal of unrest and comment and some outward and active criticism. One woman who got up to discuss the paper severely handled the poor embarrassed man who presented his paper, frankly telling him that he ought to have lessons in voice culture and elocution. The man who followed him on the program was apparently embarrassed by the criticism of his confrere and he was subjected to the same riotous inattention. There is really no excuse for this, because it simply leaves the man high and dry; and his paper cannot be discussed because he has not been heard. Aside from several of these interesting little interruptions, the programs went off very well. Why should the speaker not be permitted to use a megaphone, so that his voice might carry at least to the middle of the room or perhaps into the far corners? Other public speakers do this, and why should not medical men employ this method?

THE HOUSE OF DELEGATES

The House of Delegates was in active session during the greater part of the week and evidently accomplished much good except that in occasional instances trivial matters were brought before the House and discussed without regard to the time taken or the importance of the subject, showing that the House is not as well organized as it should be and that subjects are permitted to come up that are not essential to a business session of the House of Delegates of the great American Medical Association.

One interesting feature, which cannot be too strongly emphasized, was a resolution introduced into the House of Delegates commending Governor Smith, of New York, for calling to his aid for advice and information a body of medical men concerning the needs of the people and how their welfare might be best conserved. Evidently, he is the first governor and New York the first State to take this important step, and it is said that Governor Smith has followed the advice given him by his medical advisors. An epidemic of this sort all over the United States would be a great comfort, and might do away with a great many of the perplexing and misunderstood subjects that come before the public as expressions from medical or non-medical interests.

Again the question of prohibition came up, and a general resolution which opened up the

subject widely was very properly tabled; but another resolution which emphasized the necessity of physicians' knowing when and how to prescribe liquors for medicinal purposes was favorably commented upon and the Government was urged to have pure bonded whiskey under the control of the Government and sold by the Government to the consumer through the prescription of the doctor.

Another proposition coming up for discussion was that of the State Association or the County Society having power to suspend or expel a member who formerly in good standing is found guilty of unprofessional conduct. This referred mainly to the improper use of liquor prescriptions, but it also included the suspension or dismissal of men who had in other ways violated their professional constancy, evidently giving the societies permission to expel men who practically violate their oath as medical men and go into the sidelines of commercialized medicine or fake medicine.

The politics of the House of Delegates was singularly free from any friction, although the contest between two candidates for the presidency was very close. Dr. William Allen Pusey, of Chicago, is the President-Elect. Dr. Pusey has had years of experience as a member of the Board of Trustees of the Association, and is consequently familiar with the inner workings of the offices of the Association; and he is widely known as a man who has made his reputation as a dermatologist and has occupied conspicuous service appointments in the Government, and is the author of several books. He is a very active man, fifty-eight years old, right in the prime of life, and he will doubtless make an inspiring president.

San Francisco's climate was at its best. There was no intense heat, there were no fogs, and, all in all, it was a delightfully comfortable week for everybody; and it is quite evident that San Francisco has improved very materially in every way since the previous meeting of the Association was held there.

The next meeting (1924) is to be held in Chicago, the most central large city in the United States, accessible to East and West alike. It takes three nights and two and a half days to come from California to Chicago, and only twenty or thirty hours to come from the far Eastern points to Chicago, so that the attendance next year will probably be a record-breaking one.

THE JOURNALS OF THE ASSOCIATION

It is gratifying to note that the *Journal of the American Medical Association* was able to present the new President's address in the June thirtieth number. Dr. Ray Lyman Wilbur's subject was "Human Welfare and Modern Medicine"; and in it he takes a very broad view of the situation as it exists at the present time. He discusses it from not only the medical but the lay point of view, and he is evidently very anxious to do everything possible to advance human interests, to conserve human life, and to bring out the study of the individual, as well as to educate his professional brethren in broad lines of medicine. He calls attention to the fact that it takes time, patience, and education to make things better; that the rules of biology work all of the time; and that the duty of medicine is to learn the rules and help men meet them. Can this be said of the side issues of the healing art?

Dr. Wilbur attended the first session of the Section on Nervous and Mental Diseases, and he stated that he considered that Section and the Section on Public Health the two most important Sections that make up the American Medical Association. He talked of the necessity of more understanding of the psychology of the people and of medicine in general, saying that we were apt to overlook this very important branch in the study of the individual as well as of the race.

The July-seventh issue of the *Journal of the American Medical Association* contains the Chairman's address on the "Management of a Surgical Service," presented before the Section on Surgery by Dr. Eugene H. Pool. The July-fourteenth issue printed the address of Dr. William Timme, of New York, Chairman of the Section on Nervous and Mental Diseases, on "Modern Methods of Racial Hygiene," which we advise all of our readers to peruse carefully as it deals with many of the problems that are most pressing at the present time and shows the necessity of taking a broader view of individuals who are of a nervous type. Dr. Timme particularly laid stress upon the fact that education is more essential for the benefit of the nervously unfit, the alcoholic, and the drug addict than are the many laws which are passed and which are practically suspended by force of circumstances. He gives four great classes of the inadequate, which are of special importance to neurologists and psychiatrists: first, con-

stitutional inferior states, both physical and mental, due to hereditary germ plasm defect, to metabolic and endocrine dysfunction, and to prenatal disturbances; second, constitutional disease states, such as tuberculosis, hookworm infection, pellagra, and similar disabling affections, which have an intense effect on the resistant power of the individual and which have a special deteriorating influence on the nervous system; third, environmental deteriorating influences, such as poor light and lack of proper ventilation, and poor food, with employment hazards in those occupations dealing with metallic poisons, lead, arsenic, phosphorus, zinc, and dye-stuffs; and, fourth, intoxication from alcohol and habit-forming narcotic drugs. All these he stressed as better cared for by educational methods than by restrictive laws. He also decried the fact that students in our medical colleges have been allowed to choose "electives," and he compared the older method of straight out-and-out, plain teaching with a man who chose the elective method, which lessened his ability to experience or to add other educational requirements,—in other words, the student of to-day commonly accepts the path of least resistance.

The journals outside of the American Medical Association Journal and those published by it in the special branches of medicine are all successfully conducted, and have wide circulations, and the credit of this expansion in publications is due to the wise policy of the Board of Trustees of the A. M. A.

SUPREME COURT UPHOLDS HOSPITAL

Hospital Management for July has a very interesting account of an opinion rendered by the Supreme Court of Wisconsin which relates to the conduct of a hospital, and the nub of the whole situation is that a board of hospital directors, in order to maintain high medical and surgical standards and to encourage the spirit of co-operation among the members of the attending staff of the hospital, thus securing the maximum welfare of the patient and aiding the scientific advance of its members, as well as the internes and nurses coming under its influence, may expel any member of the staff who, in their judgment, is not living up to the provisions laid down by the board of directors. The staff itself may not expel a member, but the board of directors may do so on recommendation from the staff.

There are many other things in this decision that

are of great importance, and it puts the hospital on a definitely standardized basis and gives the board of directors more power than they have ordinarily possessed. It requires a three-fourths vote of the staff to recommend the expulsion of a member, and they can only recommend; but it gives them a voice in the matter, and clothes them with advisory powers and thereby puts up to the board of directors the formation and the suspension of its staff members. This does not in any way prevent the offending member from being heard, in fact if charges are preferred against him he must be heard; and if, after a hearing, the staff recommends his dismissal the board of directors has full legal power to suspend him.

This wise decision ought also to apply to medical societies having an organization of officers for different activities. The board of censors, the executive committee, and the board of trustees in every society surely ought to be composed of men who are fully equal to the task of recommending, at least, the expulsion of a member of a medical organization.

NEWS ITEMS

Dr. R. I. Stewart has moved from Wendell to Lyndstrum.

Dr. J. H. Wells has moved from Rosemont to Farmington.

Dr. A. H. Hoyne, formerly of Bijou Hills, S. D., is now located at Salem, S. D.

Dr. Arthur W. Ide, of St. Paul, has gone to Europe for a trip of observation in medical matters.

Dr. W. E. Judson has moved from West Duluth to Livermore, Calif., where he has purchased a practice.

Dr. S. P. McDaniel, of Mountain Iron, was married last month to Miss Golda Rader, of Manhattan, Kansas.

A Minneapolis daily says "the acreage for hay fever sneezers will be greatly reduced this year" because of the general use of vaccines.

A Federal judge in Montana has decided that the law limiting the amount of liquor a physician may prescribe is unconstitutional.

Dr. C. H. R. Hovde has moved from Madison, S. D., to Los Angeles, Calif., with offices in the Philharmonic Auditorium Building.

Dr. Harold J. Prendergast, of St. Paul, has become associated with Dr. R. A. Beise, of Brainerd. Dr. Prendergast is a graduate of the University of Minnesota.

Dr. E. M. Meadows, who has practiced for the past ten years in the western part of North Dakota, lately at Fredonia, has returned to Oakes, where he formerly practiced.

Dr. G. A. Fuson has resigned as health officer of the city of Great Falls and Cascade County (Montana), and his successor, it is announced, will be a physician trained in public health work.

The physicians of the Stearns-Benton County Medical Society, holding a meeting last week at Pelican Lake, endorsed the plan to build a tuberculosis hospital for Stearns and two other counties.

Dr. William Wood Russell, who formerly lived in Minneapolis and who has been an associate professor in Johns-Hopkins for a number of years, died last month in Colorado Springs at the age of 57.

A special election will be held next week in Pipestone to amend the city charter so as to permit the city to join the county in accepting a gift of \$50,000 from a local banker for the purpose of building a hospital.

The Minnesota-North Dakota Conference of the Catholic Hospital Association of the United States and Canada, was held in Duluth last month. Twenty-three hospitals were represented, and the meeting covered two days.

Dr. R. F. Raiter, a recent graduate of Northwestern, who has just completed a year's work as interne in the General Hospital of Cincinnati, Ohio, has become resident physician of the Cloquet Hospital in partnership with his brother, Dr. F. W. S. Raiter.

The annual report of the Madison (S. D.) Hospital, made by its president, Dr. R. S. Westaby, last month, shows that the hospital did a larger business than the previous year, and that it is in a prosperous condition, having done more work than in the preceding year and paid a larger dividend.

New and accurate tables of standards of height, weight, and grade of school children in the United States have become necessary and are being worked out by the U. S. Public Health Service. Dr. Taliaferro Clark, surgeon of the U. S. Public Health Service, has asked Dr. Harrington, Minneapolis Health Commissioner, for such data from the Minneapolis schools.

Nearly two hundred students applied for admission to the freshman class of the Medical School of the University of Minnesota last month; one hundred were admitted, which number is the limit of the size of the class. Admission is based upon scholarship in pre-medical studies, preference being given to Minnesota applicants who show the required standard of scholarship.

The annual meeting of the Wabasha County Medical Society was held last month in Lake City. The following officers were elected for the current year: President, Dr. W. H. Replogle, Wabasha; vice-president, Dr. H. E. Bowers, Lake City; secretary-treasurer, Dr. W. F. Wilson, Lake City; delegate to the State Association, Dr. D. S. Fleischhauer, Wabasha; alternate, Dr. E. H. Bayley, Lake City.

The Sioux Valley Association held its mid-summer one-day meeting in Sioux Falls, S. D., last month. The attendance was good, and the program was excellent. The following officers were elected: President, Dr. L. L. Corcoran, Rock Rapids, Iowa; secretary, Dr. A. N. Waters, Sioux City, Iowa; treasurer, Dr. W. R. Brock, Sheldon, Iowa; member of the Board of Censors, Dr. J. G. Parsons, Sioux Falls, S. D. A banquet was tendered the members of the Association by the local men; and clinics were given in the hospitals of Sioux Falls the day following the meeting, and almost all the visiting physicians attended them.

The Montana State Medical Association held its annual meeting in Great Falls last month. A fine program was offered the Association, and harmony prevailed. The expected resolution on the right of doctors to prescribe liquor without limitation, as decided by Federal Judge Bourquin, of Montana, did not appear. On the contrary, the Association pledged its co-operation in obtaining a "rigid enforcement of the prohibition law." The following officers were elected: President, Dr. C. R. Monahan, Butte; first vice-president, Dr. H. D. Kistler, Butte; second vice-president, Dr. D. V. McCabe, Helena; third vice-president, Dr. L. C. Ford, Lima; secretary-treasurer, Dr. Elmer G. Balsam, Billings; delegate to the A. M. A., Dr. C. T. Pigot, Roundup; alternate, Dr. H. T. Rhoades, Choteau; place of next meeting, Helena.

PHYSICIANS AT THE A. M. A. MEETING IN SAN FRANCISCO

The following physicians from this territory attended the meeting of the American Medical Association held in San Francisco in June:

MINNESOTA

Anderson, Edward Dyer	Minneapolis
Anderson, Hilding C.	Duluth
Barfield, James J.	Granite Falls
Bell, John W.	Minneapolis
Braasch, W. F.	Rochester
Birnberg, T. L.	St. Paul
Boothby, Walter M.	Rochester
Bowing, Harry H.	Rochester
Buie, Louis A.	Rochester
Cameron, Isabell L.	Minneapolis
Carman, R. D.	Rochester
Craig, Winchell McK.	Rochester
Cranmer, Richard R.	Minneapolis
Culley, John C.	Oxford
Dittman, George C.	St. Paul
Eberlin, E. A.	Glenwood
Farr, Robert Emmett	Minneapolis
Giffin, Herbert Ziegler	Rochester
Greene, Charles Lyman	St. Paul
Hedblom, Carl A.	Rochester
Helmholz, Henry F.	Rochester
Hempstead, Bert E.	Rochester
Henderson, M. S.	Rochester
Holbrook, J. S.	Mankato
Huenkens, E. J.	Minneapolis
Irvine H. G.	Minneapolis
Jones, William A.	Minneapolis
Judd, E. S.	Rochester
Kirmse, George W.	Minneapolis
Leavitt, H. H.	Minneapolis
Lillie, Walter I.	Rochester
McCarty, William Carpenter	Rochester
McDavitt, Thomas	St. Paul
Maland, C. O.	Minneapolis
Martin, T. R.	Duluth
Meeker, William Raymond	Rochester
Melson, Oliver C.	Rochester
Morsman, L. William	Hibbing
Nagel, G. W.	Rochester
New, Gordon B.	Rochester
Richie, Harry P.	St. Paul
Robertson, H. E.	Rochester
Reasner, Win. H.	Minneapolis
Rothrock, J. L.	St. Paul
Rowntree, Leonard G.	Rochester
Sanford, A. H.	Rochester
Sheldon, Walter D.	Rochester
Smith, P. A.	Faribault
Stewart, Alexander	St. Paul
Turnbull, F. M.	Duluth
White, S. Marx	Minneapolis

NORTH DAKOTA

Alnow, H. O.	Mandan
Bodenstab, W. H.	Bismarck
Eddahl, Anfu	Grand Forks
Holmes, J. E.	Columbus
Lamont, J. G.	San Haven
Marsden, Chas. S.	Grand Forks
Pray, Edgar A.	Valley
Ruediger, Ernest Henry	Bismarck
Stucke, E. C.	Garrison
Weible, Ralph E.	Fargo

SOUTH DAKOTA

Hovde, C. H. R.	Madison
Vall De, F. C.	Garrison
Vaughn, J. B.	Castlewood

MONTANA

Dobos, E. I.	Butte
Donovan, John A.	Butte
Hagen, John C.	Hysham
Heffter, Otto H.	Great Falls
Horie, George H.	Kansas City
Larson, E. Martin	Great Falls
Leard, S. E.	Livingston
Martin, Larson E.	Great Falls
Morse, A. W.	Butte
Neill, Newman	Billings
Pigot, C. T.	Roundup
Sievers, J. R. E.	Butte
Williams, Elton A.	Harve
Wolf, John T.	Butte

PHYSICIAN WANTED

In a good, live, wide-awake South Dakota city of about 700 population to take up the work of a physician who has had to retire for a time on account of illness. Office facilities of predecessor may be used, and a partnership will be formed with the right man upon return of the former physician. Address 360, care of this office.

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Physician obliged to give up work on account of poor health. Splendid town of 1,200. One other physician, ethical and a good fellow. Best crops in years. Practice will pay from \$4,000 to \$5,000 in these times. Will sell practice and fine office equipment for less than value of equipment. Office rent cheap. Address 362, care of this office.

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SOUTH DAKOTA PRACTICE FOR SALE

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A capable internist with knowledge of fluoroscopy and x-ray interpretation to buy a third interest in a small group practice established four years. You buy only your share of office equipment and modern x-ray equipment at invoice price of about \$2,500. Will sell only to a high-grade man with good references as to ability and integrity. Present incumbent leaves January first. Location in one of the most progressive North Dakota cities of 5,000 population with modern hospital and other advantages.

Present group holds many very desirable appointments. Excellent opportunity to fall into a big practice in internal medicine with a large office and hospital clientele that will yield more than a good living income the first year. Detailed business statement will be furnished on application. Address 365, care of this office.

PRACTICE FOR SALE

In a town of 800; center of a rich farming district in Eastern South Dakota on the Great Northern Railway. Office of 7 nice rooms over a drug store and bank, with electric lights, city water, and hot water heated, the rent of which is \$40. One other physician. Practice will pay from \$8,000 to \$10,000 a year. Equipment of office, auto, etc., with good-will for sale at low price. I am obliged to sell because of ill health. Address 359, care of this office.

PRACTICE FOR SALE

General practice in South Central Minnesota; modern county-seat town in prosperous farming section; average competition; collections good; no real estate; will sell for price of part of equipment. Address 358, care of this office.

MINNESOTA LOCATION WANTED

By a physician doing all general surgery and one who is also an experienced hospital executive; aged 42, married; no children; have had five years post-graduate work in surgery. Best of references. Prefers Twin Cities, and will accept a salary or guarantee of \$3,000 net yearly in a hospital or surgical opportunity there. Other good hospital connections considered. Address 354, care of this office.

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An experienced nurse (hospital training) will receive in her home in Minneapolis, a semi-invalid by the week or month. Excellent room in modern house with a sleeping-porch in quiet neighborhood. Reference to physicians furnished. Telephone, Kenwood 4875, or address 355, care of this office.

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A dentist wants a physician to share his office with him. Rent low. Location excellent for a new physician. Near a high school; neighborhood not overstocked with physicians, and residents practically all own their homes. About a mile to nearest physician's office. Address 367, care of this office.

WANTED

A nurse who is a graduate of No. A hospital; of good appearance, reliable, who can give anesthetics, and do r-ray and routine laboratory work, to assist a general surgeon in Minneapolis. Address 368, care of this office.

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PYELITIS IN INFANTS AND CHILDREN*

BY GEORGE E. JOHNSON, M.D.,
AVON, SOUTH DAKOTA

I do not choose this subject because of my extensive knowledge of it, nor because I have a series of cases to report, but because it is a subject of great interest to me, and I hope that in the discussion points of value will be brought out and the paper will be criticized freely, even severely, so that we may all learn and profit thereby.

Pyelitis is a bacterial invasion of the renal pelvis, but the process does not always stop there, as in nearly every case there is an involvement of the kidney parenchyma, as well, due to more or less urinary stasis. In fact, also in cases not due to an ascending infection, it would be hardly possible that the secreting and excreting epithelium of the kidney would not be at least somewhat affected by the passage through it of perhaps multitudinous organisms.

Pathologically, early in acute cases the mucosa is the seat of a catarrhal inflammation, swollen, covered with mucus and pus, and in severe cases perhaps presenting small hemorrhagic areas and even ulcerations. The lining cells in various stages from cloudy swelling to actual degeneration, are exfoliated, and hence found in the urine. These same changes often extend into the ureter and also up into the kidney tubules. Later the mucosa becomes thickened and paler in color, the pelvis often dilated, and pyramids flattened. The two latter conditions are found

in cases that have had intermittent, partial, or complete temporary obstructions to the urinary outflow, either from acute swelling of the ureteral mucosa or plugs of mucus or pus, or stone. In cases in which stone is present, or tuberculosis exists, or congenital anomalies are present, there will also be the special pathology of that condition.

The incidence of pyelitis in infants and children is very much greater than is generally assumed, perhaps because many cases go unrecognized, principally because we either forget or neglect to look for them, or they are so mild that they escape observation. These especially are cases occurring during the course of acute infectious diseases and subsiding with the subsidence of the acute causative condition.

The etiology differs somewhat from cases occurring in later life since hypertrophied prostates and gonorrheal infections in the male and pelvic infections and pressure from the gravid uterus and uterine and ovarian tumors in the female, do not enter into the discussion.

Pyelitis is twice as frequent under two years as over that age; that is, the diaper age. Girls are much more frequently affected than boys, because of easier access to urinary tract of colon bacilli.

There is no seasonal or climatic incidence, except such as might be from the prevalence of diarrheal conditions or acute infectious diseases.

Among predisposing causes may also be listed

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chemical irritants brought to the kidney by the blood stream, such as turpentine and even sugar or other substances of like nature. Also exposure to cold is predisposing only by causing local congestion and lowered local resistance.

Chronic constipation is often the cause of recurring attacks, both by causing pressure upon the ureters by loaded bowel and also by being a focus from which bacteria can reach the kidney. A urethritis, balanitis, vulvovaginitis, or cystitis is also causative to an extent.

Calculi, tumors, and congenital malformations may predispose, and in rare instances there may be a direct extension from suppuration around the kidney.

The direct cause is bacterial, the bacteria reaching the kidney by one of three ways:

By ascending, which is perhaps the most common in younger children, ascent being up the ureter from the external genitalia due to soiling in diarrheas, a very common cause, or from vaginal, urethral, or bladder infections.

Hematogenous, in which the bacteria reach the kidney through the blood stream. This may occur during any localized or general infectious process, such as tonsillitis, scarlet fever, pneumonia, influenza, otitis, sepsis, diphtheria, bronchitis, typhoid, furunculosis, impetigo, osteomyelitis, and also any chronic focal infection.

The third means by which the bacteria may reach the kidney, and the most uncommon, is by means of lymphatics. It has been stated that this is the reason for more right-sided than left-sided cases of kidney infection, because of the location of the appendix on the right. The drainage is up the cecum, thus reaching the right kidney, while on the left the lower bowel is not nearly so liable to acute inflammation. There are also many lymph channels surrounding the ureter. In this way a cystitis with an ulcerative lesion about the trigone could open up these lymph channels and thus permit a direct entry of bacteria into the blood stream.

The bacteria most commonly present and causative are first, colon bacillus, staphylococcus, and streptococcus, bacillus proteus, gonococcus, pneumococcus, and also bacillus tuberculosis. It is practically always secondary to some other condition.

Symptoms.—Pyelitis may be acute, subacute, or chronic. Those acute cases coming on during the course of other infections, may not present any additional constitutional symptoms, and may go unrecognized unless a urinary examination

is made. Many times a child has apparently recovered from some acute infection, and the fever persists. An unexplained fever, even at other times, should suggest the possibility of a pyelitis, or a chill occurs followed by a rise in temperature. The fever is at first continuous showing daily remissions. It may also be intermittent or septic in type. This type of temperature curve in acute cases is usually the result of intermittent obstruction to the urinary outflow from the kidney. A cessation of the febrile process usually means convalescence or chronicity. The urinary examination will tell which.

Of other constitutional symptoms there may be none or any variety, such as loss of appetite, nausea, toxic vomiting, gastro-intestinal disturbances, and even abdominal colic, even to a profound intoxication. One very suggestive symptom is pallor apparently out of proportion to the apparent gravity of the condition otherwise.

Local symptoms referable to the urinary organs are either not present or so slight as to be overlooked. Among them may be pain, tenderness, or muscular rigidity over the kidney, bladder irritability with frequent and even painful urination. Chronic cases are either the continuation of an acute case or are chronic from the start. Many of these chronic cases in older children are the cause of some cases of obstinate enuresis. Some of these chronic cases exist over long periods with practically no discomfort, pus in the urine being the only distinctive feature, and this may be intermittent. However, many cases present intermittent fever and chills, some with sweats and digestive disturbances, and the general condition indicates prolonged suppuration, that is, a progressive failure of health with anemia. Polyuria is usually present, also tenderness over the affected side especially at those intervals when no pus is in the urine.

Diagnosis.—The diagnosis should be easy if only pyelitis is thought of, and is made upon the urinary findings. Aside from this there are few, if any, symptoms to direct attention to the kidney. It should hardly be necessary to say that in all obscure febrile conditions without localizing symptoms, repeated urinary examinations should not be omitted, in fact routine urinary examinations in children would often prove very enlightening, and are as essential as in adults. One may see a child with a history of a previous acute fever of undiagnosed cause. The temperature now being normal, examination

of the urine may reveal a now subacute or chronic pyelitis.

What are the urinary findings if this must make the diagnosis? These findings will depend to a great extent upon the severity and type of the infection, whether the condition is bilateral or unilateral, whether the bladder is also involved, whether there is some temporary obstruction to the outflow from the kidney, this last necessitating oft-repeated urinary examinations in order to be sure.

In the very acute cases, the amount of urine is more often decreased than increased, the sp. gr., plus, and turbid from pus, if this is present in some amount; it may be bloody, albumin in a trace or large amount, depending on the amount of pus and also if a co-existing nephritis is present. Acid in all colon bacillus cases, also tuberculosis. Occasionally alkaline, these cases being due to the other varieties of organisms.

In the more chronic cases the urinary findings are somewhat different. The quantity may here be increased above normal, usually, however, not enough pus to render the urine turbid; sp. gr., near normal. Pus and albumin in varying amounts, acid or alkaline, depending on the organism present and whether or not the condition has been treated and how treated. Do not centrifuge the urine, shake and examine with low power; even 8 to 10 cells to the field should create suspicion, especially if no vaginitis is present and if the genitalia have been thoroughly cleaned before the specimen is obtained; and this should always be done, or if cells are found in these numbers in a catheterized specimen one should suspect a pyelitis strongly.

We know that pus cells are present normally in the urine of children to an extent of perhaps two to five cells per field in girls and of one or two in boys. Bacteria are also seen in considerable numbers under higher magnification. We will also find in these cases numbers of epithelial cells from the bladder and pelvis of the kidney; however there is not sufficient difference in the appearance of these cells to be of any value in diagnosis.

Also very suggestive is a trace of albumin in the urine, associated with some fever and no other diseased bodily condition demonstrable which might be causing it.

To obtain the urine from infants is often difficult; however it may be done. Always carefully cleanse the genitalia. In boys a test tube or small bottle fastened with a tape or adhesive

will do the work. In girls do not use a pad of cotton or gauze over the vulva and then wring the urine from it, for if only moderate numbers of pus cells are present, they become entangled in the meshes and lost. Since infants urinate frequently hold a small basin or piece of oilcloth between the thighs or use a small catheter. This is not difficult in girls, and even small boys may be catheterized by using care. For collecting urine from girl infants, the glass water container from a bird cage can be utilized by fastening with adhesive strips and applying the diaper snugly. It should seldom be necessary to catheterize and even less often to use the cystoscope and ureteral catheter, the latter, anyhow, are not for the general practitioner.

Differential diagnosis.—Acute cases with abdominal pain and tenderness may be mistaken for appendicitis, cholecystitis, or ileocolitis, remembering that in infancy an association of pyelitis and ileocolitis is common, and in older children right kidney infections and appendicitis may co-exist or the pyelitis may follow the appendicitis.

Cystitis cannot always be differentiated without the cystoscope, which is not practicable for the general practitioner and its use is hardly justifiable in all cases even in those places where it is possible to use it. Marked vesical tenesmus and urgency point to cystitis, although this would not exclude a pyelitis as they may exist in this, especially when the urine is very acid and contains much pus.

Cases with marked nervous symptoms must be differentiated from meningitis.

Chronic cases must be differentiated from sepsis, typhoid, severe intestinal intoxication, pneumonia, and even malaria. A large number of chronic cases present no symptoms whatever, but pus is constantly present in the urine.

Prognosis and course.—The prognosis naturally depends upon the nature and severity of the infection, also if unilateral or bilateral. Prognosis in acute cases due to the colon bacillus is good, although these tend to relapse and become chronic. Those due to streptococci are not nearly so favorable and tuberculosis much less. Chronic cases may even exist for years without serious impairment of health, and may be very resistant to treatment. A small percentage are fatal as a result of kidney involvement or general sepsis.

Prognosis as to life.—There is a favorable tendency toward complete recovery. It should

be remembered that simple cases due primarily to colon bacillus or neglect or mistreatment, change into severe and dangerous cases of mixed infection in which the septic cocci play the most important part. Relapses may occur in cases apparently recovered.

Prophylaxis.—Prophylaxis consists in the early recognition and proper treatment of all local or general infections. This tends to lessen the danger of pyelitis as a complication, as well as other complications. Proper cleanliness of the parts in diarrheas, vaginal infections, and the proper treatment of these conditions, and prompt treatment of a cystitis or urethritis, are demanded. Since chronic constipation is a cause of some recurring cases, attention to this is important. Also avoid too tight diapers, as they have a tendency to drag the vulva open and contaminate it. Cleansing of the napkin area, should also be in a direction away from the vulva.

Treatment.—I am not going to consider under this the special forms of treatment necessary in those cases of pyelitis due to tuberculosis, calculi, malformations, ureteral or other stricture, or foreign body. After eliminating all of these as a cause of trouble, the line of treatment would be essentially as follows:

In the acute form, absolute rest in bed until after the temperature has remained within normal range for four or five days; after this time gradually allow freedom of the house; hydrotherapy for fever if needed; active bowel elimination at the onset; broken doses of calomel followed by saline or a full dose of oil; bland diet according to the age of the child, mostly liquid at start, milk whole or skimmed or butter-milk, and plain water in large amounts. Note this one thing. The amount of fluids is perhaps the most important part of the treatment, mechanically washing and cleaning out the urinary tract; give liquids in every possible form. If they are refused or are vomited, recourse may be had to other means, such as rectally, subcutaneously, even intraperitoneally or intravenously, but give it to them. Heat applied over the abdomen and loins is very grateful to them.

Medication.—Alkalies have generally proved the most useful, probably because most cases are colon bacillus infections with an acid urine. Alkalinizing the urine and maintaining it so should inhibit this organism to some extent. The amount of alkali used should be sufficient to keep

the urine alkaline. Sometimes this means large amounts.

Give potassium or sodium citrate with an equal amount of sodium bicarbonate well diluted. The doses of the citrate as given in two to five grains to infants are probably altogether too small. We may start with forty to sixty grains daily and more if needed; older children in proportion, remembering when giving large doses of alkalis to children over a period of time to look out for alkalinoses, manifesting itself by edema of eyelids or general edema, subnormal temperature, drowsiness, twitching, even convulsions or coma, remembering also that the bacteria may become alkali fast, then change to acid treatment. Sodium phosphate or sodium benzoate with urotropin would be in order. Sometimes good results may be obtained by alternating alkaline and acid treatment.

In chronic cases, medication is the same as in acute plus possibly vaccines, and in obstinate cases the newer methods of ureteral catheterization and pelvic lavage, followed by instillation of antiseptic solutions. In addition use roborant measures, fresh air, baths, a sufficient quantity of unirritating food, and tonics if needed.

SUMMARY

1. Pyelitis is commoner than generally supposed. It is often overlooked.
2. It is usually secondary to some other condition.
3. The subjective symptoms, clinical course, and results of laboratory examination run in no way parallel, either in mild or severe cases.
4. Pyelitis is very prone to recur and become chronic.
5. The diagnosis is made upon the urinary findings.
6. It must be differentiated from every other cause of obscure fever.
7. These cases, although the mortality or the morbidity is not high, are worthy of our best efforts in their prophylaxis, diagnosis and treatment.

DISCUSSION

DR. D. A. GREGORY (Sioux Falls): I am not a pediatrician, but I do have to do with the laboratory and do not wish to see a paper as good as this go undiscussed. It is a very excellent and timely contribution.

In my laboratory I frequently have a physician bring in a specimen of urine and in that way make the diagnosis. I think this that the obscure fevers in children often go unrecognized.

DR. J. P. ISAACS (Freeman): Just to take a little time from the big fellows who are going to tell a lot anyway, I want to back up the statements in Dr. Johnson's very excellent paper. One of the points is that pyelitis in infants and grown children is very frequently overlooked. I say it to my discredit, I have seen a case and sent it to the surgeon believing it to be appendicitis, when, fortunately, before operation a very profuse outpouring of pus made it evident that we were dealing with an acute pyelitis. I do not doubt that many others have made the same mistake.

Another point is that, if we do not look for trouble here, as I believe many of us do not and as I did not for a number of years, nothing very serious seems to happen to these little patients. They have a way of getting well in spite of our ignorance and our improper treatment. That is the only comforting thing about it. Then when we discover ourselves and begin to find out these things we are apt to think that we must look all the time for trouble in the kidney, and then we do this,—we have

the parents bring in a sample of urine, and then it will happen, as it happened with me not long ago, I was treating the mother for pyelitis at the time, and the father said, "I believe my little girl five years old has the same trouble that her mother has because she has frequent purging (?) with urination."

I wish to throw out this hint or warning. Very frequently this trouble does not come from much higher up than the vulva or vagina. Be sure to eliminate pus from that area before suspecting a spot higher up.

I wonder how many of us still ship a suspected case of appendicitis to the surgeon or diagnostician before we have investigated the pelvis of the kidney?

DR. JOHNSON (closing): I do not think I have anything to say except a little more along the line of Dr. Isaacs' remarks: Be sure to eliminate vaginal or vulvar lesions.

If you want a sample of urine better collect it yourself, for you cannot depend upon having anyone else do it in just the proper way.

IMPORTANT SYMPTOMS IN CIRCULATORY DISEASE: A REVIEW OF 401 CASES

BY OLGA S. HANSEN, B.S., M.D.

MINNEAPOLIS

NOTE—The paper by Dr. Hansen, that following by Dr. Ziskin, and one by Dr. Max Scham, constituted a symposium presented before the Hennepin County Medical Society on April 2. Dr. Scham's paper will be published later in our columns, after he has finished work on some new material.

The discussion of the three papers is given herewith.—THE EDITOR.

In looking over the literature on cardiovascular diseases in the past ten years one is struck by the large amount of knowledge that has been gained by research workers and diffused by them throughout the medical profession. Photographs of the heart sounds or tracings showing the inner workings of the heart muscle and conduction system have almost universally adorned case reports and essays, while the simpler means of obtaining information from the patient himself appears to have been put into the background.

At times it seems necessary in the cardiac field, as well as in the other realms of diagnosis, to remind ourselves that a carefully taken history is the one most important factor in the examination of a patient. In reviewing the work of the cardiac clinic in the Out-Patient Department of the University Dispensary, it has seemed of interest to analyze the symptoms found. In

the two years from August 1, 1919, to August 1, 1921, 401 patients have been studied. This history has been taken by a student in most cases, without any effort to bring out special symptoms, and the chief complaints as given by the patient are recorded. Many of the cases have been admitted to the Clinic in General Medicine or to some of the other clinics, gastrointestinal or neurological, and referred for special cardiac study because of suggestive symptoms. This study consists of a careful physical examination and blood pressure reading, a cardiac function test (by the Barringer or the Schneider method), a fluoroscopic examination of the chest, and an electrocardiogram. The four symptoms that stand out above all others in these 401 case histories are pain in the chest (precordial or substernal), dyspnea, palpitation, and, far less frequently, edema. Fatigue, syncope, cough, indigestion, cyanosis, and numbness have all been mentioned as prominent complaints by patients having or fearing heart disease.

In a text-book of physiology used in the grade schools some years ago the statement was made, probably to reassure the impressionable and imaginative minds of the pupils, that in most cases people who thought they had heart

disease did not have it, while those who had it did not know it. There seems to have been at least a portion of truth in this, for of the 401 patients studied 183, or almost half (45.6 per cent) showed no signs of cardiovascular disease. Sixteen of these were incapacitated at the time by symptoms which to them meant heart disease, but which had no organic basis.

Pain.—Pain in the chest is often interpreted by the patient as heart disease and frightens him into coming for an examination. It varies from a vague sensation of tightness or dull aching to paroxysms of sharp agonizing pain, and is located anywhere in the substernal region or in the left anterior chest. It is the most frequently noted symptom, occurring 183 times in 401 patients (45 per cent). It is found in the non-cardiac patients slightly more frequently than in those with cardiac disease. Of the non-cardiac group 47.5 per cent and of the cardiac group 43.5 per cent had this complaint. In less than half of the non-cardiac cases (40 per cent) a cause was found that might explain the pain. Diseases of the lungs and pleura (pleurisy, bronchitis, tuberculosis) were most numerous. In a few cases tonsillitis, constipation, intercostal neuritis, syphilis, and visceroptosis were found. But in 60 per cent of this non-cardiac group (or 29 per cent of all those complaining of pain) no organic explanation could be found.

Dyspnea.—Shortness of breath on slight or moderate exertion or on excitement occurs with the same frequency as pain, in 182 cases, or 45.3 per cent, of the total 401. However, the cardiovascular group led with 52.7 per cent (115 out of 218) as compared to 36.5 per cent (67 out of 183) of the non-cardiac classification.

Dyspnea in heart disease is generally thought to be due to stasis in the capillaries and veins of the lungs with diminished elasticity of the lungs and increased volume of the lung tissues. There are many conditions,—intrathoracic, intra-abdominal, hemic, psychic,—that can produce dyspnea, but it is more than chest pain, a symptom really suggestive of heart disease.

Palpitation.—No symptom is more terrifying to the patient than consciousness of the heart beat. The patient may feel a hard, rapid, or irregular beating of his heart, or have a sensation of the heart stopping suddenly when the palpitation ceases. It is apparently due to a heightened sensitiveness of the afferent nerves, probably in the chest wall rather than in the heart itself, and is often associated with emo-

tional instability and with areas of hyperesthesia elsewhere in the body. This symptom was mentioned only 54 times by the 401 patients (13.4 per cent), and occurred more frequently in the non-cardiac group (16.3 per cent) than in the cardiac (11 per cent).

Edema.—In many cases with the milder grades of edema, the patient is not conscious of the condition. That is probably the reason that it was mentioned as a symptom by only 7 per cent of all the patients studied; however, it seems to be of some diagnostic importance, for it was noted in 10 per cent of the cardiovascular cases and in less than 2 per cent of the non-cardiac cases.

Syncope.—Fainting spells are considered by the laity in general to be indicative of a weak heart; however, only 5 patients (a little over 1 per cent) gave this symptom, practically the same percentage in the two groups.

Age.—The patients examined have been adults with only a few cases between the ages of 16 and 20. The average age is 42 years. The average age of the cardiovascular patient studied is 47.8 years, while of the patients with no evidence of disease the average age is 35.2, a finding that is quite to be expected in view of the high incidence of hypertension and arteriosclerosis after middle age. Considering symptoms in relation to ages it was found that the average cardiac patient complaining of precordial pain was 47.4 years old, while the non-cardiac with the same complaint was 36.1 years old. Dyspnea occurred still later in the cardiovascular group, at an average age of 49, and almost fifteen years earlier or at 34.2 years in the non-cardiac group.

Palpitation occurred at an average age of 43.6 years in the cardiac, and of 31.4 years in the non-cardiac patient, while edema was more evenly distributed, at 46.6 years and at 43.6 years, respectively.

Comments.—Allbutt, in the section on functional heart diseases in his System says, "Palpitation, sighing or panting, and submammary ache are rather a presumption against heart disease than for it."

The analysis of these 401 ambulatory cases leads us to conclude that of patients presenting themselves for examination because of symptoms referable to the heart probably almost half (45.6 per cent) will have no evidence of organic cardiovascular disease, and that they will be of an

average age of 35.2 years, younger by twelve and six tenths years than those having heart disease. Precordial pain will occur slightly more frequently in the non-cardiac group (47.5 per cent to 43.5 per cent) and will be found at an age eleven years younger in the non-cardiac than the cardiac (36.1 years non-cardiac and 47.4 years cardiovascular).

Palpitation also will occur slightly more frequently in the non-cardiac (16.3 per cent non-cardiac and 11 per cent cardiovascular) and at an earlier age,—31.4 years as compared with 43.6 years cardiovascular.

Dyspnea will occur much more frequently in the cardiovascular group (52.7 per cent compared with 36.5 per cent non-cardiac) and at a much higher age (49 years cardiovascular, 34.2 years non-cardiac).

Edema will be noted infrequently, but will predominate in the cardiovascular group (7.3 per cent compared to 2.7 per cent at much the same age for both (43.6 years non-cardiac and 46.6 years cardiac).

Every patient complaining of any of the above-mentioned symptoms deserves a careful history and a painstaking examination. The doctor's responsibility is the same whether he lets a young man go through a life of restricted activity and fear of sudden death because of palpitation due to coffee or other non-organic cause, or whether he tells an old man with substernal pain due to coronary disease that he has indigestion which he may disregard. Both dangers can in most cases be avoided by care in history and in examination.

CONCLUSIONS

1. Of 401 cases studied because of symptoms suggesting heart disease 183, or 45.6 per

cent, had no demonstrable evidence of organic cardiovascular change.

2. The symptoms most commonly noted were pain in the chest (45.3 per cent, substernal or precordial), dyspnea (45.3 per cent), palpitation (13.4 per cent) and edema (5.2 per cent).

3. Pain occurred in 47.5 per cent of non-cardiac patients and in 43.5 per cent of those with cardiovascular disease.

4. Dyspnea occurred in 36.5 per cent of the non-cardiac and in 52.7 per cent of the cardiovascular patients.

5. Palpitation occurred in 16.3 per cent of the non-cardiac and in 11 per cent of the cardiovascular group.

6. Edema occurred in 2.7 per cent of the non-cardiac and in 7.3 per cent of the cardiovascular group.

Symptoms	Non-cardiac	Cardiovascular	Total
<i>Pain—</i>			
Number of cases	87	95	182
Percentage	47.5	43.5	45.3
Average age	36.1	47.4	40.9
<i>Dyspnea—</i>			
Number of cases	67	115	182
Percentage	36.5	52.7	45.3
Average age	34.2	49	43.5
<i>Palpitation—</i>			
Number of cases	30	24	54
Percentage	16.3	11	13.4
Average age	31.4	43.6	33.2
<i>Edema—</i>			
Number of cases	5	16	21
Percentage	2.7	7.3	5.2
Average age	43.6	46.6	46
Total examined	183	218	401
Average age	35.2	47.8	42
Percentage	45.6	54.4	100

PHYSICAL SIGNS IN HEART DISEASE*

BY THOMAS ZISKIN, M.D.

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MINNEAPOLIS

Heart disease is the chief cause of death among humans. There has been virtually no gain in its control, but, on the other hand, a gradual increase in its incidence and mortality. Approximately two and one half million people in this country are afflicted with heart disease

in some degree. The realization of these facts makes it apparent that the profession and the public must be awakened to the importance of the control of heart disease and that steps must be taken towards its prevention and relief.

Accuracy in diagnosis is of first importance in the control of heart disease. The present study is based on an analysis of four hundred

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and one cases, observed at the Cardiac Clinic at the University of Minnesota during the last year, and it was undertaken for the purpose of adding what little we may to the better understanding of the physical signs in heart disease and the importance of its earlier recognition.

There were 218 cases, or 54 per cent, classed definitely as cardiac disease and 183 cases, or 46 per cent, classed as non-cardiac. Most of the non-cardiac cases were referred to our clinic because of signs or symptoms of heart disease. Hamilton and Hallisy, in an analysis of 500 cases, observed at the Cardiac Clinic of the Boston City Hospital found 292, or 58 per cent, showing definite cardiac disease, and 208, or 42 per cent, showing no cardiac disease. Their proportion of cardiac cases is slightly greater than ours, but this is probably due to the fact that their clinic is for both adults and children, while ours is limited to adults only. In children the signs and symptoms of heart disease are more definite and are not simulated so often by other conditions. Of the 218 cardiac cases 103 were males and 115 females. Twenty-six, or 12 per cent, were due to syphilis, 92, or 42 per cent, were due to rheumatic infection, and 100, or 46 per cent, were due to arteriosclerotic and degenerative changes.

This emphasizes the fact that to lessen heart disease we must direct our energies towards the control of rheumatic fever, venereal disease, and the degenerative changes of middle life.

Valvular disease was present in 92 cases. The variety of cases and their relative proportion are shown in Table I.

Table I. Variety and Relative Proportion of Valvular Cases:

	Number
Mitral regurgitation.....	20
Mitral stenosis.....	22
Mitral stenosis and insufficiency.....	19
Aortic regurgitation.....	9
Aortic regurgitation and mitral disease.....	20
Pulmonic stenosis.....	1
Tricuspid regurgitation.....	1

These figures show that the mitral valve is most commonly affected, as 90 per cent of the cases showed some defect of this valve, 65 per cent of which were purely mitral, while 32 per cent showed some defect of the aortic valve, 10 per cent of which were purely aortic.

Age Incidence.—The age incidence of the valvular group also brings to light some interesting facts, especially with regard to prognosis.

The figures are given in Table II.

Table II.—Age Incidence of Valvular Cases

Decade	10-20	20-30	30-40	40-50	50-60	60-70	70-80	Total
Mitral regurgitation	2	3	7	3	3	1	1	20
Mitral stenosis	2	6	10	4				22
Mitral stenosis and regurgitation	2	6	6	3	1	1		19
Aortic regurgitation		1	2	2	4			9
Aortic regurgitation and mitral stenosis	1	2	2	2	1			8
Aortic regurgitation, mitral stenosis and regurgitation	1	2	4	2				9
Aortic and mitral regurgitation	1				1	1		3
Mitral stenosis and tricuspid regurgitation					1			1
Pulmonic stenosis	1							1
Totals	10	20	31	16	11	3	1	92

These figures show that the majority of patients with valvular heart disease do not live beyond the fifth decade. Excluding four cases of luetic aortic regurgitation developed during middle life, only ten cases, or 11 per cent, are beyond the age of fifty. There were no cases of mitral stenosis nor of a combined aortic and mitral lesion beyond the fifth decade. We find a few cases of mitral regurgitation up to the eighth decade and a rare case of double mitral disease in the sixth decade. It is only in the purely mitral regurgitation cases, therefore, that we can hold out the ray of hope that the patient will live to a ripe old age.

Murmurs.—The interpretation of murmurs in the diagnosis of heart disease has been to many, perhaps the greatest stumbling-block to accuracy in diagnosis. Too often have murmurs been considered pathognomonic of valvular lesions at the area of their greatest intensity. The functional murmur and its significance were unknown. The advent of the newer cardiac physiology and the better understanding of the functional pathology of the heart has radically changed our ideas with regard to the interpretation of murmurs, and cardiac diagnosis has been placed on a more accurate foundation.

Functional murmurs are heard very frequently in both cardiac and non-cardiac conditions. They are usually systolic in time. In the present series, 70 cases, or 18 per cent, showed the presence of functional murmurs. These were divided as shown in Table III.

Table III.—Functional murmurs, classified according to conditions in which they are found.

	Number
Non-cardiac	40
Old pleurisy.....	4
Cardiac hypertrophy.....	5
Hypertension	9
Aortitis	10
Hyperthyroidism	2

The cardiac-respiratory murmur is heard most frequently of all the functional murmurs. It is usually heard best at the apex, and many times is transmitted to the axilla and over the precordium. It has no diagnostic or prognostic significance. The pulmonic systolic murmur is the next commonest in occurrence. This murmur is either soft or harsh, and is heard best over the pulmonic area.

Pulmonic stenosis can be ruled out in the majority of cases, as it is a very rare lesion and is due to a congenital defect. It should never be diagnosed unless there is present, also, a systolic thrill over the pulmonic area, marked cyanosis of hands and face, and a corresponding enlargement of the right heart. A patent ductus arteriosus must also be differentiated. This condition, too, is congenital, and is often associated with pulmonic stenosis. Functional, aortic systolic murmurs are less frequent than the pulmonic murmurs, and have no greater significance. The tendency has been to make a diagnosis of aortic stenosis whenever a systolic murmur and thrill were present at the aortic area. Aortic stenosis is a rare lesion, and is usually associated with aortic regurgitation. It should not be diagnosed unless the pathognomonic signs are present; that is, a thrill at the base of the heart, an absent or diminished second tone at the base, and a plateau pulse.

Apical systolic murmurs are the most common type heard and are usually cardiorespiratory in character, as mentioned previously. The quality of the murmur does not help us in differentiating the functional from the organic. Almost any type of murmur may be heard,—a soft blowing murmur, a harsh rasp or a musical murmur, and at autopsy no defect will be found on the mitral valve. Mitral regurgitation should be diagnosed only when a murmur suspected of being due to this cause is associated with a history of rheumatic fever, and there is present a marked accentuation of the pulmonic second tone together with Röntgen-ray evidence of an enlarged heart showing the characteristic mitral type.

The accentuation of the pulmonic second tone is perhaps the most constant sign in mitral dis-

ease. From a prognostic viewpoint the mitral systolic murmur, without any other signs in the heart, may be disregarded entirely. The tricuspid systolic murmur is rare, and when present is heard best at the lower part of the sternum, and is accompanied by the other signs of a tricuspid regurgitation, such as the marked venous distention, the positive venous pulse, and the pulsating liver.

Diastolic murmurs are more important both from a diagnostic and a prognostic point of view. They always indicate cardiac disease. The two most common diastolic murmurs heard are those of mitral stenosis and aortic regurgitation.

Mitral stenosis is proved by the presence at the apex of a diastolic or a presystolic rough murmur which usually leads into a snapping first tone. This is accompanied by a thrill, and there is a marked accentuation of the pulmonic second tone, also röntgenologic evidence of a heart showing a prominence in the region of the left auricle.

In aortic regurgitation the murmur is soft and blowing in character, and is heard best along the left border of the sternum with the point of greatest intensity at the level of the fourth rib. The other signs, as a Corrigan pulse, a capillary pulse, pistol-shot femoral, a high pulse pressure, together with evidence of an enlargement of the left ventricle, are present in the majority of cases.

The Austin Flint murmur, a presystolic murmur heard at times in advanced mitral disease, will be mentioned only in passing.

Irregularities.—Excluding the sinus irregularities, which are very common and of no grave significance, there were 75 cases, or 19 per cent, of the present group which showed some definite irregularity of heart action as revealed either by clinical examination or by the electrocardiograph. The type of irregularity and number of cases of each are shown in Table IV.

Table IV—Type of Irregularities.

	Number
Extrasystoles	45
Auricular fibrillation.....	26
Heart block.....	1
Branch block.....	2
Pulsus alternans	1

Of the cases showing extrasystoles, 22, or approximately one-half, were found to show no other signs of cardiac disease. This proves to us that extrasystoles of themselves, are of no great significance. They are of importance only

when other signs of cardiac disease are also present.

Of the 26 cases showing auricular fibrillation, 14, or over one-half, were due to mitral disease and 12 to myocardial disease. Those due to myocardial disease were all above the age of fifty, except one case at forty-nine, which was due to a toxic goiter. The majority of the cases were under forty-five years of age, only four cases being above that age.

Myocardial Group—Table V—Variety and Proportions of Myocardial Cases.

	Number
Arteriosclerosis	19
Cardiac hypertrophy with hypertension.....	19
Cardiac hypertrophy.....	18
Hypertension.....	16
Myocardial degeneration.....	12
Cardiac hypertrophy with aortitis.....	16
Aortitis	13
Aneurysm	4
Toxic goiter.....	4
Angina pectoris.....	2
Miscellaneous	3
Total	126

This group, as shown in the above table, contains the cases of arteriosclerosis, aortitis, angina pectoris, cardiac hypertrophy and hypertension, and other miscellaneous conditions. The causes were given as the degenerative changes of middle life, but to what are these degenerative changes due? May they not be caused also by repeated focal infections, as well as other causes? In the diagnosis of these cases, a careful history and interpretation of the symptoms is of greatest importance. The electrocardiograph also is of great aid.

Myocardial disease is also associated with the valvular conditions, and is the cause of the progressive changes in the heart. The valvular defect alone would cause little embarrassment of the heart action, if there was not present an associated myocardial involvement.

Hamilton and Hallisy, in their analysis of cases at the Boston City Hospital, found that 40 out of 202 cases of rheumatic heart disease showed evidence of an active infectious process in the heart. Barringer cites a series of 154 chronic heart cases, and finds that 117 cases showed a fever of varying degree; and that 69 cases showed an increase above normal of the polymorphonuclear cells.

Effort Syndrome.—Effort syndrome, or neuro-circulatory asthenia has been recognized as a clinical entity, and was a very common diagnosis during the war and immediately after in patients who showed definite cardiac symptoms without any demonstrable signs of cardiac pathology. To-day the diagnosis is rarely made, and should be made only after all signs and symptoms have been thoroughly investigated and organic disease definitely ruled out. After such a study you will find that the majority will fall into one of the five following groups:

1. Cases showing imperfect physical and mental development and those whose family histories are tainted with insanity or epilepsy.
2. Cases of actual though unrecognized infection, as focal infection of the teeth, tonsils, gall-bladder, or intestinal tract.
3. Cases of incipient tuberculosis.
4. Cases of incipient and unrecognized heart disease.
5. Cases showing metabolic or endocrine disorders, such as early toxic hyperthyroidism and other endocrine disturbances.

In closing, I want to plead again for the earlier recognition of heart disease and to impress upon you that to reduce the incidence of heart disease, we must begin an organized campaign to control focal infections and rheumatic fever, the same as we have controlled other diseases.

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DISCUSSION ON THE TWO PRECEDING PAPERS

DR. R. C. LOGEFEL: I would like to make a few statements in regard to the diagnosis of early heart disease.

Dr. Zizkin has laid too much importance, I think, on not diagnosing a lesion until all the cardinal signs are present. I think if we are going to emphasize a prevention program in heart disease we must endeavor to recognize these cases early before the so-called classical signs present themselves. Mitral and aortic stenosis are diseases which do not always present symptoms at first. They are lesions which are progressive in nature and are usually fairly well advanced before the classical picture is present. The first sign which we find is often a mid-diastolic murmur brought out after exercise. Dr. Zizkin may not have noticed this as most of the patients he went over were adults probably with older lesions. Dr. Seham might have noticed

these earlier symptoms more often. If we find a case of mitral stenosis in which we can bring out only a mid-diastolic murmur, that is where our greatest opportunity for preventive measures lies.

In going over the records of the pathological post-mortem findings in rheumatic cases in the Massachusetts General Hospital, the aortic valve showed involvement in about 55 per cent. This is more often than we are led to think; and this was also true of the records of the Mt. Sinai Hospital in New York.

I also found that many times there was a history of recurrent attacks of endocarditis with only a small amount of damage done at the first infection. Repeated infections were responsible for bringing the patient to a condition showing the classical signs of valvular lesions. I do not believe we should wait for the classical picture to develop without diagnosing at least potential valvular disease. If we get a lowering of the systolic pressure and a definite systolic murmur over the aortic area with a diminution in the intensity of the aortic second tone, we may diagnose aortic stenosis without waiting for the appearance of a definite thrill. In mitral stenosis it is not necessary to wait until we get the presystolic crescendo murmur and thrill. If we are going to carry out a successful program of prevention of heart disease, we must not wait for the classical signs to develop, but must inaugurate a prevention program early so as to prevent recurrent attacks and progression of the lesions, if that is possible.

In regard to Dr. Scham's talk; I want to ask him a question. Dr. St. Lawrence emphasized the use of salicylates, and used aspirin whenever his heart patients developed any rheumatic symptoms at all. He had in mind preventing recurrent attacks. Have you found salicylates at all specific in warding off these attacks? Dr. St. Lawrence also emphasized the importance of removing the tonsils in all cases of valvular heart disease which gave symptoms of even slight rheumatic pains. Of course all the tonsillar tissue must be removed.

I recall one case in which the pharyngeal tonsils had been removed twice, and still symptoms presented themselves. Large infected lingual tonsils were found and removed with relief of symptoms.

DR. F. W. SCHLUTZ: Dr. Scham spoke of the complete absence of precordial pain in children afflicted with heart disease. I wonder whether this could not be explained by the fact that children are quite incapable of accurately localizing pain.

The matter of keeping children of the second and third degree of heart disease in bed is a difficult problem, and it is still more difficult to decide just when it is safe again for the patient to be up and around. Personally, I have been generally guided by the behavior of the daily temperatures and the occurrence of tachycardia. The temperature must permanently return to normal and tachycardia be absent before it is entirely safe for the child to be up and active.

In regard to the case which has had one or more complete removal of tonsils and yet continues to show rheumatic pains: Both the parent and the doctor are discouraged over the poor results in

these cases and the nose-and-throat man often comes in for considerable reproach. I always advise against repeated nose or throat operations if the work has apparently been carefully done the first time. Complete removal of such a case from home environment to hospital care has often proved much more valuable than second or even third throat operations. If the patient's economic condition permits a change to a warm climate, the improvement is certain and very rapid.

I believe also that most physicians do not pay enough attention to children's teeth. Many dentists object to the removal of abscessed teeth in children, particularly the deciduous, under the pretext that it will mean certain later mouth defects. I believe it has been quite clearly demonstrated that such defects are preventable and that suppurative conditions in a child's mouth should and can be treated as readily as they are in the adult's.

DR. C. B. WRIGHT: This subject has been pretty well covered. There are just two points that I want to mention. One is the epigastric pain in mitral disease. I have seen a few cases and one particularly with epigastric pain which proved to be epigastric ulcer. I am very suspicious of these cases with epigastric pain.

Another thing is that nothing has been said about pain developing with exercise. It seems to me that the most striking differential point is the definite history of pain on exercise.

DR. M. H. NATHANSON: Dyspnea was emphasized as one of the most important signs in heart disease. One would get that as the earliest and most definite sign in this ailment, and that ought to be so from the pathologic physiology which occurs there. The first thing that occurs when the heart fails is the inability of the left side of the heart to carry away the blood from the lungs. There is a rise of pressure in the capillaries of the lungs. When a rise of pressure and stagnation of the blood occur in the lung there is a loss of elasticity in the lung tissue. This has quite a little practical importance. We must picture the cardiac patient who complains of dyspnea with stiffened lungs which are less elastic; and the ordinary amount of work he has to do to pass air through the lungs is not enough. If you take the vital capacity of the lungs of a cardiac case who has dyspnea on moderate exertion there is a definite reduction. There are some people who are non-cardiacs who have reduced vital capacity also, but people who have true cardiac dyspnea always have reduced vital capacity.

In so-called myocardial heart disease it is still widely accepted that focal infection has a great deal to do with it. In only a very small percentage of these cases can any change be demonstrated in the heart muscle. In practically all of them we find a large heart at times, running from 800 to 900 gms. (Average 350 gms.), but many of them show no change in the heart muscle at all.

Most of these patients have had a definite hypertension, and I think it is beginning to be recognized how important hypertension is in these cases.

DR. HAROLD RYBINS: It is of interest to compare the types of cardiac cases seen in hospital wards, such as the Minneapolis General Hospital, with

cases seen at medical dispensaries. The people who come into the hospital wards are those with cardiac failure. They are usually cases with hypertensive hearts rather than the valvular types predominating in the out-patient department. It is easy to understand why these patients who predominate in the cardiac wards are relatively infrequent in the dispensary.

In early chronic hypertensive disease the left ventricular muscle hypertrophies considerably, but the patient has few typical circulatory symptoms. If he goes to the dispensary at all, it is usually for symptoms not pointing directly to the heart, such as dizziness, indefinite pains, and indigestion, and is not usually seen by the cardiologist. This type of patient later comes into the hospital in rather rapid decompensation. The valvular type, on the other hand, particularly those with mitral disease, has an early progressive strain on the weak right ventricular muscle and consequently presents early symptoms of dyspnea, edema, and weakness. Naturally he comes to the heart dispensary early.

The lesson to be drawn from the comparison of these two large cardiac groups is the value of routine blood pressure determinations. If this were done a great many cases of definite hypertension without circulatory symptoms would be recognized as potential candidates for the medical wards. At this early stage treatment, particularly a change of occupation, would avoid much further strain to the heart muscle, and fewer of these cases would decompensate. Probably the most important recent contribution to our knowledge of cardiac disease is the fact that hypertension is the greatest single factor in causing cardiac breakdown.

DR. HANSEN (closing): I wish to again emphasize the facts that a great many patients who come to the cardiac clinic and are found to be cardiac cases did not know that they had heart trouble until a general examination revealed the signs that led to an intensive heart study, and that a large number of patients who fear from their symptoms that they have heart disease, do not have it. The symptoms in many cases are due to non-cardiac causes. The murmurs interpreted by doctors after a superficial examination are often transient and unimportant. A careful history and a careful examination can in most cases separate the cardiac from the non-cardiac patient.

DR. ZISKIN (closing): In answer to Dr. Logefiel's statement, I will say that I heartily agree with him

in regard to mitral stenosis. The diagnosis should be made early. We should think of mitral stenosis whenever a presystolic or diastolic rumble is heard at the apex. Hyperthyroidism and so-called neuro-circulatory asthenia must be ruled out, as we often get a presystolic rumble in these conditions also. X-ray evidence of a prominence in the region of the left auricle can be found early in mitral stenosis. In regard to aortic stenosis I still think the tendency has been to diagnose this condition too often. The diagnosis should be made only when the signs mentioned previously are present to a marked degree.

Whether hypertension is the direct cause of cardiac failure is a mooted question. There is no doubt that hypertension causes a hypertrophy of the heart muscle, but there may be a marked hypertrophy of the heart muscle without any marked signs of cardiac enlargement. I do not believe that hypertension alone will cause the marked enlargement that we have with cardiac failure in these cases. There must be some other factor involved as a cause of this enlargement. The effect of toxins upon the heart muscle either from some endocrine disturbance or from repeated focal infections, must be seriously considered as a cause of this enlargement. In regard to Dr. Johnson's question about the effort syndrome, I will say that the majority of cases proved to be either definite or early heart disease, early toxic hyperthyroidism or some infectious process, and that there were very few cases that we could classify definitely as neurocirculatory asthenia.

DR. SEHAM (closing): I would like to add one point in regard to the handling of children for exercise and games that I think might be of value. We found that the so-called functional tests (the Barriger, Crampton, and Schneider) have been of no value in helping us to classify the heart cases functionally. All those that showed decompensation had marked decrease in the amount of work with dumbbells as compared to the normal. We have tried to start the child out with a slightly smaller amount than he is able to do in the dispensary heart clinic. The same thing applies to any exercise or activities he may have to do in school. That may prove to be of some help in obtaining a workable index.

In regard to Dr. Logefiel's question about salicylates: if we get any results at all with children we have to give them two or three times as much as is suggested in the text-books.

THE DIAGNOSIS OF HEART DISEASE*

BY CHARLES FRANK MORSMAN, M.D.

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There are no less than six sets of facts which must be at hand in a given case to allow a diagnosis in heart disorders. These are his-

tory, physical examination, laboratory tests, heart outline, blood pressure, and type of heart-beat. After all of the facts are gathered, in this outline, it is permissible to make a diagnosis and a prognosis, and to outline a course of treatment.

*Read before the Spokane Academy of Medicine, Spokane, Wash., and the Stutsman County (N. D.) Medical Society.

It is necessary to take a careful history in heart cases, as in other kinds of disorder. One must know the family history: Is there a history of syphilis or of tuberculosis, or does the patient come from a family of nephritics? In the personal history one must bring out everything that might have a bearing on the case: What acute infections has he had? What has been his occupation, and has it been necessary to change his work? What are his sensations? Does he tire easily? Has he dyspnea? What are his habits as to work, sleep, food, and recreation?

The physical examination should be routinely and thoroughly done. The heart must be carefully auscultated for normal and abnormal sounds, bearing in mind that the sounds which occur in diastole are the ones which show distinct pathology of serious omen. I refer to mitral stenosis and aortic regurgitation. These two include the great majority of serious valvular affections. Mitral stenosis is almost invariably progressive according to Sir James McKenzie. It is the result of rheumatic or other acute infection.

Heart murmurs may be physiological, functional, or organic. Physiological murmurs are those heard during systole when the heart is normal in size and its efficiency is not interfered with. Functional murmurs are heard during systole and are so called when there is increase in the size of the heart, with limitation to its response to effort. A murmur is called organic when it is due to valvular lesion, and it may be heard in either systole or diastole. This classification has been formulated in an attempt to bring out of chaos the classification of heart murmurs, and is employed by McKenzie in his book.¹

Laboratory tests are very necessary, for syphilis may be the cause of the heart condition; kidney lesions accompany heart lesions very commonly, and it is necessary to know whether or not anemia is present in order to have the added points upon which to base the prognosis. The patient is usually more interested in the prognosis than in the diagnosis. His first question usually is: "Doctor, can you help my heart?" And the second question is sometimes not clearly put, but always means "Is there danger of heart failure?" Many a patient has been made to live a life of hopelessness and apprehension because some doctor in whom he has confidence has lightly informed his patient of a heart mur-

mur. The average person fears "heart disease," and we should be very careful in diagnosis and prognosis in cases which exhibit disturbances of the heart beat or unusual sounds. A recent writer² says that primary organic mitral insufficiency should never be diagnosed unless there is evidence of cardiac hypertrophy, together with a definite history of rheumatic fever. He holds that this is a good rule "in view of the fact that about 90 per cent of apical systolic murmurs are not due to mitral insufficiency." It is necessary to view the patient as a whole, for it is evident that a serious affection of the heart is evidence of serious break-down in but one of the organs, and it is entirely reasonable to suppose that, if the heart is embarrassed, other organs of the human machine will be similarly embarrassed, for must not the whole body functionate in such a way as to throw no unnecessary stress upon any one part?

The laboratory examination of the patient who comes to us because of heart disease, should include the blood, sputum, urine, and transudates. In cases of heart disease in which there are no complicating factors, the blood will be found normal. When compensation fails anemia develops. This tendency is said to be more marked in aortic than in mitral disease. The red blood cell count is likely to be between 3,000,000 and 4,000,000. In a few cases nucleated red blood cells may be found. The leucocyte count is usually in the neighborhood of 15,000. As said above, it is essential to know the result of the Wassermann test. The cause of the heart disturbance may be frequently traced to a barely remembered or unobserved chancre, or to parental syphilis. Chronic valvular disease, especially the mitral forms, is very prone to give rise to chronic bronchitis. The sputum is mucoid and often bloody, and has often suggested pulmonary tuberculosis. So long as compensation in valvular disease is complete the urine remains normal. As soon as compensation is broken the quantity of the urine diminishes, the color becomes darker, the specific gravity higher, and the acidity higher. And if venous stasis is but moderate albuminuria is noted. If kidney inflammation or degeneration takes place the result is much albumin, casts, or red corpuscles and leucocytes. Anuria may result if stasis becomes unusually severe and result in the patient's death in coma.

Transudates frequently collect in uncompensated cases of valvular disease. The collections

occur in the pleural, pericardial, and peritoneal cavities, and sometimes must be differentiated from exudates, that is, collections of fluid as a result of inflammation of serous membranes. Transudates are lighter in color as compared with exudates; the former are usually described as being pale yellow, while the latter are described as being light straw in color. Exudates may be pink or red from admixture of blood, and in that case are very likely to coagulate upon exposure to air. Transudates do not usually coagulate. Still we must not place reliance upon the coagulating quality, for transudates do sometimes coagulate, and exudates do not always coagulate. Another differential point between these fluids is the specific gravity. Exudates are heavier than transudates, the specific gravity of the former ranging from 1.012 to 1.024, while the specific gravity of the latter ranges from 1.005 to 1.015. Microscopically the exudates contain blood cells of various types, while the transudates contain endothelial cells; however, blood cells may be found in transudates and endothelial cells may be found in exudates.

In order to determine heart enlargement, a careful percussion must be done. To accurately outline the right and left borders of the heart the patient must be in the upright position, since in this posture the heart assumes a position slightly nearer the anterior chest wall than in the supine posture. To determine more accurately the heart outline, it is best to take a röntgenogram at six feet. I have been able to obtain very good silhouettes in adults by using duplitzed films, size eleven by fourteen and with a set of fifty milliamperes, five-inch spark gap, and, depending upon the size of the patient, one to one and a half seconds exposure. Since the x-rays are said to be parallel at six feet, a duplication of the heart outline on the film is thus obtained. Smith has recently published an article in which he described the technic employed in the study of heart measurements by teleröntgenograms.³ Similar work has been reported by Cohn,⁴ in which he used an ingenious contrivance in the study of the effect of respiration upon the size of the heart shadow.

Heretofore we have been content to demonstrate the right and left borders of the heart. We have been able to judge the inferior aspect of the heart only by inference and hepatic displacement. Hoover,⁵ in a recent article, outlines a plan for the determination of the inferior

boundary of the heart by means of study of the costal angles. He says: "The sign referred to is due to alternation in the balance of control of the movement of the costal margins from the subcostal angle to the eighth costal cartilage on both sides." Normally the two costal margins move outward during each inspiration, thus producing a wider subcostal angle at the time of each inspiration. When the subcardial diaphragm is flattened by enlargement of the heart downward, depending upon the size of the enlargement, the costal margins move outward less than normal or even move inward at each respiration. The patient must be in the supine position when inspected for this sign.

The blood pressure is taken routinely. The instrument should be one of the mercury types. Much has been written about this puzzling subject, and still we are more or less in doubt as to its significance in some cases. There are five factors which go to maintain blood pressure. These factors are the energy of the heart contractions, peripheral resistance, tonus, blood volume, and blood viscosity. All of the factors may and do vary in health, and they may vary widely in illness. Since these factors are so closely related through the cardiomotor and vasomotor systems, it is quite impossible to have a disturbance in one factor without its effect upon the other of the factors, which results in abnormal blood pressure. A few are content to know that hyperpiesis exists in a given case and there let the matter rest, while others desire to know the causative factors back of the condition, and the latter is the more scientific attitude. An excellent outline of the causes of hypertension and hypotension may be found in the text-book of Anders and Boston.⁶ One writer⁷ has reported on a study of one hundred cases of high blood pressure as follows: of the one hundred cases four were asphyxial, three thyrotoxic, two climacteric, four vasculophilitic, twenty-six arteriosclerotic, sixteen diffuse nephritic, twenty-five due to granular kidney, two due to cystic kidney, one to surgical kidney, while seventeen were benign, as far as could be determined by rather extensive studies. By leaving the one surgical and the two cystic kidneys out of the report, we find that the greatest percentage of the reported cases was due to inflammatory conditions of the kidney, or 41 per cent, while arteriosclerosis furnished 26 per cent. Englebach,⁸ in an analysis of more than 500 cases of endocrine disturbance found that

about 10 per cent had increased blood pressure, above one hundred and sixty. He carefully excluded all cases in which arteriosclerosis and nephritis were diagnosed or suspected. Reisman⁹ says that nearly 50 per cent of his patients who show hypertension are widows; that the condition begins in such a high percentage at menopause that there is a possible endocrine relationship.

There are several factors which make up the total influence upon the rate of heart-beat. There is no doubt that the emotions influence the pulse rate to a marked extent. Nervous influences are of unmistakable importance, and the internal secretions affect the rapidity of the heart rate. In the latter, one may cite the rapid heart of the victim of Graves' disease. Studies tend to show that body temperature produces definite effect upon the rate of heart-beat. Investigations¹¹ have proven that the rate of beat of the isolated heart of the Pacific terrapin doubles for each ten degrees rise in temperature. It is difficult to say just what relation experiments upon the cold-blooded animals has to man and other higher animals. In man there are so many disturbing factors that the heart in situ cannot be expected to beat at a definite rate at any given temperature; and so it is not logical to attempt to establish a temperature coefficient of the heart-beat in man.

The disturbances of the heart-beat are seven in number. They are sinus arrhythmia, heart block, auricular flutter, auricular fibrillation, extrasystoles, paroxysmal tachycardia, and alternation of the heart-beat. Sinus arrhythmia is of chief interest because it is normal to many children and some adults. In this condition the heart rate increases during inspiration and decreases during expiration. At one time this condition was supposed to indicate tuberculosis, but this is not now considered true. The condition when present in adults has in them been said to indicate the youthful type of heart.

Heart block is of three types: The first may be diagnosed only by the electrocardiograph, which shows an interval of more than two-tenths of a second in the interval between the auricular systole and the ventricular systole. It is a sign of beginning heart failure. The second type or stage is that in which the auricular impulse fails to follow down the auriculoventricular bundle and produce a ventricular impulse, and thus we have an occasional missed pulse. The third type is that in which, because of de-

generation of the bundle of His, there is a complete disassociation of the auricles and ventricles, and we thus have an auricular rate and a ventricular rate, which are entirely independent of each other. It may be that the auricle will beat regularly twice as fast as the ventricle, and this is spoken of as a one to two heart block; similarly we may have a one to three or a one to four heart block. If the auricle beats at exactly the same moment as the ventricle, it is called nodal *rhythm*. Patients in whom there is a complete heart block *often* do not suffer so much discomfort as it would be natural to suppose would occur in a disorder so serious. It is when the condition is changing from the second to the third stage that the Adams-Stokes' syndrome takes place.

Auricular flutter is relatively rare and is usually a condition of advanced years; however, it has been found in youthful patients. It is almost invariably accompanied by heart block and is a sign of heart failure. It has been defined as a condition in which the normal beats of the auricle are submerged by contractions of this chamber in response to a series of new and rhythmic impulses, varying in rate from two hundred to three hundred and fifty per minute.¹⁰ The special qualities of this disorder are regularity and rapidity of auricular impulse. Rheumatic fever and syphilis have seemed to be responsible for the condition in some cases, and since it occurs in the elderly it is often associated with arteriosclerosis. Given a case in which the pulse is regular and with a rate of one hundred and twenty or more per minute and which is persistent, it may be called clinically a case of flutter; however, it is not possible to diagnose the condition accurately without the aid of the electrocardiograph. Ventricular flutter has not been noted perhaps for the reason that if this condition really occurs, death follows very quickly.

Auricular fibrillation is a condition in which the auricles fail to contract, and the normal contractions are replaced by rapid and irregular twitchings; and, since there are no normal impulses to be transmitted to the ventricles, its action, too, is irregular. This is in contradistinction to auricular flutter, in which the heart action is very rapid but regular. Auricular fibrillation often accompanies mitral stenosis and is a sign of failure of the heart muscle. There are two distinct features of this condition, the first due to ventricular and the second due to

auricular action. The pulse is a medley of irregular beats of varying force because of the irregular action of the ventricle. The heart beats wildly since it is no longer under nervous control. The paralysis of the auricle brings about the following result: in mitral stenosis the presystolic murmur is caused by the onrush of blood through the narrowed mitral orifice, but, since the auricle is paralysed in fibrillation and no force is brought to bear, the murmur is lost. Given a case of very rapid irregular heart action, with or without other signs of heart failure, it is probably auricular fibrillation.

Extrasystoles, or, as sometimes called, premature contractions, may arise in either the auricle or the ventricle. If they start in the auricle the natural rhythm of the heart is interfered with, but if they arise in the ventricle the natural sequence of the heart beats is not varied. This is because the heart impulses begin normally at the sino-auricular node in the auricle, and, with this fact in mind, it is readily to be understood that the above statements hold true. It is a condition more common in men than in women, and is often, although not always, accompanied by other signs of heart impairment. It is often found in association with mitral stenosis and aortic regurgitation. Extrasystoles may be produced by digitalis and its allies. When thus caused the drug must be discontinued. Hearts which beat one hundred or more times a minute are not often disturbed by them. Patients often term the sensation produced by this disorder, palpitation. Since extrasystoles may occur in either mildly or severely affected hearts, it is not possible to base a prognosis upon this one sign alone. It is, however, a sign of myocardial pathology, and should not be passed by without consideration, even though no other sign be present. A patient may live many years with no other symptom than the occasional sensation of the heart striking against the chest wall with unusual force. It is well to ask such patients to return from time to time for re-examination and to watch for other signs of degeneration.

Simple paroxysmal tachycardia may be defined as that alteration in the heart-beat which begins and ends abruptly, which is regular, and varies in rate between one hundred and two hundred per minute. The paroxysms are produced by a continued number of regular systoles, the focus of which lies usually in the auricle and at a distance from the pace-maker, the sino-auricular node. The attack may last from a

few seconds to more than a week, and the symptoms vary from momentary discomfort to violent attacks of precordial pain and dyspnea, or even to collapse and death. The severity of the symptoms is in direct proportion to the length of time covered by the attack. The condition has been observed in youth, in adults, and in the aged. It has been found most often associated with myocardial degeneration and in mitral stenosis, but has also been seen frequently when no other symptom could be found. It is, in all likelihood, due in all cases to damaged or poorly nourished heart muscle, and thus may be the result of many types of infection or of degeneration of a general nature. Those who suffer from this type of disorder usually show extrasystoles between attacks. This condition should not be confounded with simple persistent tachycardia, as that caused by the toxicosis of Graves' disease, or with auricular fibrillation which is so grossly irregular. The prognosis may be good or bad, depending upon the severity of the attack and upon the causes, general symptoms, and circumstances.

In alternation of the heart-beat, the left ventricle throws out larger and smaller quantities of blood at alternating systoles. This condition is much more common than has been generally supposed and should be searched for in all cases of angina pectoris, nephritis, and arteriosclerosis, for it is a grave prognostic sign of great value. It is usually accompanied by such signs as angina pectoris, dyspnea, Cheyne-Stokes' breathing, and high blood pressure. It is the cry of overworked and exhausted heart muscle.

In summing up a case of heart disease, it is perhaps best to divide the facts obtained into four groups. One must first study carefully the history, both of the patient and of his family. The second set of facts to be taken into consideration are those obtained from a physical examination of the patient exclusive of the heart. The third list includes the heart sounds, the blood pressure, the heart outline, and the type of heart-beat. The results of laboratory tests are then studied in their relation to facts obtained in the various other phases of the study of the case under consideration. It is only by complete and routine consideration of the individual as he comes to us that we are able to perform our work in a scientific manner. We must give the best of our ability, knowledge, and judgment to save our patients and ourselves from the disastrous results due to serious mistakes in diag-

nosis, prognosis, and treatment.

The discussion of heart response to effort in heart examination has been purposely avoided because of the great divergence of opinion in this phase of diagnosis of heart conditions. Nor has it been deemed wise to discuss the method of heart examination by determination of vital capacity. Both of these means of examinations have lately been very ably discussed elsewhere,^{12, 13, 14, 15} and the references appended hereto may be of interest to some.

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THE HEALTH AND HOBBIES OF THE DOCTORS*

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We are taught that the wise man who would enjoy the fullness of the earth must divide his daily time into three equal parts; that is, eight hours for his usual vocation, eight hours for recreation and to help a worthy brother, and eight hours for refreshment and sleep. I would here consider that part of our time which we should devote to recreation. It is during this time that we should accumulate health, happiness, and enthusiasm for another day. To learn to play successfully, to keep up our youthful ideals and desires, and to acquire habits and hobbies that are a lifetime of satisfaction, require thought, direction, and daily practice. The capacity for enjoyment is limited in any one day. We cannot expect to take it all during a short vacation once a year or perhaps once a lifetime after our fortune is made. A short story by Wm. Allen White, "Teaching Perkins to Play,"¹ well illustrates what I attempt to say.

The necessity of change in work and thought has been felt by many of our successful forbears. Dr. Oviatt, of Oshkosh, spoke to us, a class of his students, on the value of studying the natural sciences, both as a pastime and for the broadening effect it has on our professional thought and actions. In an article on "Henry Jacob Bigelow,"² Dr. Wm. J. Mayo gives us

a glimpse of his non-professional activities, particularly that part in which he tells of Dr. Bigelow leading the great geologist Louis Agassiz to the rock strata which he wished to investigate. Prof. Taylor, in an address before students said, "The four-square man is he who not only is successful in his profession, but is also successful in his sparetime occupation. He must have a worthwhile hobby."³ In his excellent article on "How Hard Should We Work?"⁴ Dr. Stanly Reinhardt expresses better than I can the reasons for and the desirability of a diversion which can hold our attention.

What form shall our diversions take? We should take in all the popular amusements and get what we can from them. I think, however, as members of a profession we need something more, especially those of us who live in isolated places. Some do research work in medicine, others discover new tonsil instruments, or develop a pet herniotomy. Did you in your youth want to be an explorer and discoverer? You can still re-discover the earth, particularly that part where you live. Consider geology.⁵ In the earth is recorded the history of life itself and the length of time. By its mass you can discover the minuteness of man and his insignificance. The record of American geology has only been begun. Every locality affords an opportunity for new discoveries in railroad-cut, mine, or quarry.

*Presented at the annual meeting of the Soo Surgical Association.

Very interesting landmarks are everywhere, can we but see them.

Botany has been an old favorite of the profession, and there is hardly a locality now but where many new things will be discovered. Get acquainted with your plant neighbors: the weeds in your yard, the trees near you, and the host of parasites and saprophytes living on them. The mushrooms are a set of puzzle pictures to tax the most nimble wits, but all the more satisfactory when once mastered.⁶ Probably no state in the Union has a complete list of its plants. Among the smaller forms many new species remain to be named and described. The lichens, a peculiarly interesting family illustrating symbiosis, an occurrence in nature which probably had an important bearing on the formation of the higher plants and animals and perhaps the formation of special organs.⁷ The myxomycetes or slimemoulds, animal like, have the ability to move about in mass and hunt their food over sticks and stones but become stationary when producing fruit and spores.⁸

Knowledge of these subjects greatly enhances your pleasure while traveling, camping and hunting, more of which we should do. No part of our country is so desolate but that it has something to hold our attention. A daytime trip across the Nevada desert, a thing usually dreaded by the tourist, was to me a most interesting experience. Think of traveling on a dried ocean bed with the islands standing around. Enjoy our national parks; do not simply pass through them.

Not to stray too far from the usual medical paper I here insert a case history:

One of our financially, surgically, and medically successful brethren moved to California this summer. He went by car to enjoy the beauties and wonders of our country and sent home to the paper a description of his trip. After recounting his progress from day to day, telling of roads, hotels, and people, he says of the Yellowstone Park: "We made the park in two days. The only accident we had on the

trip occurred here. Another man ran his car into ours at a dangerous place on a high road." He paid for fixing my radiator after we left the park.

He then tells us how much gas his car burned, how many miles,—the price of eggs and butter in California. Can you see him enjoying the beauties of the country? He made the Park in two days and wrote an ad for his car. Why say more? It seems to me, however, that if one is getting anything out of such a trip he would forget gas, miles, minor accidents, and people.⁹

I believe a more or less intimate knowledge of these subjects would make more of us contented in the country places. I believe it would leave little room for the usual bickering among the profession. It helps us place the mass of humanity in its proper niche in the scheme of the Universe and not to expect too much from it.

One important point more relative to the doctor's good health, I would emphasize. That is that he learn something of banking and business early in his career. It saves much mental stress and strain and makes for a happier life.

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"The Agaricaceae of Michigan" M. E. Kauffman. *Pub. No. 26. Biol. Series.* Wynkoop, Hallenbeck; Crawford Co., Lansing, Mich.
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7. "General Lichenology" by Albert Schneider M. D., M. S. Willard Clute Co., Binghamton, N. Y.
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"Nansen, Farthest North" by F. Nansen.
"With Scott" by Gifford Taylor.

THE CLINICAL LABORATORY: V. BLOOD*

BY WALTER E. KING, A.M., M.D.

SAINT PAUL

THE SIGNIFICANCE OF CERTAIN CHEMICAL ELEMENTS IN THE BLOOD, THE CHEMICAL MANIPULATIONS FOR WHICH ARE MORE OR LESS COMPLICATED OR THE INTERPRETATIONS OF WHICH ARE NOT THOROUGHLY UNDERSTOOD

Blood chemistry is rapidly developing along other lines than those outlined. Other chemical procedures are used in a routine way to a greater or less extent, and no doubt these will be extended and their application to clinical significance will be more perfectly understood.

ACETONE BODIES

Beta-hydro-oxybutyric acid, diacetic acid, and acetone are the chemical substances designated as acetone bodies. The chief source of these bodies is fats which are improperly broken down and assimilated. Fats, to be metabolized, require the oxidation of sugar; therefore the accumulated presence of these bodies in the urine and blood indicates deficient intake and malnutrition or poor oxidation of sugar, and faulty metabolism of fats. *Positive findings of acetone bodies are present in diabetes, malnutrition, and fevers.*

In clinical diagnosis the results of tests for the amount of acetone and diacetic acid in the urine do not indicate the severity of the disease. This emphasizes the importance of determining the CO₂ combining power of the blood in diabetes which gives the true standing regarding the condition of acidosis. Again, in nephritis the retention of urea nitrogen and acetone bodies often proceed together so that the urea determination is sufficient as an aid in diagnosis and treatment and prognosis.

CHOLESTEROL

Gall-stones are composed largely of cholesterol and it seems probable that the presence of gall-stones is associated with or due to some extent to an increase of cholesterol in the blood. This product is found in foods of animal nature, such as meat, butter, and eggs, and to some extent in vegetable foods.

In the normal individual cholesterol is present to the extent of 0.16-0.17 per cent in the plasma

and 0.14 to 0.17 per cent in the red-blood corpuscles. *The cholesterol content of the blood is increased in diabetes, nephritis, obstructive jaundice, arteriosclerosis, in early malignancy, in pregnancy, and in some cases of cholelithiasis.* It is suggested that in approaching malignancy a diet which raises the cholesterol content of the blood, tends to break down the lymphoid defense of the body. In pregnancy an increase of cholesterol begins about the fourth month of gestation.

The normal cholesterol content of the blood becomes lowered in pernicious anemia. Experimental attempts have been made to raise the amount in the blood in this condition by feeding and application of cholesterol in the form of an ointment.

CHLORIDES

The chemical examination of the blood for chlorides is relatively simple. This procedure has not been extensively utilized, however, due to lack of general knowledge of the importance of this test. Under normal conditions the whole blood contains about 0.45 to 0.5 per cent chlorides, while the plasma contains 0.57 to 0.62 per cent.

Increased amounts of chlorides, as sodium chloride, in the whole blood or plasma, are found in nephritis, especially parenchymatous, pernicious anemia, hypertension, and cardiac decompensation. Decreased amounts of blood chlorides are found in diabetes, pneumonia, and fevers.

It has been determined that chloride and nitrogen retention are independent. It is quite possible that more information will be accumulated relative to this subject which may throw light on the therapeutic effects of increased and restricted chloride diet in the treatment of nephritis and other conditions.

PHOSPHATES

Recent studies show that the *excretion of phosphates, as well as certain organic chemical elements, depends upon a selective excretory capacity of the kidney.* The retention of phosphates and chlorides has a marked effect in producing the condition of acidosis. If the phosphates are greatly increased, as they are in cases of nephritis and cardiorenal disease, the calcium content of the blood is greatly reduced, and acidosis may result.

*This is the fifth of a series of articles by Dr. King on the Clinical Laboratory. The sixth article will soon appear.

THE
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Minnesota, North Dakota, South Dakota and Montana

The Official Journal of the
North Dakota and South Dakota State Medical Associations

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

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AUGUST 15, 1923

THE STRENUOUS LIFE OF HIGH OFFICIALS

The sudden death of President Warren G. Harding, in San Francisco, and the unfortunate illness of Ex-President Woodrow Wilson, while touring the West, suggest that there is something wrong with the efforts of men in high office to keep in close touch with the public. It seems quite evident that politics demands a good deal of our presidents and other public officials, and it is apparently felt that it is necessary for them to exert themselves beyond the limit of human endurance.

The writer of this editorial was in Spokane at the time Ex-President Wilson was going through the country and saw him speaking from his automobile, standing while great crowds were surging about him, speaking with an effort to make himself heard and yet undergoing a tremendous strain at this apparently simple exertion. Not long after this he had a cerebral accident, and, as the world knows, he is still a semi-invalid as a result of his overtaxation due to his strenuous life and the demands upon him from his personal and political point of view.

So it was with President Harding, who when inducted into the presidential office immediately began the life of an extremely busy man. Working from eight o'clock in the morning until

almost any hour in the night as a public official demands the fullest reserve force that a human being can store up. President Harding's relaxations were few and far between; and even when he took his trip South he was surrounded by officials and in constant touch with affairs in Washington, and, in addition, he was the recipient of many social attentions. His effort at horseback riding and golf-playing was a feeble substitute for exercise or getting away from his arduous work. The arrangement for his trip to Alaska, with the various stopping-places, and the obligation to meet the people and talk to them at any time, whether from the back of the train or from a grandstand or in any public place, must have been an extremely difficult procedure. And even while in Alaska he evidently was kept very busy in looking after the interests of the United States, as well as determining the status of Alaska. Then, coming down to Victoria, Vancouver, and Seattle, he was subjected to tremendous strains and probably did more work in the few days after leaving Alaska and completing his public appearance in Seattle than most men do in weeks.

The suggestion that he had ptomaine poisoning, followed by an attack of bronchopneumonia, is clear enough evidence that he was extremely exhausted; that his reserve power had been used up and his resistance reduced to nil. His sudden death from either acute dilatation of the heart, cerebral hemorrhage, or what-not, came as a shock and surprise to the whole world.

All this leads up to the suggestion that there is no necessity for the president of the United States to go around for exhibition purposes or to get in touch with so many people in so short a time. The president's position is one of great power and dignity, and one that should be treated with the utmost consideration; yet presidents have gone about the country because they felt they must. It would seem that a man who is in public life could so conduct himself and conduct the business of the public as to create a position that would be impregnable; the people should consider him as their highest citizen, honor him for his works, and endeavor to give him an opportunity to maintain his health and strength, without demanding of him an active sociopolitical endeavor. Royalty evidently has a much better system, although the premiers of the various countries are supposed to be very active and doubtless have many strains thrown upon them. We have officials who are supposed

to do the work of the premiers, and our president should do, as royalty does, show himself on rare occasions, announce his policy, and trust to the public (if they can be trusted at all) to see that he is earnest, sincere, and conscientious in his service. A political position like the presidency of the United States should not be made burdensome by the effort at personal contact with a multitude; at all events more political machinery should be working to the end that the president of the United States could maintain himself as a president and not as a slave to popularity, political or otherwise.

THE CHILD GUIDANCE CLINIC

A clinic of the above sort is to be established in Minneapolis, and a like one in St. Paul, the outcome of negotiations with the Commonwealth Fund of New York, and is to be supervised by the Board of Public Welfare, the Board of Education, the Board of County Commissioners, and the Council of Social Agencies. The Commonwealth Fund will inaugurate the Clinic and will send trained workers, with a psychiatrist at the head of the Clinic, for a period of twelve months. During that time other workers will be in process of training, and eventually the Clinic in Minneapolis will be sustained by the four above-mentioned public bodies. A similar clinic is to be started in St. Paul and will be under a special board of managers appointed from that city.

The object of the Clinic is educational with clinical demonstrations, that is to say, the Clinic will undertake to examine, to classify, and to learn why children are sick, why they are backward, why they are delinquent, or why they are irresponsible or suffering from any nervous or mental disease. It will inquire very carefully into the home life and training of the child and will be able to offer suggestions for his improvement or recovery and care.

The Clinic will probably be housed in a residence of some sort midway between the two cities, and somewhere in the vicinity of the University, in order that it may serve the city agencies and have the co-operation of any other agency interested in social or public and private welfare. It is more or less what is now called a "behavior clinic," which covers a large group of children.

After the twelve months have elapsed and the Clinic is in full working order, the four agencies

which participated in the invitation to the Commonwealth Fund will be the supporters of the Clinic; and a full-time man will be selected to continue the work for the future. Committees have already been appointed from the Minneapolis agencies to properly address the public and elicit their co-operation. Various articles will be prepared for the promotion and organization of such publicity programs as are necessary from time to time.

The work of the Clinic will begin sometime in the early fall and will be under the direction of Dr. L. G. Lowrey, formerly of the State Psychopathic Hospital of Iowa. Very few of these clinics have been established in the country, but the few established in the larger centers,—New York, Chicago, Cleveland, Dallas, and Cincinnati, etc.,—have demonstrated the value of such investigation and compilation of statistics pertaining to the examination of large numbers of children. The representatives of the various agencies appointed to the committee from Minneapolis are as follows:

University: Dean A. E. Haggerty.

Board of Public Welfare: Dr. Mabel Ulrich and Dr. Walter E. List.

Board of County Commissioners: Mr. Lynn Thompson and Mr. Howard Hush.

Board of Education: Supt. W. F. Webster and Mr. N. H. Hegel.

Council of Social Agencies: Dr. A. S. Hamilton and Miss Caroline Crosby.

DR. GEORGE EDGAR BENSON

THE JOURNAL-LANCET regrets to record the death of Dr. George Edgar Benson, of Minneapolis, which occurred on Monday, July thirtieth.

Dr. Benson was unfortunate, as many other doctors are, in contracting a streptococcic infection, which evidently drifted into a bacteriemia. Like many other physicians when sick, he was neglectful of his own condition; at least he felt, as many of us do, that he could overcome disease by an effort of his own, and perhaps that can be done in some instances, but we do not always know how much our powers of resistance have diminished, and it is just as necessary for a physician to be cared for as any other sick person. Dr. Benson received the best of attention, but his infection had gone so far that it was too late when medical attention was given.

At the time of his death Dr. Benson was

forty-six years old, and he had been ill for a period of three months. He was a graduate of South High School, Minneapolis, and of the Medical School of the University of Minnesota, class of '01. On the day of his graduation from college he became associated with Dr. C. D'a. Wright, and continued with him as an associate and, later, as a partner for twenty-two years. He specialized in eye, ear, nose, and throat work, and for three years studied abroad, principally at the Royal University of Austria, at Vienna. He had been for many years a member of St. Mary's Hospital staff. He was a member of the Interlachen Club, the Athletic Club, and of several county, state, national and international medical societies.

CORRESPONDENCE

CONDITIONS IN THE VIENNA AND BERLIN CLINICS

TO THE EDITOR:

A few impressions from Europe may be of interest to the readers of THE JOURNAL-LANCET and even of actual help to such as contemplate postgraduate work abroad.

The American Medical Association of Vienna has been operating efficiently since its post-war reorganization about a year and a half ago. The courses are posted at the "Cafe Clinic," the Association headquarters, and the business end of the work is taken care of by the officers of the Association. Even if one goes without any knowledge of what to do and where and how, it takes but a short time to become thoroughly familiar with the opportunities open, since the old members are all anxious to help. Personally, I found the work in pathology and diagnosis particularly excellent and profitable. However, one can get splendid work in any department or branch desired. Anatomy or cadaver surgery, for instance, can be had in any quantity wished for, on the very finest material, at the nominal sum of 20,000 kronen (30 cents) apiece.

Most of the clinics are so located that little time is wasted in going from one to the other. For the usual work the cost of courses will average about \$75 per month.

Living conditions are very satisfactory, and there is no shortage of any kind for those who have money. Based on my experience of last winter and spring, I should say that one can live from 25 to 35 per cent cheaper in Vienna than in the average American city of the Middle West. Money is best carried in express money orders or banker's checks in \$50 denominations.

The people are a nice, easy-going, care-free lot, who "spend their substance in riotous living," and do not seem to be at all concerned about tomorrow. They are easy to get along with and are always most courteous. The city shows evidence of

poverty in a lack of repairs of both private and public buildings, as well as in the number of beggars to be seen on the streets. Conditions are gradually improving, however, and a good deal of restoration was taking place in the spring.

My stay in Berlin was so short that I do not feel qualified to offer an opinion on the value of the clinics, but a lot of good work is done there as elsewhere. As a city, Berlin is quite American. I saw no evidence of poverty, and if the price of surgical instruments is an indicator of German efficiency, they ought to be able to retire their war obligations in a short time.

Minot, N. D.

August 3, 1923.

Respectfully,

P. A. Nestos, M.D.

NEWS ITEMS

Work has been begun on the building of the Veterans' Hospital at St. Cloud.

Dr. F. N. Bjerken has moved from Red Wing to Aberdeen, Wash. Dr. Bjerken formerly practiced at St. Hilaire.

The free dispensary hitherto maintained by the Methodist Union of Duluth has been turned over to St. Luke's Hospital of that city.

Kandiyohi County, of which Willmar is the county-seat, has voted strongly against maintaining a county nurse the coming year.

Work on an annex to St. Patrick's Hospital at Missoula, Mont., has been begun. The cost of construction will be about \$150,000.

Dr. G. W. Dahlquist has moved from Lancaster (Minn.) to Fargo, N. D., and is connected with the Veterans' Bureau at that place.

Dr. Walter T. Anderson, of St. Paul, was married July 31 to Miss Emily Canby, also of St. Paul. The wedding took place at Coldwater, Mich.

Dr. George Edgar Benson, of Minneapolis, died last month at the age of 46. Further notice of Dr. Benson will be found in our editorial columns.

Dr. Gordon Kamman, a recent graduate of the Medical School of the University of Minnesota, has accepted a position on the staff of the More Hospital of Eveleth.

Dr. R. A. Gowdy, of Alexandria, has sold his practice to P. Kierland, of Harmony, and will move to Miami, Florida, to become associated with his brother in practice.

The health exhibits at the Minnesota State Fair next month promise to be the most elaborate ever made on a similar occasion. They will

cover many phases of health work and preventive medicine.

The Minneapolis City Health Commissioner, Dr. F. E. Harrington, has prohibited the further sale of buttermilk, milk, or cream, in bulk to restaurants, soda fountains, hotels, etc.; they must be bottled.

Dr. Marshall Hertig, of Minneapolis, a graduate of the University of Minnesota and now doing postgraduate work at Harvard, has been appointed entomologist of the expedition to go to China in December to study dum-dum fever.

Dr. A. W. Ide, of St. Paul, whose visit to Europe was noted in our last issue, will visit the surgical clinics of England, France, Switzerland, and Italy. Other American surgeons are turning to the clinics of these countries more and more.

Dr. L. F. Fisher, formerly of Thief River Falls and lately connected with the Veterans' Bureau at Minneapolis, has accepted a position as associate to Dr. E. S. Blaine in the X-ray Department of the National Pathological Laboratories of Chicago.

The clinics given on the day following the one-day meeting of the Sioux Valley Medical Association by the surgeons of Watertown, S. D., for the benefit of visiting surgeons, were given at the McKennan Hospital, and were greatly enjoyed by the visitors.

Dr. Edward E. Austin, of Minneapolis, died last week at the age of 69. Dr. Austin was a graduate of Michigan, class of '84. He had practiced in Minneapolis nearly forty years, and at one time was an instructor in the Medical School of the University of Minnesota.

Dr. E. K. Pfaff, of Richmond, (Minn.), has sold his practice and interest in the Richmond Community Hospital to Dr. F. P. Frisoh, of Gibbon, and Dr. R. E. Jones, of Gaylord. Dr. Pfaff has accepted an appointment as surgeon in an established clinic in Los Angeles and will take up his new duties the first of the year.

The Minnesota Sanatorium Association held its annual meeting at Wadena last week, when the following officers were elected for the current year: President, Dr. W. G. Milan, Thief River Falls; vice-president, Dr. Leo G. Guyer, St. Paul; second vice-president, Dr. J. H. Bendes, Oak Terrace; secretary, Miss Bernice E. Lindberg, St. Paul.

The Hennepin County Medical Society passed a resolution at its last meeting which expresses

its contempt for the practice of the fakir Abrams and his followers. It is as follows: "The entire Abrams method is such a palpable fraud that this Society considers it beneath its dignity to appoint a committee to investigate it, and the pursuit of the Abrams method on the part of any member of this Society shall be considered inconsistent with membership in this Society."

A psychiatric clinic will be opened at the University of Minnesota in October. It will be financed by the Commonwealth Fund of New York. Its purpose is to deal with wayward and mentally deficient children. The clinic will be in charge of Dr. V. V. Anderson, of New York, and Dr. Lawson Lowrey, of Boston, and several assistants will be employed. The experiment will be conducted a year, probably to be followed by permanent clinics in Minneapolis and St. Paul.

Dr. C. M. S. Sampson, formerly chief of the Physiotherapy Service of the U. S. Army General Hospital, Lakewood, N. J., who gave a series of lectures in the rooms of the Hennepin County Medical Society last May, will give another course in Minneapolis from Sept. 17 to 21, inclusive. Two lectures will be given each day with a moving picture film on one evening, demonstrating physiotherapy work and technic as employed in the U. S. P. H. Hospital of New York.

The typographical and other errors in the pages of any issue of almost every medical journal are about as numerous as the number of marks (German) in a dollar (U. S.). Generally they are trifling; but at other times they are annoying, as one was in our last issue. By inadvertance, Dr. Westaby had tacked onto his name (done in this office) the letters "F.A.C.S.," indicating membership in the American College of Surgeons. This was a mistake, and we greatly regret it and assume the whole responsibility for it.

At the San Francisco meeting of the American Medical Association the Speaker of the House of Delegates called the attention of the House to the fact that Mr. William Whitford, the official stenographer, had reported thirty-four consecutive meetings of the Association and the proceedings of the House of Delegates ever since it was organized, and said that some recognition should be taken of such a record. The House thereupon extended a rising vote of appreciation in recognition of his services, and Mr. Whitford thanked the members of the House for the

ovation given him and for the recognition accorded him. Mr. Whitford has reported many meetings of the Minnesota and the North and South Dakota State Associations. His work is done well-nigh perfectly; moreover, he is a genial gentleman and deserves the thanks of our State Associations.

Physician Wanted

In a good, live, wide-awake South Dakota city of about 700 population to take up the work of a physician who has had to retire for a time on account of illness. Office facilities of predecessor may be used, and a partnership will be formed with the right man upon return of the former physician. Address 360, care of this office.

Minn. Practice for Sale, 40 Miles from Twin Cities

Physician obliged to give up work on account of poor health. Splendid town of 1,200. One other physician, ethical and a good fellow. Best crops in years. Practice will pay from \$4,000 to \$5,000 in these times. Will sell practice and fine office equipment for less than value of equipment. Office rent cheap. Address 362, care of this office.

Practice for Sale in Southern Minnesota

A \$7,000 unopposed practice in good town of 450 population, with large contributing territory. Good office. Will sell equipment for \$1,500. Going into a specialty. Address 363, care of this office.

South Dakota Practice for Sale

South Dakota practice in town of six hundred, surgical and general, for sale, in an American community, in a rich portion of this state, for the price of equipment, which includes a first-class x-ray outfit, and all first-class equipment easily worth \$2,500; will sell for \$2,000 cash. Am going to specialize. Address 364, care of this office.

Internist Wanted in a North Dakota Clinic

A capable internist with knowledge of fluoroscopy and x-ray interpretation to buy a third interest in a small group practice established four years. You buy only your share of office equipment and modern x-ray equipment at invoice price of about \$2,500. Will sell only to a high-grade man with good references as to ability and integrity. Present incumbent leaves January first. Location in one of the most progressive North Dakota cities of 5,000 population with modern hospital and other advantages. Present group holds many very desirable appointments. Excellent opportunity to fall into a big practice in internal medicine with a large office and hospital clientele that will yield more than a good living income the first year. Detailed business statement will be furnished on application. Address 365, care of this office.

Practice for Sale

On account of poor health I will sell my well-established practice in a Minnesota town of 1,100; have office and small hospital in same building. Expect successor to buy or rent my residence. Address 373, care of this office.

Traveler Wanted for Minnesota

Splendid position for physician. Liberal contract; no books. Address 361, care of this office.

Practice for Sale

A splendid opportunity for one who will purchase \$500 worth of equipment, to take over a \$10,000 general and surgical practice. Best opening in North Dakota. A fine modern home to rent at \$40 per month; fine schools; town of 1,000. Address 366, care of this office.

Fine Location in Minneapolis for Physician

A dentist wants a physician to share his office with him. Rent low. Location excellent for a new physician. Near a high school; neighborhood not overstocked with physicians, and residents practically all own their homes. About a mile to nearest physician's office. Address 367, care of this office.

A Specialist Wants Association in a Clinic

An eye, ear, nose, and throat specialist, who has been limiting his practice strictly for the past ten years, seeks association in a group of other specialists, or in a suite where referred work will be reciprocated. Strictly ethical, member of A. M. A., the Minnesota State Association, the Hennepin County Society, and the Minnesota Academy of Ophthalmology and Oto-Laryngology. Address 369, care of this office.

Wanted

A nurse who is a graduate of No. A hospital; of good appearance, reliable, who can give anesthetics, and do x-ray and routine laboratory work, to assist a general surgeon in Minneapolis. Address 368, care of this office.

Eye, Ear, Nose, and Throat Practice for Sale

In the best location in Minneapolis (Sixth and Nicollet). Fine class of people. Practice can easily be doubled. Price \$600.00. Address 370, care of this office.

Hospital Equipment for Sale

Almost new hospital equipment; eight white enamel beds, two with back rests, complete; dressers, chairs, and rockers; dressing tables; hospital-size sterilizer; electric instrument sterilizer; army stretcher; bed-side tables; irrigator stand; practically new Wappler X-Ray outfit. Address 372, care of this office.

North Dakota Practice for Sale

An unopposed \$10,000 a year, general practice, in prosperous farming community; good churches, high school, and drug store. I wish to sell my practice and office equipment. Can do surgery. Will give satisfactory terms. Shall specialize. Address 375, care of this office.

Physician Wanted

Physician to locate in one of the best German-speaking communities in Minnesota, where money can be made right from the start. Absolutely nothing to sell. Address 371, care of this office.

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PROCEEDINGS OF THE HOUSE OF
DELEGATES

FIRST SESSION—WEDNESDAY, MAY 30, 1923

The first meeting of the House of Delegates of the thirty-sixth annual session of the North Dakota State Medical Association was called to order at the Commercial Club, Grand Forks, Wednesday evening, May 30, 1923, by the President, Dr. E. P. Quain, Bismarck.

The Secretary called the roll of Delegates and Councilors, and the President announced that a quorum was present and declared the House duly constituted for the transaction of business.

The Secretary read portions of the minutes of the 1922 meeting as published in THE JOURNAL-LANCET, and on motion, duly seconded and carried, the minutes as a whole were approved as published.

Dr. H. J. Rowe, Lisbon, presented the following report:

SECRETARY'S REPORT

LOSS OF MEMBERS

In presenting my seventeenth annual report, there are several matters that need to be brought to the attention of the Association.

First: The abandoning of medical defense in all probability has been the occasion of the dropping out of some members who had belonged to the State Association until we made the change. Whether the reason for so many of the former members being in arrears can be attributed to the substitution of group insurance for medical defense is conjectural. Suffice to say that we are more than sixty members short of last year.

COMMITTEE ON NECROLOGY

MEMBER OF THE COUNCIL

COMMITTEE ON MEDICAL DEFENSE

E. A. PRAY, M. D., Valley City; H. O. ALTNOW, M. D., Mandan, and R. W. PENCE, M. D., Minot, (3 years); H. W. F. LAW, M. D., (2 years), Grand Forks; FRED EWING, M. D., Kenmare, and C. N. CALLANDER, M. D., Fargo, (1 year).

COMMITTEE ON TUBERCULOSIS

J. G. LAMONT, M. D.....Dunseith
 FANNIE DUNN QUAIN, M. D.....Bismarck
 V. H. STICKNEY, M. D.....Dickinson

COMMITTEE ON PUBLIC HEALTH

A. A. WHITTEMORE, M. D.....Bismarck
 C. J. MCGURREN, M. D.....Devils Lake
 A. R. T. WYLIE, M. D.....Grafton
 A. W. GUEST, M. D.....Jamestown
 H. E. FRENCH, M. D.....University

COMPONENT SOCIETIES

All the local societies have made their annual reports. True, they came straggling along, and one society just got under the wire on the 26th of this month. This tardiness prevents the State Secretary making a complete alphabetical roster, and at best, some names will be omitted.

MALPRACTICE SUITS

There were a number of malpractice suits begun prior to our change from medical defense to group insurance, and they have been dragging along and at intervals are being tried, and for the expenses of these the Association is liable and will have to pay the costs of trial.

In the case of Stoskoff versus Dr. Wicklund, in which a verdict was secured in the District Court against the doctor, the attorneys advised that an appeal taken to the Supreme Court would be advantageous to the doctor, and the Association instructed that the appeal be taken. The case was argued before the Supreme Court on January 11 of this year, and the verdict was reversed and a new trial ordered. The expenses attending the appeal were as follows: Transcript of the case in the District Court, \$160.00; expenses of trial, \$199.14—Total, \$359.14, which has been paid.

In the case of Ralph Lister versus Dr. J. L. Dash, the expenses in preparing brief were \$50.00; court dismissal, \$50.00—total, \$100.00. This was paid to F. M. Russell, attorney for the defendant. Total paid during the year in malpractice cases, \$459.14.

There are a number of cases that have been started, which at some future time will be tried and the Association will be liable for the expenses of trial, because the cases were begun when the parties were protected by medical defense. There are some physicians who contend that since we have abandoned medical defense the State dues should be reduced, but when we consider our liability for these old cases their contention is not well founded.

GROUP INSURANCE

There are at present two hundred and fifty-nine physicians who are carrying group insurance, taking into account those who originally took policies

with eighty additional endorsements and forty-one cancellations. The Ætna Company report that additions are coming in from those who carried other policies. So far as we have been advised the insurance is very satisfactory and the price of same quite reasonable.

STATE SECRETARIES' MEETING

The annual meeting of the State Secretaries was held in Chicago in December last. I was present, and the meeting was well attended and many important questions were discussed.

The introduction and publication of the health journal *Hygea* was well represented by Dr. Victor C. Vaughan, student, teacher, and leader in medicine, who is the editor. It is a journal suited to reading by laymen, and it was urged that the medical profession through their several societies should bring this publication to the attention of the profession that they, in turn, might interest dentists, pharmacists, federated clubs, ministers, and the Women's Christian Temperance Union in getting up a large subscription.

Some of the State Secretaries took it upon themselves to volunteer a large number of subscriptions from their several states. The secretaries of all the component societies in this state were advised of the intention of this publication, and they were requested to send in subscriptions to the American Medical Association. The subscription was placed at the low price of one dollar for eight months. We have not been advised whether the clerical force urged this measure upon the physicians and the public, but the journal is undertaking a worthy object and is a very readable and well-edited periodical that should be of great value to the people generally.

THE JOURNAL-LANCET

The committee appointed at the 1922 session to take charge of the JOURNAL-LANCET contract with power to act after investigation advised its continuance as the official organ of the Association, and the publication has been furnished all the members reported in good standing, four-hundred and sixteen, at the close of December, 1922.

To date, only three hundred and fifty-four names appear on the official roster, other names may be reported later.*

Faternally submitted,

H. J. ROWE, M. D., Secretary.

Upon motion, duly seconded and carried, this report was accepted as read and ordered placed on file.

REPORT OF THE CHAIRMAN OF THE COUNCIL

Dr. F. R. Smyth (Bismarck): Last year each Councilor reported for his own district, and I think it would be well to follow the same practice this year.

As Councilor for the *Sixth District* I can say that we engaged in no particular activity until

within the last six weeks, when, at the insistence of Dr. Williamson, I wrote to the individual members of our Society and urged attendance at this meeting.

REPORTS OF COUNCILORS

Cass County—Dr. Paul Burton, Fargo, presented the following report:

January, 1922, Program: Duodenal Ulcer. Dr. Strachauer, University of Minnesota.

February, 1922, Program: Diabetes Mellitus. Dr. Wilder, Rochester, Minnesota.

March, 1922, No meeting.

April, 1922, Program: Malignancies of Large Bowel, (Lantern Slides) Dr. Carl Davis, Chicago, Ill.

April, 1922, (Special Meeting). Election of Delegates to State Convention: Dr. S. Oftedal and Dr. J. H. Rindlaub.

September, 1922, Program: Ptosis of Colon (with slides). Dr. E. P. Quain, Public Health. Dr. Olsen and Dr. French, Grand Forks, N. D.

October, 1922, Program: Anemia of Nephritis, with Special Reference to Capillary Changes. Dr. Brown, Rochester, Minn.

November, 1922, Program: Child Health Demonstration, Dr. French, Washington, D. C. Endorsement of Child Health Demonstration, by Cass County Medical Society, Mr. Dinwoody.

December, 1922, Election of officers.

January, 1923, No meeting.

February, 1923, First: Explanation of Child Health Demonstration, Dr. French, Fargo. Program: Symposium on Heart. Cardiac Arrhythmia, Dr. W. A. Nichols, Fargo. The More Common Heart Lesions, Dr. E. M. Watson, Fargo. Treatment of Heart Lesions, Dr. F. Darrow, Fargo.

April 6, 1923, Program: Pelvic Tumors. Carcinoma of the Ovaries, Dr. W. G. Brown, Fargo. Fibromata of the Ovaries, Dr. P. H. Burton, Fargo. Lantern Slide Demonstration of Pelvic Tumors, Dr. E. T. Bell, University of Minnesota.

May 11, 1923, Diabetes, Dr. K. A. Wadel, Fargo.

The average attendance of these meetings has been approximately thirty. The Moorhead doctors are associate members of our Society and usually attend our meetings.

Grand Forks District—Dr. George M. Williamson presented the following report:

The Grand Forks District Medical Society has had a very successful year. The Society has active officers, who try to have an interesting program for each meeting. The programs during the past year have been mostly case-reports and have proven to be more interesting than the presentation of set subjects.

There have been twelve regular and one special meetings, all well attended. The Society was honored by a visit from President Quain of the State Association. The attendance at this meeting was very large, and the paper presented by Dr. Quain was thoroughly enjoyed and appreciated.

The fraternal spirit of the profession in this District is 100 per cent. I am satisfied that nowhere can be found a more congenial spirit existing among

*On August 1, the membership had increased to 386, only thirty less than last year.—H. J. R.

members of a profession than there is in this District.

There are eighty-three physicians in the Grand Forks District, four of whom are not in practice and have not paid dues. Sixty-five are members with dues paid. We have two members living outside the district, making a total of sixty-seven paid members.

There are fourteen physicians in this district who are not members of our local Society, some of whom may belong to adjoining societies which are more convenient for them to attend, but our Secretary has no record of their membership in other societies. I believe it would be a good policy for secretaries to notify each other when membership is sought or obtained by physicians outside their district, in fact it is their duty to do so. In that way records would be more complete. Again, there are some men who take no interest whatever in medical affairs. We all know them; they are never at a scientific meeting, clinic, post-graduate course, or in any place seeking knowledge or information regarding recent advancement in the science of their profession.

As Councilor of this District I am sorry that we have so many non-members. I hope a better report can be presented at our next Annual meeting.

Northwest District—Dr. Andrew Carr presented the following report for Dr. E. M. Ransom, Minot:

Mr. Chairman: The Northwest District Medical Society reports for the past year an active membership in good standing of fifty-five members. Seven members formerly in good standing failed to remit their dues. The Society lost four members, three leaving the state for new locations; and one, Dr. Parker of Minot, dying after a brief illness.

During the year three meetings were held. At one of these we had the pleasure of listening to Dean French of the University, Dr. Oleson of the Public Health Service, and Dr. Hammes of the Mental Hygiene Survey Committee who addressed us on matters pertaining to the State Public Health Program. Only three papers were read during the year.

Great difficulty has been experienced in getting out-of-town men to attend and take an active part in these meetings and the Councilor of this District would welcome suggestions from the State Society as to methods for correcting this condition.

Respectfully submitted,

E. M. RANSOM, M. D., Councilor.

Sheyenne District—Dr. F. L. Wicks, Valley City, submitted the following report:

Our membership at present numbers nineteen, all of whom are regulars. We have no illegal practitioners, and we have had no deaths during the year. Dr. Crosby has removed from Oriska and has located in Valley City.

At a luncheon meeting held on October 16, a paper was presented on the "Diagnosis of Early Gall-Bladder Lesions" by Dr. B. S. Stevens, of San Francisco. This was a very informing paper, and the subject brought out much fruitful discussion.

Our annual meeting and banquet was held on January 15 with Dr. Crosby in the chair.

The resolution pertaining to Public Health and

its program for the state was adopted, and letters to our legislators asking their influence in its behalf were ordered sent.

After the report and discussion of many clinical cases the following officers were elected:

President, Dr. S. A. Zimmerman; Vice-President, Dr. F. L. Wicks; Secretary, Dr. W. H. Moore; Delegate, Dr. E. A. Prav; Alternate, Dr. S. A. Zimmerman. Censors, Drs. E. C. Spieer, M.D. Wesley, and E. B. Crosby.

On February 23 we had with us Dr. Oleson, Federal Health Officer acting under the supervision of the State Board of Health. He put in a day addressing a noon luncheon gathering, a public meeting in the afternoon, and our medical society in the evening.

Dr. Oleson is an efficient and tireless worker and his visit to our community was productive of much good.

Trail-Steele County—Dr. T. P. Martin, Mayville, presented the following report: We have twelve doctors in our county and twelve members of our Society. One doctor has applied for membership but has not yet been accepted. This may appear as though we have more than a 100 per cent membership, but it comes from our Society gaining two members from other societies while losing only one to another society.

We have had three meetings during the year, with an average attendance of eight.

At the Public Health meeting put on by Drs. French and Oleson, all members of our Society were present.

Four papers or talks were given by visiting doctors during the year, and five subjects were discussed by our own members.

The officers elected were President, Dr. M. T. Savre; vice-president, Dr. W. H. Cuthbert; secretary-treasurer, Dr. Syver Vinji; Censors, Drs. O. A. Knutson, G. S. Frogner, and C. A. Hjelle; delegate, Dr. Syver Vinji.

Respectfully submitted,

T. P. MARTIN, M. D., Councilor.

Tri-County District—Dr. Charles MacLachlan, New Rockford, presented the following report:

During the past year our Society has functioned with a very well-sustained attendance of about 60 per cent of the members present at the seven meetings held.

This has been due, to a large extent, to the fact that the Society has adopted a systematized method in the preparation and presentation of its papers on the scientific subjects chosen for discussion; and, still further, following out the plan in vogue at the State Meeting, selection is made and notice given in advance to the members who will discuss the papers. For instance, in taking up, as we did during the past year, the subject of tuberculosis, papers were prepared by the four members who undertook to deal with the subject by attacking it serially under, first, its "etiology," then following at consecutive meetings with, next, its "symptoms" and, third, papers on its "pathology," and a final one on the diagnosis and treatment.

The papers presented were very carefully prepared from both a scientific and a practical stand-

point, with cases cited from the essayist's practice to illustrate and emphasize the important practical features outlined in his paper. The discussion, too, indicated that serious consideration had been given to the task undertaken, and diligent study and research indulged in.

Only one winter meeting was held, and that was the annual meeting with the election of officers, December 28, at Carrington. The remaining six meetings were held as follows: Two at Carrington, April 28 and August 24; two at New Rockford, September 21 and October 19; one at Fessenden, June 30; and one at Harvey on July 28.

At the Fessenden meeting we had as our guest, Dr. J. O. Arnsen, of Bismarck, who presented a paper with practical demonstrations on "Basal Metabolism," which showed thorough preparation and was greatly appreciated.

The October meeting at New Rockford was a red-letter day for the Society on account of the platform presentations by Dr. H. E. French, Department of the State Board of Health and Dr. Robert Oleson, U. S. Public Health Epidemiologist, who united in giving a successful children's clinic.

Our meetings at the different towns throughout our District are sponsored by the local members. Attendance through the summer months is "by automobile," and the wives of the various members are usually taken to the meeting place twice during the summer, where they are either entertained by the local members or by their wives. The members of the outlying towns of Oberon, Sheyenne, and Sykeston contribute by entertaining in turn at one of the first group of towns mentioned.

Our membership is eighteen, having lost two members by removal and non-payment of dues, and one new member has been added. All practitioners within our district have become members with one exception. We have lost no members through death.

Your Councilor regrets he was unable to pay a visit to each of the members of the Tri-County Society prior to the annual meeting, as he did last year.

Our Society also respectfully requests, at the proper time, your favorable consideration and relief from the double financial burden imposed upon it this year by being compelled to twice pay its dues of \$80.00 to the State Association by reason of the unexplained negligence of some person or corporation between the date of February 19, 1923, when it was received for by your Secretary, and March 15, 1923, when the bank at Carrington on which the check was drawn was closed and the check protested. All of which is respectfully submitted.

Devils Lake District—Dr. G. E. Drew, Devils Lake, read the following report:

Dr. F. R. Smyth, Chairman Board of Councilors, North Dakota Medical Association: There is not much to report from this District for the past year. Our society for the Devils Lake district has exactly the same membership as it had last year. The only change being that one member has moved into Grand Forks district, but still retains his membership here. We have held four meetings during the year, all of which were fairly well attended. Two

of our members were sued for malpractice, but both were successful at trial. There have been no deaths. We expect to take in one new member in July. Otherwise there seems to be little prospect for better membership. We have sixteen non-members, and it seems impossible to lessen this number.

Upon motion, duly seconded and carried, the reports of the Councilors were accepted as read and ordered placed on file.

REPORT OF TREASURER

Dr. W. W. Wood, Jamestown, presented the following report:

Assets:

Balance general fund, June 1, 1922	\$ 982.57
Savings account, July 1, 1822.....	1,800.00
Interest on Savings account June 1, 1822 to June 1, 1923	63.83
Liberty Bonds (2) in James River National Bank	1,000.00
Interest on Liberty Bonds (2).....	127.50
Dues received from Dr. Rowe, Secretary	1,942.50

Total assets for year ending June 1, 1923.....\$5,916.40

Disbursements:

Fourteen checks to cover warrants No. 76 to 89 (inclusive)	2,494.64
Balance	\$3,421.76

Distribution of funds at present time:

General fund balance	\$ 911.61
Savings account to June 1, 1923	1,510.15
Liberty Bonds (2) in James River National Bank	1,000.00

Total Balance

This report was automatically referred to the Council.

REPORTS OF COMMITTEES

COMMITTEE ON PUBLIC POLICY AND EDUCATION

Dr. Smyth read the following report for Dr. LaRose, Chairman of this Committee:

Gentlemen: Your Committee on Public Policy and Legislation has interpreted its title to mean that the best public policy in medical matters, is that which confers the greatest benefit on the greatest number of our citizens. It has not, of itself, intimated new laws in any way affecting the health of the people, or asking for special privileges or rights for the medical profession. It has, when considered necessary for the public good, appeared before the Public Health Committees of the legislature and pointed out the danger to the welfare of the people when bills legalizing particular cults have been before that body. It has also been the means of preventing legislation obnoxious to the medical profession and detrimental to the public.

The present members of this Committee feel that their influence, for advising and helping in the formulation and promotion of beneficial medical

legislation, has been diminished by the practice of individual physicians and other interested persons having bills introduced in the legislature without endorsement by the State Medical Association or consultation with this Committee. Often, the first information the Committee has of medical legislation is from news notes in the press that bills embracing such subjects have been introduced. Sometimes such notes state that the proposed legislation has the endorsement of the State Medical Association. In other cases letters are received asking the Committee to introduce medical bills or to make a vigorous effort to oppose or prevent the passage of bills that have been introduced. These letters are from individual physicians, usually, but sometimes from local medical societies.

Your Committee would recommend, and the Sixth District Medical Society has passed a resolution to this effect, that matters of public policy and legislation, in all medical matters, be left in the hands of the Committee appointed for that purpose and that only legislation endorsed by the State Medical Association and properly submitted to that Committee should be considered as having the endorsement of the organized medical profession of this State.

Dr. Burton moved that the report be accepted as read and placed on file. Seconded by several members and carried.

COMMITTEE ON NECROLOGY

Dr. J. P. Smyth, Chairman, presented the following report:

"We are Dead! Short Days ago
We lived, felt Dawn, saw Sunset Glow"

The deaths of seven members of our profession have been reported since our last annual meeting. This is the same number as for the previous year and is probably a fair average of the annual deaths.

During the past five years (which includes the influenza period) thirty-seven deaths of physicians were reported in North Dakota. This gives an annual mortality rate of 16.3 per thousand.

Dr. Irving J. Cross, Wahpeton, died October 24, 1922, aged 49 years. The Doctor was a graduate of the University of Michigan in 1904. He had been in poor health for several years, and this terminated in mental derangement. Dr. Cross had practiced in Wahpeton for five years before his death and had made a splendid reputation as a studious and skillful physician. He was active in public work and held the esteem of his fellow citizens.

Dr. J. O. Foss, Cavalier, died November 5, 1922, aged 34 years. Dr. Foss was a recent graduate and was only in the state a short time before his death. Details of his college and practice have not been received.

Dr. L. V. Parker, Minot, died December 11, 1922, aged 40 years. Dr. Parker was a graduate of Rush in 1920. Before taking up the study of medicine he was a trained practical bacteriologist and was in charge of the Branch Public Health Laboratory at Minot. Few physicians have established such a wide reputation for skill and built up as successful a practice as Dr. Parker during the few years that he practiced in Minot.

Dr. R. G. DePuy, Jamestown, died February 4, 1923, of influenza, aged 68 years. Dr. DePuy was a graduate of the Michigan University, Homeopathic Department, in 1881. He was one of the oldest practitioners, in years of service, in the City of Jamestown, and was probably one of the best known men in the state. As active in public affairs as he was diligent in his profession he held many public offices, and was greatly esteemed by all.

Dr. Horace Clark, Wheatland, died April 5, 1923, aged 61 years. Dr. Clark was a graduate of Harvard in 1888. He had a varied and extensive experience in practicing his profession, having practiced in Australia and other foreign countries before settling in North Dakota. He had engaged in large farming and ranching projects, but at all times he kept up his interest and practice in medicine. His services were always available to his neighbors, and many mourn the loss of a sincere and helpful friend.

Dr. L. C. Hormell, Casselton, is reported to have died in Chicago on his way home from the South where he had spent the winter. He was a graduate of Rush in 1874, and an old time practitioner in North Dakota, but details have not been received.

Dr. Wm. P. Baldwin, aged 47, was born in Mayville, New York, May 23, 1876. He came to North Dakota with his parents in 1882 and located near McVillie. He attended school at North East and entered the University of Minnesota in 1897, graduating in 1901. He served an internship in St. Luke's Hospital, St. Paul, and was physician to the School for Feeble-minded at Faribault for one year. He located in Casselton in 1903. On December 30, 1903, he married and leaves a wife and four children, three boys and one girl. He offered his services to the Army in August, 1917, being one of the first physicians in the state to enlist. He was trained at Fort Riley and was assigned to duty as a Sanitary Inspector in the State of Washington. He later was transferred to Camp Lewis, where he remained on duty until the close of the war, being discharged January 9, 1919. He became ill soon after leaving the service and died May 17, 1923.

Dr. Baldwin was a past-president of the North Dakota State Medical Association. He enjoyed a large practice at Casselton and was most highly esteemed as a physician and man by all who knew him.

Dr. Williamson moved that the report be accepted and placed on file. Seconded and carried.

COMMITTEE ON TUBERCULOSIS

Dr. James Grassick, Grand Forks, presented the following report:

Throughout the Registration Area of the United States the fall in the tuberculosis death rate has been steady and progressive, about 40 per cent, in the past twenty years, meaning a saving of 75,000 lives a year.

We are of the opinion that a number of causes were responsible for this decline, chief among which may be mentioned a better understanding by the masses of the leading facts pertaining to disease prevention in general, and to the intensive public health agitation that has been fostered and main-

tained by the National Tuberculosis Association, the various state tuberculosis associations, state health departments, and other welfare agencies.

The value of sanatoria, public and private, as educational factors must be recognized; for arrested cases from such institutions become missionaries for right living, not only in the homes, but in the communities in which they may be located. Good health propaganda and agitation for improved living conditions from whatever source they may emanate have a direct bearing on the control of tuberculosis, for this is generally conceded to be largely a sociological problem entering the homes, the shops and places of business of our people.

In our own state very marked improvements have been made in living conditions during the past two decades. Twenty years ago sleeping porches were a rarity. They are now found in nearly all of our better homes. The family physician is the logical teacher of the people in sanitary and hygienic matters, and as such the members of our enlightened profession are entitled to full credit for what they have done in letting the sunshine of knowledge and truth into homes darkened by the shadow of ignorance and superstition,—a credit that is too often grudgingly given them.

The North Dakota Tuberculosis Association throughout its various activities has kept up its fight throughout the year, emphasizing health education and right living. The introduction of the Modern Health Crusade movement into the course of study of our common schools we believe to be something really worth while.

Your Committee is of the opinion that the tuberculosis fight of coming years will be directed largely against childhood infection and toward the proper control of germ-carriers—as in other communicable diseases. To this end your Committee would respectfully solicit your co-operation.

All of which is duly submitted, May 30, 1923,

J. GRASSICK, M. D.
E. P. QUAIN, M. D.
J. G. LAMONT, M. D.
Committee.

Dr. MacLachlan moved that the report be accepted as read and placed in the minutes. Seconded, carried, and so ordered.

MISCELLANEOUS BUSINESS

The Secretary read a letter from Dr. Olin West, Secretary of the American Medical Association, urging the adoption by all state societies of the same fiscal year, dropping of members for non-payment of dues, a definite time for reporting to the A. M. A., and uniform character of membership reports on appropriate blanks.

Dr. Rowe explained some of the difficulties encountered by the Secretary, and Dr. West's letter was discussed by Dr. Williamson.

The President instructed the Secretary to write a strong letter to the secretary of each

County Society, calling their attention to these matters and urging them to comply with his requests.

Dr. Thomas Mulligan, Grand Forks, read a letter from Dr. J. D. Taylor, and called attention to the fact that Dr. Taylor is an old member of the profession of the state, a man who had been very active in improving the condition of medicine and probably more active than anyone else in establishing the State Laboratory and medical legislation.

Dr. Mulligan then introduced the following resolution and moved its adoption:

WHEREAS our worthy and esteemed fellow practitioner, Dr. J. D. Taylor of Grand Forks, North Dakota, has been for many months suffering from a painful disability, by reason of which he will be unable to attend the sessions of our Association, and

WHEREAS he has always taken an active part in furthering the cause of good health and of organized medicine in our State,

RESOLVED that this Association extend to him our kindly greetings and sympathy coupled with the wish that the mists may soon roll away revealing a background of health and hope.

RESOLVED that a copy of these resolutions be transmitted to him accompanied by a bouquet of spring blossoms, and that a suitable minute be made on our records.

Dr. Burton seconded Dr. Mulligan's motion, which was unanimously carried, and the President instructed the Secretary to attend to the matter.

The Secretary transmitted the resolutions to Dr. Taylor, together with a bouquet of spring flowers, and he received the following letter from Dr. Taylor:

Grand Forks, N. D., June 2, 1923.

H. J. Rowe, M. D., Secretary.

Dear Doctor:

The North Dakota Medical Association certainly said it with flowers when they presented me with the beautiful bouquet and sympathetic resolutions on the above date, both of which served to make the road smoother and the pain less troublesome, for which I return thanks. They have lifted the burden and strengthened my courage by their words of appreciation, and after a six months' fight with the foe I know that I shall now win out. I want to thank you and every member of the Association for those generous words.

Fraternally and sincerely yours,

J. D. TAYLOR.

Dr. Charles MacLachlan, New Rockford, moved that Dr. Taylor be made an Honorary Member of the State Medical Association. Seconded by Drs. Mulligan and Williamson, who endorsed everything said by Dr. Mulligan and

expressed the opinion that no man in Grand Forks was more highly esteemed than Dr. Taylor. He considered him "one of God's noblemen who had been unfortunate." Motion put to a vote and unanimously carried.

Dr. J. J. Heimark, Fargo, called attention to the fact that at the last meeting of the Legislature a bill was passed requiring each County of the State to care for its crippled and indigent children, this bill to go into effect July 1, 1923. He thought all practitioners should know that by reporting such children to the District Court, by the parents or otherwise, the Judge would have authority to investigate the case and report to the District Attorney. If the report was favorable the child would be cared for by the County. Dr. Heimark explained that a similar law is in force in Minnesota, where they also have a State Hospital for the care of such children. There was nothing of that kind in North Dakota, but there are many good hospitals and excellent men throughout the State. He thought all physicians should know of this matter so these children might receive proper care.

Dr. T. P. Martin called attention to an article which recently appeared in *Hygea* regarding public health examinations and suggested that the physicians let it be known through the secretaries of their County Societies that they have the necessary blanks and are prepared to make the examinations. He wished an opinion as to whether such procedure would be strictly ethical.

Discussed by Dr. Quain, who saw no reason why the profession should not be willing to do anything the A. M. A. recommended, and who thought the matter should be brought to the attention of the County Societies.

Dr. Martin then moved that the secretaries of the several District and County Societies of the North Dakota State Medical Association procure the necessary examination blanks for their members through the American Medical Association, and that the said secretaries give notice through the public press from time to time of these health examinations, and that the members of their societies are qualified to make such examinations.

Seconded by Dr. Drew and carried.

AMENDMENT TO THE CONSTITUTION

The proposed amendment to the Constitution, notice of which was given at the 1922 meeting, was taken up and discussed. Dr. Williamson

explained that the object of the proposed amendment was to give the House of Delegates the benefit of the advice and counsel of the gentlemen who had served as presidents of the Association, this to be retroactive and include all past presidents, and he moved that the proposed amendment be acted upon at this time. Seconded by Dr. Burton.

The following proposed amendment, to be clause d of Article V of the Constitution, was then read:

"Ex-Presidents, if in good standing, shall be ex-officio members of the House of Delegates but without the right to vote."

The question was discussed by Drs. Smyth and Grassick, following which Dr. Williamson's motion was put to a vote and unanimously carried.

APPOINTMENT OF COMMITTEES

Nominating Committee—The President appointed Drs. Drew, Mulligan, and Whittemore to serve as a nominating committee.

As this concluded the business before the House at this time on motion duly seconded the meeting was declared adjourned at 10:20 P. M.

SECOND SESSION—THURSDAY, MAY 31

The second meeting of the House of Delegates of the Thirty-sixth Annual Session of the North Dakota State Medical Association was called to order in the Council Chamber of the City Hall at 5:30 P. M., May 31, 1923, by the President, Dr. E. P. Quain, Bismarck.

The Secretary called the roll of Delegates and Councilors.

The President announced that a quorum was present and declared the House duly constituted for the transaction of business.

REPORT OF STANDING COMMITTEES

Medical Education—Dr. H. E. French, Grand Forks, presented the following report:

As Chairman of the Committee on Medical Education, I would report that the Committee has not met formally but that as individuals we have been in close contact.

The School of Medicine of the University has continued to operate on the plan that is familiar to you all. The school's equipment and the number of instructors are being gradually increased. This year there are eighteen first-year and twenty-one second-year students.

It is becoming somewhat difficult to place students in at least the choice clinical schools for the

remainder of their work, and it is possible that, as time goes on, more difficulty may be met. For the present it can be said that of the second-year class of twenty-one, eight are already accepted at the Northwestern University, two at Pennsylvania, and one at Nebraska. Other good schools, such as Rush, Washington University, and Iowa, have not yet made up their class rolls, and they may be expected to take many, if not all, of the others.

The Chairman attended the Annual Congress on Medical Education called by the Council of the American Medical Association in Chicago in March.

Popular health education has received some attention, and the Committee feels that it should receive more as was expressed in the presidential address of this morning.

Dr. Williamson moved that the report be accepted as read and placed on file. Seconded by Dr. Burton and carried.

Medical Defense—Dr. Fred Ewing, Kenmare, read the following report:

Pursuant to instructions in the resolutions passed at the State Medical Association meeting in 1922, the Chairman of the Committee sent a notice to every physician in the Association notifying him that the State Medical Association would discontinue all insurance beginning January 1, 1923.

The Group Insurance, which was adopted something over a year ago, is proving very successful. There are now 259 physicians carrying this Group Insurance, and we feel that it is going to continue to prove very successful. One or two threatened actions have come up under the Group Insurance and have been handled very efficiently by the Insurance Company. None, however, so far have come to trial; in fact, it would seem that there has been much less disposition to bring up these suits since we have adopted the Group Insurance plan, although it is too early yet to form any judgment in regard to this.

We are submitting herewith copy of report of Attorney Bosard, who has previously handled the suits for the State Medical Association. We would recommend that arrangements be made for these same attorneys to continue to represent the State Medical Association until all cases for which the Association is responsible have been cleared up.

Respectfully submitted,
Medical Defense Committee.

REPORT OF ATTORNEYS

Minot, N. D., May, 1923.

Committee on Defense,
North Dakota State Medical Association,
Lisbon, North Dakota.
Gentlemen:

Since my last report to you of May 23, 1922, with reference to the defense of malpractice cases handled by us for the Association, we beg leave to advise that the cases now pending and undisposed of are the following:

1. Melvin Anderson vs. A. O. Arneson and A. J. Paulson. Brought in Nelson County in 1921. This case has not been tried and we understand

will probably be dismissed without trial, in which event the expense to the Association will be very light. The Association is defending Dr. Arneson in the matter, and there seems to be no question but what there was no partnership at the time between the two Doctors and that the acts complained of were performed by Dr. Paulson, and there should be, therefore, no liability on the part of Dr. Arneson.

2. Whittey vs. Dr. H. L. Halvorson, Des Laes, North Dakota. No proceedings taken, and the case not on the calendar.

3. Whorley vs. Pence & Pence, Minot, North Dakota. No proceedings taken, and the case not on the calendar.

4. Stoskoff vs. Dr. Wicklund, Wildrose, North Dakota. This case was tried before the Court with a jury at Williston in January, 1922, and resulted in a verdict for the Plaintiff against Dr. Wicklund for the sum of \$5,748.60. As Attorneys for the Association on behalf of Dr. Wicklund, we made a motion for judgment notwithstanding the verdict and for a new trial, which was presented before the trial judge. This was denied in June, 1922, and the Doctor furnishing an appeal bond we then took an appeal of the case to the Supreme Court of North Dakota, where the case was argued in January, 1923, and in April the Court handed down an opinion and decision reversing the judgment and ordered a new trial of the case.

There were two errors of law contended for by us on this appeal. One was that any reference to the fact that the defendant doctor was insured or was a member of any medical association brought out by the attorney for the plaintiff, was prejudicial error which could not be concurred in by any ruling of the Court and that the Court upon motion of the defendant should have granted a mistrial and discharged the jury and called a new jury to try the case. We called this matter to the Court's attention in this case, and the Court disregarded our opposition which the Supreme Court sets forth in their opinion was prejudicial error, which would result in a reversal of the case.

This point was of course technical in the extreme and had nothing to do with the merits.

The other point we presented and insisted upon strenuously in the Supreme Court, was that the evidence in a malpractice case must show two things established by expert testimony, first, that the Doctor was negligent in doing or failing to do something which he should have done or refrained from doing; and second, the negligence so established by expert testimony was the proximate cause of the injury for which the damages are claimed.

In this case, they proved by some witnesses that the treatment Dr. Wicklund gave the patient was not the best treatment and did not tend to clear up his diabetic condition and that under proper treatment thereafter he was made sugar free in three days. Under such evidence there was sufficient in the record to take the case to the jury on the question of the Doctor's negligence in the treatment, but there were no doctors testifying for the Plaintiff that that negligence was the cause of the subsequent conditions which required the removal of the plaintiff's leg, and there were one or two doctors testifying on behalf of the defendant that

testified, in their opinion, the leg and foot could not have been saved had proper treatment been administered when the patient first came to Dr Wicklund.

It has been the practice of many attorneys prosecuting malpractice cases to establish failure to give the best treatment or the proper treatment for a certain proposition, prove what subsequently happened by anyone, and get to the jury and get a verdict. But we contended in the present case that the testimony must be expert testimony showing the result for which damages are demanded, to have been the proximate result or to have been caused by the treatment given, or the failure to give other treatment than that which was given, and the Court has laid down the rule in this opinion as follows:

The burden was upon the plaintiff to establish by a fair preponderance of the evidence those things essential to the recovery of a verdict. He must establish not only negligence on the part of the defendant but also that the result obtained was the proximate consequence of that negligence.

We feel well satisfied with the decision of the Appellate Court and have our doubts as to whether the plaintiff will ever attempt to retry the case.

Respectfully submitted, Bosard & Twiford,
by R. H. Bosard, (Signed).

Dr. Burton moved that the report be accepted as read and placed on file. Seconded by Dr. French and carried.

APPOINTMENT OF COMMITTEES

President's Address: The President appointed the following gentlemen to serve as a committee to consider the President's address: Drs. Burton, Vinge, and Ewing.

MISCELLANEOUS BUSINESS

Dr. LaRose offered the following resolution and moved its adoption:

BE IT RESOLVED that the North Dakota State Medical Association at its annual meeting in 1923 go on record as endorsing the work and activities of the American Society for the Control of Cancer, and be it further

RESOLVED that the North Dakota State Medical Association pledges itself to the furtherance of the work of the American Society for the Control of Cancer within the State of North Dakota.

Motion seconded by Dr. French, and discussed by Drs. Quain, Burton, French, LaRose, Rowe, and Williamson, after which Dr. LaRose's motion was put to a vote and carried.

On motion duly seconded the House of Delegates was declared adjourned to reconvene after the scientific session on Friday morning.

THIRD SESSION—FRIDAY, JUNE 1

The third meeting of the House of Delegates of the thirty-sixth annual meeting of the North Dakota State Medical Association was called to

order in the Council Chamber of the City Hall, Grand Forks, at 12:15 p. m., Friday, June 1, 1923, by the President, Dr. E. P. Quain, Bismarck.

The Secretary called the roll of Delegates and Councilors, and the President announced that a quorum was present and the House duly constituted for the transaction of business.

ELECTION OF OFFICERS

Dr. Thomas Mulligan, Grand Forks, presented the following recommendations of the Nominating Committee:

President—Dr. James Grassick.....Grand Forks
President-elect—Dr. W. C. Fawcett.....Starkweather
1st Vice-Pres.—Dr. John H. Rindlaub..... Fargo
2nd Vice-Pres.—Dr. H. O. Altnow..... Mandan
Secretary—Dr. H. J. Rowe..... Lisbon
Treasurer—Dr. W. W. Wood..... Jamestown
Councilors—

Dr. F. R. Smyth.....Bismarck
Dr. G. M. Williamson.....Grand Forks
Dr. Paul Burton..... Fargo

Delegate to the A. M. A.—Dr. E. A. Pray, Valley City
Alternate to the A. M. A.—Dr. E. P. Quain, Bismarck
Official Reporter—Mrs. Irene H. Snyder, ..Chicago
Medical Defense—

Dr. Fred Ewing..... Kenmare
Dr. C. N. Callander..... Fargo

Those going out re-elected.

State Medical Examiners—

Dr. I. E. Countryman.....Grafton
Dr. Murdock McGregor..... Fargo
Dr. H. H. Healy.....Grand Forks

Com. Medical Education, Three Years—

Dr. G. J. McIntosh.....Devils Lake

Dr. Law moved that the report be accepted and that the Secretary be instructed to cast the unanimous ballot of the Association for the gentlemen recommended by the Nominating Committee. Seconded by Dr. Williamson and carried.

The Secretary reported the ballot cast and the Chairman declared the nominees duly elected.

Dr. Quain suggested that the officers of the Association be authorized to suggest other names for the Medical Examining Board if the Governor wished them.

Dr. Williamson said that he had always been interested in the Medical Examining Board. There are not many applicants, sometimes only four or five and never more than nine, and when so few come up for examination the men living at a distance from Grand Forks do not wish to come in. The only gain from being on the Examining Board is the honor that goes with the

election. The Board has always tried to maintain a high standard, and he believed it stood well with the Federation of State Examining Boards. In electing a man from Grafton and one from Fargo an effort had been made to get men living as close as possible to Grand Forks. There were many men throughout the state who would make excellent examiners, but it meant something to pay expenses and lose two or three days time away from home for the meeting of the Board. Dr. Williamson hoped that the Governor would see the matter in this light, but if he wished to make other appointments of course he could do so.

Dr. Mulligan thought the Governor had an open mind and always tried to do the right thing, but believed the idea of having examiners living near Grand Forks was a good thing. He said the Nominating Committee would be perfectly satisfied to have other names added if it was so desired.

SELECTION OF MEETING PLACE

The Secretary read an invitation that had been received from the Mandan Commercial Club.

Dr. Quain presented an invitation from the Commercial Club and the medical profession of Bismarck.

Dr. Mulligan moved that the invitation from Bismarck be accepted. Seconded by Dr. Grassick and carried.

REPORT OF AUDITING COMMITTEE

Dr. Smyth reported that the Treasurer's report had been audited by the Finance Committee of the Council and found correct.

On motion of Dr. Ewing, duly seconded and carried, the report was accepted as read.

REPORT OF COMMITTEE ON PRESIDENT'S ADDRESS

Dr. Thomas Mulligan reported that the Committee thought it would be well to have the President's address published where it would reach a large group of people, and recommended that in addition pamphlets be printed and sent out.

Dr. Williamson moved that the report be accepted and the recommendations carried out. Seconded and carried.

REPORT OF THE COUNCIL

Dr. George M. Williamson presented the following report:

FIRST SESSION—WEDNESDAY, MAY 30

The first session of the Council of the North Dakota State Medical Association convened at the Commercial Club, Grand Forks, at 10:30 p. m., Wednesday, May 30, 1923.

It was moved by Dr. Williamson, seconded by Dr. MacLachlan that, an order be drawn on the Treasurer for \$80.00 as a refund to the Tri-County Medical Society for a second payment of their annual dues, and that the executive officers of the Association be instructed to investigate the reason of the first check submitted not being promptly paid. Carried.

As there was nothing else before the Council at this time, on motion duly seconded and carried the meeting adjourned.

SECOND SESSION—FRIDAY, JUNE 1

The second session of the Council of the North Dakota State Medical Association convened at the City Hall, Grand Forks, at 10:00 a. m., Friday, June 1, 1923.

The following resolution was presented and after some discussion was passed by the Council:

BE IT RESOLVED that it is the opinion of the North Dakota State Medical Society that the so-called Abrams' treatment is unscientific, unethical, irrational, and without merit, and be it further

RESOLVED that any member of this organization practicing the same after one month's official notice, shall be expelled from the Association.

Adjournment.

Dr. Heimark, Fargo, moved that the resolution passed by the Council be adopted by the House of Delegates. Seconded by Dr. Martin and carried.

As this concluded the business of the Association, on motion the House of Delegates was declared adjourned *sine die*.

PROCEEDINGS OF THE SCIENTIFIC MEETINGS OF THE ASSOCIATION

FIRST SESSION—THURSDAY, MAY 31

The first session of the thirty-sixth annual meeting of the North Dakota State Medical Association, was called to order in the Council Chamber of the City Hall, Grand Forks, Thursday, May 31, 1923, at 9:15 a. m., by the President, Dr. E. P. Quain, Bismarck.

The Vice-President, Dr. W. C. Fawcett, Starkweather, took the chair while Dr. Quain, President, delivered his presidential address.

Dr. C. N. Callander, Fargo, presented a paper entitled "Anatomy from a Surgical Standpoint," and the same was discussed by Dr. W. H. Witherstine, Grand Forks; Dr. H. E. French, Grand Forks; Dr. J. J. Heimark, Fargo; and the discussion was closed by Dr. Callander.

Dr. E. A. Pray, Valley City, presented a paper on "Myelogenous Leukemia," which was discussed by Dr. E. C. Haagenson, Grand Forks; Dr. J. J. Heimark, Fargo; Dr. Aldo Massaglia, Grand Forks; and the discussion was closed by Dr. Pray.

Dr. Hugh S. Willson, Minneapolis, Minn., presented a paper entitled "A Study of 1,000 Consecutive Cases Presenting Gastro-Intestinal Symptoms," and the paper was discussed by Dr. H. G. Woutat, Grand Forks; Dr. H. O. Altnow, Mandan; Dr. V. J. LaRose, Bismarck; Dr. Franklin Wright, Minneapolis, Minn.; Dr. John Crawford, New Rockford; Dr. J. P. Aylen, Fargo; and the discussion closed by the essayist.

Dr. Frank Weed, Park River, presented a paper on "Lacerations of the Pelvic Floor and Perineum," which was discussed by Dr. H. W. F. Law, Grand Forks; Dr. Franklin Wright, Minneapolis, Minn.; and the discussion was closed by Dr. Weed.

As this concluded the program for the morning session on motion, duly seconded, the Association adjourned at 12:30 to reconvene at 1:30 p. m.

AFTERNOON SESSION—MAY 31

The second session of the North Dakota State Medical Association was called to order in the Council Chamber of the City Hall, Grand Forks, Thursday, May 31, at 1:45 p. m., by the President, Dr. E. P. Quain, Bismarck.

Dr. J. E. RUSH, New York, Field Director, American Society for the Control of Cancer, addressed the Association on "The Cancer Problem." The paper was discussed by Dr. August Eggers, Grand Forks.

Dr. E. M. HAMMES, St. Paul, Minn., presented a paper on "Epidemic Encephalitis," with lantern slide demonstration, and the paper was discussed by Dr. Floyd Woodward, Jamestown; Dr. H. O. Altnow, Mandan; Dr. Fred Ewing, Kenmare; Dr. E. P. Quain, Bismarck; and the discussion was closed by Dr. Hammes.

Dr. JOHN T. ROGERS, St. Paul, Minn., presented a paper entitled "The Neurasthenic, the Viscerotropic." The paper was discussed by Dr. J. P. Aylen, Fargo; Dr. Thomas Mulligan, Grand Forks; Dr. Franklin Wright, Minneapolis, Minn.; Dr. C. N. Callander, Fargo; Dr. E. P. Quain, Bismarck; and the discussion was closed by Dr. Rogers.

Dr. R. E. WEIBLE, Fargo, presented a paper on "Chronic Cholecystitis," which was read by Dr. Kent Darrow, Fargo; and was discussed by Dr. August Eggers, Grand Forks; Dr. Fred Ewing, Kenmare; Dr. John T. Rogers, St. Paul, Minn.; and the discussion was closed by Dr. Darrow.

THE PRESENTATION OF UNUSUAL CASES OCCURRING IN PRACTICE

Dr. J. P. AYLEN, Fargo, reported three cases of "Complete Inversion of Uterus."

Dr. J. C. SUTER, Grafton, submitted a report of "Conception and Labor, Vagina Absent," the paper being read by Dr. Countryman.

Dr. GEORGE A. DURIN, Bottineau, presented a paper on "Orchitis Due to Typhoid Bacillus Infection."

Dr. A. D. MC CANNEL, Minot, presented cases of "Streptococcal Throat" and "A Foreign Body in the Esophagus."

Dr. C. A. LARSON, Fargo, presented a paper entitled "Demonstration of Glioma Involving the Anterior Portion of Cerebrum and Pituitary."

Owing to the lateness of the hour the other papers on the program for the afternoon were postponed until Friday, and the Association adjourned to reconvene at 6:30 p. m.

THIRD SESSION—MAY 31

The third session of the North Dakota State Medical Association convened at the Hotel Dakota, Grand Forks, where a banquet was given at 7:00 o'clock. During the banquet excellent vocal and instrumental music was furnished by a male quartette and a trio.

Following the banquet the Association was called to order by Dr. E. P. Quain, President.

THOMAS F. KANE, President of the University of North Dakota, addressed the Association upon subjects of general interest.

Dr. D. A. STEWART, Ninette, Manitoba, presented a paper on "The By-Paths of Medical Reading."

Dr. FRANKLIN WRIGHT, Minneapolis, Minn., presented a paper on "The Gross Pathology of Hypertrophy of the Prostate."

Adjournment at 11:15, to reconvene at 8:30 a. m., Friday.

MORNING SESSION—JUNE 1

The morning session of the second day of the meeting of the North Dakota State Medical Association was called to order in the Council Chamber of the City Hall on Friday, June 1, 1923, at 9:10 by the President, Dr. E. P. Quain, Bismarck.

DR. R. H. BEEK, Lakota, presented a paper on "Diphtheria of the Genital Tract in Puerperal Women," and the paper was discussed by Dr. E. C. Haagenon, Grand Forks, and the discussion closed by the essayist.

DR. H. O. ALTNOW, Mandan, presented a paper entitled (1) "Remarks on the Utility of the Phthalein Test in the Diagnosis of Chronic Nephritis Without Edema," and (2) Remarks on Aplastic Anemia as a Clinical Entity (A Case Report)," which was discussed by Dr. T. P. Martin, Mayville.

DR. PAUL BURTON, Fargo, reported two unusual cases: (a) Ovarian Tumor, 14 lbs.; (b) Uterus Didelphys.

DR. M. A. SHILLINGTON, N. P. B. A. Hospital, St. Paul, Minn., presented a paper entitled "Treatment of Diabetes, with Reference to Insulin," and the paper was discussed by Dr. E. C. Haagenon, Grand Forks; Dr. J. Frank Corbett, Minneapolis, Minn.; Dr. Thomas Mulligan, Grand Forks; and the discussion was closed by the essayist.

DR. FRANK CORBETT, Minneapolis, Minn., presented a paper entitled "Treatment of Brain Injuries," and the paper was discussed by Dr. John Crawford, New Rockford, and Dr. Corbett in closing.

DR. D. A. STEWART, Manitoba Sanitarium, Ninette, Manitoba, addressed the Association on "Tuberculosis: A Review of Sanitarium Cases" (With Lantern Slides). Discussion followed by Dr. James Grassick, Grand Forks; Dr. George Mylan, Thief River Falls, Minn.; and, in closing, by the essayist.

As this concluded the scientific program, on motion, duly carried, the meeting was declared adjourned at 12:10 p. m., to reconvene at the University at 1:00 o'clock.

At 1:00 p. m., the physicians of Grands Forks entertained the visiting physicians and their wives at luncheon at the University Commons.

Following the luncheon the President, Dr. E. P. Quain, called the Association to order, and

the Secretary announced the names of the newly elected officers and the next meeting place.

DR. E. P. QUAIN: Before I introduce our next President I wish to express my appreciation of having been made President. I am deeply conscious of the honor and confidence thus expressed, and I am well aware that it is the greatest honor this Association can show any man, and it shall remain one of my sweetest memories.

I also wish to express my appreciation for the complete harmony among the members of the House of Delegates, for the splendid cooperation on the part of the various committees, particularly of Dr. Williamson, Chairman of the Entertainment Committee, and also of Mrs. Snyder without whose competent help the meeting would not have been so successful.

At two o'clock the old President goes out of office, and I will ask our new President to rise. You will agree that the Association should be proud of its choice and that there is no man in the state better qualified for or more deserving of this honor.

I take great pleasure in introducing to you Dr. Grassick. (Applause.)

DR. JAMES GRASSICK: I surely would not be a normal human being if I did not appreciate the honor that has been conferred upon me. To be selected to preside over this greatest scientific body of people in our state is an honor that anyone may well crave, and, coming to me unsolicited as it was, I feel, Gentlemen, very deeply the respect you have shown me. I realize also that our past president is a hard man to follow. We all realize that, for he is a man of so many interests and expert in so many lines of endeavor, as well as a physician, that it will be a hard job to fill his shoes. But I am reminded of the fact that this is no one man's Association. It does not belong to Dr. Quain, or to me, or to any other one man, but it is an Association belonging to every one of its members. If I should fall by the wayside I have the satisfaction of knowing that I have a long list of past presidents to draw from, as well as the President-Elect, the first and second Vice-Presidents, and our Secretary, and in this respect I can certainly promise you that this Association will go on just the same. It is just a matter of everybody getting together and pulling for the common good of the Association. As has been said, it is the everlasting team-work that counts, and we must pull together for the good

of our Association and for the good of our members, and then there can be no doubt of our success. I thank you. (Applause.)

DR. QUAIN moved a vote of thanks to the Grand Forks physicians and their wives for their hospitality and entertainment and to the public press for its courtesy. The motion was seconded by several

and was carried unanimously by a rising vote.

The afternoon was devoted to demonstrations by the Department of Anatomy, Dr. H. E. French, Dean; the Department of Bacteriology and Pathology, Dr. Aldo Massaglia; the Department of Physiology and Pharmacology, Dr. A. D. Bush; and the Public Health Laboratory, Dr. Anfin Egdahl.

DISTRICT AND COUNTY ROSTER

CASS COUNTY MEDICAL SOCIETY

PRESIDENT	
Skelsey, A. W.	Fargo
SECRETARY	
Heimark, J. J.	Fargo
Aylen, J. P.	Fargo
Baillie, W. F.	Hunter
Bakke, Hans	Lisbon
Brown, W. G.	Fargo
Burton, Paul H.	Fargo
Callander, C. N.	Fargo
Carpenter, Geo. A.	Fargo
Clark, S. B.	Buffalo
Clay, A. J.	Fargo
Darrow, F. I.	Fargo
Darrow, Kent E.	Fargo
Dillon, J. G.	Fargo
Gowenlock, H. J.	Gardner
Gronvold, A. C.	Chicago
Gustuson, E. V.	Fargo

Hanna, J. F.	Fargo
Heimark, J. J.	Fargo
Hendrickson, Gilbert	Enderlin
Hotchkiss, W. M.	Fargo
Hougen, Hans	Fargo
Huntley, H. B.	Leonard
James, J. B.	Page
Joistad, A. H.	Fargo
Kaess, A. J.	Fargo
Larson, G. A.	Fargo
Lewis, T. H.	Fargo
Limberg, A. M.	Fargo
MacGregor, Murdock	Fargo
McMurtry, W. C.	Virginia, Minn.
Meyers, L. W.	Fargo
Miller, H. W.	Casselton
Morris, A. C.	Fargo
Nichols, A. A.	Fargo
Nichols, Wm. C.	Fargo

Oftedal, Arne	Fargo
Oftedal, Sverre	Fargo
Ostrander, A. J.	Enderlin
Patterson, T. C.	Lisbon
Platou, L. S.	Fargo
Rindlaub, Elizabeth P.	Fargo
Rindlaub, J. H.	Fargo
Rindlaub, M. P.	Fargo
Rothnem, T. P.	Fargo
Rowe, H. J.	Minneapolis
Sand, Olaf	Fargo
Skelsey, A. W.	Fargo
Taintor, Rolfe	Fargo
Tronnes, N.	Fargo
Wadel, K. A.	Fargo
Wands, E. E.	Lisbon
Watson, E. M.	Fargo
Weible, R. E.	Fargo

DEVILS LAKE DISTRICT MEDICAL SOCIETY

PRESIDENT	
Arneson, O. A.	McVile
SECRETARY	
Drew, G. F.	Devils Lake
Allen, R. W.	Tower City
Arneson, O. A.	McVile
Call, A. M.	Rugby
Carter, J. A.	Warwick
Drew, G. F.	Devils Lake
Emmert, H. F.	Sarles
Engesather, 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.	Dunseith
Lees, H. D.	Esmond
Lemieux, Darie	Bowman
Lohrbauer, E.	Lakota
McGurran, C. J.	Devils Lake
McIntosh, G. J.	Devils Lake

Moeller, Thor	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
Verrett, B. D.	Rolla
Vigland, J. G.	Brinsmade
Widmeyer, J. P.	Rolla

GRAND FORKS DISTRICT MEDICAL SOCIETY

PRESIDENT	
Witherstine, W. H.	Grand Forks
SECRETARY	
Ruud, M. B.	Grand Forks
Allaire, J.	Adams
Arneberg, J. G.	Grand Forks
Backus, A. S.	Wales
Beek, R. H.	Lakota
Beeson, H. B.	Grand Forks
Bennett, C. E.	Aneta
Bennwell, H.	Grand Forks
Boutelle, L.	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
Flaten, A. P.	Grand Forks
Fortun, Olaf	Grand Forks
French, H. E.	Grand Forks
Friesen, H. J.	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
Hunt, C. E.	Grand Forks
Irvine, V. S.	Lankin
Jelstrup, Christian	Petersburg
Landry, L. H.	Walhalla
Law, H. W. F.	Grand Forks
Link, J. J.	McVile
Lommen, C. B.	Fordville
Marsden, C. S.	El Centro, Calif.
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. T.	Milton
Peake, F. Margaret	Grand F'ks
Peterson, O. T.	Northwood
Porter, W. H.	Calvin
Ruud, M. B.	Grand Forks
Rystad, O. H.	Grand Forks
Scott, R. A.	Crystal
Smith, J. C.	Thompson
Spanare, C. I.	Milton
Stromberg, G. E.	Langdon
Suter, J. C.	Grafton
Thompson, A. Y.	Larimore
Waas, Chas.	Neche
Wagar, W. D.	Michigan
Waldren, H. M.	Drayton
Weed, F. E.	Park River
Welch, W. H.	Larimore
Westeen, A. A.	Grand Forks
Williamson, G. M.	Grand Forks
Wilson, W. C.	Grand Forks
Witherstine, W. H.	Grand Forks
Woutat, H. G.	Grand Forks
Wylie, A. R. T.	Grafton

SIXTH DISTRICT MEDICAL SOCIETY

PRESIDENT	Gaebe, O. C. New Salem	Ruediger, E. H. Bismarck
Bodenstab, W. H. Bismarck	Gordon, W. L. Washburn	Schipfer, L. A. Bismarck
SECRETARY	Griebenow, F. F. Bismarck	Shoregge, C. W. Bismarck
Ruediger, E. H. Bismarck	Hamilton, E. E. New Leipzig	Shortridge, W. R. Flasher
Altnow, H. O. Mandan	Kerner, C. A. Tuttle	Simon, John Napoleon
Arnson, J. O. Bismarck	Larson, E. J. Underwood	Smith, C. C. Benlah
Aylen, W. C. Mandan	LaRose, V. J. Bismarck	Smith, L. G. Mandan
Baer, DeWitt Braddock	Leavitt, R. R. Carson	Smyth, F. R. Bismarck
Barrette, J. H. Driscoll	Lipp, G. R. Bismarck	Speilman, G. H. Mandan
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		McLean, N.	Devils Lake	Yeomans, T. N.	Minot

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Brenckle, J. F.	Kulm	Hubbard, F. G.	Cogswell	Plane, J. F.	Edgeley
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		Kjelland, A. A.	Hatton		

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Allaire, J.	Adams	Dochterman, L. B.	Williston	Horsman, A. T.	Devils Lake
Aaker, A. O.	Velva	Donker, A. E.	Sykeston	Hotchkiss, W. M.	Fargo
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Almklov, Lief	Cooperstown	Durkee, C. A.	Fairmount	Hubbard, F. G.	Cogswell
Altnow, H. O.	Mandan	Durnin, Charles	Westhope	Hunt, C. E.	Grand Forks
Anderson, C. O.	Willow City	Durnin, G. A.	Bottineau	Huntley, H. B.	Leonard
Arneberg, J. G.	Grand Forks	Eastmas, L. G.	Hazen	Hustad, O. M.	Marnarth
Arnson, J. O.	Bismarck	Eggers, Aug.	Grand Forks	Irvine, V. S.	Lankin
Arneson, A. O.	McVille	Emert, H. F.	Sarles	Ivers, M. U.	Christine
Arzt, P. G.	Jamestown	Engesather, A. D.	Brockett	Jackman, J. C.	Minot
Aylen, J. P.	Fargo	Engstad, J. E.	Grand Forks	Jacobs, G. C.	Wahpeton
Aylen, W. C.	Mandan	Erenfeld, H. M.	Minot	James, J. B.	Page
Backus, A. C.	Wales	Evans, R. M.	Minto	Jelstrup, Christian	Petersburg
Baer, DeWitt	Braddock	Erwin, R. M.	Mandan	Johns, S. M.	Velva
Baillie, W. F.	Hunter	Ewing, Fred	Kenmare	Johnson, J. A.	Bottineau
Bakke, Hans	Lisbon	Ewing, John	Kenmare	Johnson, P. O. C.	Watford City
Barnette, J. H.	Driscoll	Fardy, M. J.	Minot	Joistad, A. H.	Fargo
Bean, O. G.	Walcott	Fawcett, W. C.	Starkweather	Jones, C. S.	Willeston
Beek, R. H.	Lakota	Ferguson, F. W.	Kulm	Jones, W. D.	Devils Lake
Beeson, H. B.	Grand Forks	Field, A. B.	Forest River	Kaess, A. J.	Fargo
Bennett, C. E.	Aneta	Fisher, A. M.	Bismarck	Kellogg, P. M.	Rogers
Bennwell, H.	Grand Forks	Fisher, Stephen	New Salem	Kermott, L. H.	Minot
Benson, O. T.	Glen Ullin	Flaten, A. P.	Grand Forks	Kerner, C. A.	Hannafor
Bodenstab, W. H.	Bismarck	Flath, Milford G.	Stanley	King, C. J.	Columbus
Boutelle, L.	Grand Forks	Floew, A. T.	Harvey	Kjelland, A. A.	Hatton
Bowen, J. W.	Dickenson	Fortun, Olaf	Grand Forks	Kinney, K. K.	Beach
Boyum, P. A.	Harvey	French, H. E.	Grand Forks	Knutson, O. A.	Buxton
Bradley, W. C.	Marion	Friesen, H. J.	Grand Forks	Kolb, F. K.	Granville
Brandes, H. A.	Bismarck	Frognor, G. S.	Mayville	LaRose, V. J.	Bismarck
Brandt, A. M.	Bismarck	Gaebe, E. C.	Harvey	Lamont, J. G.	Dunseith
Brenckle, J. F.	Kulm	Gaebe, O. C.	New Salem	Lancaster, Blake	Wahpeton
Brimi, C. L.	Cooperstown	Gerrish, W. A.	Jamestown	Lancaster, W. M.	Wahpeton
Brown, D. F.	McClusky	Gislason, G. J.	Grand Forks	Landes, H. E.	Kenmare
Brown, W. G.	Fargo	Glaspel, C. J.	Grafton	Landry, L. H.	Walhalla
Bunting, F. E.	Mandan	Glaspel, G. W.	Grafton	Lang, A. A. J.	Sanborn
Burton, P. H.	Fargo	Glasscock, T. J.	Finley	Larson, E.	Underwood
Buzzell, C. P.	Cleveland	Golseth, G.	Jamestown	Larson, G. A.	Fargo
Call, A. M.	Rugby	Gordon, W. L.	Washburn	Law, H. W. F.	Grand Forks
Callander, C. N.	Fargo	Goss, E. L.	Carrington	LeBien, E. A.	McHenry
Campbell, C. C.	Ashley	Gowenlock, H. J.	Gardner	Leavitt, R. R.	Carson
Campbell, Robt. D.	Grand Forks	Grace, J. B.	Zealand	Leedah, O. S.	Stanley
Carpenter, Geo. A.	Fargo	Grangaard, H. O.	Douglas	Lemicux, Darie	Bowman
Carr, Andrew	Minot	Grant, Geo.	Wishek	Lees, H. D.	Esmond
Carr, Andy. M.	Minot	Grassick, Jas.	Grand Forks	Lewis, T. H.	Fargo
Carter, J. A.	Warwick	Greene, E. E.	Westhope	Limberg, A. M.	Fargo
Carter, P. B.	Parshall	Greene, L. B.	Edgeley	Link, J. J.	McVille
Chernausek, Sam	Dickinson	Greenman, N. H.	Fairmont	Lipp, G. R.	Bismarck
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Moeller, Thor. Devils Lake	Rindlaub, John H. Fargo	Tompkins, C. R. Oberon
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Nicholson, A. S. Williston	Schneider, J. E. Bowman	Welker, A. J. Max
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Oftedal, Sverre Fargo	Skelsey, A. W. Fargo	Whitson, J. H. Streeter
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Ostrander, A. J. Enderlin	Smith, J. C. Thompson	Wiig, I. C. J. Wahpeton
Owenson, H. A. Grace City	Smith, L. G. Mandan	Williamson, Geo. M. Grand F'ks
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Platou, L. S. Fargo	Stone, E. C. Minot	Yeomans, I. N. Minot
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Pray, E. A. Valley City	Stromberg, G. E. Langdon	

PRESIDENT'S ADDRESS TO THE NORTH DAKOTA STATE MEDICAL ASSOCIATION*

BY E. P. QUAIN, M.D.

BISMARCK, NORTH DAKOTA

An effort was made during the past year to ascertain what might be some of the outstanding problems confronting the medical profession in various parts of our state. The inquiries brought forth evidence that the presence and activities of false pretenders within our legitimate field of medicine, in many localities, have caused considerable annoyance, some real and some imaginary. It is claimed that medical men with many years of college education and training are not sufficiently differentiated in the public mind from a class of practitioners of medicine whose preliminary schooling and professional training are so obviously shallow that the situation might be called a huge, practical joke, were it not that the joke is perpetrated at the expense of human economy, human health, and human life. This circumstance has caused me to take up some of your time in a discussion of—

THE IRREGULAR PRACTITIONER OF MEDICINE

Particular reference will be made to that class of practitioners which forms a specially privileged class by being legally licensed to treat the sick without having had the scientific training demanded from the rest of us who are engaged in the same vocation. If it should seem to any of you that more time is given to the subject than its importance warrants, it may be stated that the reason for considering the subject at all is, not that it has much bearing on us as physicians, or on our relationship to the sick, but that it has a very strong bearing on the relationship and interest the sick and afflicted have a right to expect from the State and from the law-making bodies. It is hoped that the discussion may carry some information of value, not for useless argument, but for useful instruction to a public which is waiting for you to tell the truth about all questions of medicine.

One Supreme Court has recently defined the term "practice of medicine" to include "the whole subject of dealing with human ailments, and includes such parts of the sciences required for its purpose." This legal definition corresponds exactly with the opinion we medical men

have always held. Note particularly the word "dealing" with human ailments. This goes farther than "treating" human ailments. Note also "parts of the sciences required,"—not any one science in its entirety, just the scientific part needed in each case. In the minds of these jurists, the practice of medicine includes, therefore, the fifteen or twenty, or maybe more, of the various cults who are treating, or "dealing," with the sick in this country to-day. We are not surprised at such a decision. We are more puzzled to understand why the whole country has not realized the truth about this question before now. We are rather puzzled when we find that most of our States give some form of special or limited license to practice medicine, which license does not limit the classes of diseases to be treated, but does specify the methods by which disease in general must be, or must not be, treated by the licensee.

The legalizing of irregular cults in medicine is a custom confined to the United States. Several years ago, at a time when these questions were being considered by one of our legislatures, a number of foreign governments were approached by me, through correspondence, with inquiries as to the possible presence of sectarian medicine in other countries. Definite answers were received from all the larger and many of the smaller governments, including every European country, most of the South American republics, and Japan. In not one of these nations was there any medical sect or cult sufficiently recognized to be legalized. Medical practice was everywhere controlled by scientific bodies of men who were licensed to treat the sick, only graduates from regular medical schools. Any one who would attempt to advertise himself as a healer of the sick on any other basis would do so at the risk of legal prosecution; for the law, especially in the European nations, classified all such practitioners as quacks and charlatans whose activities must be suppressed for the safety of the ignorant and the helpless. In no nation was there any regulation as to the method of treatment in any given disease. The examination of candidates in all nations dealt chiefly with their scholastic, scientific, and practical training and their understanding of causes

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and progress of disease, leaving to the judgment of the successful candidate what form of treatment should be employed in each given case of disease.

The ambassador from one of the prominent world powers of that time, volunteered in his answer the explanation why America is the only civilized country where different medical schools or sects could exist. He reminded me that in all other countries there is a department, or ministry of education which guides and controls all questions of higher learning, including the sciences and medicine; that no laws pertaining to scientific questions could pass without proper scientific advice; and that the United States is the only country in which the uneducated public has any direct control of scientific problems by means of the vote. This, in a few words, explains this peculiar and peculiarly American system which permits the inauguration, every few years, of some new and fantastic theory of treating the sick.

Within the past three months another questionnaire was sent to the various foreign representatives in Washington for the purpose of learning whether there had been any changes in their educational policies. It was found that there had been—one. In the Republic of Peru there has been established a board issuing permits for Chinese "herb doctors" to dispense certain vegetable compounds. With this one exception there could not be found in Europe, Asia, Africa, Australia, or South America, a single country where men were legally authorized to treat the sick without first passing an examination before some scientific faculty or commission, corresponding to our regular medical examining boards. In other words, the United States still has the unique distinction of being the only place in the world where pseudoscientific medicine and quackery are tolerated and given legal protection.

Nearly all the various cults in medicine deny the necessity of thorough examination of the patient and of scientific diagnosis, which again places their practitioners in a very special and privileged class before the public. We all agree that this is contrary to all science, sound philosophy, and common sense, and that it is a system belonging to the 17th or 18th, but not to the 20th, century. We know that the public pays the price for all this. We also know that the practice of medicine requires the widest possible education and training, and that the sick

who are deprived of the benefit of such education and training, because of the law, have primarily the uninformed and misguided lawmaker to blame for an archaic and unsatisfactory condition.

Our government is supposed to be "of," "by," and "for" the people. In the making of medical laws it has too often been overlooked that "for" means "in behalf of," or "for the benefit of," the people. On the other hand, we must admit that there has been an excessive emphasis on the meaning of the prepositions *of* and *by* the people, whenever medical legislation has been the issue. To legalize treatment of diseases by manipulations, adjustments, etc., but to forbid all other methods of treatment at the hands of that same practitioner, cannot by any stretch of imagination be "in behalf of," or "for the benefit of," the public. To prevent a patient from receiving a certain treatment is often as fatal to him as if he received wrong treatment.

Medical history shows that quackery in some form has always existed. As soon as the "theory" of one prophet would subside, another apostle of mysticism with a new "discovery" would arise to catch the ignorant and to please the seeker after novelty. There is an incurable hereditary streak in the minds of some folk which will always prefer the mysterious and supernatural to the plausible and obvious. Yet it is fair to assume that if the great mass of American people could once gain an understanding of the main facts in the causation of disease, quackery would become inconspicuous, and our endeavors in behalf of the public would meet a fuller appreciation.

There is also another factor which inspires a certain amount of optimism in this connection. Schools and systems of medicine have always tended to purify themselves and to move their structures, gradually, on a more and more scientific basis. As soon as the scientific foundation was complete, the identity of the school, or system, ceased.

It was surgery which primarily caused the downfall of the homeopathic, eclectic, and physio-medical schools of medicine. It was through surgery they later underwent a resurrection and adoption into scientific medicine. Drugs and various forms of other treatments could be administered safely by any physician, no matter what his creed might be, but the practice of surgery in the modern sense demanded facts of scientific knowledge, and not theory. When

practitioners of the various schools mentioned, desired to acquire and mix surgery as an adjuvant to high potencies, herbs, and steam-baths, they soon became impressed with this truth. To their great credit be it said that in many instances they offered themselves willingly to the transformation demanded by science.

With a knowledge of bacteriology and pathology, legendary and visionary theories fall by the wayside. In this manner it has come about that osteopathy is at the present time apparently trying to undergo a second birth. Their curricula and text-books now announce the studies of bacteriology, pathology, and surgery, and their hours for teaching manipulations of dislocated structures seem to be growing shorter. We may expect that in the near future many of them will be accepted into our ranks as physicians.

Chiropractors are already looking longingly for the scalpel, innocently unaware that it is a two-edged sword which necessarily must cut their theories asunder before it can be applied for the good, or bad, of the patient. It is certain that if they once gain a reasonably strong hold of the instrument, it will spell the deterioration and eventual decay of the now so successful trade of chiropractic. Were it not that history repeats itself we should never suspect that even the chiropractor may some day become so seasoned by scientific necessity that the medical profession may be forced to swallow him, although the mere suggestion of it now is apt to excite anorexia.

It is an interesting fact that most illnesses which cause the patient to ask for medical aid, are self-limited. It is upon this circumstance that the reputation of all cult practice is based. The people do not understand this. They have not been taught the truth, and, instead of demanding better trained scientific physicians, when they are not satisfied with the results we are able to produce, they fall for the sympathetic words and affable ways of the charlatan, whose special and only qualification is to sell himself to the gullible. There is no hesitancy in using the word "sell," since it is announced from the very fountain-head of chiropractic, the Palmer School, that no less than 87 hours is devoted by the junior class to the study of *salesmanship*. An announcement just received from this school, speaks of the "benefit to the graduate when he knows how to sell his specialty," and "how to get attention from those who will pay well for his services." This course in salesmanship

"teaches best methods of approaching the public," "the important phases of advertising," etc. In the outline of the course one notes the headings: "Personal Magnetism," "Art of Expression," "Finding the Patient," "Selling the Patient," as well as "Keeping Yourself Sold." In view of this up-to-date commercial training it is no wonder that ethical physicians fail to obtain a corresponding recognition and notoriety in a community. Our years of study in the medical school were so taken up with causes and manifestations of disease that not even one single hour was devoted to the question of business methods.

It has been asked why the enthusiasts for spinal adjustments have not as yet invaded the veterinary field. Veterinary diseases are based on exactly the same facts of anatomy, physiology, and pathology as human diseases, and respond to the same treatment. Leaving out of consideration the rotund hog and the fattened calf, the vertebral processes of most of the other critters on the farm are often only too prominent and should offer inviting opportunity for therapeutic adjustments in cases of distemper, cribbing, scour, mange, and chicken roup. However, after learning that for the successful treatment of the sick it is necessary to employ "personal magnetism," "the art of expression," and of "getting attention from those who pay well," we may see the reason why the barn yard is not favored by those who "sell the patient" and "keep themselves sold."

There are two leading types of ignorance or fanaticism in regard to the healing art at the present time. One type would believe that either the patient's mental power or the power of some metaphysical mind controls his ill or well being. This is faith, a belief in that which is not seen nor rationally proved to exist. It is not wise to argue about matters of faith with a professor of the faith. He cannot through steps of reason justify his faith, neither can you by the same process shake his faith; therefore we should be content to leave him where we find him, with the proviso that he should be content with a personal application of his faith and not attempt to inflict material consequences of the same upon the lives of others and especially not on innocent and defenseless children.

The second type is quite different. This type of healers tells the people that it has possession of true scientific knowledge of the same kind

as other physicians, with the exception that its knowledge is more refined, more up to date, and more easily applied. This is falsehood, pure and simple, and the public is led to believe that it is receiving something which it does not receive. The voting public, especially members of legislatures, no doubt have thought that by legalizing unscientific medicine they were helping to advance modern progress. Yet anyone who desires to investigate this matter will soon find that not one solitary disease was ever put under control, nor, indeed, even one human life saved, by means of the theories and methods advocated by these would-be scientists. In the end it is this same public, and by no means the medical profession, who suffers the consequences. This phase of the situation calls for our compassion and enlightening interest. As to those who perpetrate this practice of delusion, this juggling with human weakness, this prostitution of scientific words and objects, and all this with no other purpose than the extortion of money—for those no educated physician, no man possessing a trace of fairness, justice, and morality can have anything but unutterable contempt. What is there, for instance, but dense ignorance of the subject, or willful lying for a purpose, which could persuade anyone to point to the spinal column as the origin of an eye affection, or extend treatment to a cervical vertebra for a polyp in the nose. Since intimate knowledge of anatomy is professed, ignorance must be excluded.

EDUCATION OF THE PUBLIC

Since medical license and medical legislation in this country depend, not on a permanent scientific commission of the Federal Government, but on the popular vote, as stated by the foreign ambassador noted above, it is plain that there will be no elevation of medical standards until the public as a whole has a better understanding of the entire question of medicine. This can take place only through a campaign of education, in which the medical man must take the initiative, for the instruction must primarily, and necessarily, come from him.

The practice of medicine has become divided into three distinct divisions: Curative Medicine, Preventive Medicine, and the Teaching of Medicine. "Curative Medicine" is that part of the science and art with which we as practitioners are trying to serve the sick. "Preventive Medicine" is a rather recent development, and has

for its aim to keep those who are well from becoming sick. The results possible from efficiently practiced prevention are almost without limit. Prevention of disease, which is to say, prolongation of life, is a duty every civilized government owes to all its citizens.

We have had preventive medicine represented in our state for many years, but comparatively little has been accomplished for the good of the public, partly because of lack of funds and partly because of old and impractical sanitary laws. A new health law inaugurated in the last legislative session places the State in a better position to undertake effective prevention of disease. We may reasonably hope that future legislatures will give as much favorable attention to this question as the one which has just been in session, and that we may soon see a strengthening of this vital branch of our state government.

The third division of medicine is the "Teaching of Medical Science." In the past this teaching was applied largely to students who were to become physicians. Lately it has become evident that the public also must for their own benefit obtain more knowledge of the medical sciences and of what their application can and cannot do, in the prevention and cure of disease. This education of the public must become the groundwork on which the future status of our relation to the common good shall rest. Sane and safe medical laws will be demanded and established as soon as the people know what is for their best interests.

So important is this education of the public that it would be well for all the three divisions mentioned to unite forces and concentrate efforts for this purpose. This means that the physicians, all of us, you and I, must lend some of our time and also of our means to this effort. We must learn to respond whenever we have the opportunity to explain our science and art to those who need such explanations. All who can possibly do so should acquire the habit of speaking on medical topics before schools, clubs, lodges, and church organizations. Contrary to our deep-rooted belief, the public to-day is anxious to learn facts about pathology, and is becoming very responsive to talks on medical subjects. My observation of the interest taken by the public in the educational propaganda against tuberculosis and cancer has been a veritable eye-opener to me and has convinced me of the statement made above.

If the signs of the times are not misleading, our profession, that is, our State Medical Association, will soon have to meet squarely this educational demand. Other states are showing the way and several of them have already advanced beyond the experimental stage. Before we can fall into line properly with this grand movement, however, it would be well to begin the new medical education at home. We as physicians must, if we have not already done so, again become students of medicine. We must learn to "Count that day lost whose low descending sun views" in our hand no useful knowledge won. It is painful to see physicians so absorbed in either work or play that they find no time for self-improvement. Any physician who is content with text-books printed twenty years ago, who permits his medical journals to remain in the original wrapper, whose physical examinations are of the superficial type, or who does not find time to take active part in medical societies—such physician should not complain if his patients from time to time show hesitancy in their confidence and if they pay attention to the promises of the charlatan. No other profession has been subjected to such reconstruction and such rapid progress in all fields of activity as has the medical. A physician must use every spare moment to follow the steps of progress, or he will soon find himself a back number from which position it is very hard to escape. Let us, therefore, re-dedicate ourselves to the proposition of constant medical self-improvement, so that we may be able to render the people that for which they come to us, namely, the best that medicine of to-day has to offer.

The educational movement referred to above, is spreading from state to state and will before many years be of national scope. It proposes to teach the public the aims, ideals, possibility, economy, and even the limitations of medical science and art. The organization and plan of work differs in different places, but the main channels of information are as follows: public speaking, public schools, health exhibits, instructive clinics, women's clubs, and lay newspapers and magazines. In this connection should be mentioned the new magazine, *Hygeia*, published by the American Medical Association for the popularizing of medical knowledge. Many county medical societies in the United States have taken upon themselves to subscribe for *Hygeia* for their local public libraries, schools, clubs,

churches, etc. This is a hint and herewith made a recommendation to every county society of our state.

In this educational scheme, important places are given to various lay welfare organizations. It has been found that the public, and especially the law-makers, are, as yet, more apt to listen to non-professional opinions on medical matters than to advice from doctors. In Iowa where this educational work, under an able director of field activities, has probably gone farther than in any other state, the tuberculosis association has been the most important avenue for disseminating medical education. In Michigan the work has advanced rapidly through a public health league, for which lay interest was successfully engaged.

The North Dakota State Dental Association may well be proud of what it has done in popularizing dental knowledge. The introduction of oral hygiene as a regular study in the public schools and the production of a new textbook for the subject, were outstanding features of accomplishment by this society during the past year. The association also saw to it that a dentist appeared at each of the fifty-three teachers' county institutes, to lecture and give instruction in the care of the mouth and in tooth-brush drill. Our Superintendent of Public Instruction and the educators of the state generally, have co-operated in this work, and it is predicted that in a short time the children of North Dakota will know as much about the care of their teeth as they now know about the multiplication table. We congratulate the North Dakota Dental Association for their zeal and devotion to an ideal, demonstrated in this humane and unselfish work for the good of the people. We thank the dentists also for showing us how to conduct an educational campaign of this kind. One of the most active dentists in this movement gave the information that the work was made a success by interesting lay people in the movement, the dentists staying entirely in the background, in order to avoid misunderstanding and criticism. Let us hope that our Association may soon take a similar interest in the physical welfare of our growing boys and girls.

Welfare organization with membership largely non-medical, but under proper scientific control, should therefore be encouraged. It has been my good fortune to observe, from a rather close point of view, the activity of such an organiza-

tion, which has accomplished more than any other society, medical or non-medical, in bringing medical facts before the people of the state. The organization referred to is the North Dakota Tuberculosis Association. It was brought about, chiefly through its activity, that the State Department of Education, about twelve years ago, introduced into our public schools the subject of hygiene and sanitation on a modern bacteriologic basis. The results of these studies in connection with the Modern Health Crusade, which was also introduced by the Tuberculosis Association, have been very gratifying, especially in those communities which have been blessed by teachers properly trained for this work.

My observation in this connection has brought two distinct convictions to my mind. The first one is the need for teachers with more knowledge of biology and related sciences. The education of school children in the laws of health and disease, depends perhaps more on the scientific caliber of the teacher than it does on the size of the text-book. Every teacher of children should be obliged to show sufficient knowledge in the laws of health and disease to be a safe and sane guide for those who come under her care. Without a definite knowledge of the fundamentals of medicine she cannot know and warn against the physical and biologic pitfalls besetting every path of life.

The second conviction is also in the form of a criticism of our educational system. Every high school student is compelled to study history. He spends months and years pondering over legendary gods, and kings, and heroes, but is permitted to graduate with very little knowledge of the greatest builders of all human history, the giants of science, whose epoch-making labor and devotion have shorn disease of its sting and thrust death defeated from the door. Through their efforts it has been made possible to lengthen our span of life eight or ten years, within the memory of many of us. Why should not our vaunted education comprise a deeper general knowledge about the part played by medical science and art in making many sections of the world safely inhabitable and profitable for man, and life everywhere more pain free, comfortable, and cheerful? Why should not all children be taught more about the intellectual achievements of modern man which have lifted him so completely out of everything ancient and medieval? The value of a knowledge of political history is not denied. But wherein lie the

importance and influence of the study of ancient history, in power of knowledge or character-building, as compared with the victories of science over malaria, smallpox, yellow fever, cholera, typhus, typhoid, hookworm, diphtheria, tuberculosis, bubonic plague, and other armies of infectious foes which formerly devastated families and nations at will, but are now entirely subjected to the desire of the people?

There are no tales in history, sacred or profane, more fascinating and more worthy of emulation to child or adult than the lives of the heroes of science who labored under many failures and discouragements, personal sacrifice and misery. In the struggle some of them lost their lives, but they died triumphant in the knowledge that all posterity would forever be free from the plague for which they had been the atonement. Why should not every child have before him the ennobling example of those who thus toiled and fought, not for wealth or personal glory, but for the truth and the good of fellow-men? The facts of medical progress which have been alluded to, and their influence in the molding of present and future history should not be mentioned at medical meetings only, but should be placed in the great human perspective to which they are entitled. They should be displayed again and again in order that the public may know and appreciate its debt to science. This would change the present apathetic attitude to one of interest and encouragement to future scientific work and progress.

RECOMMENDATIONS

On a recent visit to the headquarters of the American Medical Association the question was asked whether there might be some special recommendations for the attention of our Association. It was in part because of the keen interest shown at these headquarters in favor of the movement for popular medical education, that many of my previous paragraphs were prepared.

It was further desired that we renew our attention to the duties of the councilors. Our constitution provides that, among other duties, "each councilor shall * * * visit each county in his district * * * for the purpose * * * of improving and increasing the zeal of the county societies and their members." You will note from this that an effort is made to have us all take our membership in the Association more seriously, if possible, than we have in the past.

To "improve and increase the zeal" of dormant members in dormant medical societies is a big job, requiring much judgment and tact. This should be kept in mind at all elections, for the Council should be the high-power dynamo to impel activities in all branches of the Association.

The American Medical Association and its component societies are scientific bodies with chosen or elected membership. There is a belief with many of us that we have been overly anxious to enlarge the membership. It would seem desirable that other qualifications than the mere possession of a license to practice be considered requisite to membership. The growth of a tree is not favored by dead branches. It grows best when all limbs are live ones.

Benjamin Franklin once stated that "He is the best doctor who knows the worthlessness of most medicines." One of the leading drug manufacturers in this country stated not long ago that certain proprietary preparations were not sold to "the more prominent members of the profession," but he bragged about his large business with "the other kind of doctors." If we were to believe the advertisements sent out by the numerous drug manufacturing concerns, all manners of sure cures can now be expected from an infinite variety of sera, endocrines, glandular abstracts, et cetera. The wise physician will refuse to experiment with any of them until their true values have been determined by disinterested scientific investigation. Fortunately, we have now a very active department of the American Medical Association whose duty it is to inform us whenever a new method of diagnosis or of treatment is presented to us. We should make use of the resources of the A. M. A. It is we, the members of the North Dakota Medical Association—we, the individual members of our county societies, who are, or is, the A. M. A. We have for many years paid out money to keep the national organization going. We are therefore entitled to the information offered by the various departments of research and scientific investigation which are conducted for our use and for the ultimate and incalculable benefit of our patients.

The *Journal of the American Medical Association* publishes weekly the results from the research department. Among many other articles of similar purport, several have been printed in the past year exposing the ridiculous worthlessness of a pseudoscientific contrivance devised by one Dr. Abrams of California. No

subscriber to the *Journal* can therefore plead ignorance on this or kindred topics.

Our attention has been called to the fact, also, that several state societies have summarily expelled from membership every physician who has sold his medical birthright for the pot of porridge offered by said Dr. Abrams. It is no longer necessary for us to discuss merits or demerits of his so called "Oscilloclast." It is for the censors to judge in each instance the moral obliquity of its possessor.

All proposed medical legislation should be brought up before the State Association and after receiving its sanction, the committee on legislation should then be expected to bring it before the legislature. Individual members of the State Association and separate component societies have in the past, from time to time, introduced or attempted to introduce medical bills. This is a bad practice which nearly always leads to misunderstanding between physicians, places the medical profession in an undignified position before the legislators, and causes loss in prestige before the public. To obviate this in the future it is advisable that any member, or members, who may desire medical measures placed before the legislature, first present their recommendations to the State Medical Association for discussion. Neither officers of the Association, nor legislative committees, should be expected to urge legislation which has not been decided on by the society as a whole. It would be highly desirable if each local society would appoint its own legislative committee, not only to favor proper legislation, but also for the purpose of opposing objectionable bills. The membership of such committees should be chosen with a view to the high professional and social standing in the community, and such other considerations as would insure proper attention from legislators. The state committee could through the local committees work much more effectively, than under present conditions.

However, it is earnestly hoped that medical laws recommended by this Association in the future will be few and far between. We as physicians have been too active trying to pass laws for the protection of the public. Not only have our motives often been misunderstood, but the people, because of our continued activities in their behalf, have lost all sense of their own responsibility in these matters. Why should we always be expected to inaugurate and enforce

quarantine and other sanitary regulations? And when we do it we are usually, and roundly, criticized as if it were in our interest that we try to prevent the spread of contagious disease. Why not let the state government, duly elected by the people, work out their own plans of protection against communicable diseases, carry out the examination and licensing of physicians, etc.? While we are not guardians of health any more than lawyers are guardians of property, we should naturally be ready to advise and to help, if requested by proper authority. It is recommended that you think these matters over, not for immediate action, but because they may come up again at some future date.

MEDICAL RESERVE CORPS

I cannot refrain from referring for a moment to the relation of our North Dakota medical men to the national government for the purpose of military defense. During the recent war the doctors of our state evinced their patriotism and readiness to serve the country in an exemplary manner. Our state stood for a long time in an enviable position near the top, with respect to the percentage of doctors in the service. Since the war this readiness to serve has been marked chiefly by its absence. At the present time our percentage in the Medical Officers Reserve Corps stands lamentably near the bottom. A number of former officers have neglected, or declined, to apply for commissions in the new reserve corps and young men and new arrivals in the state are following their example. Through the new policy of the War Department the whole country is now organized for military defense on a new and very practical plan. It involves a classification of medical officers and their assignment to that branch of service for which they are specially fitted or for which they express a desire. This will obviate the many difficulties and misunderstandings which took place in the late war. As an example, it may be stated that commanding officers of nearly all medical units will be reserve corps men.

In this plan certain medical organizations are listed from North Dakota. Among other units for service at the front, a certain large medical organization has been divided between North and South Dakota. North Dakota was to supply

about one-half the officers and South Dakota the other half. It was noted with much humiliation that, while South Dakota had no difficulty in filling her quota, the War Department is still waiting for North Dakota doctors to join the Reserve Corps for the benefit of their own medical units and for the reputation of the state. There can be but little doubt that our doctors would again come to the support of the flag when the occasion comes for immediate service. There is no doubt that the occasion will come. No sane person can believe that a call to arms will not come again. Everything in history—everything in the restless, envious, competing, commercialized world to-day, bids for future war. Only the coward, the blind, and the vicious, in their foolish dreams, can see perpetual peace between nations. The medical positions are now being filled for the next emergency, and those who wait until war is declared will find themselves outranked from the start, and they will be compelled to accept subordinate positions at the bottom of the scale.

Many of the statements now presented might be taken as undeservedly harsh criticisms and convey an idea that our Association contains nothing praiseworthy, but is full of defects and shortcomings. It should be distinctly understood that such is not the case. If we were to sing our own praises for what we have accomplished, we should add nothing to our growth, but quite the contrary. Friendly criticism alone is constructive, and is in this instance an honest effort to seek out our weak points, in order that we may overcome and remedy them. We must contemplate our imperfections more seriously than our perfections and in humbleness of mind do our part in the slow, but, nevertheless, constantly progressing, march of medical achievements. While it is fitting that we remain humble, we need by no means feel discouraged. We should find much cheer and even enthusiasm in the fact that we are the representatives of the greatest constructive movement in the history of man. Sometimes there may be a slight halt in the progress of construction, sometimes even an apparent backset, but the truth remains that, as time passes, one disease after another is shorn of its former laurels, and stethoscope, microscope, and scalpel, hitting and missing, in their daily battles with death, show year by year a better and better score.

BLOOD GROUPING*

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The increasing frequency of blood transfusions with the extreme danger of the immediate death of the recipient, if blood is given from a donor of an incompatible blood group, necessitates careful blood examination before such an operation. The purpose of this paper is to review, briefly, our knowledge of blood groups, describe the technic of grouping, and report the results of the grouping of 816 white individuals.

Landsteiner first observed that serum from one individual would agglutinate the red cells of others. This is called "isohemagglutination." Jansky and, later, Moss showed that people could be divided into four groups according to the way their bloods interagglutinates. The substance present in the serum which causes agglutination of the corpuscles is called "agglutinin." The power of the cells which causes them to be agglutinated is called "agglutigen."

Moss postulated the presence of three agglutinins and three agglutinogens, but the work of Koeckert and numerous others has shown that this is incorrect. So far only two agglutinins and two agglutinogens have been demonstrated. Under the classification of Moss people are divided into four groups. Group I contains no agglutinins in the serum and will not agglutinate cells of any blood. The cells contain both agglutinogens A and B and are, therefore, clumped by serum from Groups II, III, and IV. Group II serum contains agglutinin A and the cells contain agglutigen B and, therefore, Group II serum will clump cells from Groups I and III and the cells of Group II will be clumped by III and IV serum. Group III serum contains agglutinin B and will clump cells of Groups I and II. While the cells of Group III contain agglutigen A and are clumped by serum of Groups II and IV. Group IV serum contain agglutinins A and B and clump the cells of all other groups. The cells of Group IV contain no agglutinogens and are not clumped by serum from any of the other groups.

The following chart shows the characteristics

of the serum and cells of each of the four groups following the classification of Moss.

	Cells				
Serum	I	II	III	IV	
I	0	0	0	0	
II	+	0	+	0	+ agglutination
III	+	+	0	0	0 no agglutination
IV	+	+	+	0	

The classification of Jansky is the same as that of Moss except that Moss Group IV is Jansky Group I and vice versa, Jansky IV is Moss I. The Jansky classification has been recommended for adoption by the American Association of Immunologists because of priority. I believe that it is used more abroad and that the Moss classification is more in use in the United States. The Moss classification is the one I have used.

An argument in favor of the Moss classification is that we know which Groups are II and which III because we have type material in this country. Jansky's system was developed abroad, and I do not know whether Jansky Group II is the same as Moss Group II or not. Karsner states that according to the Jansky classification the incidence of Groups II and III is, respectively, 10.36 per cent and 41.38 per cent, while Ottenberg, using the Jansky classification, gives 40 per cent as Group II and 12.15 per cent as Group III. These figures are quite at variance. Is the agglutinin A of the Jansky classification the same as the agglutinin A of the Moss classification? Having the individuals on which the Moss classification was based still in this country it seems logical that it should be retained as the basis of our work unless the original material of Jansky is available.

Isohemagglutination is a biological character inherited according to Mendel's law, as has been shown by von Dungern and Hirschfeld and Ottenberg. The ratio of the individuals having agglutinin A to those having agglutinin B seems to be a racial characteristic. For example, in African negroes Group II was 22.6 per cent and Group III (agglutinin B) was 29.2 per cent. In the United States the white race showed about 43 per cent Group II and 7 per cent Group III, but the American negro shows 26.9 per cent Group II and 18.4 per cent Group III,

*Presented at the forty-second annual meeting of the South Dakota State Medical Association, Watertown, S. D., May 23 and 24, 1923.

showing a tendency of the blood groups among the American negro to approach that of the white race, and Lewis and Henderson advance this fact as additional proof of the admixture of white blood into the American negro.

It has been shown that the blood of only about 10 per cent of infants contains agglutinins. The infant gradually develops agglutinins in the serum and at two to four years reaches the adult average. About 25 per cent of infants have agglutinogens in the red cells, but they develop more rapidly than agglutinins being complete at about six months.

A difference in the blood groups of the mother and fetus has been recently advanced as a cause of eclampsia. Leakage of fetal red cells into the maternal blood stream, with clumping and formation of thrombi in the liver, has been thought to be the mechanism by which the toxemia is produced.

The presence of additional groups has been postulated by some writers because of failure of agglutination reactions, or reactions occurring after transfusions from individuals of the same groups. I have never found a blood which could not be grouped. The causes for reactions following transfusions are so many, varied, and difficult to avoid that evidence from this source, in my opinion, is lacking in weight. These transfusional reactions are of two types: one, immediate, often fatal, and due to embolism by transfusing from an incompatible donor; and the other is delayed, of varying severity, and resembling the protein shock reaction which can be produced experimentally in many ways. The dangers of transfusion from an incompatible donor are embolism with subsequent thrombosis, and hemolysis. Hemolysis is negligible because it never occurs in the absence of agglutination of the introduced cells, so, if we determine that the serum of a recipient does not clump the cells of the proposed donor, we can safely proceed with a transfusion. This is the direct method and does not determine the blood groups and can be used in an emergency. The individuals may not be in the same groups. Our procedure prior to transfusions is to determine the blood group of both recipient and donor and use only donors of the same blood groups as the recipient.

Levine and Segall say that there is danger in doing transfusions within twenty-four hours of prolonged ether anesthesia. They cite three cases in which the patients' serum taken immediately following an ether anesthesia caused ag-

glutination of a previously selected donor. After twenty-four hours the reaction did not occur.

Huek and Peyton carefully checked Levine and Segall's work, and in all the patients they examined after ether anesthesia there was no change in the blood groups. They state that they had never seen untoward results follow transfusions done following prolonged ether anesthesia.

Ottenberg and Buchanan carried on a rather acrimonious controversy in the *Jour. of the A. M. A.*, regarding the value of blood grouping as a means of determining the illegitimacy of a child.

Ottenberg's table of prediction of remaining parent group is inserted here. This is according to Jansky's classification. This procedure of determination of parentage has not yet been subject to review by the courts. It has not received the publicity of our eminent seer, Dr. Abrams.

Known children in group	One parent known to be in group	The other parent must be in group
II	I	II or IV
II	III	II or IV
III	I	III or IV
III	II	III or IV
IV	I	IV
IV	II	III or IV
IV	III	II or IV
II and III	I	IV
II and III	II	III or IV
II and III	III	II or IV
II and IV	I	IV
II and IV	II	III or IV
II and IV	III	II or IV
III and IV	I	IV
III and IV	II	III or IV
III and IV	III	II or IV
II, III and IV	I	IV
II, III and IV	II	III or IV
II, III and IV	III	II or IV

The Brem method makes use of cells of known groups, while the Moss method uses serum of known groups. I have used the Moss method entirely as it is easier to keep known sera on hand than known cells.

TECHNIC

As I group all blood on which I do Wassermann tests it is easy to keep fresh serums on hand. They are preserved by the addition of a drop of chloroform and kept in the ice box. I have found chloroform to be the best preservative.

The technic of grouping that I have used is

the open-slide method. A drop of known group serum is placed on a slide, and a small quantity of suspension of red cells of the individual to be grouped is added and thoroughly mixed.

For the red cell suspension two or three drops of blood from an ear puncture are taken in 2 c.c. normal salt containing 0.5 per cent of sodium citrate. Ordinary cheap wooden tooth-picks are used for handling the cell suspensions and capillary pipettes for handling the serums. Place one small drop of IV and III and II serum on a glass slide and add a small amount of red cell suspension to each, using a fresh toothpick for each serum. Tilt the slide back and forth several times to mix the cells into the serum. After standing two minutes stir each drop of cells and serum mixture with a clean toothpick. Agglutination is distinct and readily seen with the unaided eye. If the red cells are from an individual in Group IV there will not be agglutination in any of the sera. If in Group I agglutination will occur in all three sera. If in Group II the cells will be clumped by IV and III serums, and if in group III they will be agglutinated by IV and II serums. The use of a Group IV serum is an additional check for it clumps all cells except Group IV, which is called the universal donor. Group I is called the universal recipient, as its serum does not agglutinate any cells.

The amount of agglutinins varies in different serums, and occasionally the reaction is slow. The serums and blood must be thoroughly mixed to avoid false negatives. This must be especially emphasized. Rouleaux formation is occasionally confusing, as it simulates clumping, but observation under the microscope will readily differentiate it from true clumping.

I have examined serums repeatedly and have never found any change in the blood group. The addition of ether, chloroform, thymol, phenol, or cresol does not cause any change in the agglutinins of the serum. Patients under treatment for syphilis have been repeatedly typed, and the blood group has remained constant, no matter what the Wassermann reaction was.

I have grouped 816 individuals, among whom Scandinavians predominate. There are no dark Mediterraneans among them and no negroes.

The following table partly taken from Lewis and Henderson's article and including my own percentages shows the distribution of blood groups:

	I	II	III	IV	No. of persons
Moss	10%	40%	7%	43%	100 ?
Sanford	5.09	12.42	8.80	43.69	913 mixed
Culpepper and					
Ableson	5.18	35.06	14.28	44.48	5,000 mixed
Gregory	2.69	10.31	9.55	47.42	816 white
Lewis and					
Henderson	5.5	26.9	18.4	49	270 negro
H. & L. Hirschfeld	5	22.6	29.2	43.2	500 African negro
H. & L. Hirschfeld	3	43.4	7.2	46.4	500 white Eng'd

My percentage of 2.69 for Group I closely approximates that found by the Hirschfelds in 500 whites in England. This may be due to the predominance of the Nordic race among those I have grouped. The high percentage of Group III showed by Culpepper and Ableson is probably due to the grouping of negroes.

According to Lewis and Henderson the Hirschfelds state that the ratio of the prevalence of agglutinin A to agglutinin B is expressed as a biochemical race index. This race index varies greatly for different races. For European peoples it varies from 4.5 to 2.5, and for Asio-African peoples it is 1 or less. For the African negro it is 0.77. In my series I find the race index to be 4.2. The race index of Culpepper and Ableson's 5,000 groupings is 2.4, showing the effect of including the negroes. My series were all white, and the Nordic strain predominated.

CONCLUSIONS

The blood grouping of 816 white persons of Nordic race by Moss's method is reported.

The percentage of the various groups closely approximates those obtained by the Hirschfelds for whites in England.

The percentages of the various blood groups bears a relationship to the race of the individuals grouped.

The race index of 816 individuals of Nordic race is 4.2.

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DISCUSSION

DR. M. A. STERN (Sioux Falls): I think the Doctor gave a very comprehensive paper, and I wish that I were able to discuss the technical part of it, but confess that I am unable to do so. However, I think the subject is well worthy of discussion.

Disregarding the more technical part of the paper I wish to say a few words about the importance of blood transfusion as a general therapeutic pro-

cedure. I think we do not use this often enough. Generally speaking, no case should be submitted to surgery without a blood transfusion in which the hemoglobin is under 40 per cent. That includes everything except something very urgent, indeed. If the hemoglobin is under 40 per cent, give a blood transfusion.

The Doctor gave the grouping I, II, III, and IV. If this grouping is not correct the blood transfusion holds the possibility of sudden death; therefore it is a procedure that holds the possibility of disaster unless it is done properly. We are accustomed to keep a list of Group IV donors. They are universal donors. You can transfuse anybody from this group, and if you keep a list of, say, eight such donors they can be telephoned to and prepared on short notice.

It has been found by the men who have done skin grafting by the Thiersch method that it is impossible to say what skin grafting will live and what will not, although the technic has been just the same, and it has been discovered that one should group these patients and, when possible when grafting one patient's skin to another, have them in the same group, and the graft will live. If you graft from Group II to Group III, for instance, the graft will probably not live. The laws in skin grafting are practically the same as in transfusion.

DR. R. S. WESTABY (Madison): It seems to me that the paper is a timely one and the subject is one that is worthy of consideration by the general men; and, I think, we are all of that class. I have been interested in the subject for a considerable time and find that the reason we possibly neglect this important therapeutic agent is because we are rather afraid of a sudden death resulting because of getting the wrong donor. It so happens that this technical procedure scares all of us because it seems a hard matter, but, after one has studied it for a while, it seems very easy indeed.

Now it occurred in my practice recently that I was out of serums II and III, and had a patient that required immediate transfusion, but I did not have the II and III available. There is not any great difficulty for one who understands this to get a donor whose blood will blend with that of the patient. This is the technic: You take a drop of the serum of the patient, place it on a cover glass, and then take a small amount of the undiluted blood from the prospective donor and mix them together on the slide. Tilt the slide up and down

for a few moments, and if the donor is of the same group as the patient, or if he belongs to Group IV, his blood will blend. I have tried this out since discovering it in every case of typing, and have found that it worked perfectly. You can see it with the naked eye. I also spoke of it to some surgeons on the way to South America and explained to them this way of grouping without a microscope and convinced them. You cannot tell what group it is, but you know it is of the same group as the patient's blood.

I might also say that the sodium-citrate method can become a valuable aid to any physician who will take the trouble to work up the technic. This sodium-citrate method, you may be interested to know, was originated by a South American physician, whose name I do not recall, so we are indebted to the South Americans for this valuable method of transfusion, which is almost universally employed.

DR. GREGORY (closing): I wish to thank the gentlemen for their discussion. I did not take up particularly the different methods of transfusion. The paper was more a study of the different blood groupings, but I wish to thank Dr. Isaacs for bringing out the fact that before skin grafting any individual one should determine that the donor is of the same group for then the percentage of success will be much higher. If you graft an individual from Groups II and III you will not get a take because the conditions will not be right.

I brought out, but did not emphasize, the fact that you do not need to group anyone to do a transfusion. The fundamental point is that the red cell of the donor must not be agglutinated by the serum of the recipient. You must get the same group.

There is one point that should be emphasized. You should not graft any individual promiscuously without doing a Wassermann test. I wish to call this to your attention, for I remember reading an article by Stokes in which he stated that several patients had been transfused from donors with syphilis. Evidently, they just took John because he was handy and transfused the patient, and the same thing applies to grafts.

I know of one case of sudden death from transfusion. This was due to an error, using a weak Group III serum. That is one reason why I use a Group IV serum, as well as II and III. The trouble with Group III is that the agglutinins are frequently weak, and by using Group IV we have a double check on the case, which is important.

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MINNESOTA STATE FAIR HEALTH EXHIBIT

Among the exhibits which are, or should be, of interest to all physicians is the exhibit of the Public Health Department at the Minnesota State Fair, September 1 to 8, inclusive. Among the exhibits will be the cancer exhibit which was shown at San Francisco and which is under the direction of the American Society for Cancer Control. Pneumonia Prevention exhibit prepared by the Minneapolis Health Department will show what Dr. Harrington and his associates have been able to accomplish. Certainly all of these various health measures should attract the attention, not only of physicians, but of the public, for whom they are intended.

An exhibit which will stimulate one's curiosity is the Posture Contest for children. It is conducted by a man from the famous Goldthwait Clinic of Boston, and is under the supervision of the Northwestern Pediatrics Society. The subject of infant care and child hygiene will be of great interest to those who come from the smaller places where organizations of that kind are being founded.

Then, too, the members of the medical organizations, the dental societies, and the nursing and volunteer health organizations of the state will all be represented in one way or another.

This is the kind of work that is done to instruct the people in what is scientific, and really has some foundation rather than to have them misunderstand the efforts of doctors. It is also an effort to combat the work of the advertising quack and the unethical practitioner who prey upon the credulity of the people and particularly upon their ignorance of medical terms.

As has been said many times in this journal, the doctors are aloof; they are afraid to push the plain facts of medicine forward and to explain to the people in plain language what medical men and their associations stand for. It does no good to abuse the various cults that are in existence because it only gives them a little more advertising, and does the medical men no service; consequently it should be the aim of all those interested in medical subjects to do the best work that they can possibly do and to announce it by instructing the people as to why it is done and what good may come from it. This is a big undertaking, and it will be some time before quack medicine or irregular medicine is subdued.

We very rarely hear of M. Coué, and yet it was only last winter that he was here and stirred the people to their depths. Everyone was talking about him and his work, and now something else has taken its place, and the people very generally have forgotten that such a man existed. So it will be with irregular medicine if the medical men do their utmost to advance scientific medicine and to make it a subject understandable to the people.

A professor in the University of Chicago has recently re-written the Bible from the original Greek into understandable English, and he even is so simple in his statements that he uses commonplace terms. Medical men must do the same thing, and do it equally well.

THE AMERICAN PROCTOLOGIC SOCIETY

Just before the meeting of the American Medical Association in San Francisco this eminent body of specialists met in Los Angeles. There were not less than fifty noted physicians and surgeons from all parts of the United States present. After they had finished studying the end of the world, and had blown off a sufficient amount of hot air, they made it their business to visit the film studios and be photographed, deponent does not say in what position, but judging from the description there was a uni-

form scale from which a composite picture was to be made, and the reader may draw his own conclusions.

This visit to the film studios grew out of a conversation with Marshall Neilan, picture producer, in which the surgeons criticised the way in which their profession had been represented on the screen. Just why this particular class of surgeons should feel called upon to criticise the actions of actors or actresses, and why they should be especially interested in the subject, has been a query in the mind of the editor, but, evidently, they had some end in view, but whether it applied to the actor or the actress no man knows.

Most of these men, regardless of their specialty, are good-looking fellows, and they know a good thing when they see it; perhaps that is why they were a self-chosen group of critics. It is to be hoped that their opportunities afforded them a splendid field to advance their own special branch of surgery, as well as to uphold surgeons in neighboring fields. Evidently from the accounts in the newspapers they had a perfectly good time out in Hollywood, and it is quite probable that the presentation of "Hollywood" at one of our picture houses showed the public the results of some of their criticisms.

OUR SELF-APPOINTED ADVISORS

In all walks of life covering the great industries of the country, all political organizations, and every angle of professional life, some man or body of men is ready to become an advisor. The curious part of this self-appointed individual is that he not infrequently knows nothing about the industry or the profession which he criticises; he is full of suggestions that are based upon theory, but which rarely have a constructive note. He can pull down with the vigor of a wrecking crew, but he cannot construct any kind of foundation that will support a wall.

The men who have theories that they have gleaned from reading, but which they have not worked out, feel that they can run the railroads, and particularly the government of a country, in a much better way than is being done at the present time. To be sure, this is more or less class separation, and it is undoubtedly true that the organizer in whatever field he may be engaged can convert to his way of thinking the man of lesser intelligence, and can thus stir up a mass of people and lead them into fields and premises unknown and uninvestigated.

At the present time there is a large class who believe in government or municipal ownership, and who have tested out their ideas in various situations; but, somehow, the idea and the practical working of it do not co-ordinate themselves, and the explanation that the theorist gives is that these things must be tried out for years before they can fall into their proper adjustment. In the trying out of the theories huge and enormous expense is entailed.

Mr. Job E. Hedges, receiver for the New York Surface Lines, said recently in Minneapolis that most of these people argue politically on a purely economical question. He admits that academically the idea is a perfectly good one, but practically it comes right down to the question of whether a group of technically unskilled men can run an intricate business requiring experience and knowledge of every phase of the subject better than one or two men picked for their proven ability in that particular line regardless of any consideration, political or sentimental. He further says that the great mass of the people do not want the facts and that most of our troubles are the result of scandals years ago. Undoubtedly, years ago when Big Business was getting on its feet they overdid it and had to reconstruct their organizations, and when the reconstruction came they had had the experience and they were able to produce a working industry, consequently the idealist thinks he can put things over in the same way by upsetting proper methods and advancing his ideas, which are commonly impracticable.

This holds good in the professions of medicine and law, as well as in other professions where academic ideas sway the people and, sometimes the profession for a time, until they become more sober-minded and less individualistic; that is to say, the people are carried away by mob rule or over-enthusiasm, and when they see the error of their way in the mistakes that confront them they sober down again. Many a business and profession have been wrecked by this sort of high-mindedness, as they virtuously believe it to be.

The whole situation is simply one of the racial symptoms which crops out at intervals of years or centuries, and which, for the time being, stops all progress until someone arises who is a real leader, a real thinker and sincere in his efforts.

The medical man has his problem before him. He has been all through the experimental stage

in medicine and yet is striving to get at the foundation of an idea, and he is much the same as the average group of individuals, led away and sometimes led astray by his impulsiveness. The safe course seems to be a conservative one, and, based upon scientific methods, carried to a conclusion after due deliberation, and eventually arriving at a firm basis of which facts are the support. We physicians, of course, get a great deal of advice from the laity, and from the press. We are criticised until it becomes amusing rather than annoying. If the medical profession could tell its experiences with this same class of people who constitute themselves advisors and who eventually fall sick, the facts, if they could be published, would cause a revulsion of feeling, doctors would be upheld, and the unscientific methods of caring for the public health would be discarded. In the meantime we shall have to work honestly in the spirit of humanitarianism and with all the dignity we can command. In other words, we may be as mistaken as the ones we criticise.

NEWS ITEMS

The Elk River Hospital, Elk River, was opened last month with a public reception. The hospital has twelve beds, and is well equipped.

Dr. Walter E. Camp, of Minneapolis, is in Europe and will return the middle of November. He will spend most of his time in Vienna.

Dr. M. H. Tibbetts, of Duluth, was married last month to Miss Mary McGonagle, also of Duluth.

The Swedish Lutheran Church, through its Red River Valley Conference, has undertaken to get support for building a hospital at Alexandria.

The corner-stone of the large addition to St. Luke's Hospital of Duluth was laid by the Masons last month with very elaborate ceremonies.

Dr. A. Elliott Vik, a 1921 graduate of the Medical School of the University of Minnesota, has located at Winthrop after having practiced a short time at Big Lake.

Dr. Olga Hansen, of Minneapolis, has just returned to her office from her vacation trip of three months in Europe. She visited clinics in England, Denmark, and Norway.

Dr. W. F. Bleifuss, health officer of Rochester, has condemned the jail of that city as unfit for human habitation. Why not refer it to the Mayo Clinic nearby for amputation?

A 60-bed hospital will be maintained at the Minnesota State Fair Grounds for the next eight days. Two graduate physicians and a graduate nurse will be in charge of the hospital.

Dr. R. G. Willy has sold his practice at Kimball, S. D., and is now doing postgraduate work in Boston. Next month he will go to Mitchell, S. D., and become associated with Dr. E. W. Jones, of that city.

The City of St. Peter has again taken up the subject of a community hospital for the city and county. A committee, of which Dr. Fred P. Strathern is a member, has been appointed to report a plan for building a hospital.

The midsummer meeting of the Upper Mississippi Valley Medical Society was held in International Falls last month. Drs. E. Klaveness, of Minneapolis, and M. A. Shillington, of St. Paul, presented papers at the meeting.

The Division of Preventable Diseases of the State Board of Health of South Dakota, has issued a stirring appeal to parents to take special pains in the health care of their children as they enter school after the summer vacation.

Dr. William H. Mitchell, who had practiced in Minneapolis for nearly fifty years and who recently moved to Rochester, N. Y., died last month at the age of 78. Dr. Mitchell was a graduate of Bellevue, and was a pioneer physician in Minneapolis.

Dr. J. J. Gelz, formerly of Richmond, who has recently returned from a year's work in Vienna, has located in St. Cloud to specialize in eye, ear, nose, and throat work. Dr. Gelz graduated from the Medical School of the University of Minnesota, class '09.

Dr. John E. Mannion, of Ponca, Neb., has located in Kimball, S. D., where he succeeds Dr. R. G. Willy. Dr. Mannion graduated from Creighton in the class of '20, and has been doing postgraduate work in children's diseases in Washington, D. C., for several months.

The Watertown (S. D.) District Medical Society held its midsummer meeting at the Country Club of Watertown last month, with a good attendance, including a number of visiting physicians. Dr. M. S. Henderson and F. M. Gaarde, of the Mayo Clinic, presented papers.

On Tuesday, September 4, Dr. William C. White, of the Pittsburgh Tuberculosis League, will speak before the staff of the Lymanhurst School for Tuberculous Children and the Park-view Sanatorium in Minneapolis. Dr. White is a man of international reputation in tuberculosis work and is chairman of the Research Committee of the National Tuberculosis Association. The meeting will be held in the Lymanhurst School, 1800 Chicago Avenue, at 8 P. M. All physicians and other persons interested in this work are cordially invited.

The Midway District between Minneapolis and St. Paul, which contains nearly 75,000 people and constitutes a great business, manufacturing, and residential center, will soon build a million dollar hospital to meet the urgent needs of this populous center. The people of Midway are engaged in a campaign to raise one-third of this amount, and the Baptists of the Northwest will provide two-thirds of the amount. The success of the undertaking is assured by the men in Midway and in the Baptist denomination who have the campaign in hand.

Internist Wanted in a North Dakota Clinic

A capable internist with knowledge of fluoroscopy and x-ray interpretation to buy a third interest in a small group practice established four years. You buy only your share of office equipment and modern x-ray equipment at invoice price of about \$2,500. Will sell only to a high-grade man with good references as to ability and integrity. Present incumbent leaves January first. Location in one of the most progressive North Dakota cities of 5,000 population with modern hospital and other advantages. Present group holds many very desirable appointments. Excellent opportunity to fall into a big practice in internal medicine with a large office and hospital clientele that will yield more than a good living income the first year. Detailed business statement will be furnished on application. Address 365, care of this office.

Practice for Sale

On account of poor health I will sell my well-established practice in a Minnesota town of 1,100; have office and small hospital in same building. Expect successor to buy or rent my residence. Address 373, care of this office.

A Specialist Wants Association in a Clinic

An eye, ear, nose, and throat specialist, who has been limiting his practice strictly for the past ten years, seeks association in a group of other specialists, or in a suite where referred work will be reciprocated. Strictly ethical, member of A. M. A., the Minnesota State Association, the Hennepin County Society, and the Minnesota Academy of Ophthalmology and Oto-Laryngology. Address 369, care of this office.

Eye, Ear, Nose, and Throat Practice for Sale

In the best location in Minneapolis (Sixth and Nicollet). Fine class of people. Practice can easily be doubled. Price \$600.00. Address 370, care of this office.

Hospital Equipment for Sale

Almost new hospital equipment; eight white enamel beds, two with back rests, complete; dressers, chairs, and rockers; dressing tables; hospital-size sterilizer; electric instrument sterilizer; army stretcher; bed-side tables; irrigator stand; practically new Wappler X-Ray outfit. Address 372, care of this office.

North Dakota Practice for Sale

An unopposed \$10,000 a year, general practice, in prosperous farming community; good churches, high school, and drug store. I wish to sell my practice and office equipment. Can do surgery. Will give satisfactory terms. Shall specialize. Address 375, care of this office.

Physician Wanted

Physician to locate in one of the best German-speaking communities in Minnesota, where money can be made right from the start. Absolutely nothing to sell. Address 371, care of this office.

Work By Male Nurse Wanted

Doctors having paralytic cases or patients in need of care after suprapubic operations where a man nurse is preferable can obtain the services of a registered and highly recommended man nurse by calling Colfax 6532 or writing P. O. Box 718, Minneapolis.

Location In Minnesota or Wisconsin Wanted

A 1910 graduate desires a location in Minnesota or Wisconsin. Can invest some money and will pay any physician who helps him find a good location. Address 377, care of this office.

Laboratory Technician Wants Position

A thoroughly competent laboratory technician with the best of recommendations and considerable experience, now employed in hospital work, desires a position in or near the Twin Cities. Address 378, care of this office.

Minnesota Drug Store For Sale

Small investment, low price for quick sale. Low expense. No opposition; good territory. A splendid deal for a doctor. Part cash down, balance on terms. Address W. C. Dieterich, Hanley Falls, Minn.

Microscope For Sale

A Bausch and Lomb F. F. H. 8, as good as new. Will sell for \$100.00, which is \$37.50 below the dealer's price. Address C. A. Butler, M.D., Lake Preston, South Dakota.

Office Position Wanted

A young woman with a year and a half hospital training in a Minneapolis hospital, desires office position with physician or dentist at very moderate wages. Address 381, care of this office.

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MALIGNANT DISEASE OF THE LYMPH NODES*

By S. M. HOHF, M.D., F.A.C.S.

YANKTON, SOUTH DAKOTA

This paper deals with the report of a case of malignant disease of the lymph nodes and a review of a portion of the literature on the subject up to April, 1923.

History: H. W. P., male, aged 33, married, family consisting of wife and five children, all living and well; occupation, a farmer; habits, negative in every respect. The patient's own immediate family, consisting of father, mother, three brothers, and two sisters, are all living and well, except the mother, who died of heart disease, aged 58. The history of uncles and aunts on both sides of the family, so far as known, has no bearing on the case.

In April, 1922, the patient first observed a small nodular growth in the perineum over the bulb of the urethra and just a trifle to the right of the midline. When first observed by the patient, it was about the size of a navy bean, painless, and movable under the skin. This nodule grew slowly, but perceptibly during the summer during which time he consulted an osteopath, receiving from him twelve so-called treatments. As the growth developed it seemed to become more fixed in its position and hard. There was no history of trauma to the parts involved save what may be considered as a possible irritating trauma arising by virtue of his vocation. The farmer now rides and does not walk, seated upon a hard and uneven seat. This undoubtedly produces many a jolt and jar to the perineal region, while he rides over rough and uneven surfaces. This is submitted for what it may be worth without further comment.

On November 5, 1922, the patient was admitted to Sacred Heart Hospital, complaining of inability to pass his urine. The symptom of urinary obstruction first manifested itself, slight in degree,

during September, but it was progressive and appeared to increase as the perineal tumor increased in size. He had not yet been catheterized. It was about this time also that he first noted similar developing nodes first in the left inguinal region, followed a little later by several in the right. These masses were all painless and hard, and early became fixed to the underlying structures.

Physical examination: On admission, his temperature was 98°; pulse, 68; respiration, 18; weight, 175 pounds, which was his normal weight; skin and mucous membrane, normal. The pupils are equal and react equally to light; no nystagmus. Ears and nose are negative. The teeth are in fairly good condition; there are four fillings only and no pyorrhea. The tonsils are present and show no evidence of infection or enlargement; uvula and pharynx, negative. The lymph nodes of the neck, anterior and posterior, are palpable, but not enlarged on either side. Axillary and epitrochlear lymph nodes not palpable. The thorax is ample, presenting nothing unusual; respiration equal on both sides; no impairment of either lung on percussion. There are no râles and no abnormal breath sounds throughout both lungs. The mediastinum presents no abnormal dull areas, neither does the x-ray show any abnormal shadows. Heart impulse is in fifth interspace, visible and palpable, about one inch inside of nipple line; no enlargement in any direction, and the shadow is normal. Sounds are clear and distinct over apex and base.

The abdomen is moderately round and presents no irregularities. No pain is elicited anywhere on palpation; no nodular development anywhere; and there is no tenderness in any abdominal quadrant. The liver, kidneys, and spleen are not palpable. Auscultation reveals nothing. The left inguinal region presents three enlarged superficial lymph nodes parallel to and just above Poupart's ligament. The nodes vary in size from a lima bean to a hazel

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nut. They are hard and fixed to the underlying structures. They are separated and smooth. The skin is freely movable over them. They are painless. The right inguinal region presents two similar nodes, although slightly smaller in size. Just over the os pubis, under the pubic hair and slightly to the left of the midline, is another nodule about the size of a navy bean. The external inguinal rings on both sides are readily palpable and transmit definite impulse on coughing. Both testicles are normal as to size and present no abnormal irregularities whatsoever. The penis is negative. The lower extremities are negative as to edema, scars, or ulcers. The reflexes are normal. The supinator, biceps, triceps, knee and Achilles reflexes are present, but are not exaggerated or reduced. Occupying the perineum, its anterior border encroaching well upon the serotal fold and extending backward to within 1 cm. of the anal margin, a large indurated mass is found slightly deviating to the right of the raphé and firmly attached to the underlying structures. The mass is about 7 cm. in its greatest diameter, lying parallel with the urethra and 5 cm. transversally. Its surface is not smooth but irregularly nodular. It is hard and painless, and the overlying skin is freely movable. The prostate gland is not enlarged, presents no irregular or indurated areas and is not especially sensitive. Its upper pole is readily outlined. There are no hemorrhoids. There is no evidence of arteriosclerosis. The temporal, radial, and brachial arteries are readily palpable. The radial pulse is regular in rate and has good volume and tension.

Systolic B. P., 135; diastolic, 80; Wassermann examination of blood, negative; red blood corpuscles, 5,000,000; white blood corpuscles, 7,000; hemoglobin, 100 per cent; polymorphonuclear, 70; polymorphonuclear basophiles, 0.8; polymorphonuclear eosinophiles, 3 per cent; large lymphocytes, 2.5 per cent; small lymphocytes, 20 per cent.

Urinalysis shows: color, amber; reaction, acid; sp. gr., 1022; albumin, negative; sugar, negative.

Microscopic: epithelial cells only.

Diagnosis: malignant disease of the lymph nodes.

Operation: The patient was operated on November 6, 1922, for the relief of urethral obstruction. The perineal tumor was found firmly adherent to the surrounding structures lying between Colles' fascia and the superficial layer of the triangular ligament encroaching upon the bulb and compressing the urethra. The capsule was penetrated with infiltration of the surrounding tissues. While adhesions appeared dense and firm in the dissection, no serious difficulties were encountered in the complete removal of the node. The wall of the bulb upon which it lay was included in the dissection. This was immediately repaired by drawing together the remnants of the triangular ligament with the accelerator urinæ muscle over a catheter introduced through the urethra into the bladder. The catheter was fixed for continuous drainage. The other enlarged nodes were also removed and were likewise not encapsulated. The patient recovered without interruption and with relief from the urinary obstruction, returning to his home on the twenty-first day following the operation.

The subsequent course of the case is of interest in view of what followed not long thereafter. After returning to his home he immediately went about his work on the farm feeling very well. There had not been a reduction of two pounds in his weight since the beginning of his illness. His health seemed perfect, and his recovery, following the operation, rapid and apparently complete. Furthermore he saw no reason why he could not, and did, immediately go on with his work. This he was permitted to do. On February 15, 1923, he presented himself for re-examination, not on account of any physical sense of ill feeling, but because of a return of nodular growths now recurring in different regions of the body. At this examination a bead-like string of enlarged nodes was palpable, extending from the outer aspect of the old scar in the perineum, on the right side, upward to the inguinal region. Two nodes were found in the apex of Scarpa's triangle; on the left, one large node was situated deep in the left groin just beneath Poupárt's ligament; one, two inches above the right nipple, and one, over the outer angle of the right scapula. Those of the axillary and cervical regions were not yet palpably involved except in the left side of the neck, posterior, which were suspicious. The findings in the thorax were negative; no abdominal nodes were palpable. The liver was negative, and the spleen was not enlarged. It was apparent at this time that we were dealing with a generalized systemic invasion of the entire lymph system, and the case was hopeless beyond doubt. From this time on his progress to a fatal termination was rapid. He returned to his home in a distant city. From his attending physician it was learned that he continued with his work on the farm for about two weeks, the nodes rapidly enlarging with the invasion of the axillary and cervical. Emaciation and great debility supervened with thoracic pressure symptoms, dyspnea, thoracic pain, and cyanosis. The heart action became disturbed by pressure on the pneumogastric and appeared to be dislocated by great masses detected by dullness on percussion over the entire mediastinal space. Death ensued on the 18th of March, 1923.

In the pathological study of this case as in all malignant enlargements of lymph nodes, we must recall the different orders of tissue from which lymph follicles develop,—endothelium and vascular, together with the specific lymphocytes. In doing so, it becomes no simple

matter to properly differentiate and classify the various diseases making up the group whose chief characteristic is hyperplasia of lymph nodes, non-inflammatory and non-suppurative in type. This fact, undoubtedly, accounts for the confusion which arises when opposing views are expressed by different pathologists in their interpretation of the microscopic picture obtained from the same specimen.

In reviewing this case for the purpose of classification and proper diagnosis, we endeavored to interpret the clinical history, gross and microscopic findings, by a careful analysis of the following closely related, simulating diseases:

1. Hodgkin's disease (pseudoleukemia, malignant granuloma, etc.)

The shocking picture presented by the unfortunate victim, particularly of advanced Hodgkin's disease, is clear to every one, and in this picture the outstanding feature is the enlarged cervical nodes, which are prominently involved and conspicuous. These are closely followed by the other superficial chains, the axillary, mediastinal, scapular, pectoral, and not unusually the inguinal, bronchial, and lumbar. It is true that while in the early stages of Hodgkin's disease the nodes are small and movable, in the advanced cases they enlarge into great bunches, fusing together and becoming more or less fixed. The individual nodes, however, often present different degrees of hyperplastic enlargement and they also vary in consistency. The majority are soft and elastic, while some do become hard and very large; masses as large as a coconut may be seen. Again the fixation is due to fibrous investment of connective tissue and is entirely unlike that of malignant growths. We believe, with Adami, that "to speak of Hodgkin's disease as a form of malignant hyperplasia or as a lymphomatosis is wholly unjustifiable. It approaches much more closely the reaction of chronic irritation, and may be compared with keloid and regarded as an excessive overgrowth of the lymphoid stroma secondary to an, as yet, unrecognized irritant." There are also readily recognizable differences in the appearance of the cut section. The soft and apparently fluctuating nodes of Hodgkin's type, present a reddish cut surface and the more dense nodes yellowish-gray color, whereas the cut surface of the tissue from our patient was whitish and very dense, yielding a whitish fluid on scraping.

To give the microscopic picture very briefly, it may be stated that in Hodgkin's disease there

are no signs of cells bursting through the node capsule and that the prominent picture is one of connective tissue overdevelopment. Large cells of the endothelial type are seen and a relatively reduced picture in the number of lymphocytes. These are the main characteristic features.

The gross appearance of the individual subject of Hodgkin's disease evidenced by mechanical compression of the gastro-intestinal and circulatory systems, together with the physical signs of anemia, hemorrhage from the nose, and uterus in the female, and petechial spots on the lower extremities, irregular pyrexia, congestion of the lower and upper extremities with edema of arms and legs, enlargement and tenderness over the spleen, bronzing of the skin and intense pruritus, and, lastly, the age of the patient, are important differentiating factors of so-called pseudoleukemia; and this picture taken in its entirety really presented no confusing relationship with the findings of the case under discussion.

2. Chronic hyperplastic tuberculosis:

In differentiating our case, that peculiar enlargement of the lymph nodes which requires special consideration, is what is known as chronic hyperplastic tuberculosis. However, the nodes here primarily and chiefly affected are the cervical, and rarely is the disease sufficiently widespread to involve the axillary and inguinal or others of the superficial group. Again, since in practically all cases, the bacilli reach the lymph nodes through the afferent lymph channel and rarely by the blood stream, the original focus of infection from which the lymph stream becomes contaminated, may still be in evidence. This, however, is not always the case, neither is it by any means necessary. The nodes of tubercular adenitis are slow in enlarging, tardy in extending, and are less frequently seen. It should be remembered that of late, the number of reported instances of nodular tuberculosis simulating Hodgkin's disease, has been increasing greatly. Again, tubercular adenitis is more common in the young, does not as a rule involve both sides of the neck, and attacks the submaxillary more often than the cervical chain. While the nodes are hard, they are not fixed as in malignant disease, and associated with the increase in size will be noted a tenderness or sensitiveness bordering on real pain by palpation. On section the surface presents a firm grayish appearance with here and there light areas or

with consolidated dark-grayish spots.

The microscopic picture is one of endothelial proliferation, mainly of the round-cell type, although the spindle-shaped and stellated forms may be seen. (Adami¹.) They are mononuclear with abundant protoplasm, the nuclei staining a pale color. The cell proliferation is marked and appears to choke the reticular structure of the node. The cells do not penetrate the capsule in the absence of periadenitis with adhesions, which also determines their fixation to the surrounding structures, and is the result of a mixed infection. When this occurs it throws them into the inflammatory class, with different degrees of inflammatory manifestation, thus differing very materially from the malignant invasions. The tubercular bacillus has not, as yet, been isolated from the nodes, but the disease has been reproduced in the lower animal by injections of attenuated bacilli. (Duval², and Crowder³).

3. Syphilis:

It may be said, briefly, of syphilis, by way of differentiation, that the epitrochlear, axillary, cervical, and inguinal of the superficial group, are usually the first to be involved and generally in the order named. It is more widespread in the secondary stage, may persist for months, and finally end by an atrophic fibrosis of the nodes. In the third or gummatous stage, they may assume very large proportions and are susceptible to antisiphilitic treatment, under which they usually rapidly disappear. Careful consideration of the history, symptoms, and progress of the disease, with a negative Wassermann, rapidly ruled out syphilitic hyperplasia. The therapeutic test was not made.

4. Chronic lymphocytic and lymphoblastic leukemia including aleukemia:

While these are characterized by chronicity and also progressive enlargement of the lymph nodes, they are associated with a moderate degree of anemia and present a rather definite blood picture. When the history of the case, region primarily involved, and other physical characteristics of these diseases are misleading, a histological examination of the node should be made and a careful study of the blood picture not omitted in the final examination. With these before one, differentiation from a malignant growth is possible and will probably be correct.

5. Lymphosarcoma:

What has been said in regard to the confusion broadcasted by pathologists expressing different

views in the interpretation of the same picture, applies with peculiar emphasis when we attempt to differentiate and classify the primary malignant enlargements of the lymphfollicles. To indicate the histological perplexities encountered in our studies, may I be permitted to quote just a few—to the student—entangling situations?

First, "Histologically speaking lymphosarcoma is a small round cell sarcoma, originating in the proliferation of the lymph elements of the lymph nodes."—Adami.

Second, "A point of differentiation between lymphosarcoma and the hyperplasia of the lymph nodes is in the large amount of connective-tissue reticulum between the cells of the lymphosarcoma. This also aids in differentiating these tumors from the small round-cell sarcoma in which the connective-tissue reticulum is small in amount or entirely absent in portions of the growth."—F. C. Wood, Reference Hand-Book of Medical Sciences, volume 5.

Third, "The growths are classified by a reticular tissue with intercalated lymphoid cells usually of the large type."—C. H. Bunting.

Fourth, "The term lymphosarcoma is often used, but malignant lymphoma is probably better. It is applied to a rapidly growing tumor of which the active proliferating cells are of the type of cells in the lymphocyte series and are imbedded in the meshes of a delicate reticulum. The small round-cell sarcoma and probably some of the large round-cell sarcomata belong to this same heading."—F. B. Mallory, Reference Hand-Book of Medical Sciences, volume 7.

Fifth, "One particular form of round-cell sarcoma deserves special attention. This is the so-called lymphosarcoma and it is very difficult to place this tumor, for pathologists are by no means agreed as to its nature. The enlarged lymph nodes in Hodgkin's disease are by some regarded as the result of a true autonomous neoplasm, therefore termed lymphosarcoma; others think that the condition is a simple inflammatory tissue hyperplasia."—A. G. Nicholls, Montreal, American Practice of Surgery, volume 1.

Again, we find the term lymphosarcoma as formerly applied by Virchow to Hodgkin's disease practically obsolete, and it is now employed to designate a growth of lymphoid tissue, which has a greater tendency to invade surrounding structures than in Hodgkin's disease. In true sarcoma the disease is more closely confined

to local groups of nodes and it is transmitted as a rule by the blood stream. Kundrať, we believe, was the first who pointed out that the disease does not begin in a single node, but appears to break out simultaneously in a group of nodes with a tendency to fuse them together, infiltrating locally, resulting in large hard masses of new growth.

The site of predilection of lymphosarcomas is the structures in the mediastinum, which are commonly involved, and it is not infrequently noted to begin in the retroperineal and the intestines. In Kundrať's series of cases, nine were found primarily involving the cervical group, nine the mediastinum, seven the retroperitoneal, two the inguinal, and one the axillary. In eight of MacCollum's cases, five were primarily intestinal.

6. Carcinoma:

Primary carcinoma of the lymph nodes is so rare a disease that it was necessary to search the literature for a period of many years in order to obtain a few references which are listed below. Some cases of endothelioma have been mistaken for carcinoma. In 1916 Martin Benzinger, writing on primary endothelioma of the lymph nodes, says that after Waldeyer had proven the endothelial derivation of carcinoma a question remained regarding the existence of endothelial carcinoma of lymph nodes. He says that Chambard was the first to maintain the existence of a primary carcinoma of lymph nodes originated from endothelial cells, insisting that no other primary tumors could be found. While this opinion was also held by other early writers, this theory does not hold at the present time. He also states that, although its existence is admitted, endothelioma is rare.

In 1922 Ewing, in his recent "Neoplastic Diseases," has this to say, "In the lymph nodes endothelium produces solid tumors which may reach considerable dimensions. They usually involve more than one node and some become systemic; they are often mistaken for tubercular nodes at first, later for carcinoma." He further says: "In the study of a series of cases collected during a period of several years, I have drawn the conclusion that endothelioma of lymph nodes is apparently frequent in occurrence, that the tumors often arise on a basis of chronic granulomatous inflammation, that they develop from the endothelium of the lymph and cavernous sinus, and are then usually classed as secondary carcinoma, that somewhat similar tumors arise

from the reticulum cells of the lymph nodes, but usually take the form of large cell lymphosarcomas, occasionally of carcinomas, and that the characteristic clinical course and microscopic structure of the tumors constitute them specific diseases."

7. Sarcoma;

Recalling to our minds again the fact that lymphfollicles develop in more than one order of tissue, pathologists classify the malignant enlargements of lymph nodes in accordance with the structures in which they appear to originate, namely, endothelioma developing from the endothelial lining of the lymph sinuses; lymphosarcoma developing from the lymphoid cells; angioma arising from the perithelium of the vessels; and true sarcoma from the connective-tissue stroma; and that the sarcomata may be of the round-cell, spindle-cell, and alveolar type.

Dismissing for the moment the differences existing among pathologists, if we interpret the microscopic picture of our case correctly, it falls readily under the latter type. This picture shows the following characteristics: first, the basement substance is quite abundant and arranged in a wide-meshed net in which the cells lie; secondly, the spaces appear to be filled, and it is from this appearance that the term *alveolar* is applied. While they resemble the characteristic alveolar structures pictured in many of the carcinomata,—and the resemblance is very close, the cells in alveolar sarcoma often appear to cling to the intercellular substance, which penetrates by fine trabeculæ into the alveoli between the cells. In other words, the cells do not appear simply to lie in the spaces, as they do in carcinoma; third, the cells show large definitely scaling nuclei and scant cytoplasm. Most of them appear to be stellated, giving rise to cell processes appearing like minute fibrils forming definite intercellular network. Therefore, "if," as Ohlmacher says, "the fibrils seen in the cell nests of this specimen are the product of the tumor cells, we must consider the neoplasm a sarcoma." The postoperative diagnosis therefore is alveolar sarcoma.

In this case the disease primarily involved a single node and spread by direct extension to the neighboring nodes. This is contrary to our usual conception of sarcomatous invasion of lymph nodes, as has already been estimated, and also that they usually spread by producing distant foci of metastatic deposits transmitted by the blood stream. Nevertheless there were

no signs of the disease originating elsewhere, as the history indicates, from which point metastasis could possibly have spread to the perineal region, and we believe the enlarged node here was unmistakably the primary lesion of the disease.

The question naturally arose,—Would its earlier removal have completely eradicated the disease? In our present knowledge of the histogenesis, progress, and rapid termination of malignant growths of soft tissue of a sarcomatous nature, it is doubtful. We believe, however, that its earlier removal would have been more favorable and his life in all probabilities prolonged. Therefore, a more persistent propaganda of education is urged, directed to the laity, also the profession, to an earlier recognition of abnormal growths regardless of their location on the body and to reveal them when recognized; also that the employment of quackery in the treatment of suspicious growths, benign or malignant, is absolutely criminal. While the x-ray and radium offer some promise of therapeutic progress, surgery still remains our most successful weapon of attack and the complete surgical removal of tumors is possible only in the early stages of their development.

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DISCUSSION

DR. A. J. MOE (Sioux Falls): This paper brings to my mind that at one of the surgical sessions in one of the Atlantic Coast cities, Dr. Harvey Cush-

ing made his first report on the first 150 cases of brain tumor in which he had operated. The reports were not altogether encouraging. I remember that Dr. John B. Murphy, in discussing the paper, said that he admired Dr. Cushing for deserting the green fields of surgery and going into the rubbish heap of human ailments. This is certainly one of the rubbish heaps of human ailments, and I must compliment Dr. Hohf on his handling of the subject. It shows that he has studied the subject thoroughly and made a great many close observations. It would certainly be to the benefit of the people of Yankton and that district to have such a man among them. We have been taught that the microscope tells us, once for all, whether the growth is malignant or not, but I learned many years ago that you must take the pathologist's report with a grain or two of salt. So in these cases particularly, possibly if the diagnosis had been made early and the tumor removed when it was the size of a bean the patient might have been alive to-day. Unfortunately, in this question of diagnosis we know that the only possible salvation of the patient is early diagnosis. Again, unfortunately, the general practitioner who first sees the patient, as these cases occur so seldom in their practice, often slips up on the diagnosis, tells the patient to come in again, and does not make an immediate diagnosis. The patient will not always give him a chance to make a diagnosis. He slips away to the specialist, and while the general practitioner is not given a chance to make a diagnosis the specialist, on the other hand, frequently is too lazy to work out the diagnosis, and so the patient goes from pillar to post until it is too late to do anything.

The three points to remember are to make the diagnosis, to find the cause of the trouble, and to cure the trouble. Those are the three things that should interest us as physicians and surgeons.

Very little is known of the cause of cancer. All we can do is to study this question. We know a whole lot about how it acts. I do think that the cancer problem can be helped more by the general medical man who sees these patients first, if he gets thoroughly posted so that whenever a case of this kind presents itself he will be able to diagnose it, than in any other way. I would rather remove ninety-nine growths that are benign than to let one malignant case escape. Early surgery must be practiced. Not only that, but it is my opinion that when we remove one of these growths if we bury radium in the wound and leave it there sufficiently long we will get splendid results. In cases where I have not buried radium I have not had such good results.

I believe I can best conclude this discussion by telling some amusing diagnoses. The other day a young man came hobbling into my office and asked if I could cure rheumatism. I told him that depended upon the kind, and said that I would have to examine him. He said, "There is no use in examining me. I have been examined and I have rheumatism so there is no use to waste time in a further examination. I told him "all right" and that if he would stick around for a few days I would see what we could do for him. He agreed to do

this, and in the meantime told me that he had had a gonorrhoeal infection. It was not severe and cleared up in due time, but from that the doctor had drawn the conclusion that he had gonorrhoeal rheumatism. I questioned this and on looking the patient over and making an *x*-ray examination we found that about an inch and a half above the knee joint he had an osteosarcoma. That boy had received twenty-seven injections of gonorrhoeal serum and wanted more, but he had a definite case of osteosarcoma that had been going on for years.

DR. D. A. GREGORY (Sioux Falls): I think that probably we all make mistakes at times. The pathologist makes his, as many as anybody else, or possibly more, but where we have to go by experience and training it is extremely easy to make mistakes. If we have not seen many tumors of a certain type it is very easy to make mistakes.

In the case reported by Dr. Hohf, I did not hear the pathologist's report as to the type of the tumor. In tumors of the lymph glands we have three structures primarily from which the tumors arise. We do not have epitheliomas of the lymph glands because there is no tissue from which they can arise. We do have the lymphomas, and we have the endothelium lining the gland and the sinuses in which we have the endotheliomas and then we have the angioma cells in which we have the lymphosarcomas which correspond to the large cell lymphosarcomas. We have collections of lymphocytes in various places in the body. The diagnosis between a lymphangioma and a tumor of the endothelium is extremely difficult. One point is the extreme destruction and invasion of the lymphosarcoma, but the diagnosis is really extremely difficult except when one has seen a great many cases.

DR. J. P. ISAACS (Freeman): There is something about this paper that reminds me of Andy Gump—he so often says, "I told you so." The sum of the lesson here is that neither the surgeon nor the pathologist knew anything about these tumors, and they do not know anything about them until it is all over in a great many cases. We have been warned that

we general practitioners should not send these patients late but early. That is true, but what is the real substance? Dr. Moe has warned us, and not long ago I read a fine paper by Dr. Quain, of Bismarck, saying that all tumors should be removed early and that we would then have a small mortality rate from cancer. This is the lesson I want to drive home to the general practitioner, a warning that they must teach our people to take care of these cases. I know of one woman who fell and struck her breast, and she has a lump now and I would like to see that patient operated on to-day for the good of the surgeon and the medical man and everybody. She should be taught to feel that that tumor should be removed. I hope to see the day that Dr. Hohf and Dr. Gregory and their friends can tell us how to detect tumor early.

DR. HOHF (closing): I omitted the pathologist's report on the sections he examined. I had hoped to have the lantern-slide pictures of these specimens, but was unable to get them. The pathologist's report will appear in the paper when it is published and I shall try to have the pictures published with it.

One fact is that these tumors, no matter where situated, may be malignant, and any doctor who has a patient with an abnormal growth should not rest until he knows whether it is benign or malignant, and if there is any doubt about it he should take it out without delay. The propaganda of education should be driven home with no lack of intensity and interest. Men speak about the "great white plague," but that is not in it with the great plague of malignant growths. The JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION stated, in 1922, that 100,000 people of the United States died of cancer that year. The patient whose case I reported went to an osteopath and had twelve treatments, and when we saw him he was past all help. The point is early recognition of the seriousness of these cases. I have a good deal of respect for the *x*-rays and radium. They have promise, but up to the present time, gentlemen, our weapon is the knife. There is no question about that.

MYELOGENOUS LEUKEMIA: A CASE-REPORT*

By E. A. PRAY, M.D.

VALLEY CITY, NORTH DAKOTA

Clarence B., age 13, was a fat baby and had general good health until at four and one-half years he had smallpox, and never after that has he looked well, never quite as strong as he should have been and never healthy in color. His ancestry is good. The only family lack was in a sister who died from tuberculosis in 1911. He did fairly well until the winter of 1919, when one day while walking in soft snow he complained of his leg hurting, but his mother did not

pay much attention to his complaint because the boy's father had always had a pain in one of his legs. When the boy exerted himself he would have pain in his hip and leg, but it steadily improved with less and less pain until June, 1921, when he was cultivating corn, and after two days was cranky and looked especially pale and said his leg hurt so he could not work any more. The pain was severe night and day.

He was sent by his attending physician for an *x*-ray. The diagnosis was tuberculosis of the hip joint. His attending physician said the

*Presented at the thirty-sixth annual meeting of the North Dakota State Medical Association at Grand Forks, N. D., May 31 and June 1, 1923.

glands in the groin were enlarged, and prescribed a local ointment. He began walking after one week in bed, but never stopped walking because of pain or soreness. He everted his foot and complained of pain, but did not have special treatment or rest, yet he steadily improved until now no symptoms are evident in the hip, and he has no pain or spasm and has perfect motion. This was undoubtedly Parthes' disease.

In September, 1922, a troublesome tooth was extracted, and a hemorrhage resulted. Nothing did much good until after the injection of a serum which gave results. About the first of this year he developed the "flu" and pain in his chest lasting three days.

I first saw this patient on March 13. He was in such condition that I felt that his life would soon terminate, and I put him to bed and a few days after punctured and drained about one and one-half pints of hemorrhagic fluid from the left pleural cavity, which was full. The scope showed only débris. He gained after that, and his heart went back to its proper position or nearly so.

He had slight hemorrhages from the nose and throat, once or several times a day. His glands were very little enlarged. He was emaciated, but the greater comfort following the drainage from the pleural cavity seemed to enable him to eat more, and he gained somewhat in general condition.

The outstanding feature was the spleen, which filled his abdominal cavity. One diagonal measurement being twelve inches and the other thirteen. I was unable to determine whether the liver was enlarged or not. The blood count was as follows: red, three million four hundred thousand; whites, four hundred thousand. His pulse was running 130, and his temperature up to 103°, which lowered somewhat after a few days in bed. On April 17 I gave him his first x-ray treatment and allowed him to go home. The next treatment was on the 29th of April, the next on the 9th of May, and the last on the 21st of May. There was no change noticeable after the first treatment, but between the treatments of April 29, and May 9, there was an increase in reds, and the whites went down to two hundred and fifty thousand. On April 29 his hemoglobin was 40 per cent, on May 9 it was 60 per cent, and on May 21 it was 68 per cent. Between April 29 and May 9 the 13-inch diagonal had reduced to 9 inches. Between May 9 and

May 21 the reds were up to four million, and the whites down to seventy-five thousand, and the 13-inch diagonal is now 7 inches. It seemed on May 21 that the inguinal and cervical glands were larger than at the previous examinations. He eats heartily, his bowels are regular, and his urine remains much the same—a slight amount of albumin and some casts with an immense amount of uric acid and urates, this last item not being changed by the treatment. Of course, there is a wonderful improvement in his general appearance, the hemorrhages having ceased, and his blood volume has increased and also the red count. His pallor has lessened, and his lips and ears and face show his increased circulation. He has grown one inch during his time with us.

X-ray, radium, benzol in increasing dosage, arsenic, and mercury and iodides in luetic cases have all seemed to give results in the treatment of leukemia, but I have depended upon the x-ray, not having radium neither did I use benzol. Anything that reduces the size of the spleen reduces the number of leucocytes and improves the leukemia. X-ray and radium seem to do this better than anything that has heretofore been used. When the leucocytes are reduced to less than twenty thousand splenectomy should be considered, and this may be done without trouble in most instances. Many patients are reported living up to five years. In my case the reduction of leucocytes from four hundred thousand to seventy-five thousand indicates that I may have continued good results from the x-ray treatment, and I may reasonably expect that the spleen will reduce continually until the leucocytes approach a normal count. The pathology of the spleen is not well known, in fact, we know very little about leukemia of the myelogenous type.

DISCUSSION

DR. J. J. HELMARK (Fargo): Dr. Pray it to be congratulated on giving such a good clinic on this doubly interesting case of myelogenous leukemia and Perthes' disease. I am not an orthopedist or röntgenologist, but I understand that Perthes' disease is a very rare one. The x-ray picture shows up very clearly the destruction along the epiphyseal line and thickening at the neck of the femur. Whether or not it is usual to have a Perthes' disease along with myelogenous leukemia, I do not know. I do not know whether we are sure of the etiology of this disease. We may be sure to-day but wrong tomorrow. The spleen, however, we know, more than any other organ in the body, is liable to enlargement in disease. For that reason

I think it might be worth while to review the classification of splenomegaly:

1. That due to acute infections.
2. That due to chronic infections.
3. That due to protozoal infections.
4. That due to mechanical obstruction, or associated with mechanical obstruction, which may be venous in type, as well as that associated with cardiac conditions.
5. That due to new growths; for example, cysts, endothelioma, sarcoma, carcinoma, hemorrhagic cysts, etc.
6. The splenomegaly due to or associated with the primary blood disorders, as in the pernicious anemias, leukemias, and hemorrhagic jaundice of either the familial or acquired type.
7. That due to primary splenomegaly, as we find it in splenic anemia and splenic anemia with hepatic cirrhosis and splenomegalic cirrhosis.

DR. A. C. MASSAGLIA (Grand Forks): My charge is to discuss Dr. Pray's paper, "A case report of myelogenous leukemia." First, I feel it my duty to thank Dr. Pray, as well as Dr. Tronnes, of Fargo, for their great kindness in having sent me specimens of blood from cases of myelogenous leukemia under their care, which not only enabled me to confirm their diagnoses, but also to make a careful study of the pathogenesis of the disease. When doctors who lead a scientific life in the laboratory, have the co-operation of those who lead the career of practitioner, their efforts, not only perform the diagnosis of the disease, but to attempt to discover their etiology and hidden nature and to determine their treatment, not infrequently results in the light of a discovery or of an invention.

Since I agree with the diagnoses made by Dr. Pray, as also with that of Dr. Tronnes, I think it is a good occasion to summarize briefly my researches on the pathogenesis of leukemia.

Notwithstanding its great efforts, science, up to the present time, has been unable to establish the nature of the leukemia, whether they are true neoplasms or whether they are cell-proliferations similar to the granulomata, that is to say, due to the action of infectious agents. Several diseases seem strictly related to the leukemia; some, as Hodgkin's disease, and the infective sarcomata of the fowl, studied by Peyton Rous and Fujinami (See Lancet¹), connect the leukemia with the granulomas, while, on the other hand, leukemia shows a great resemblance to a true tumor, the malignant lymphoma.

The unsolved problem on the nature of leukemia led me to start the research which is herein reported. Although the study continues, some interesting results have already been obtained which I deem worthy of communication. My attempts to transfer leukemia were conducted solely upon monkeys belonging to the suborder of the *Anthropoidea*, to which man also belongs; between man and monkeys of this suborder there exists a close relationship, as demonstrated by precipitin blood tests (Nuttall²).

The experiments are being performed on monkeys of the species *Macacus Rhesus*. Two of these monkeys have been inoculated with blood of a patient suffering with acute splenic leukemia (enorm-

ous enlargement of the spleen, 250,000 leucocytes per c.mm.); one monkey was inoculated (February 16, 1923) in the basilic vein with one cubic centimeter of blood diluted with three parts of a citrated physiological solution; the other monkey was inoculated (March 12, 1923) into the spleen (laparotomy previously having performed) with an equal amount of diluted blood. The monkeys have recovered per primam from the wound of the operation, that is to say, without any pus formation.

Blood examinations, determined for each monkey on the third and fourth day after the inoculation, gave the following results for both animals: marked leucocytosis of about 30,000 cells per c.mm., of which 84 per cent were polymorphonuclear neutrophils, and the remaining cells of the large mononuclear transitional forms and lymphocytes. Fifteen days after the operation the number of leucocytes in both monkeys dropped somewhat to an average of 25,000 cells per c.mm., but the leucocytary formula had been completely inverted: there was an average of 70 per cent large mononuclear and transitional forms, 10 per cent of lymphocytes, and the remaining 20 per cent polymorphonuclear neutrophils.

Three months have now passed since the inoculation of the monkeys, and the animals are apparently in good health. The spleen can be felt upon palpation and reveals some tenderness; the blood shows an average leucocytosis of 18,000 leucocytes per c.mm., in which the large mononuclears and transitional forms average 55 per cent. The leucocytosis, then, remains permanent, although it exhibits a slight tendency to diminish.

The results of the experiment may be interpreted in the following way:

1. The marked leucocytosis which arose after the inoculation, is a leucocytosis which arose as a consequence of the operation, and essentially as a reaction of the body against the introduction of the patient's blood. Although the human blood is almost equal in composition to that of the above-named monkeys, and, therefore, should cause no reaction, or only a slight one, the blood in the present case was from a patient suffering with a disease which essentially affects the blood (splenic leukemia); therefore the introduction must be considered as an introduction of abnormal blood.

2. The leucocytosis which arose ten or fifteen days after the inoculation of the leukemic blood and which is, to date, (three months after the operation) permanent, must be interpreted as a leucocytosis which reproduces in a moderate manner the disease of the patient, that is to say, a leucocytosis which results from the inoculation of the leukemia. The phenomenon appears to be true for the following reasons:

- a. Similar to the conditions of patients at the beginning of mild cases of leukemia, the animals are apparently in good health.

- b. After the operation no pus was formed; if pus had been formed the leucocytosis should have consisted of polymorphonuclear neutrophils and not of large mononuclear leucocytes and transitional forms as in these experimental cases.

- c. The leucocytary formula of the blood corresponds to the formula which we have in the splenic leukemia of the patient; these changes in the blood

of the animals are accompanied by an enlargement of the spleen.

The results of the experiments lead me to conclude that the acute splenic leukemia was inoculated, or transplanted into the monkeys. As the experiment continues, it will be interesting to determine whether the disease will lead to the death of the animals or whether a reaction will take place leading to their recovery. The ulterior course of the disease will perhaps better show us the nature of leukemia and indicate their cure.

I sincerely thank the doctors of this meeting for the opportunity given me to relate my research on leukemia

DR. PRAY (closing): Oftentimes the first symptoms noticed by the layman parent is the fact of

the frequent hemorrhages. We usually do not get these cases before the spleen is greatly enlarged. When this patient came to me, the enlarged spleen was the most prominent factor.

Perthes' disease has no direct relation to leukemia. I cannot find anything that shows a relationship, although I have taken the opportunity to examine the literature rather carefully. I think the occurrence in this case is incidental, but I am not absolutely certain of it.

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SYSTEMIC SIGNS OF FOCAL INFECTION—DEFINITION OF FOCAL INFECTION*

By E. L. GARDNER, M.D.

MINNEAPOLIS

Billings defines focal infection as "a systemic or local disease due to infectious micro-organisms carried in the blood or lymph stream from a focus of infection." Some acute foci of infection have been recognized for many years, such as a septic arthritis following tonsillitis or an osteomyelitis following an abrasion of the skin. In a broad sense of the term, systemic syphilis might be considered as secondary to the primary focus or chancre. The greatest credit is due to Billings and his associates who established beyond doubt the principle of focal infection, acute and chronic, as we understand it to-day.

No doubt some enthusiasts have overstressed the importance of certain organs of the body as primary foci of infection, and have suggested relief to their patients by surgical removal, before they know whether the patient is really suffering from focal infection or not. It does not necessarily follow that, just because the patient has some focus of infection, his symptoms are caused by this focus. A patient is better off in many cases without diseased tissue, such as questionable teeth, suspicious tonsils, etc., but he should know that its removal is very often prophylactic rather than curative.

SITE OF PRIMARY FOCI OF INFECTION

The primary foci are usually located in tissue or organs directly communicating or arising from

cutaneous or mucous surfaces. Usually the focus is about the head, such as the pharynx, teeth, nasal sinuses, middle ear, or mastoid; but the biliary tract, colon, appendix, rectum, pelvic organs, and lungs may be sources. Very often the primary foci may be multiple or the secondary focus may itself cause re-infection in the same way as the primary focus. For example, a cholecystitis may be metastatic in origin and later be the source for the infection of other parts of the body, such as joints.

SUSCEPTIBILITY TO FOCAL INFECTION

The patient's susceptibility to focal infection varies greatly. Certain patients are always having infections, and as soon as one focus is eliminated another appears. The same laws of immunity govern conditions here as in acute infections. Chronic focal infection commonly follows some acute infection. Foci of infection may occur and the body localize them so that very little or no systemic signs appear, but when, for some reason, resistance is lowered, the barriers are broken down and secondary foci appear.

DIAGNOSIS OF FOCAL INFECTION AS A SYSTEMIC DISEASE

A careful history should always be taken, especially as relating to the present complaint. A carefully worded question will very frequently disclose the fact that the complaint dates from some acute infection, "such as a cold in the

*Presented before the Minneapolis Clinical Club, April, 1923.

head," tonsillitis, an ulcerated or "treated" tooth, acute gastro-intestinal upset, etc. Exacerbation of the trouble may occur when the patient is "run down," has had some acute infection, or after some dental treatment. Certain symptoms should always suggest focal infection, even when there are no definite localizing signs—loss of endurance, mental fatigue, muscular or joint soreness, neuritic or neuralgic pains, precordial distress and palpitation, chronic dyspepsia, slight elevations of temperature, loss of weight, and often susceptibility to repeated respiratory infections.

Such a history should suggest a careful examination; and some of the following findings are likely to be present:

1. Many of the patients appear to be suffering from some toxemia, similar to an acute infection but to less degree. Very often vasomotor instability is present with a tendency to sweating, flushing and paling of the skin, dermatographia, etc. The heart is irritable and the first tone is muffled or split, and occasionally a soft systolic murmur is heard locally at the apex. An electrocardiogram shows irritability of the heart muscle, such as slight changes in conduction time or variability of auricular complex and less often the ventricular complex.

2. The chest not uncommonly shows some slight impairment of parasternal percussion sounds; a few crackles may be heard along the sternum and occasionally elsewhere; and the radiograph may show diffuse increase of hilum shadows and linear markings in both lung fields.

3. The thyroid may be enlarged, and the blood pressure is often variable.

4. The urine, if repeatedly examined, very often shows traces of albumin and a few red-blood cells and leucocytes. In sedimented urine an occasional cast may frequently be discovered.

5. The blood picture is especially interesting. The writer has for nearly ten years routinely examined the blood and personally studied all the smears of his patients. Blood reacts to infection in several ways, depending on whether the infection is acute or chronic and upon the amount of infection, and the reaction of the patient.

- a. If the infection is mildly acute there is likely to be slight or definite increase of the leucocytes, especially the polymorphonuclears.

- b. In less acute infections the leucocyte count may be normal or only slightly increased. The tissues of the body react by rapid proliferation

of the connective tissue cells. In such cases the large mononuclears and transitional cells are likely to be increased and may reach 15 per cent of the white cells. After the infection has cleared up there is a gradual drop.

- c. The hemoglobin and erythrocyte count may show secondary anemia.

- d. Sometimes the smears show evidence of blood stimulation such as intense staining of granules of the polymorphonuclears and mononuclears; deeply staining "budding" lymphocytes; excess of degenerated cells; Turk's stimulation cells and occasionally slight polychromatophilia of the erythrocytes.

- e. In a recent paper DeMord and Bixby² claim an increased uric acid of blood in chronic focal infections with a return to normal after recovery of the patient. The authors think this is due to destruction of cells and the extruded nuclei are the source for the increased uric acid, the end product of nucleoprotein being uric acid. They claim that renal lesions have been ruled out in their cases. It is to be hoped that their observations will be confirmed in a larger series of cases.

The morphological study of the blood in focal infections has been presented by various clinical writers, but none seems to have discussed the entire blood picture.

Sabin believes that the monocytes (mononuclear and transitional cells) of the blood are derived from connective tissue, either endothelial or extravascular. The reaction of connective tissue to mild irritants is proliferation and infiltration with large round cells (rheumatic nodules, for example), many of which may be circulating in the blood. Subacute infection anywhere in the body shows round cell infiltration; if very acute, polymorphonuclears appear, and suppuration is likely to occur. Several observations have been made of an increase of the large mononuclear type of cell in the circulating blood in certain subacute or chronic infections. The writer is now tabulating the records of 1,000 patients, and it is certain that the blood picture offers valuable aid in the differential diagnosis of systemic reaction to focal infection. Repeatedly have the large mononuclear counts of 10 per cent to 15 per cent returned to normal after elimination of foci, and recovery of the patient has taken place.

LOCALIZATION SIGNS OF FOCAL INFECTION

Some of the general signs and symptoms of

focal infection without any definite localized secondary foci have been discussed. Not uncommonly our attention is directed more toward one or more organs by certain symptoms where a definite secondary focus has appeared.

Without going into fields which belong to the limited specialties of medicine let us briefly consider some of the more common supposedly focal infectious diseases.

1. *Respiratory tract.*—The bronchi and lungs may be invaded in one of three ways: (a) direct extension along the mucous membrane or by aspiration; (b) blood stream; (c) direct extension by cervical lymphatics. The lesions produced depend a great deal upon the path of invasion and the infecting organism. Recurrent bronchitis is common after repeated upper respiratory infections. Very often a bronchopneumonia will not clear up until after a subacute antrum has been cleared up. The antrum may not quiet down until an infected tooth lying in the floor of the antrum has been removed. Several times I have seen unresolved pneumonias which did not begin to clear up when suddenly the patient developed an acute alveolar abscess, and the removal of the tooth was followed by rapid recovery. Various writers^{4,5,6,7,8,9, 17} have recently contributed articles discussing chronic non-tuberculous pulmonary infections, showing that a large part of this group of diseases will be relieved or helped by cleaning up focal infection. During the war Rist and Sergent showed that in the French army 40 per cent of the men diagnosed as pulmonary tuberculosis had other types of lung infection. In England, Glover found 60 per cent of his sanitarium patients, who were sent in by competent chest men, did not have tuberculosis. The error in diagnosis in the American army varied from 20 per cent to 60 per cent. All the usual signs of tuberculosis, including radiographic signs, may be suggestive of tuberculosis, and the diagnosis can be made only by careful observation of the patients, very often for several months. Usually there are few constitutional disturbances, and the sputum does not show tubercle bacilli in the focal infection chests. If the case has not reached the stage of fibrosis, bronchiectasis, or other destructive lesions which impair function, the removal of foci, most commonly about the mouth and nasopharynx, will usually relieve the patient. Those conditions associated with anaphylactic symptoms offer a greater problem.

2. *Circulatory tract.*—Acute focal infection

is the usual cause of acute endocarditis; chronic focal infection more often affects the myocardium. Experimentally the relation of chronic foci to myocardial disease is hard to show, but clinically the improvement of chronic myocardial disease after surgical removal of focal infection is an every-day observation. Acute infections may cause definite lesions in the blood vessels, followed by arteriosclerotic changes. The relation of focal infection to essential hypertension is very questionable.

3. *Gastro-intestinal tract.*—Many "functional dyspepsias" are relieved after removal of the primary foci of infection. Not uncommonly an acute gastro-intestinal lesion, such as acute peptic ulcer, acute cholecystitis, acute appendicitis, or an ulcerative colitis, quickly follows an acute tonsillitis. A careful history in other cases will show acute exacerbations of chronic lesions with each attack of tonsillitis, sinusitis, or after dental infection or treatment. All clinicians are familiar with reactions after tonsillectomy or extractions of teeth in the chronic gastro-intestinal lesions, and also the improvement after elimination of foci. Experimentally peptic¹ ulcer, acute cholecystitis, acute ulcerative colitis and acute pancreatitis have been produced by intravenous injection of streptococci and other organisms. The objection to these experiments is that conditions are not the same as in man, for very often the animals are overwhelmed by the large doses of the bacterial cultures injected.

4. *Kidneys.*—Acute focal nephritis with military abscesses occasionally follows acute infections as part of a generalized bacteriemia. This type of nephritis is the most common lesion produced in animals. Glomerulonephritis,¹⁷ which so commonly follows acute throat infections in man, is more difficult to produce experimentally; however, there seems to be sufficient clinical evidence to show the infectious origin of acute glomerulonephritis. A persistent albuminuria with edema may rapidly clear up after tonsillectomy, extraction of an infected tooth, drainage of an antrum, etc.

5. *Arthritis* ("rheumatism" and "neuritis").—The terms "rheumatism" and "neuritis" have been too loosely used by physician, dentist, and patient. Tonsils and teeth have been ruthlessly removed without sufficient evidence to condemn them. Infective arthritis with periarticular changes may be completely cured by removal of the source of infection. Sometimes the joint signs persist due to localization of bacteria there

or due to other foci which have not been discovered.

Arthritis deformans^{19,20} may at first be infective in origin, but later there are so many bony changes and often disturbances of metabolism that very little help can be expected. Foci should be eliminated; but it cannot be unreservedly assumed that this disease is entirely infectious in origin.

Some of the most unnecessary surgery has been done because of muscular pains or so-called "neuritis" without nervous findings. These may be infectious in nature, but should not be confused with the skin and joint tenderness of mild-grade myxedema or the muscle soreness associated with chronic intestinal dyspepsia. The former is relieved by iodine or thyroid extract, and the latter by the proper diet and management of the bowels. Muscle soreness and even true arthritis is likely to occur in chronic colon disturbances, especially with fermentation of carbohydrates (fermentative dyspepsia).

Having once made a diagnosis of focal infection producing systemic signs, the clinician must then decide its source. This is not always easy. The history may help, but more often that focus which is most certain should be removed first. Often there are multiple foci and no permanent relief is obtained until all are eliminated. Removal of foci should be done gradually so as to prevent reactions, remembering that the patient is being auto-inoculated by opening up paths for absorption. Begin with a small "dose" and gradually increase. The interval should be five to seven days; a longer period is more likely to be followed by reactions.

The patient should not be given any rash promises, but the evidence and indications should be explained to him so that he will know the problem involved.

No discussion of focal infection would be complete without some reference to dental problems involved. A few years ago the dental profession advocated the "saving of everything." Some have now gone to the other extreme and advise extraction of everything for the slightest suspicion and in many cases through gross ignorance of pathology. The same criticism may be made of the medical profession; the dentist and physician very often do not or cannot cooperate, much to the detriment of the patient. Devitalization of teeth was done a few years ago before any study was made as to the safety of the procedure. All evidence is against the prac-

tice, and most dentists prefer extraction. We, however, still hear in medical meetings some of the self-called "conservative" physicians asking for "scientific proof" that devitalization of teeth is harmful. To be sure nobody can say that all non-vital teeth are infected any more than he can say they are not infected, and at the present time the physician and dentist can only be uncertain. X-ray evidence is often uncertain, and pain may be absent in marked necrosis of the alveolar process. Any non-vital tooth may be a source of infection and should be considered with the same attitude as questionable tonsils.

Gingivitis is more frequently secondary to some abnormal function of the body. A general examination should be made, and corrected if possible. Sooner or later the deposits are likely to cause inflammation and pus pockets. At such a stage this may be a possible focal source of infection.

What should be our attitude toward patients who have focal infection without systemic signs? Diseased tissue is always better removed if no harm comes to the patient. Teeth with apical infections should be extracted the same as badly diseased tonsils should be enucleated or a purulent antrum drained. With our present state of knowledge we cannot urge our patients to remove all "dead" teeth which clinically and by x-ray show nothing, although we should instruct them to have them examined occasionally and advise the dentist not to attach permanent bridges to them. In patients who show systemic signs we may more strongly insist upon extractions because it is a safer course.

Rosenow and Meisser²¹ have recently reported an interesting course of experiments on dogs where the canine teeth were devitalized, the canals infected with bacteria, and then filled with cement. After several weeks or months the animals became ill or died. Autopsies showed typical systemic focal infections. The teeth caused no symptoms and except for being discolored looked sound; röntgenograms showed typical apical granulomata.

Focal infection cases should always be studied to find out why they are susceptible to infection. Dietary errors, hypothyroidism, etc., may be contributory causes of lowered immunity.

SUMMARY

Focal infection, acute and chronic, is a definitely established principle, but should be diagnosed only after a careful general examination of the

patient for systemic signs of infection and then followed by search for all possible sources of infection. All definite primary foci should be removed; and the proper dietary, hygienic, and medical régime should be prescribed in order to improve the patient's general health and resistance.

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EXPERIENCE WITH RADIUM IN THE TREATMENT OF CERTAIN FIBROMAS AND METRORRHAGIAS*

By MONTE A. STERN, M.D.

Sioux Falls Clinics

SIoux FALLS, SOUTH DAKOTA

Radium has justly assumed a position of great importance in gynecology. Since January, 1920, there have been published in American medical literature more than sixty-three papers and reports of importance on the treatment of fibromas and metrorrhagias. The dosage and filtration, as well as the indications and contra-indications, for its use have become fairly well standardized. Howard A. Kelley, after reminding us that his whole life has been devoted to the writing, teaching, and performance of surgery, says: "He who will give his patients the same consideration he would his wife and sisters will put radium first in the treatment of fibromas." Further, that radium is specific in essential hemorrhage.

J. G. Clarke and F. E. Keen say that the patients who fall into the hands of a radiologist who is not a surgeon, or the surgeon who does not employ this valuable remedy as part of his armamentarium, are indeed riding perilous waters, and neither surgery nor irradiation can be employed exclusively if the best interests of the patients are to be served.

A. Radium indicated, surgery contra-indicated:

1. Essential hemorrhage, including in this term such conditions as fibrosis, hyperplastic endometritis, or any hemorrhage not due to purpura hemorrhagica.
2. Fibromas of any size where complications exist that make surgery extra hazardous, that is, severe anemia, chronic myocarditis, hypertension, obesity, valvular heart lesions.

B. Radium or surgery, radium preferred:

1. Uncomplicated cases of fibromas in women over 38. This applies only to small and medium sized tumors not reaching above the umbilicus.

C. Radium or surgery, surgery preferred:

1. Fibromas in women under 38, provided the operation is a myomectomy.
2. Fibromas, large, reaching above naval, occurring in any age.
3. Submucous tumors hanging in the cavity of the uterus or extruding from cervix.
4. Fibromas complicated by cancer of the corpus of the uterus.
5. Toxic myoma.

*Presented before the Sioux Valley Medical Association, at Sioux Falls, S. D., July 12, 1923.

D. Surgery indicated, radium contra-indicated:

1. Degenerating myoma.
2. Myoma complicated with other surgical conditions requiring laparotomy, such as appendicitis, ovarian cysts, cholelithiasis.
3. Inflammatory diseases of adnexa.

Essential hemorrhage of the uterus, fortunately, usually yields to the ordinary office treatment, or to blood transfusion, curettage or packing. However, after all such measures have been tried, there remains a small percent in which hysterectomy looms up as the only treatment; it is in these very cases that radium is specific. It will cure nearly every case, and usually only one treatment is required. In cases occurring near the menopause, especially those that are in the fourth decade, nervous, with a normal-sized uterus and normal adnexa, it is a sovereign remedy, speedy and safe. In young women it will control the situation, but here it must be administered cautiously in small doses so as not to destroy the menstrual function and prevent the possibility of future pregnancy. Here it is best to give from 200 to 300 milligram hours, risking a failure to control the hemorrhage and repeating a second or third time, as indicated. Usually, there will be amenorrhea, lasting from three to twelve months, the menses returning normal. Here it might be well to state that it is not wise to repeat a treatment under two or three months, as often only after that time will its physiological effects be manifest.

The following case report illustrated a successful outcome with radium:

M. M., Case 723, aged 20, stenographer. Family history, negative. Menses, twenty-eight day type, lasting five days, severe pain, goes to bed for one of two days at this time.

August 19, 1920, under anesthesia a plastic operation on the cervix for dysmenorrhea. Married April, 1921. The last menses period, however, was December, 1920. Gave birth to a healthy baby in October, 1921. June, 1922, has been having severe hemorrhages for the last three months. July 12, 1922, sent to the hospital. Dilatation and curettage under anesthesia, no relief. August 1, 1922, readmitted to hospital. Intra-uterine treatment with radium, 500 milligram hours. No relief. August 15, 1922, intra-uterine 900 milligram hours. August 20, 1922, amenorrhea. August 29, 1922, on account of severe anemia and general prostration, a blood transfusion was given, 500 cc. by the citrate method. September 15, 1922, feels well and is gaining in weight. March 3, 1923, menstruated for the first time. Discharged as cured.

Here is a case of severe metrorrhagia that resisted all forms of treatment. Ten years ago

the only known treatment would have been hysterectomy.

ADVANTAGE OF RADIUM OVER SURGERY (WHERE INDICATED)

Radium treatment is not a major procedure. It does not require an anesthetic and has no mortality. From an economic standpoint, it requires no special nurse and rarely more than three days in a hospital. Within a week radium patients are about tending to some of their usual work. As against hysterectomy the menses and ovulation may be preserved with regulated doses. Unfortunately, many women fear the knife and many will come for relief with radium who would otherwise fall into the hands of the charlatan.

CASES OF SMALL OR COMPLICATED FIBROMAS

Myomas causing no symptoms, growing slowly or not at all, require neither radium nor surgery. A high percentage of myomas occurring in the fourth and fifth decades are only a part of the clinical picture. Such patients often carry high blood pressure, albumin and casts in the urine, and perhaps even high blood urea. Others are obese, weighing from two to three hundred pounds, are short of breath on exertion and may have slight edema of the ankles. Many suffer from a secondary anemia with a hemoglobin of from twenty to sixty. A patient should never be operated on with a hemoglobin of less than fifty without either a blood transfusion or a preliminary radium treatment. Some patients present a picture of pernicious anemia, with symptoms out of proportion to the loss of blood. In young women the tumors can be palpated distinct from the uterine body, myomec-tomy is the operation of choice because function is better preserved. Bearing in mind that hemorrhage can be controlled and tumors reduced in size, radium, I feel, is preferable to hysterectomy. In myoma reaching above the navel, on account of its liability to degeneration, operation is the choice. In all tubal and ovarian inflammations and all degenerating or necrosing myomas, surgery is indispensable.

METHOD OF APPLICATION

All treatments have been intra-uterine. The patient is sent to the hospital and under the usual technic for intra-uterine operations, the cervix is dilated to No. 11½ Hager, usually without anesthesia. A curette is introduced and the uterus gently curetted. These scrapings are examined

routinely. The 25 or 50 milligram capsule is then inserted within the cavity of the uterus. This capsule is covered with a 2 mm. brass filter and a hard rubber shell to absorb the secondary radiation. A long brass wire extends from the cavity through the vagina and is bent over the abdomen. The cervix is packed with an iodoform gauze strip, and the vagina with gauze rolls. The rubber shell and brass capsule are sterilized in pure lysol, and the wires boiled. It is needless to say that strict asepsis must be observed otherwise salpingitis and pelvic peritonitis may follow as in other intra-uterine manipulations. One must observe the customary care to bend the wire applicator to the curve of the uterine canal, as perforation of the uterus may occur from carelessness or undue force.

DOSAGE

From 900 to 1,200, usually 900, milligram hours in women over thirty-eight. This will produce an amenorrhea and shrink the tumor in 90 per cent of the cases. In younger women from 200 to 300 milligram hours, repeated if necessary, will regulate menstruation and shrink the tumor.

VAGINAL DISCHARGE

After a radium application, thin, watery, sanious discharge is common and lasts for three to six weeks. The discharge may be thick and have an offensive odor. It may excoriate the vulva. Patients should be warned, as they are often much concerned and frightened about this. On the other hand, a severe leukorrhea, when present before a uterine application, will often be cured by it.

HEMORRHAGE OCCURRING AFTER RADIUM

These are common. There is bleeding from six weeks to two months before the physiological action of radium is manifested by amenorrhea.

We are often asked if radium will not cause the fibroma to become sarcomatous. Clarke, says: "The fear of sarcomatous degeneration is without foundation. In not a single case has malignant change after irradiation been noted in this series. Any criticism of radium based on this false assumption is without support."

After irradiation of a fibroma there may be no change in size. Usually it becomes 50 per cent smaller and occasionally disappears altogether.

There are records of 117 cases of severe metrorrhagias and fibromas at the Sioux Falls Clinic. Of these, 37 were relieved by other methods than radium or surgery; 7 records are incomplete; 13 fibromas were discovered accidentally on examining for other conditions and were causing no symptoms so were not treated; 10 refused surgery or radium, leaving 20 cases treated by radium and 19 by surgery.

	Metrorrhagia	Fibroma
Radium	7	13
Surgery	0	19

Metrorrhagias		
Age	Results	Remarks
20	Satisfactory	Under 20, two treatments
47	Satisfactory	Gained in weight and Strength
49	Unsatisfactory	Hemorrhage was controlled, but later severe leucorrhea.
46	Satisfactory	
54	Satisfactory	
49	Satisfactory	
50		

The one unsatisfactory case in the above table had 900 milligram hours. There was complete amenorrhea following. She later complained of severe vaginal discharge and severe nervous symptoms and was later operated on elsewhere.

SURGICAL CASES

Age	Size	Location	Symptoms	Pathology other than the tumor	Results
37	Small	B	Hemorrhage	None	Satisfactory
58	Medium	B	Hemorrhage	None	Satisfactory
43	Medium	B	Hemorrhage	None	Satisfactory
18	Small	B	Hemorrhage	None	Satisfactory
17	Medium	B	Hemorrhage	Myocarditis	Satisfactory
17	Small	B	Hemorrhage with pain	None	Unsatisfactory operated on elsewhere.
22	Small	C	Pedunculated tumor vaginal discharge	None	Satisfactory
30	Small	C (sub-mucous)	Hemorrhage	None	Unsatisfactory operated on later
59	Medium	B	Hemorrhage	S B. P. 190	Apparent results. Re-occurring 6 months later showing sarcoma, hysterectomy.
52	Medium	B	Hemorrhage	None	Satisfactory
41	Large	B	Hemorrhage	Myocarditis with obesity	Satisfactory. Tumor reached well above the umbilicus.
45	Small	B	Hemorrhage	None	Satisfactory
49	Large	B	Pain	Hypertrophy of heart	Satisfactory

It will be seen that of the thirteen cases of fibromas, ten gave unusually satisfactory results. One medium-sized fibroma was treated when it was undergoing sarcomatous degeneration. This was poor judgment and should be counted as a failure in diagnosis and not as a failure of radium treatment. One small cervical fibroma was

operated on later. This was also poor judgment as radium was contra-indicated in this case.

Myomectomies	7
Sub-total hysterectomy	9
Complete hysterectomy	2
Tumor discovered at laparotomy for other conditions and removed.	1

In this series there was one death. There was one case of infection of the abdominal wall, two cases of phlebitis, one of which terminated as pelvic abscess. Five of the tumors operated on were necrosing or degenerating fibromas. The end-result in the surgical case has been very satisfactory.

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INJURY AS COMPLICATED BY PRE-EXISTING DISEASE*

By JAMES O. CAVANAUGH, M.D.

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Pre-existing diseases complicating injury are many, but the most commonly met with are tuberculosis, syphilis, rheumatism, gonorrhoea, diabetes, cardiorenal trouble, alcoholism, arteriosclerosis, toxic goiter, and neurasthenia, as well as many other functional disorders.

The later and more exacting methods recently adopted by our hospitals in taking case-histories and recording all physical findings of a patient upon admittance to a hospital have done much for the benefit of both patient and surgeon. In taking the case-history it should be kept clear in mind not to get a pre-existing condition confused with the injury. The most opportune time to obtain honest information, provided of course the patient's condition will permit it, is immediately following the accident before the individual has had time to associate the two conditions in his own mind.

The case record should contain—

First, a history of former injuries, operations, illness, indemnities, previous occupations and a notation on the general character of the individual.

Second, a history of the accident, a statement giving the time and place of the accident and how the accident occurred. The immediate effect of the accident upon the individual, as to unconsciousness, collapse, shock, vomiting, and

involuntary passing of urine and feces. In the case of a female, the history should cover all female disorders, past and present.

Third, a record of our physical examination. If a pre-existing disease is found present, its full extent and relationship, if any, to the injury should be determined as far as possible.

Intelligent handling of an injury case will be made comparatively easy by having a full knowledge of the conditions one is dealing with. It is sufficient to say that the earlier a complication of a pre-existing disease is recognized, the better end-result will be obtained for the patient. Rest in bed is beneficial to all diseases. The injury from this point of view is a blessing in disguise. Precautionary measures are particularly indicated in latent tuberculosis, syphilis, chronic alcoholism, and advanced constitutional diseases.

In traumatic surgery one is obliged to make mental calculations as to the probable length of disability and to determine, if any, the probable loss of efficiency. At the time of the injury it is not always possible to detect the presence of a pre-existing disease, the evidence of which may not manifest itself for weeks or even months. Again, a trivial injury to the head of an alcoholic may bring on early and alarming symptoms. Just what, if any, a pre-existing disease adds to the disability of an injury should,

*Presented at the annual meeting of the Soo Surgical Association.

if possible, be determined and made a part of the case record.

The immediate effect of an injury upon the human economy is a lowering of blood pressure with a general disturbance of metabolism, resulting in a temporary decrease of bodily resistance. This would tend to favor the pre-existing disease. Fortunately, however, a great many injuries recover very nicely in spite of a pre-existing disease. The psychological effect of an injury on the individual must be taken into consideration. It is well known to the profession that there is always to be reckoned with the fellow who needs only the germ of compensation to light up an old malady and make it a part of his injury. Out of the total number of traumatic neurosis cases that have come under my observation, a minority were truly legitimate and deserving of the best care and attention. The majority, however, cleared up rapidly as soon as settlement was obtained.

It is well recognized that traumatism is an inciting cause of osteomyelitis; and the direct cause of osteomyelitis is pyogenic cocci which have been liberated, so to speak, into a field made fertile by trauma. It is quite reasonable that this same condition obtains in a traumatic wound that later on becomes tuberculous, the original focus of which must have been somewhere present in the body. The tubercle bacilli are carried by the blood and lymph to the wound, and a new focus is set up in the wound which now becomes an industrial center distributing a fresh supply of bacilli to the system.

The following case occurred in Minneapolis:

CASE 1.—F. J. M., aged 35 years; freight brakeman.

History was obtained from Dr. Louis Dunn at autopsy. In December, 1920, the patient sustained an injury while unloading freight for the Great Northern Railway Company. A box fell over against his sternum causing a contusion. The patient was given attention by his family physician, Dr. Louis Dunn, and was seen in consultation with Dr. E. K. Green. This bruise later suppurated and on January 16, 1921, was opened and curetted by Dr. Green. The sternum was not found involved. Tubercle bacilli were found in the discharge from the wound. X-ray examination suggested tuberculous lesions in both lungs. A considerable time before his death, the patient complained of pain and swelling in the right shoulder-joint. About two weeks before his death, there appeared an enlargement with tenderness over the third left costal cartilage. During the later part of his illness he appeared very weak without any clear explanation as to the cause of weakness.

On March 27, 1921, the patient died. The cause

of death was given as heart exhaustion and trauma of the sternum.

Representing the Continental Casualty Company, I was asked to arrange for an autopsy, which was performed by Dr. H. E. Robertson, on April 13, Pathologist of the University of Minnesota. A copy from Dr. Robertson's report on the postmortem is as follows:

1. Advanced chronic pulmonary tuberculosis with tuberculous pleuritis and lymphadenitis.
2. Chronic tuberculosis of adrenals.
3. Abscess (tuberculous) of deltoid bursa and right shoulder joint.
4. Abscess (tuberculous) of interchondral space of left chest.
5. Partially healed scar in the skin of sternum.
6. Old adhesions of peritoneal cavity.
7. Fatty changes of the liver.
8. Slight arteriosclerosis.
9. Tattooing of skin.
10. Postmortem embalming.
11. Slight postmortem drying.

The autopsy in this case was held from a medicolegal point of view and to establish the exact cause of death. Dr. Robertson gave cause of death as follows:

Primary: Tuberculosis of adrenals.

Secondary: Tuberculosis of the lungs.

The matter of traumatism to the sternum he regarded as an incidental feature.

The following is a letter of Dr. Robertson's to the Continental Casualty Company; that part of the letter which is germane to the cause of death I will quote:

Microscopic examination of the tissues confirms the diagnoses which were advanced at the time of the postmortem and in addition shows with certainty that the condition in the right shoulder joint and the intercostal space on the left side are tuberculous; further, that the tuberculous process in the right adrenal involved a portion of the adjacent liver and that the liver itself shows occasional scattered microscopic tubercles. The character of the tuberculosis in all of these organs is that of a chronic hyperplastic type, exhibiting a rather slow growth. While the lungs in this case were the most extensively involved of the organs, the most serious and far-advanced lesions were in the adrenals, and, except for the absence of pigmentation of the skin, the case would be typical Addison's disease. Cases of Addison's disease without pigmentation are well known. The cause of death, then, is definitely tuberculosis of the adrenals and, secondarily, or contributory, tuberculosis of the lungs.

I quote from "Da Costa's Modern Surgery", 8th edition, page 247, as follows:

There can be no doubt that tuberculosis often becomes manifest in a part after that part has been subject to traumatism. No one denies this,—in fact, in over one-sixth of all the cases of bone and

joint tuberculosis, traumatism is set down as causal. The injury creates an area of least resistance. In such an area the cellular activities are no longer able to withstand the action of the bacteria. Without an injury it is highly improbable that tuberculosis would have arisen in that part. At least the injury determined the localization and multiplication and the origin of the active tuberculous focus and to that extent was causal.

It is my opinion from the postmortem findings in this particular case, that death was inevitable within a few months from the alleged time of injury. However, the legal end is not yet reached. Medical experts will testify for both the plaintiff and the defendant. The case will then undoubtedly be submitted to a jury of laymen to render a verdict based on medical testimony.

CASE 2.—F. G., teamster, aged 21 years, sustained a severe injury to the jaw, which caused unconsciousness for a few minutes. The wound was taken care of in the usual way and healed nicely. No serious complaint was noted until two weeks later, when, during the course of twenty-four hours, the patient became hemiplegic. It was maintained by the family at the time that this condition was a part of the injury. Dr. Charles Ball made an examination of the cerebrospinal fluid and found evidence of an active syphilis. The patient recovered under antisiphilitic treatment. It is needless to state no personal history had been taken in this case.

CASE 3.—J. L., aged 42, horse-shoer. No history of any former illness or syphilis. Patient was a chronic alcoholic for a period of ten or twelve years, but was never absent from his work. While removing a horse-shoe he lost his balance and fell, the side of the head striking against studding, causing a contusion. After lying down for a few hours, he was taken home to which place I was called. He complained of feeling weak and nauseated. The patient was put to bed. At the end of twenty-four hours he was in a serious state of delirium tremens, which continued for thirty-six hours, when death ensued. In this case it was alleged that the patient died of a fractured skull. Postmortem examination showed the absence of a skull fracture, also the absence of any cerebral hemorrhage. There was present an advanced stage of arteriosclerosis.

CASE 4.—T. W., aged 35, a woodsman, sustained injury to the calf of right leg, being bruised between a log and sledge. The patient stated that there was no open wound, merely a bruising of the muscles. He was unable to work and suffered considerable pain. At the end of ten days the big toe of the right foot became swollen and dark-purple in color. At this time this man came under my observation and gave a history of syphilis and chronic alcoholism. Physical examination revealed an advanced stage of arteriosclerosis in both lower limbs. A Wassermann showed four plus. In spite of every measure resorted to, the toe became gangrenous and was removed at the end of three weeks. The gangrene was no doubt the result of an en-

derteritis set up at the time of the accident. Recovery in this case was very slow. No permanent cure could be expected. Had this man been compelled by law or by the corporation employing him to submit himself for physical examination, to furnish a health certificate before he could be accepted as an employee, he would have spared himself unnecessary illness and would not now be an object of municipal charity and a burden to the taxpayers.

From a surgical point of view the cases cited are commonplace; for a better health standard they are important. Legislative measures, if not made too obnoxious and if so constructed as to encourage physical examination of our fellow-men, would be of benefit to the nation's health as a whole.

A man in so diseased a condition (Case 1.) should not be permitted to continue in the hazardous occupation of railroad brakeman, where other lives may be jeopardized because of his physical unfitness. Compulsory physical examination of all railroad employees at stated intervals with case records on file for each employee would help to keep pre-existing disease separate from accidental injury. The employer would have the distinct advantage of knowing at all times when an employee became physically unfit. What percentage in the way of money paid out for wages, indemnities, and loss of efficiency toward pre-existing disease complicating the injury would be hard to estimate. It will certainly amount to something in the sum total of each year's expenditure. It would seem plausible from an economic point that a railroad having definite knowledge of the physical fitness of each employee would be of value, in that it would establish a higher standard of physical condition required for the service. A better physical standard would mean a better moral standard and would tend to eliminate the physically and morally undesirable. These examinations would be of a decided value to the employee, as well as to the employer, for the reason that the employee would have the benefit of an early knowledge of any on-coming disease with timely advice as to his bodily care.

DISCUSSION

DR. CARL VON NEUPERT, JR. (Stevens Point, Wis.): I wish to emphasize the necessity of physical examination of employes. I can very readily see that a diabetic condition, for instance, would greatly complicate an injury to an employee of a railroad company or any other corporation. In my experience as examining surgeon I have eliminated a number of diabetics from the train service who later

on might have given considerable trouble to the claim department. I can also readily understand why syphilis would be quite a factor in a case of this kind.

I recall a case, occurring several years ago, of an employe of a wood working factory who was injured by a board hitting him on the shin bone. There was very slight injury, but it finally resulted in a swelling the size of a small apple which was supposed to be caused by an injury to the periosteum, and it did not seem to respond to treatment. There was no puncture. After three weeks it came to my mind to have a Wassermann made, and this showed 4-plus positive. On instituting antisyphilitic treatment the case cleared up very rapidly. Even focal infection would, I believe, be a factor in subsequent injury. With infected teeth and tonsils a simple strain of the shoulder might result in an arthritic condition, where otherwise the injury would possibly have no serious consequences.

DR. JOHN H. RISHMILLER (Minneapolis, Minn.): The question of pre-existing disease as it might complicate a case of injury is one that presents itself daily.

Apropos, railway employes are far outnumbered by men who make their living by working for in-

dustrial corporations. It is quite appalling to consider the haphazardness that exists in adjusting the compensation which an employe seeks under the Workmen's Compensation Act. If, for instance, an injured man has had any previous physical defect, very few will admit that such did exist prior to his present injury, and all physical defects are claimed as recently sustained by the claimant, and the Commission will have to employ surgical opinion to weed out the recent injury from the chronic malady. Consequently, the apparent flaw that exists in the Workmen's Compensation Act is that they have nothing they can refer to as to what the employe's physical condition was before he was injured. As the Workmen's Compensation Act is more or less an insurance protection, therefore, a physical examination, including blood pressure, urinalysis and Wassermann, should be required under the Act before an employer is permitted to hire a man and before an employe is permitted to work. The original copy of the physical examination should be on file with the Commission and a carbon copy given to the employer and the employe. This would materially aid in clarifying what is right and what is wrong for compensating the laborer and not unjustly have a claim against the employer.

PATHOLOGIC STUDY OF ECLAMPSIA*

By J. WARREN BELL, M.D.

MINNEAPOLIS

"Eclampsia" (*ek*, out; *lampe*, to shine) is defined in the dictionary as a sudden attack of convulsions, especially one of peripheral origin. Puerperal eclampsia occurs at or near the end of pregnancy and is often uremic. (Dorland's Medical Dictionary.)

An entirely satisfactory pathologic explanation of eclampsia has never been given, although many careful contributions have been made, each of which gives us a better understanding of some working detail. In 1668 Mauriceau, in France, advised version in all cases of hemorrhage and convulsions, showing that no special condition was recognized at that time as an entity. About 1697 Chamberlain said that Mauriceau was only a surgeon, while he and his family had a greater secret for easy delivery (forceps) in cases of various kinds. In 1756 Smellie advocated venesection; this remedy has stood the test of time because it is based on the fact that eclampsia is usually accompanied by a blood pressure of about 200 mm. of mercury. In 1771 the first medicine was opium. In 1831

Simpson's chloroform was first used. At the present time it is used only by men who want to go through some motions during an emergency for the benefit of relatives. It is not only useless but very dangerous, as it does not favor better oxygenation of the patient, and it may destroy liver parenchyma. Since the liver cells are usually badly damaged from the condition, we can see the futility of striving for a cure along these lines. As early as 1867 Cazeaux gave a descriptive definition to the condition.

In 1873 Fern in America used veratrum to bring down the blood pressure. In 1878 the operative treatment was extended to include Cesarean section as a means of quick delivery, based upon the observation that after delivery the chances for convulsions rapidly diminish. Convulsions are very rare after the first five to seven days following delivery.

Green, in 1892, was a dreamer and an idealist, but he was the first man to put himself on record as believing that the condition had sufficient prodromals to allow of early treatment to avoid a fatal outcome, and, going a step farther, he emphasized that prevention by proper prenatal

*Presented before the Hennepin County Medical Society, March 5, 1923.

care would reduce to a minimum the incidence of the condition. He realized that many changes in the mother during pregnancy had much to do with making possible the serious state which we call *eclampsia*.

Zangemeister (A. f. Gyn., 66) calls the kidney disturbance of pregnancy a nephropathy, in which the chief anatomic changes are seated in the convoluted tubules, and show cloudy swelling, fatty degeneration, or complete necrosis. He also attributes to the kidney of pregnancy a particular transudative diathesis. When this transudate becomes excessive in the kidney parenchyma the vessels and filter apparatus (glomeruli) become compressed, and thus may be brought about the sudden rise in blood pressure and clinical uremia.

Schmorl's investigation led him to the conclusion that in eclampsia with liver changes there were multiple necroses and thromboses in liver and kidney and capillary hemorrhages in the brain.

The infarcts of various kinds and sizes found in the placenta in eclamptic or pre-eclamptic women were first carefully studied and analyzed by Young, who believed that the changed tissue gave rise to a toxin responsible for the clinical picture of eclampsia.

Welch, formerly pathologist in the Lying-in Hospital of New York City, has published (1908) a careful review of a series of twelve cases. In this and subsequent articles he emphasizes the frequency of brain lesions, usually macroscopic hemorrhages.

Without going any farther into the literature of the condition we see that eclampsia is not a localized, but a general, condition, so severe as frequently to cause death with autopsy findings about as follows:

General edema. *Brain* (variable lesion): gross hemorrhage, edema, or purulent exudate. *Liver*, variable lesion: usually some are increased in size (hypertrophy); some very much decreased (atrophy); some yellow; some mottled with red; some hemorrhagic lesions (gross or microscopic). Focal necrosis. Some infarcts. Some zonular changes in cords. Local or diffuse fatty infiltration. Some cloudy swelling; some round-cell infiltration; some polymorphonuclear infiltration. *Kidney* (variable lesion): usually large and upon cutting the parenchyma bulges; occasional pyelonephritis; tubular changes from cloudy swelling to complete destruction; occasionally glomerular changes; ureters frequently distended. *Heart*:

usually enlarged; myocardial degeneration; rarely endocardial lesions; pericardial exudate occasionally; subendocardial and subpericardial hemorrhages; pleural and abdominal *cavities* frequently contain yellow or blood-stained exudate, occasionally up to several hundred cubic centimeters. *Lungs*: submucous hemorrhages in bronchi; edema; congestion; pneumonia.

With so wide a range of lesions it is impossible for the pathologist to make a diagnosis on the microscopic findings alone. Furthermore, were the gross findings dictated to him and the microscopic material available, he could not make a diagnosis, but he might make a shrewd guess. But when he is told that the patient was a pregnant woman in the last trimester with a severe respiratory, or any other, infection within a few weeks, increasing albuminuria, very severe edema of legs, hands, and eyes, with a lemon-yellow to putty-white skin, with blood pressure persisting around 180 or more, that the patient had fatigue and dyspnea, and a gradual reduction in kidney function as shown by P. S. P., urea, Kingsbury, and specific gravity comparisons, finally complaining of headache, severe epigastric pain and blurring of vision, followed by choked disc, convulsions, coma and pulmonary edema, then a well-trained pathologist says "eclampsia."

It is not my purpose tonight to impress you with my view of this condition, but to show a few slides and let you decide the part various factors play in etiology.

There were ten cases available for study, five of which are known to have had convulsions. The chart summarizes these in part. Unfortunately, only one case had a brain examination and this showed a small temporal hemorrhage, which may have been traumatic, as the patient's face was bruised over this region. The hearts you will have noticed are heavy in the majority of cases with convulsions. The kidneys were diagnosed by various men as passive congestion, acute nephritis, acute diffuse nephritis, fatty degeneration of kidney, and mild arteriosclerosis of kidney. Since the classification of kidney lesions is still undergoing a metamorphosis and cloudy swelling itself, these diagnoses do just as well as any others.

The livers, you notice, were either at the high end of normal or a little above in weight. From the records of the pathology department of the University. I have selected a few cases to show the variety of lesions seen in the liver.

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THE MAJESTY OF THE LAW

Minneapolis recently has been occupied by a large delegation of legal lights from all parts of the country, including representatives also from the Argentine, from England and France, and, doubtless, from other countries. Its deliberations have been singularly like the deliberations of the American Medical Association, although they have not profited as yet by employing section work, such as that in use by the American Medical Association.

The American Bar Association meets in one large forum, and discusses the problems presented to them by committees in the form of resolutions and reports. It was very interesting to note the addresses by ex-Chancellor Birkenhead of England and our own Secretary of State, Charles E. Hughes, who gave the men of the country something to think about.

The American Bar Association is like the American Medical Association in that it has some prominent men at its head, men like Mr. Davis, the retiring president, who presided over the opening meeting.

In scanning the newspaper reports and in gathering information from other sources there seems to be no mention made of the medical profession, and yet the tie between the two professions is a very close one. The American

Bar Association did not endorse nor mention, as far as we can determine, any public health measures; neither did it discuss the admission of medical testimony in courts, that is, that kind of testimony which would be good for the cause of justice and yet is regarded by the legal profession as sacred and confidential between patient and physician.

We all know that many medicolegal actions have miscarried because of the difficulty of introducing medical testimony that is free from legal embarrassment. On the whole, it seems quite proper to observe that the law makes less progress than does medicine. That medicine is not an exact science is admitted; but the wonderful strides that have been made by medical men, by surgeons, and by public health authorities, eclipse any of the new methods found in the legal machinery. One of the Minneapolis papers said that it was noticeable that the lawyers considered their profession almost a religion, so respectfully did they adhere to legal attitudes. This leads one to wonder whether the medical profession has not eclipsed them by its reverence for medical phases of life, and whether medical men have not treated their medical associates, their patients, and themselves with a more religious devotion than many lawyers could possibly do.

Coincident with the meeting of the American Bar Association there was held in Minneapolis a meeting of the Attorney Generals of the United States, which must have brought out a number of interesting discussions, and perhaps cleared the atmosphere of some of the problems that confront both lawyer and doctor. Perhaps the meeting of the Attorney Generals was more of a closed corporation, a sort of research laboratory for legal problems. That may be one reason why so comparatively little of its activities was made public through the press. At all events, these meetings were so much like the American Medical Association meetings, or the specialties in medicine which meet annually or bi-annually, that the doctors must feel a friendly, brotherly attitude toward the lawyers.

More co-operation between the doctors and lawyers would be of great benefit to the public; and it might be said, too, that the Bar Association could have done the Medical Association much good if they would discuss the problems which confront the doctors, namely, the various so-called non-healing fads in medicine—whether they have a real legal status or not; whether they are doing the country good or evil; whether

they are necessary and whether the public pulse could not be more carefully guarded by some legal deliberation. Medical men seem powerless to prevent the unprofessional side of medical activities; apparently the lawyer is just as easily buncoed as the general public when it comes to the practice of medicine, and when he fails to recognize the scientific side of medical problems.

If one could have polled a vote among all the members of the American Bar Association and could have gotten a confidential reason for their attitude toward medicine and its various cults it would have made an interesting bit of compilation. Probably the medical profession would have suffered the humiliation that it commonly has to endure even at the hands of the best legal lights in the United States. But, there was no one who had a medicolegal mind that even thought of the relationship between the two great professions, consequently we are left high and *dry* as to what the lawyer really thinks of the doctor, and coincidentally what the doctor really thinks of the lawyer.

THE REVOLT AGAINST CIVILIZATION

The above is the title of a recent book by Lothrop Stoddard, who has written, as a triad, "The New World of Islam," "The Rising Tide of Color," and "The Stakes of the War." In the above-mentioned book, however, he has attempted and, we think, with very great clearness to show what the revolt against civilization really means. It is not the late war, nor the French Revolution, nor bolshevik propaganda, nor socialism, nor raeialism, although the fundamental factor in all revolts is racial, regardless of what has happened before or what has taken place after. It eventually deals in a way with evolution.

Mr. Stoddard says that when the ape-man emerged from utter animality he emerged with empty hands and an almost empty head. Ever since that far-off day man has been filling both hands and head, his hands with tools and his head with ideas. This does not necessarily mean that man came from the ape, as so many people hesitate to admit. Of course, man has developed from every point of view since the earliest period of time, now estimated to be about forty million years ago, which is an incredible number of years and one which no human being can possibly comprehend, consequently it is quite evident that man was more or less of a beast in early times and that he gradually attained

ideas, worked out theories, and established civilization on a more or less sound basis. He has made life more comfortable than agreeable; at the same time he has made it more complex.

It is impossible to review even a part of Stoddard's book without going into greater details; but he makes some suggestions which may be received as fundamental. To quote further from this book: "Civilizations, unlike living organisms, have no appointed cycle of life and death. Given a high-type stock producing an adequate quota of superior individuals, and a civilization might be immortal.

"Why, then, has this never occurred? It has not occurred mainly because of three destructive tendencies which have always, sooner or later, brought civilizations to decline and ruin. These three tendencies are (1) the tendency to structural overloading; (2) the tendency to biological regression; (3) the tendency to atavistic revolt."

Civilization, with its complexities and burdens, increases with tremendous rapidity to an inconceivable degree; whereas the capacity of its human bearers remains virtually constant or positively declines. Perhaps all these things explain why there is so much upheaval in social, industrial, and spiritual life at the present time. This may account for the presence of all these antisocial elements, the development of desperate individuals who are mentally too lazy to earn an honest living, and for the adventurer who emulates the adventures of heroes of centuries ago, or thinks he does.

At all events a revolt is in progress, and Mr. Stoddard thinks that the superior man is only found occasionally; that is, there are comparatively few men who are born as chosen leaders and who have the respect of their type, their class, if you may so term it, or a man who is given to thinking rather than acting without thinking. After the superior man, or the superman, come the three significant types as a whole; and these Mr. Stoddard terms the "border-liner," the man who cannot *quite* make good, who has a hard time, and is capable of going just so far, and then he falls because he has a defect. He may lift himself up and get on the other side occasionally, but if he is pushed too hard or if life is made too strenuous for him he shows the weaker side.

Another is the "disinherited," the man innately capable of civilized success, but effected by social injustice or individual wrong-doing; he very soon gets into the army of chaos, where he does

not belong, and there he may develop his dangerous tendencies, which may become dangerous enemies.

Lastly, there is the "misguided superior." This man is rather a super-man, but he sees opportunities to guide or control the under-man, and he uses his superior mind to the detriment of the under-classes, consequently when the world is enjoying what it now terms civilization there begins a gradual change in sentiment, as illustrated by various minor revolts, until they grow and attract to them the masses, including all the types mentioned above.

The uprising of such people gradually infiltrates sufficiently so that when the actual revolt arrives the super-man disappears either because he is outclassed or is delivered into the hands of the enemies and becomes submerged. Then, according to what we understand of the situation, the world is managed, controlled, and aided by the types that have been outlined above. This condition may go on for years or centuries, when suddenly a super-man arises, is hailed as a leader, and again civilization begins its upward and onward march. A repetition of this performance may be expected at any time whether it covers a period of a lifetime or whether its influence extends over many hundreds of years.

We are apparently in for something of this sort now unless the people think more and act with better judgment and wisdom, realizing that the individual is the thing most desirable, but that the people as a whole should be considered above everything else. This is an argument which might easily be twisted by the men who are of the three types into an argument for their own efforts; but theories and experience and observation show that a business, an industry, a spiritual manifestation, and an advancing civilization can better be carried out by an enlightened few than by a benighted many.

NEWS ITEMS

Dr. J. P. Griffin has moved from Fertile to Detroit (Minn.)

Dr. W. J. Dowswell, of Benson, was married last week to Miss Lucille Murphy, of Fargo, N. D.,

A district meeting of the American College

of Surgeons will be held in Great Falls, Mont., next week.

Dr. S. M. Johnson, of the staff of the Shaw Hospital at Buhl, has resigned and will move to St. Paul.

Dr. Walter T. Anderson, of St. Paul, was married last month to Miss Emily Candby, also of St. Paul.

Dr. G. H. Maghee, who formerly practiced at Rawlins, Mont., died last month in Aguilar, Colo., at the age of 51.

Dr. John Irgens, who practiced in Sioux Falls, S. D., prior to 1885, recently died in Bergen, Norway, at the age of 67.

Dr. F. L. Bregal has moved from Fairfax to St. James. Dr. Bregal is a graduate of the University of Minnesota Medical School, class of '18.

Dr. D. H. Edwards, of Louisville, Ky., has been employed as school physician at Hibbing.

Dr. Frederick Moench has moved from Brownsdale to Winnebago.

The U. S. engineer, Lieut. A. G. Bisset, in charge of the \$1,000,000 veterans hospital at St. Cloud, announces that the hospital will be ready occupancy by Sept. 1, 1924.

The head of the U. S. Veterans Bureau at Washington will not recommend the establishment of a tuberculosis hospital in Minnesota for veterans in the 10th District, which includes Minnesota, the Dakotas, and Montana.

Dr. Thomas A. Lowe, of Gibbon, was married last month to Miss Birdie Keller, of Marshall.

Dr. D. P. Maitland, of Jackson, has resumed his practice after several months of absence on account of sickness and doing postgraduate work.

Dr. C. J. Woolway has been abliged by ill health to make permanent his temporary resignation as superintendent of the Deerwood Tuberculosis Sanatorium. He is succeeded as superintendent by his wife; and Dr. C. T. Bernard becomes medical director.

The annual summer meeting of the Central Minnesota Medical Association was held at Green Lake last month. Dr. Archibald MacDaren, of St. Paul, and Dr. N. O. Pearce, of Minneapolis, presented papers at the meeting. Other papers were presented by members of the society.

The United States Public Health Service has begun the publication of a monthly magazine called "Venereal Disease Information," to take the place of the brief extracts on the subject formerly sent out free. The price of the new monthly is fifty cents. It should have a wide circulation.

At the next annual meeting of the Minnesota State Medical Association, to be held at St. Paul on October 10-12, two distinguished outside men will give addresses: Dr. R. T. Woodratt, Associate Professor of Medicine, Rush Medical College; and Dr. E. A. Graham, Professor of Surgery, Washington University School of Medicine.

Governor Nestos, of North Dakota, has appointed the following physicians to membership on the State Board of Medical Examiners: Dr. Murdock MacGregor, Fargo; Dr. H. H. Healy, Grand Forks; and Dr. J. E. Countryman, Grafton. They succeed Dr. J. C. Suter, Grafton; Dr. A. W. Skelsey, Fargo; and Dr. A. D. McCannel, Minot, respectively.

The Minneapolis Surgical Society will put on its first monthly clinic day, Thursday, October 4. The tentative program is as follows: 8:00 A. M. to 12:00 noon. Operative clinics at the General Hospital by Drs. Wilcox, Corbett, Zierold, Olson, Lynch, Maxeiner, and Robitshek at 2:00 P. M. to 4:00 P. M. The Clinical Pathologist Society will put on a program at the University Hospital at 6:30 P. M. Luncheon at the General Hospital followed by presentation of clinical cases and a paper by Dr. R. C. Webb, on "Drainage in Appendiceal Cases." The discussion on this paper will be opened by Dr. Archibald MacLaren, of St. Paul. Visiting physicians are cordially invited to attend the entire program.

Minn. Practice for Sale, 40 Miles from Twin Cities

Physician obliged to give up work on account of poor health. Splendid town of 1,200. One other physician, ethical and a good fellow. Best crops in years. Practice will pay from \$4,000 to \$5,000 in these times. Will sell practice and fine office equipment for less than value of equipment. Office rent cheap. Address 362, care of this office.

South Dakota Practice for Sale

South Dakota practice and first-class, up-to-date equipment, including complete dispensary and good library for general and surgical practice; best and richest part of state; worth investigating; thickly settled prosperous supporting territory; \$5,000.00 un-

opposed practice; collections 95 per cent; nearest competitors: 20 miles east; 13 miles west; 10 miles south; 15 miles north; two good towns on territory; good roads. Will sell cheap for cash or little money with good security. Address 382, care of this office.

Anderson Operating Table for Sale

Table in good shape and price reasonable. Inquire of Mr. Walker, 704 Masonic Temple, Minneapolis, or telephone him. Geneva 6157.

Associate Physician Wanted

An associate physician in the general practice of medicine and surgery in Minneapolis wanted, preferable a man who has newly finished his internship. Wonderful opportunity for the right man. Address 383, care of this office, or telephone Atlantic 5858.

Position as Technician Wanted

Young man, graduate of thorough, complete course for laboratory technicians; also graduate of Chicago Veterinary College; and a city pathologist in Michigan for two years, would like a position as laboratory technician and pathologist in hospital or clinic, preferably in Minnesota. Excellent references can be furnished. Address 385, care of this office.

Work by Male Nurse Wanted

Doctors having paralytic cases or patients in need of care after suprapubic operations where a man nurse is preferable can obtain the services of a registered and highly recommended man nurse by calling Colfax 6532 or writing P. O. Box 718, Minneapolis.

Location in Minnesota or Wisconsin Wanted

1910 graduate desires a location in Minnesota or Wisconsin. Can invest some money and will pay any physician who helps him find a good location. Address 377, care of this office.

Laboratory Technician Wants Position

A thoroughly competent laboratory technician with the best of recommendations and considerable experience, now employed in hospital work, desires a position in or near the Twin Cities. Address 378, care of this office.

Minnesota Drug Store for Sale

Small investment, low price for quick sale. Low expense. No opposition; good territory. A splendid deal for a doctor. Part cash down, balance on terms. Address W. C. Dieterich, Hanley Falls, Minn.

Microscope for Sale

A Bausch and Lomb F. F. H. 8, as good as new. Will sell for \$100.00, which is \$37.50 below the dealer's price. Address C. A. Butler, M.D., Lake Preston, South Dakota.

Office Position Wanted

A young woman with a year and a half hospital training in a Minneapolis hospital, desires office position with physician or dentist at very moderate wages. Address 381, care of this office.

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EARLY DIAGNOSIS OF BRAIN TUMORS*

By J. FRANK CORBETT, M.D.

MINNEAPOLIS, MINNESOTA

The diagnosis of a brain tumor is a difficult undertaking for the reason that other diseases sometimes simulate the picture of that condition; therefore the general principles of diagnosis are still more difficult to enumerate and it can be done only in a very general way. With a brain tumor we have a certain syndrome due to the generalized pressure resulting from the tumor growing in the closed box that we call the skull. The localizing symptoms, due to direct involvement of some area of the brain of known function, are sometimes masked by the general pressure effect, and are sometimes further masked when the ventricles are involved through their secondary pressure, and are further somewhat masked by the fact that some of the tracts, particularly the third, fourth, and sixth nerves, are long and may be involved anywhere in their course. The general symptoms of intracranial pressure common to both tumors and inflammation, including abscess and lethargic encephalitis, are as follows: severe headache, more or less change in the optic disc, vomiting, and mental disturbances. With symptoms of general pressure alone and absence of localizing symptoms we often have very little to tell us whether we are dealing with a brain tumor or with some of these other conditions. However, the following points are of some value to one who is studying this problem:

With an abscess there are headache and vomiting, but there is almost always a history of general malaise preceded by some known source of infection. There is oftentimes a convulsion with the beginning of a brain abscess. The cell-count is not of much value because the polynuclear or mononuclear count in brain abscess occurs only when the abscess has in some manner involved the meninges. There is oftentimes a subnormal temperature in brain abscess. Further than this it is only rarely that extreme compression sufficient to cause marked changes in the eye-grounds occurs in abscess for the reason that the abscess destroys the brain, oftentimes with but very little increase of volume; and what little increase of volume occurs seems to be due to a general edema of the brain rather than to the abscess itself. Optic neuritis may occur with an abscess.

We next consider syphilis. Gummata of the brain are very rare. In other types of syphilis, particularly of the meningeal form, the cell-count is of value. The Wassermann may or may not be present, either in the cerebrospinal fluid or in the blood. The history, I believe, is of more importance in syphilis of the central nervous system than anything else. This is not so much the history of the individual as, perhaps, the history of the individual's wife or husband, or the history of the father or of the children. For example, I recall a case of meningeal syphilis where there was no known history of lues;

*Presented before the Hennepin County Medical Society
April 3, 1923.

where both the blood and spinal fluid Wassermann were negative. Yet from the fact that the patient's husband had died in an insane hospital from paresis we assumed that the patient had syphilis of the nervous system, and this assumption proved correct. Time will not permit me to completely discuss the common or occasional findings in syphilis of the nervous system. Among the most important but least obvious things to be considered are irregularities of pupil, disturbance of light reflexes, zones of anesthesia, and disturbance of reflexes.

Lethargic encephalitis is sometimes almost impossible to differentiate from brain tumor. The following points are important: First, in encephalitis, the papilledema is usually reduced by spinal puncture. There is usually early involvement of the cranial nerves, particularly of the sixth. If a careful history is obtainable it will usually be found that the patient has had a febrile onset followed by a mild clonic contracture of some group of muscles. With a tumor the papilledema is marked. Before papilledema develops there is oftentimes early hemorrhage into the retina. It is remarkable how much involvement of the optic discs may occur before the patient notices any visual impairment. I have seen patients able to read fine print with four diopters of choking. Another comparatively common occurrence in brain tumor is a remission of symptoms for a time. These remissions may follow the administration of salvarsan; and as they have been practically limited to cases of glioma it is assumed that these remissions are accounted for by the absorption of fluid that usually occurs as a cyst formation about them.

Tumors may be supratentorial or subtentorial. They may be tumors in the brain substance itself, or they may be bony tumors springing from the occiput or base. Foremost among these tumors in my own series was a chordoma that first manifested itself by a paralysis of the third nerve, then by evidence of increased intracranial tension, then by the peculiar appearance of both optic discs that by some was thought to be a pure optic atrophy, by others to be late stages of a papilledema. In this case the diagnosis was made through the *x*-ray, confirmed at operation and finally, two years later, at autopsy.

Tumors of the basal ganglion occur, but very little is known of them. Pineal tumors are manifested by precocious puberty, paralysis of conjugate deviation, nystagmus, ataxia, and, finally,

by symptoms due to the plugging of the third and fourth ventricles. Tumors of the tegmentum give a coarse tremor, ptosis, paralysis of ocular movement, and finally involved the rubrospinal tract and red nucleus. Tumors of the corpus callosum or injuries to the corpus callosum ultimately reduce the individual to a purely vegetative existence without any evidence whatever of intelligence manifested by expression or speech. In the supratentorial region symptoms coming from damage to some part of the visual tracts give us definite information. Crossed homonymous hemianopsia,—that is, absence of the visual fields of the right half of both eyes,—indicate a lesion in the left optic tract posterior to the chiasma. Illustrative of this was the case of Mrs. E. C. F., who on admission gave a history of a rather slight blow on the head, and complained of headache so severe that she could feel the vibration of the dynamo in the hospital which was not recognizable by anyone else. She also vomited, and her only positive neurological symptom was a crossed homonymous hemianopsia. She had, as a matter of fact, a rapidly spreading glioma in the occipital region. Complete blindness in one eye with no involvement of the other eye usually means an involvement of the optic nerve anterior to the optic chiasma. Illustrative of this is a case occurring at the Veterans' Hospital, where the only symptom was complete blindness in one eye. The disc showed atrophy. The *x*-ray showed an erosion of the anterior clinoid process due to a small tumor mass. Bitemporal hemianopsia is a common occurrence in hypophyseal tumors. Absence of light reflex in the blind half of a disc usually places the tumor anterior to corpora quadrigemina in or involving the optic tract. Furthermore, frontal tumors usually manifest themselves early by central scotoma. A little later there may be atrophy of one optic disc and papilledema of the other optic disc.

Of value in recognizing brain tumors is the occurrence of the various aphasiae. A tumor in the first temporal convolution gives rise to word deafness and concerns the intellectual auditory impressions so that a patient's own language may seem to him like a foreign one. Much more common are the motor aphasiae, due to involvement of Broca's area in the third left frontal convolution, where the individual appreciates the meaning of words, but has lost the power to express these words. Such an individual will perfectly comprehend everything

said to him and when someone else answers the question he will answer either yes or no, and yet be unable to say what is in his mind. Another form of aphasia is known as *agraphia*, or inability to write. This has its center in the occipital lobe. In visual aphasia there is inability of the individual to read his own language. To such an individual English is just as incomprehensible as Arabic. Tumors in the frontal lobe are difficult to localize; however, most of the cases of tumors or cysts or even abscesses in the frontal lobe have presented a picture of drowsiness and hebetude combined with a certain degree of unnatural jocoseness. In addition to this there is apt to be a retrobulbar neuritis, manifest by atrophy on the corresponding side and concomitant papilledema on the other side. There is oftentimes a loss of central vision when the visual fields are mapped out,—the so-called central scotoma. Sometimes the only indication of the frontal-lobe tumor is a slight temporal pallor of the discs. Loss of smell, when it can be demonstrated, is a strong presumptive evidence of frontal-lobe involvement. Tumors in the post-central region produce sensory disturbances on the opposite side of the body, while precentral tumors produce spastic motor paralysis that makes the diagnosis seemingly easy; however, I have seen an enormous tumor exactly in the precentral region where the individual showed only great intracranial pressure, optic atrophy, and motor disturbance of the lower leg. In June, 1918, this man, began to have headaches, and he then noticed that the left foot had a tendency to go to sleep. In September, 1918, he complained of twitching of toes, and later dragged his foot. In February, 1919, his vision was 20/100 and 20/40. There was excessive choked disc, with pin-point hemorrhages. Spastic paralysis might come either from a cortical tumor or a subcortical tumor. With a subcortical tumor there seems to be a disproportioned paralysis of the proximal part of the limbs, particularly of the upper arm. This I am pleased to call Hamilton's sign.

At the cerebellar-pontine angle we have a characteristic syndrome which I will quote from Cushing's book, as follows:

1. Four to five years tinnitus of left ear, with impaired hearing advancing to deafness in three years.
2. Frontal headaches from onset.
3. Vertigo and dizziness for six months.

4. For one year numbness of left face and tongue, and loss of taste.

5. For six months staggering gait, thickness of speech, and deglutitory difficulties.

6. For four months suboccipital pains radiating thence to forehead on the left, stiffness of neck.

7. Recent blurring of vision.

Positive neurological findings in the above case:

a. General pressure due to distension of ventricles.

1. Bilateral choked disc of + D. with hemorrhages and exudates.

2. X-rays show dilated venous channels.

3. Absorption of posterior surface of dense dorsum sellæ.

b. Localizing: head tilted toward left occiput; hyperflexion painful; some tenderness on pressure.

1. *Cerebellar*: Nystagmus lateral and rotary, equal right and left. Moderate coarse ataxia left arm and leg, with dysmetria and impaired adiadokocinesis. Romberg, positive. Gait, unsteady. Deep reflexes, active and equal.

2. *Extracerebellar*: Cerebral nerves,—

Vth. Left corneal areflexia with hypæsthesia over the entire left trigeminal area. No deviation of the jaw.

VIth. Negative; history of diplopia.

VIIth. Widened left palpebral cleft, and corner of mouth droops.

XIIIth. Total deafness on the left, and complete loss of labyrinthine reactions.

IXth. Xth, and XIth. Marked dysarthria and dysphagia.

XIIth. Tongue deviates to the right.

Clinical Diagnosis: "Left cerebellopontile tumor."

In the cerebellum the patient has headache, motor ataxia, decreased muscle tone and weakness, tendency to fall toward the side where the lesion exists, and exhibits a nystagmus, sometimes great degree of papilledema, due to distension of the ventricles from their closure with the tumor, and complains that change of position greatly increases his headache and dizziness. Tumors of the medulla are rare, usually manifested by a bilateral pyramidal paralysis.

The x-ray is of some value in the diagnosis of brain tumors. It will show bony tumors springing from the skull. It will show calcified

glioma, and, incidentally, it will demonstrate dilated veins that are of some diagnostic importance in connection with tumors. Taken in connection with the injection of air in the ventricles according to the method of Dandy, it has considerable diagnostic importance. However, the result of this procedure is not one that is entirely devoid of danger. We have done this thirty times without any unfavorable symptoms; but out of those thirty cases we were seldom able to make a diagnosis until after we had explored the case or seen it at autopsy and in the light of our positive knowledge were enabled to interpret our findings. A very small tumor in Broca's area almost completely occluded one ventricle. The value of ventriculography seems to be mostly to determine whether we are dealing with a supratentorial or subtentorial lesion, and it has been but rarely that we could not get this information from routine examination.

DISCUSSION

DR. W. A. JONES: Dr. Corbett has presented a very interesting subject for discussion and he has also exposed the difficulties under which the medical man works in this line. I think there is nothing more difficult to differentiate than the average brain tumor from many pathological states in the brain. I have made, I believe, more mistakes in this than in almost anything else. Occasionally I have been right, and occasionally operation discloses the fact that the diagnosis has been correctly made. Very frequently, when a tumor has been diagnosed it has been absent at autopsy. That, however, does not necessitate giving up operations for brain tumor, and, if one or two out of every hundred can be saved by operation, that operation is justifiable. I believe the brain surgeon hesitates very little now and that he feels more sure of his ground. He is doing the patient very little harm, and very few sequelae arise from diagnostic operations. I have seen cases in which it has been impossible to differentiate the disease. I recall one case in which a diagnosis of encephalitis had been made. At operation it was found that the patient had lues and an enormous brain tumor which gave no symptoms whatever; but that should not prevent the surgeon from making his exploratory investigation.

DR. C. M. ROAN: I have a patient under my care at the present time that I would like to have Dr. Julius Johnson say something about. The case is of the type Dr. Corbett mentioned in comparing some symptoms of encephalitis and brain tumor. He was apparently getting along very well from a heart lesion when he developed symptoms which put him in the maniac class and made it necessary to strap him down. When he finally recovered he had paralysis of the right side.

DR. JULIUS JOHNSON: This man presented acute delirium with meningeal symptoms of stiff neck, etc. Eye-ground examination was negative. He

had 54 cells in the spinal fluid per c.mm., of which the majority were polymorphonuclears. I would like to emphasize this one point: I think we ought to ask our pathologists to make a differential count of the spinal-fluid cells in these cases. This man was entirely out of contact with his surroundings and in acute delirium for three or four days. About that time he developed a right-sided hemiplegia and low blood pressure, less than 120. There was a history of weak heart. The hemiplegia cleared up after a matter of a week or so. He also had a rise of temperature during the acute delirium. We have a hemiplegic type of encephalitis. We know that encephalitis has a predilection for the brain stem and the basal ganglia.

Considering this case we cannot figure out that this man had anything but encephalitis. He did not have a Babinski except on one occasion a positive response was obtained by Dr. Roan, but he had increased patellar reflex on the right side during the hemiplegia.

DR. J. C. MICHAEL: The subject, diagnosis of brain tumor, could draw out almost endless discussion. One thing occurring to me in this connection is epilepsy. I remember a case in point: a patient, six or seven years ago, who complained of major epilepsy. There were no objective nerve findings. A year later he came back, when it was possible to establish a diagnosis of brain tumor, which was proved by operation.

Then mental diseases: A woman about 45, recently widowed and undergoing financial reverses at the time of consultation, was having an agitated depression. The signs of organic neurologic disease presented themselves when first examined. Later examinations showed frontal tumor. The brain tumor cases when examined routinely show psychiatric symptoms in about two-thirds of the total number. Probably one out of about 700 mental cases admitted to the state hospitals have brain tumor.

Then there is syphilitic meningitis. Some three years ago I saw a case out in the country, which could not be differentiated at the bedside from lethargic encephalitis or advanced brain tumor.

Gumma and tuberculoma also give the symptoms not distinguishable clinically from neoplasm.

Regarding surgical interference in the brain: It is better to advise conservatism even when decompression alone is up for consideration.

DR. R. C. LOGEFEL: I have a patient at the present time with double choked disc who had a rapid development of symptoms and now apparently a recession. Her eyesight is improving. The headaches and vomiting are less frequent. Would you feel that this patient should be operated on at the present time or would it be safe to watch her for a while longer as she does not want an operation just at this time?

DR. K. A. PHELPS: I would like to ask Dr. Corbett what the present opinion of the neurological surgeon is in regard to the Barany ear test in the localizing of brain tumors.

I also want to say that where there is choked disc and no other definite symptoms, the nasal sinuses should be ruled out as an etiological factor.

DR. CORBETT (closing): In regard to the occurrence of rapid progression of symptoms and apparent recession: I believe that is not inconsistent with glioma. It is possible for a glioma to remain dormant for a long time, for a hemorrhage to occur and bring on symptoms, and then undergo reabsorption.

In regard to the vestibular tests: In spite of the great work done on this, there is yet much incomplete. There is a close proximity between the vestibular nerves and a cerebellopontile angle tumor, on the one hand, and the cerebellum, on the other.

It is very difficult to determine whether we are dealing with vestibular disturbances per se or with indirect pressure from a separate source on either the vestibular nerves or on their nuclei in the medulla.

At operation the surgeon has but few means to aid him. He has the appearance of the brain, and a tumor more or less deep in the brain will sometimes give symptoms of cortical disturbances. As a matter of fact that tumor may be under the cortex

some distance. A little flattening of the brain substance is sometimes all the surgeon has to guide him. Cushing's trocar is sometimes used and is of value if used cautiously.

A little straw-colored fluid will come out that is characteristic of brain tumors. The puncture of the ventricle and allowing the cerebrospinal fluid to escape may collapse the brain in such a way that you can palpate a tumor that you could not find when the ventricles are distended.

The diagnosis must rest on a careful neurological examination and a careful differential weighing of these symptoms.

The examination of the spinal fluid is not characteristic. With tumor we may get some increase in cell content, as we may with some other process that in the same degree has affected the meninges.

It may be present in tumors and in some inflammatory conditions, or it may be absent altogether. So it is only by a very close neurological analysis that we can ever hope to get a more accurate diagnosis of these conditions.

WHAT THE MEDICAL PROFESSION IS DOING FOR THE CONTROL OF CANCER*

By J. E. RUSII, M.D.

Field Director, American Society for Control of Cancer
NEW YORK CITY, NEW YORK

You all know much more about cancer and cancer prevention than do I, so I am not going to attempt to speak particularly on any of the specific phases of cancer. You are all probably well acquainted, too, with the American Society for the Control of Cancer. You know that it was founded as an outgrowth of our national surgical and gynecological societies in 1912. These far-seeing individuals being impressed with the fact that many of the cases of cancer which they see in the non-operable stages and which eventually lead to the death of the individual, could have been prevented, if these individuals had been properly educated. There are many types of public health problems, and I like to make a division of public health procedures depending upon the amount of education which it is necessary for us to have in any particular locality before we, the medical profession, may be successful in putting across a public health program. For example, it is very simple in the matter of typhoid prevention to educate, as we have done in the past, a few members of the community and put in operation a slow or rapid filter or hypochlorite plant for

the treatment of the water and typhoid fever is reduced to practically nothing. It is easy for us to go into a community and tell those who have police power that it is necessary for them to quarantine certain diseases to protect public health. This depends upon the co-operation of people in the community.

There is another type of public health problem, like tuberculosis or, perhaps, cancer, which is much more difficult of attack for the reason that we must educate practically every individual in that community before we can affect the death rate. We have had the co-operation—I mean the American Society for the Control of Cancer has had the co-operation—of practically every State Medical Society since its inception, but yet we have not particularly affected the cancer death rate. As a matter of fact the statisticians do not agree at the present time. Hoffman, of the Prudential Life Insurance Company, says any man is a particular kind of a fool who does not believe that cancer is increasing at the present time. On the other hand, Dublin, of the Metropolitan Insurance Company, claims that there is no proof that cancer is increasing. However, it is a big public health

*Presented at the forty-second annual meeting of the South Dakota State Medical Association, Watertown, S. D., May 23 and 24, 1923.

problem, or a personal problem, which depends upon education of the masses.

If we look at the cancer rate we are impressed with the fact that it has increased tremendously per one hundred in twenty years. But why should it not be so? What are the factors that are entering into this cancer problem? Let us enumerate a few of them. In the first place, we have seen more of applied sanitation in this country than in any other. We have had typhoid reduced materially. We have had infant mortality reduced materially. We have seen tuberculosis practically cut in half as regards the death rate. Now, what will happen to these individuals who have been saved from these earlier age groups? We cannot have the slightest hope of keeping them alive indefinitely. They get into the older groups where cancer takes its toll, and, undoubtedly, that rate is going to increase, although the statistics are not absolutely definite that we have this increase.

We should have an increase from other sources, and I should like particularly to call your attention to these. During this period when our slogan has been "Early cancer is curable because it is a localized condition," and we have tried to educate the people that in the localized state it is curable if they will but recognize the symptoms of that local condition and go to their family practitioner at once, without any delay, what has been happening in this twenty-year period? Being an old New Englander and, worse than that, a Bostonian, I have seen the rise of the Christian Science Church in that period. With its adherents the lady with the lump in her breast has no lump. She does not go to her family practitioner, but attempts to pray it away; and perhaps you or I sign her death certificate a few years later.

What else has happened? We have had the advent of the Chiropractors—a lump in the breast is nothing, everything can be regulated by the manipulation of the spine. Cancer of the fundus means nothing. We have had our friend Abrams and, a little later, Coué.

All of this leads me, gentlemen, to this point: Some of us have been too busy with curative procedures to take cognizance of the rapid march of preventive medicine. We can no longer ignore the fact that the public is being instructed in some cases by perfectly ethical procedures regarding the condition upon which they demand explanation. We can no longer delay. Preventive medicine is here to stay, and we have

our choice. Either we are going to lead and control this preventive medicine or we are going to have preventive medicine in our communities over which we have absolutely no control. We have to take our choice of these two things.

I wish to point out one thing: We are all of us doing medicine that is not only curative but preventive. Not infrequently when I go in to meet an individual who is interested in our campaign I meet with this statement: "The average physician is not interested in preventive medicine, do you know, that, Doctor?" "No," I say, "the average physician is practicing preventive medicine; did you ever hear of the blood pressure apparatus?" There is only one kind of preventive medicine and that is *all* medicine. I like to say to such a man: "Do you suppose if there were ten contractors bidding on a road between Minneapolis and St. Paul and one of them won out on the job, would the other nine try to dynamite his road? Certainly not, and are we trying to get away from preventive medicine? No, since we see the advantage of it we want more." The public sees the advantage of some preventive medicine and want more. They are not willing, as a friend of mine was, to go through life a cripple because he had a pain in his side that every once in a while laid him low for a few days. Now they know that it may be a chronic appendix, and that, if they go to the hospital and have it out, it will be the end of their trouble.

Our Society is attempting, through the medical profession, to help classify this subject of cancer and teach the public enough of the early symptoms of cancer so that they will come to us while there is yet time, instead of taking the Abrams treatment and having secondary foci set up. We want them to come to us and to come *at once*.

Some questions not infrequently are put up to me with regard to cancer, and it would perhaps not be out of place for me to bring them up here now. One is, Are we always sure that cancer always starts as a localized condition. I would say that we are pretty much in agreement that cancer always does start as a localized condition, and that in that localized condition, if the symptoms are recognized, those symptoms are curbed by proper interference.

The second question usually is, Are we sure that cancer is not communicable, that it is not transmitted from one to another? The third, Is cancer hereditary, as some claim that it is

according to some Mendelian principles? Some claim that it is not. I believe that the truth is somewhere in the well. We may have a predisposition to cancer, which through irritation may eventuate in cancer.

My reason for coming down here to-day was to ask you to get behind the question of cancer prevention. It is a perfectly ethical program. We want you behind it because we want every medical man interested in this type of preventive medicine, and we want you to associate yourselves with the American Society for the Control of Cancer. If these public health programs are not handled by the profession they will be by the laity, and that is the reason we are not in favor of many of the public health programs that are in force to-day.

With about 146,000 physicians in the United States if they were all available for this teaching work of about 112,000,000 people it would mean that every physician would have a class of 750 students to teach this cancer question to. No medical man can be too busy to take part in this program. He must recognize this and take his part and attend to it. He is not doing it for himself, but for his State and for his National Society, for, though the proper organization of the medical profession to carry out procedures of this kind, we shall have no excuse for any lay organizations to carry on work in preventive medicine. Surely, when your auto-

mobile breaks down you do not take it to a barber-shop to have repairs made, and why should lay organizations handle things for which they are not trained? Through the profession's proper care of these things I see the answer to that problem of State medicine that hovers in the background; and, secondly, I see the answer to the cults. It may not be that here in your city or in your state they are making much of an inroad on your profession, but let me assure you that in some communities they are actually driving out the medical men. Through your co-operation I see the preservation of some of the things that are not being properly controlled at present. I brought along a few statistical slides and also some of our propaganda slides which I thought you might be interested in.

I want to point out that this is not only a perfectly ethical society, but it is yours, so it cannot be anything else. You founded it, and you must actively support it, and not only this but every other public health campaign that comes along. We must see that these public health campaigns are properly carried out for there are certain tendencies in the country at present to belittle the amount of interest and to curtail the amount of activity which we are exerting in the matter of applied medicine, and we would not think, as I said before, of taking our automobiles to the barber-shop to have them repaired. (Applause).

THE PRACTICAL APPLICATION OF ENDOSCOPY*

BY J. B. GREGG, M.D.

SIoux FALLS, SOUTH DAKOTA

The purpose of this paper is to cite a few cases seen recently which will further bear out the importance of direct esophagoscopy and bronchoscopy so well set forth by Dr. C. C. Hoagland in his excellent address before this Association in 1921.

ESOPHAGOSCOPIC CASES

CASE 1.—Mrs. R. W. S., aged 36, February 8, 1922.

Complaint.—Four days ago while eating spare-ribs suddenly had pain in the throat and difficulty in swallowing. No previous difficulty in swallowing. Since onset of pain in lower throat, has been unable to swallow solids or liquids until this morning, when she can swallow a little water.

Examination.—No foreign body evident in pharynx as viewed with laryngeal mirror and spatula. Fluoroscope showed nothing until bismuth paste was used; then poorly outlined a spicule at level of seventh cervical vertebra.

An x-ray examination showed presence of a suspicious shadow located in the esophagus opposite the seventh cervical vertebra. This shadow is 1 cm. in length and 1 mm. in width.

Esophagoscopy.—Local anesthesia February 8, 1922.

Jackson's long esophageal spatula passed readily into esophagus. Foreign body gently loosened from walls of esophagus, in which it was tightly imbedded and removed with forceps. Considerable ulceration of mucosa at site of foreign body. Time of operation four minutes. Patient returned home in three days with no difficulty in swallowing.

*Presented at the forty-second annual meeting of the South Dakota State Medical Association, Watertown, S. D., May 23 and 24, 1923.

CASE 2.—Mr. A. O., aged 16, October 24, 1921.

Referred for removal of foreign body (American silver dollar) from esophagus at 9 p. m. to-day. While balancing a dollar on his nose, he was seized with a coughing spell and accidentally swallowed the dollar. There has been no coughing or interference with respiration, but he has been vomiting considerably and has pain in lower throat just above the sternum.

Examination with laryngeal mirror and spatula reveals no foreign body in lower pharynx. The x-ray examination shows presence of a round dense shadow opposite the first and second dorsal vertebrae, the same corresponding in size and outline with an American silver dollar.

Esophagoscopy.—October 25,—local anesthesia, using Jackson's large esophageal spatula. Foreign body was readily found wedged firmly in esophagus, and was carefully removed. I may mention that this foreign body was removed under the fluoroscope. Time of operation one minute. Patient returned home two days later with no difficulty in swallowing.

CASE 3.—Patient aged 3½ years, June 20, 1922.

Complaint.—Foreign body, a penny in the throat. This morning about 9:30 while playing with a penny the child swallowed it. There was no choking or coughing or respiratory difficulty, but since the accident he has been vomiting both food and water. Chloroform had been administered, and an attempt made to remove the foreign body with the finger and forceps, without success.

Examination revealed a very restless boy with no apparent difficulty with respiration. Physical examination of chest, negative. On attempting to swallow milk, it is regurgitated immediately.

An x-ray examination revealed a dense foreign body the size of a penny lying flat in the lateral plane of the body.

Esophagoscopy.—June 21, 1922. Child's size laryngeal spatula introduced into upper esophagus, and foreign body located and removed with forceps. No injury to mucosa by foreign body. Time of operation, two minutes. Child returned home in good condition two days later.

Esophageal foreign body cases are not to be considered lightly. Great care should be taken in working out the mechanical problem of their removal and the protection of the esophageal wall. Rough or unskilled instrumentation may cause an acute esophagitis, esophageal perforation, mediastinitis, and death. I cannot too severely criticize blindly attempting to remove an esophageal foreign body by the use of the coin catcher, bristle probing, etc. The only method to be considered is esophagoscopy.³

There is no absolute contra-indication to esophagoscopy for the removal of foreign bodies, unless the patient is moribund from esophageal trauma, due to ill-advised blind efforts at removal.

CASE 4.—Mr. O. T. G., aged 73, August 22, 1922.

Complaint.—Difficulty in swallowing. For the last six months, he has had difficulty in swallowing solid food. Liquids can be swallowed slowly; ice-cream is swallowed most readily. At times food which he has swallowed one or two days before will return to the throat. He has some pain in lower chest under lower end of sternum. He denies history of tuberculosis and syphilis. Physical examination and Wassermann are negative. Fluoroscope examination with bismuth paste revealed an accumulation of the paste the size of an egg in the midline, the lower level of this enlargement being at the level of the junction of the clavicles, and the manubrium sterni. A small portion of the paste trickled down the lower portion of the esophagus.

Esophagoscopy.—August 22, 1922. Local anesthesia. The 10-mm. esophagoscope passed readily down into a blind sac, which contained some old food remnants and dark tenacious material, which could be wiped and suctioned away revealing a mucosa with dilated blood vessels. The main portion of this sac was to the left of the midline. Withdrawing the esophagoscope about 3 cm. the opening of the lower esophagus was found, into which could be passed the small bougie. There was no evident ulceration, so section not removed.

Diagnosis made of stricture of esophagus probably malignant with dilatation of esophagus above stricture.

CASE 5.—Mr. B. H., aged 60. August 23, 1923.

Complaint.—Difficulty in swallowing for the last eight years, without much change in condition in the last five years. If he swallows solids or liquids in quantity, they are immediately returned to the mouth without vomiting. If he takes small amounts of liquid food at a time it goes down to stomach. He can swallow finely cut meat, potatoes, bread, etc. There is a gurgling in the throat after swallowing liquids. If he lies on his back fluid returns into the mouth several hours after swallowing it. Sometimes food is returned to the mouth which he has eaten the day before. There is no history of caustic burn, tuberculosis, or syphilis. Present weight is 146; usual weight was 185 pounds. Since the onset of his trouble he has never eaten a meal away from home because of the dread of making a scene at the table.

Examination.—General examination negative. The teeth are in very good condition, with but a few decayed snags remaining. Pharyngeal examination, negative.

An x-ray examination of the esophagus shows the presence of stenosis with a large barium residue opposite the second dorsal vertebra. There is an apparent overflow from this pouch-like shadow, both by fluoroscopic and radiographic examination.

Esophagoscopy.—August 24, 1922.

Jackson 10-mm. esophagoscope passed into esophagus entering directly into a large blind pouch, coated with white paste, evidently bismuth swallowed the day before. The lower blind portion of the pouch showed a mucosa with dilated blood vessels. The lower esophageal lumen was found anterior to the pouch, and into it the esophagoscope could be passed for the entire length of the esopha-

gus. A diagnosis of esophageal diverticulum was made, and the patient was advised to have the pouch extirpated. This was very ably done by Dr. Cottam, and the patient has a perfect result.

CASE 6.—Mr. J. S. aged 60. April 17, 1916.

May I here cite a case reported² by Dr. L. W. Dean and myself in 1917. Patient had his first difficulty in swallowing twenty-eight years before, this lasting for five weeks and clearing up without treatment. Five months before entering the University Hospital, a piece of meat seemed to lodge just back of the sternum, which caused violent coughing, but was apparently dislodged on drinking some liquid.

Three months before entering the hospital he began to lose flesh and began to have difficulty in swallowing. Gradually the dysphagia increased until solid food was not eaten at the time of admission. He was unable to swallow anything with surety. He had lost fifty pounds in weight and was markedly pale and anemic, complaining of pain in the chest severe enough to waken him at night.

General examination by Dr. C. P. Howard revealed tuberculous involvement of both apices. Tubercle bacilli were found in the sputum. The Wassermann was positive. The radiogram taken after swallowing a bismuth and acacia mixture showed an S-shaped stricture of the esophagus.

Esophagoscopy.—This revealed a nodular mass, one and one-half inches below the cricoid cartilage. A piece was removed for examination and reported by Dr. Albert as carcinoma and tuberculosis of the esophagus. There was marked improvement in swallowing antilutetic treatment of mercury inunctions and potassium iodide, which in the presence of a positive Wassermann suggested a definite luetic element present in this mixed tumor.

BRONCHOSCOPIC CASES

Each foreign body bronchoscopic case must be dealt with according to the condition presented in that individual case, so I shall cite but a few typical cases. Most of the cases are in youngsters around the age of two years.

CASE 1.—Baby E. M., aged 2. September 1, 1922.

Complaint.—Foreign body in respiratory passages. Five days ago while eating peanuts, she suddenly toppled backward, and began to cough violently and almost strangled. Had some blueness of the skin for two hours. Since her mishap the child has coughed constantly, wheezes most of the time, and has difficulty in getting air into the lungs. Temperature, 101°.

General examination, negative, except for tubulous breathing in left lower chest. Breath sounds poorly transmitted on right side of chest. Child constantly coughing, interfering with accuracy.

Bronchoscopy.—September 1, 1922. No anesthesia.

The 5-mm. Jackson bronchoscope passed into trachea whose mucosa was reddened throughout and covered with a thin viscid secretion. Right bronchus entered, found filled with secretion which was suctioned out. Foreign body located in right main bronchus just at the opening of the middle lobe bronchus, and removed with forceps. Foreign

body was peanut kernel, 6-mm. in diameter, irregular in outline. Time of operation fifteen minutes.

Convalescence uneventful.

CASE 2.—Baby A. W., Aged 2 years and 10 months. November 2, 1922.

Complaint.—Foreign body in chest. Twelve days ago while playing with field corn she suddenly choked, coughed markedly, and became blue. She has been wheezing ever since. Child has had attacks of violent coughing with inspiratory stridor, varying from three times daily to twenty-four times daily. Five days ago she had marked difficulty with respiration for ten hours continuously. The home physician made her vomit, but without dislodging the foreign body.

The child lies in its mother's arms, has no special difficulty, except that at times it has marked coughing spells. Between attacks it would exhale with a peculiar nasal sound.

Physical examination of chest reported negative, and x-ray examination of chest negative.

Bronchoscopy.—November 2, 1922. No anesthesia.

The 5-mm. bronchoscope inserted, and right bronchus explored without finding foreign body. Considerable secretion in bronchi. Left bronchus explored; foreign body (grain of corn) found at first subdivision, and removed with forceps.

Convalescence, uneventful.

CASE 3.—Baby B., aged 14 months. March 15, 1921.

Complaint.—Four days ago while playing with coffee beans child suddenly choked, coughed violently, expelling one coffee bean. Since that time child has had marked difficulty in breathing; at times seems to strangle, becomes blue and cannot breathe at all. Child was not expected to live through last night. Temperature, 105.4° on entering hospital.

Physical examination revealed impaired breath sounds in right upper lobe; at times breathing is fair, but at other times there is marked inspiratory effort.

X-ray examination of chest, negative.

Bronchoscopy.—March 15, 1921.

While preparing for bronchoscopy the child became markedly cyanotic with evident acute laryngeal edema, so that a low tracheotomy was immediately done. Bronchoscope of 5 mm. then passed per mouth down to right bronchus, where a foreign body (coffee bean) was found at the first subdivision. Thacheal tube inserted.

Uneventful recovery.

These cases have been cited in order to illustrate the practical application of esophagoscopy and bronchoscopy. What prompted the writing of this paper was two foreign body bronchus cases which came in at about the same time. In one (a grain of corn) the home physician had told the parents there was nothing in the chest, and, even if there was something it would be absorbed. But the parents remembered a neighbor's child who had inhaled some foreign body and died from what was called "galloping

consumption" under expectant treatment. In the other case (peanut kernel), which came in almost drowned in its own secretions, the child had not done well on a cough mixture; hence a change to another home physician with a resultant more accurate diagnosis.

In suspected cases of foreign body in the air and food passages, do not make a negative diagnosis until after careful physical examination, radiography, indirect examination, and endoscopy have proven negative.

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DISCUSSION

DR. C. C. HOAGLAND (Madison): I wish to congratulate Dr. Gregg on his excellent paper and upon his uniform success in removing the foreign bodies in the cases he has presented. It was not many years ago that it was thought rather dangerous to pass any instrument into the trachea or bronchi, and it is only about twenty years since first bronchoscopy for the removal of a foreign body was performed. In the past ten years the technic has been greatly improved, so that it is now considered safe for men well trained. I think many men consider these things too lightly and are apt to defer referring the patient to a specialist until serious symptoms have developed. They are apt to wait two, three, or four days to see if the patient will not cough up the foreign body or get it into the stomach; or they may even try to push it into the stomach by means of a stomach tube. Patients are not as likely to cough these things up as we think. They are more apt to draw them deeper and deeper into the bronchi, especially on deep inspiration.

In the cases of foreign bodies in the esophagus, if they are large enough and of such shape as to cause them to lodge in the esophagus, I believe they will lodge in the intestinal tract if they are pushed into the stomach by the stomach tube, so I think this should be warned against.

The dangers increase with each day the foreign

body is present, and I would urge that such cases be referred to a specialist as early as possible.

One of the first cases I saw was one where a man swallowed a large piece of chicken bone. He went to his family physician, who took an x-ray picture, but could not find the foreign body. Then he undertook to force it into the stomach by means of a stomach tube, but found this impossible. He was then taken to another physician, and another attempt was made to push it into the stomach, which was equally unsuccessful. After ten days the patient was brought to me. I did a bronchoscopy, and, while bleeding obscured the picture somewhat, I located a Y-shaped piece of bone imbedded in granulation tissue. The two ends were pointing upward so that it presented much the same danger as a safety pin. I was finally able to fracture one of the arms of the bone and bring the two together and in this way it was removed, and the patient recovered.

Another case was also a bone in the esophagus, and the patient was referred on the second day. In this case also efforts had been made by the physician to push the foreign body into the stomach, although he did not know its location. The piece of bone was easily removed by means of the bronchoscope.

You can readily see that it is very dangerous to attempt to push foreign bodies into the stomach.

DR. J. W. FREEMAN (Lead): I wish to report a case that came under my observation a number of years ago in which a child sucked an open safety-pin into the trachea. It was located by the x-ray at about the second ring of the trachea. It was impossible to remove it by forceps from above, but we performed a tracheotomy and removed it without any trouble.

DR. GREGG (closing): I am glad that Dr. Freeman brought up the question of tracheotomy because with these youngsters where the foreign body is in the esophagus or in the trachea often we have marked interference with the respiration, and where there is marked cyanosis and inspiratory stridor we should do a tracheotomy and do it then and there, before making any attempts with the bronchoscope. Get the individual to breathing properly, for once the respiratory system is paralyzed not much can be done. Many foreign bodies are removed, and can be best removed, by means of tracheotomy.

PERTHES' DISEASE—OSTEOCHONDRITIS JUVENALIS*

By ABRAHAM SHEDLOV, B.Sc., M.D.

GULLY, MINNESOTA

Pertthes' disease is a comparatively recent addition to the number of disease processes which affect the hip joint. Within the last decade it has been separated from tuberculous coxitis and

placed in a distinct and consequently more hopeful category. Text-books of surgery yield little or no information, and it is only in the current literature that one finds enlightenment on this disease of the hip.

*Presented at the annual meeting of the Soo Surgical Association.

HISTORICAL

Arthur Legg, of Boston, was probably the first to describe this disease as a separate entity. In 1910 he reported and described five cases under the title, "An Obscure Affection of the Hip Joint." His article appeared in the *Boston Medical and Surgical Journal* for February 17, 1910.

In October of the same year Perthes, of Tübingen, published reports of cases of what he first called "arthritis deformans juvenalis," but later called "osteochondritis deformans juvenalis."

At about the same time Calvé described a disease which appears to be identical, and called it by the non-committal name of "pseudocoxalgia."

Waldenstrom (Stockholm) presents his name to priority by reason of an article published in 1909 in the *Zeitschrift für Orthopedic Chirurgie*, in which he described the disease but called it a mild tuberculosis.

Perthes' name appears to have taken root best in connection with this disease, so we shall call it that and leave to medical historians the task of pronouncing judgment on the conflicting claims.

OCCURRENCE

The disease is not common, but cases occur with enough frequency that its separateness as a disease entity must be borne in mind. One author found but 6 cases in 1,500 hip cases of orthopedic nature. It occurs in children between the ages of two and a half and twelve years. It occurs four times as often in boys as in girls, a fact which suggests trauma as a factor in the production of the disease. It is usually unilateral, but may be bilateral.

CLINICAL FINDINGS

Clinically the findings are very slight. The child is usually brought to the surgeon because of a limp, which may be painful but is usually painless. There may or may not be a history of injury. There is usually a little atrophy of the muscles of the thigh, and perhaps a little shortening. The character of the limp would suggest a considerably greater shortening than is found on mensuration. The shortening, of course, is greater in neglected cases. The trochanter may become more prominent as a result of the wasting of the thigh muscles. Flexion is usually unlimited. Abduction is considerably interfered with. Internal rotation and extension also show some limitation. There is no pain,

usually, on palpation of the joint or on jarring the trochanter or heel, as there is in tuberculosis. There is no muscle spasm, no night cries, which are so characteristic of tuberculous disease of the hip. The haziness of the clinical picture, however, is promptly dispelled when a radiographic study is made. The picture is diagnostic.

RADIOGRAPHIC FINDINGS

The epiphysis of the head of the femur is flattened, irregular in outline, and may even be broken up into fragments. The epiphyseal line is indistinct. There is little change in the joint space. The whole pelvis of the affected side, as well as the upper part of the shaft of the femur, shows a decreased bone density and atrophy. This increases during the first year of the disease. During the second and third years the head shows an increased bone density. (Blanchard.)

ETIOLOGY

The etiology of Perthes' disease is still a disputed question. At first it was considered a mild (benign) tuberculosis. This view was based on the fact that the von Pirquet reaction was positive in many cases. It is agreed, however, that the tubercle bacillus has nothing to do with this condition. Trauma as the leading factor in the causation of this condition has its enthusiastic champions. Legg reported twenty-one cases in which a definite history of trauma could be obtained; seventeen cases following operative trauma, that is, cases occurring after the reposition of a congenital dislocation of the hip; eighteen cases of the same series with no definite traumatic history.

On the other hand, doubt is thrown upon trauma as the chief etiological factor by the occurrence of cases in the opposite hip following an injury and in the occurrence of cases in the untouched hip after a reposition of one of a bilateral congenital dislocation. The principle of contrecoup, familiar to us in head injuries, certainly can not be stretched to include these cases.

Constitutional disturbances may be causative. In this connection we must remark that rachitis is apparently not a factor as it is almost invariably absent in these cases. Syphilis has been considered, but the evidence is not conclusive. Focal infection is a possible factor. The occurrence of cases subsequent to an acute rheumatic fever (Perthes) and the isolation of a low-grade staphylococcus in cases which came to op-

eration (Kidner) (Phemister) point to infection as a probable factor.

PATHOLOGY

Pathological studies of this disease are almost wholly lacking. Phemister, in a case of five months' duration, found at operation a mild synovitis of the hip-joint and an old quiescent epiphysitis of the head of the femur with extensive alternations in shape resulting from the breaking down of its center of ossification. Perthes, in 1913, excised a piece of synovial membrane and a piece of the head of the femur from one of his cases, but found no evidence of inflammation.

In view of the fact that the disease results in so little disability and tends to a more or less complete restoration of function, the opportunity for obtaining specimens during the active stage is very limited. Our pathological evidence, therefore, is almost wholly skiagraphic and, by the same token, almost wholly obscure.

From an analogy to the nephroses in our classification of diseases of the kidney, we might consider Perthes' disease in the nature of a degeneration due to some circulatory or toxic disturbance. The evident bone atrophy of the entire pelvis and upper part of the femur on the diseased side suggests a trophic change that might well be circulatory.

COURSE

The disease is self-limited and, with or without treatment, runs its course in about one year and is followed by a longer period of bone hardening and rebuilding. In untreated cases the friction and concussion of weight-bearing on softened bone cause erosion of the head and stunting of the neck of the femur. After several years, unaided Nature will partially rebuild the head to its normal shape. With adequate treatment the destruction of the head and the stunting of the neck of the femur are at least partially prevented, and the period of rebuilding considerably hastened.

PROGNOSIS

The prognosis is good. Even without treatment there is a great tendency towards restoration of form and function. If weight-bearing is eliminated by proper treatment, the active process runs its course with a minimum of destruction of the head of the femur, and, with the rebuilding and hardening of the bone which follows the course of the disease, we get an almost complete restoration of form and function.

TREATMENT

Most surgeons have previously held that no treatment was called for. But men who formerly permitted their patients to limp around untreated are now advising fixation of the joint and the elimination of weight-bearing. Placing a child in a plaster spica from the axilla to the ankle and allowing him up on crutches with an elevation on the sound foot is the most rational procedure. The adjuvant treatment, of course, must not be neglected. Tonsils must be removed if they show evidence of infection. Dental infection must be cleaned up, and the general nutrition improved.

CASE REPORT

I have one case to report—a case which I have had under observation for several months.

Boy, whose birthday is December 28, 1914. His present illness began in the latter part of March. The parents noticed that the boy limped, but no complaint was made as to pain at any time. The limp disappeared for a week or two, but was again noted early in April, when I first saw the child. The first examination showed the position of the limb to be normal at rest. A slight limp was present. There was no tenderness on palpation, slight atrophy of the gluteal muscles on the right side, the muscles of the thigh and calf on the affected side were softer than on the sound side. No shortening was present. Abduction was slightly limited; rotation, flexion, and adduction were normal. Body



Writer's case: As the affection progresses, the epiphysis becomes thinner and is often divided into one or more parts by a vertical space, and the neck of the femur is thickened.

temperature was 101° at the first examination, but this was due to an acute tonsillitis. A few carious and abscessed teeth were noticed. The x-ray picture which was taken by Dr. Fisher, shows the condition present at that time. The family history reveals no suspicion of tuberculous infection or the

possibility of luetic infection. There was no evidence of previous rachitis or any constitutional disease. The von Pirquet was negative. The blood Wassermann was negative. On June 18, 1921, after the acute tonsillitis had subsided, his tonsils were removed and several abscessed teeth were removed. A plaster-of-Paris spica was applied. On August 27 the cast was removed and another picture taken. The picture demonstrates the value of immobilization in the prevention of further deformity. Following his tonsillectomy the child's nutrition has improved.

Examination on August 27 shows a slight increase in the atrophy of the gluteal muscles. The thigh and calf muscles were noticeably more solid. Abduction was more interfered with than at the first examination. Shortening was less than one-half inch.

The outlook in this case is very good. As the pictures show, there has been little progress in the disease process. With our treatment directed against weight-bearing, we can await the hardening process confident that the deformity and consequent disability will be of the utmost minimum.

CONCLUSION

1. Perthes' disease is a self-limited disturbance of the ossification of the head of the femur.

2. The pathology is obscure, having probably the same relationship to inflammatory disease of the hip as nephrosis has to nephritis.

3. The diagnosis is comparatively easy, but an x-ray is indispensable.

4. The treatment is mechanical, to prevent weight-bearing, and hygienic, the removal of infectious foci and aiding the nutrition.

5. The outlook is favorable, more so, of course, with adequate treatment.

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DISCUSSION

DR. ROGER T. VAUGHAN (Chicago, Ill.): Dr. Shedlov's paper is a succinct and reliable summary of our knowledge of this subject at the present time, therefore I deemed it not necessary to at-

tempt to present additional points, believing that what might be more useful would be to exhibit a few slides of what is known as Perthes' disease and of allied conditions with which it is sometimes associated or with which it has etiologic connection. I will pass around first these three films showing various epiphyses with disturbances of varying origin.

The first picture shows a case of rickets with epiphyseal disturbance, not in the hip, however, but in the knee. The second, a normal shoulder with a history of trauma. The irregularity in epiphyseal development might suggest a case of epiphysitis to those not familiar with these anatomic variations. We do not often see the epiphysis of the coracoid as here. Also there is the epiphysis of the acromion shown here. In the third film we have a radiographic appearance which resembles an epiphysitis of the great trochanter but was preceded by trauma. Note the difference in appearance of the epiphyses on the two sides. I am more inclined to think, however, that this irregular line is a fracture line through the great trochanter rather than the result of inflammatory change.

These first two lantern slides show what our staff at the Cook County Hospital consider to be Perthes', tuberculosis of the hip, and the other, Perthes' disease. And note how closely the conditions resemble each other. Some still consider Perthes' disease to be a mild tuberculosis of the hip. I think Dr. Shedlov is correct in calling the condition Perthes' Disease. At the meeting of the American Orthopedic Association in Boston this year Dr. Legg, of Boston, and Dr. Jacque Calvé of France both were present, and the members present seemed to think it only proper under the circumstances to refer to the condition as the Legg-Calvé disease. Dr. Legg, it is true, wrote the first article on the subject, but Dr. Perthes wrote the first large and comprehensive article which called general attention to it. We remember that Perthes first named this condition *osteochondritis deformans coxæ juvenalis*, and so it is—of the hip and juvenile.

Note that on the diseased (TBC) side (Fig. 1) the epiphysis is less dense. It is flattened. Its outlines are not quite so sharp as on the normal side. See the similarity in these two slides. However, the epiphysis in Fig 2. (Perthes) is a little more flattened than the epiphysis in the previous case and a little more sharply outlined. The general static disturbance of the joint appears a little more marked here (Perthes) than in the previous case (TBC). Note also that there is an atrophy, not only of the epiphysis, but of the adjacent neck of the bone and also of the acetabulum. This is a case of Perthes' disease, while the first slide (Fig. 1), because of fever, local findings, etc., has been considered as probably a mild hip disease. But note how closely these two conditions resemble each other, and the treatment is practically the same for both.

In the *Journal of the American Medical Association*, a couple of years ago Roberts reported six cases of Perthes' disease, all of which he believed were syphilitic. In Fig. 2 (Perthes) we have the greatly narrowed epiphysis, and a disturbance in the contour of the acetabulum because of erosion by the roughened surface of the head of the femur



Fig. 1. "Quiet" tuberculosis of the hip.



Fig. 2. Perthes' disease of the hip.



Fig. 3. Perthes' disease of the hip. Same case as Fig. 4.



Fig. 4. Perthes' disease of the hip. Same patient as Fig. 3, but the radiograph was made six months later.



Fig. 5. "Epiphysitis" of the tarsal scaphoid, the so-called Kohler's disease. Note its marked flattening, and that it appears to be in two pieces here. Complete recovery is possible.

beneath. It is here a unilateral disturbance. Sometimes these cases of Perthes' disease are bilateral, probably more often than we see mild hip disease bilateral. This next slide is of a seven-year old boy with Perthes' disease (Fig. 3), a second plate of the case being made six months later (Fig. 4). A number of local men consider this to be a case of Perthes' disease and so it seems to me. Comparing the two pictures, you will find the epiphysis in the later one a little denser as if recovery is going on. But you still see that the head and neck of the femur, and the acetabulum to a less marked degree, are atrophic, that is, they are less dense than the head and neck of the femur and the acetabulum on the opposite healthy side. Therefore I judge that during the course of this six months of treatment the patient has been slowly recovering. The time period of recovery to this degree might be about the same length in a tuberculous hip.

Here is shown a similar condition of the foot, which the Germans call Kohler's disease, (Fig. 5). It is seen less frequently than Perthes' and is an osteochondritis of the scaphoid bone. These cases are nearly always in boys, just as is Perthes' disease. They develop sometimes following trauma and are sometimes associated with disease elsewhere in the body. At the discussion of Kohler's disease,

which took place in Boston last June at the meeting of the American Orthopedic Association the consensus of opinion was that this disease is probably a tuberculous lesion rather than a chronic inflammatory affair of septic or traumatic origin; but the same difference of opinion as to etiology still exists in Kohler's disease of the tarsal scaphoid as in Perthes' disease. A similar discussion is still going on in regard to the causation of osteochondritis in the tibial epiphysis, the so-called Osgood-Schlatter disease. One, perhaps, sees this tibial condition more frequently than Perthes' diseases. (Figs. 6 and 7).

There are just two practical points to bear in mind about Perthes' disease:

1. Etiology. We should keep an open mind and wait to see what the future developments will be. Eventually we shall probably know more definitely what is the etiology. Perhaps it is a nutritive disturbance which may be dependent on either trauma, syphilis, or tuberculosis.

2. Treatment. This is practically the same for Perthes' disease as for mild tuberculosis of the hip. Weight must be taken off the hip and fixation of some sort employed. The plaster cast or a long hip splint on the affected limb and crutches is one method. The Thomas or other hip splint may be



Fig. 6 "Epiphysitis" of the tibial tubercle, the so-called "Osgood-Schlatter disease."

used, or an ordinary caliper splint may be employed. If weight is not kept off the femur, and these patients are allowed to go walking around, in the course of a few months they will develop a very pronounced coxa vara in the affected hip, and along with this condition they will have considerable erosion deformity of the head of the bone and of the acetabulum. Once this condition has been estab-

lished and deformity of the bones has developed, we have something which is not curable. We have a static deformity which is permanent, but which is generally not very severe. From Fort Riley during the late war Dr. J. P. Lord, of Omaha, reported half a dozen or more cases of young men with healed Perthes' disease. Not having been engaged in arduous occupation before entering the Army, they did not know they were in any way crippled; and yet they found themselves incapacitated for the strenuous exertions of active military service because of this terminal coxa vara of untreated Perthes' disease.

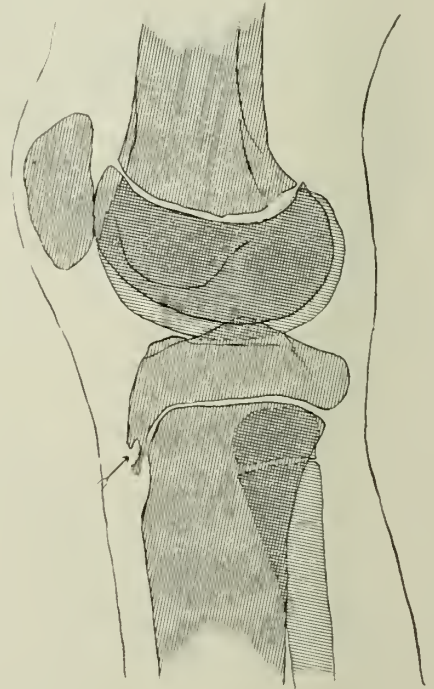


Fig. 7. "Epiphysitis" of the tibial tubercle, the so-called "Osgood-Schlatter disease."

THE CLINICAL LABORATORY: VI. BLOOD*

BY WALTER E. KING, A.M., M.D.

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SULPHATES

Under normal conditions sulphates are found in the blood in very small amounts, from 1.0 to 0.5 mg. per 100 c.c. of blood.

In nephritis with nitrogen retention, sulphate may be found in the blood as high as 12 to 16 mg. per 100 c.c.

Recent investigations show that the sulphate-

ion is excreted with difficulty; therefore improved and simplified tests for sulphates will afford delicate and specific means of determining early kidney impairment. The sulphate retention in such cases is comparable to uric-acid retention relative to diagnostic importance, except that it is more delicate, as the sulphate increases in amount more rapidly than uric acid as the result of kidney dysfunction. Thus it is evident that a selective excretory activity of the kidney

*This is the sixth of a series of articles by Dr. King on the Clinical Laboratory.

exists for certain inorganic substances, as sulphates, which may lead to the great practical value of such blood chemistry tests.

DIASTATIC ACTIVITY

The percentage transformation of starch to sugar is designated as the *diastatic activity*. The result of the test in a given case depends upon the blood sugar content and its reducing action upon starch. It is claimed that this activity is increased in conditions associated with increased activity of the endocrine glands.

The normal diastatic activity of the blood is placed at 16 or 17 (percentage transformation). An increase of blood diastase above the normal is found in diabetes and nephritis. It is possible that an increased diastatic activity in the absence of other findings may indicate approaching diabetes.

CALCIUM AND PHOSPHORIC ACID

One of the important chemical constituents of blood is represented by calcium. It has been shown that the blood corpuscles contain more phosphoric acid than plasma. The calcium content of blood in normal children has been found as follows: whole blood, 9.4 mg; blood corpuscles, 8.7 mg; plasma, 10.0 mg. per 100 c.c. of blood. As yet no relation has been shown between alkali reserve and calcium and phosphoric acid content or the acid base equilibrium.

PATHOLOGICAL CONDITIONS IN WHICH BLOOD CHEMISTRY AFFORDS VALUABLE DIAGNOSTIC AID

Diabetes:

Impending diabetes: *Diastatic activity increased.*

Mild diabetes: *Diagnosis:* Blood sugar 0.15 to 0.30 per cent (normal .08 to .12). Diastatic activity, 25-40. (Normal 15-20).

Severe diabetes: Blood sugar 0.16-1.20 per cent. (Normal .08-.12.)

Urea, 20 mg. per 100 c.c. (Normal, 12 to 15 mg.)

CO₂ combining power, 50-10 c.c. for 100 c.c. of blood. (Normal, 50-75 c.c.)

Creatinin, 2-4 mg. per 100 c.c. (Normal, 1-2 mg.)

Uric Acid, 4-10 mg. per 100 c.c. (Normal, 2-3 mg.)

Cholesterol, 0.2 to 0.8 per cent. (Normal, 0.14-0.17 per cent.)

Chlorides, 0.4 per cent. (Normal, .45-.50 per cent.)

Diastatic activity, 35-75. (Normal, 15-20.)

Treatment.—The results of examination of urine for sugar become of less importance as the disease progresses. The important criteria, as treatment is carried on, are dependent upon the blood-sugar content, the presence or absence of acidosis (CO₂ combining power), and the presence or absence of abnormal amounts of urea, creatinin, uric acid, and other substances, denoting kidney impairment. In the average case, as dietary treatment is instituted, when sugar disappears from the urine blood-sugar determinations should be made at frequent intervals, and the diet so regulated that the normal blood-sugar content is reached and maintained.

Diabetes with kidney impairment calls for blood-chemistry tests, in order that the condition of the patient may be kept under control and treatment properly regulated.

In diabetic cases demanding surgical treatment, surgery should not be undertaken before careful blood-chemistry tests have been made. In such cases the blood sugar and CO₂ combining power should always be determined.

Prognosis.—Blood chemistry affords one of the important prognostic indices. If no evidence of acidosis appears from blood examinations, early fatal termination is not likely. If urea in abnormal amounts, creatinin and uric acid are absent, accompanying nephritis may be eliminated. As treatment is instituted, blood-chemistry tests, particularly that for blood sugar, afford efficient aid in prognosis.

Renal diabetes (Renal glycosuria): *Diagnosis:* Blood sugar, no increase. (Normal, 0.8 to .12 per cent.)

Blood-sugar tests should be conducted as outlined in the classical sugar-tolerance tests. In conducting this test a specimen should be taken for blood sugar determination on an empty stomach, preferably early in the morning, or after twelve to twenty-four hours absence of food. After taking the specimen, the patient should be given 100 gms. of glucose in 200 c.c. of water. Specimens of blood should then be taken at intervals of thirty minutes for the first two hours after the administration of sugar; or specimens may be taken at one-hour intervals for three or four hours. Tests for sugar in the urine should be made from specimens collected simultaneously, also from a twenty-four-hour specimen on the following day.

If the normal blood-sugar curve is maintained under these conditions and all evidences of dia-

betes mellitus are eliminated by careful examination, it is indicated that the case is that of renal glycosuria.

Treatment.—Relatively many cases of renal glycosuria are being reported in the medical literature. One of the most recent is that of Schneiderman.⁴

Someone has called attention to the present tendency toward the diagnosis of cases of renal glycosuria without proper examination and repeated blood-chemistry tests. The physician should be cautioned not to depend upon the blood-chemistry tests alone, but the condition of the patient should be thoroughly studied, and, before arriving at a definite diagnosis of renal glycosuria, all symptoms of diabetes should be ruled out. The diet should have but little influence upon glycosuria, and the renal threshold should not be high.

Prognosis.—The diagnosis of true renal glycosuria indicates, of course, slightly increased permeability of the kidneys for sugar, but, so far as is known, affords evidence of no pathological condition. The increased tendency of the kidney to eliminate sugar may be due to stimulation of the nerve endings of the kidney cells.

Gout:

Diagnosis.—Uric acid, 4 to 10 mg. per 100 c.c. (Normal, 2 to 3 mg.)

Chlorides, .45 to .60 per cent. (Normal, .45 to .50.)

Treatment.—Data as to the efficacy of treatment may be obtained by the results of blood-chemistry tests for uric acid. Attention should be called to the fact that gout must not be diagnosed by the uric-acid findings in the blood alone. As uric acid is increased in nephritis, this condition must be eliminated.

The chief advantage of the uric acid test of the blood lies in the fact that by this blood chemistry test, gout may be differentiated from arthritis.

Nephritis:

Diagnosis.—(a) *Early interstitial nephritis:*

Urea, 15 to 25 mg. per 100 c.c. (Normal, 12 to 15 mg.)

Blood sugar .12 to .15 per cent. (Normal, .8 to .12 per cent.)

Creatinin, 2 to 3.5 mg. to 100 c.c. (Normal, 1 to 2 mg.)

Uric acid, 5 to 12 mg. per 100 c.c. (Normal, 2 to 3 mg.)

Chlorides, .45 to .60 per cent. (Normal, .45 to .50 per cent.)

(b) *Acute nephritis:*

Urea is greatly increased, and 40 to 100 mg. may be found.

Acidosis may be present as indicated by a CO₂ combining power of 45 to 20 mg. per 100 c.c. (Normal, 50 to 75.)

Other findings are similar to those of early interstitial nephritis.

(c) *Terminal interstitial nephritis:*

Urea, blood sugar creatinin, uric acid, cholesterol, and chlorides are markedly increased. Severe acidosis is present as indicated by CO₂ combining power of 40 to 12.

(d) *Parenchymatous nephritis:*

Urea, 20 to 50 mg. per 100 c.c.

Blood sugar, .12 to .20 per cent.

Creatinin, 2 to 4 mg.

Uric acid, 2 to 5 mg.

Chlorides, .50 to .60 per cent.

Treatment.—The effects of treatment may be noted by frequent examinations, especially for creatinin, urea, and uric acid. As creatinin is eliminated with less difficulty than either uric acid or urea, it should disappear in abnormal amounts from the blood early in the course of successful treatment.

Urea in abnormal quantities should next disappear.

As uric acid is excreted with greater difficulty and is one of the first substances to appear in abnormal amounts in the blood, due to impairment of the kidneys, its elimination in quantities above the normal should indicate successful progress in treatment.

In the treatment of severe cases of nephritis, the indication of acidosis as found by lowered CO₂ combining power of the blood, calls for immediate action.

Prognosis.—It is, of course, obvious that blood-chemistry tests are of considerable aid to the physician in judging clearly as to the severity of a given case of nephritis. The presence of acidosis calls for guarded prognosis. The degree of seriousness of the average case can be fairly well determined by the extent of abnormal findings in the blood, together with other symptoms.

Acidosis:

Diagnosis.—The low normal carbon-dioxide combining power of the blood is about 45 per cent. The normal is considered from 50 to 75 per cent. Below 45 per cent, symptoms of acidosis may develop.

4. Schneiderman: Renal Glycosuria, Jour. A. M. A., vol. 80, p. 825.

Treatment.—Acidosis may be present, not only in diabetes and nephritis, but it also may occur in connection with acute infectious diseases, as the result of anesthesia and may be occasionally encountered in the treatment of children, especially in gastro-enteritis and malnutrition. In some cases the condition may not be recognized until the symptoms have progressed so far that treatment is of little avail. In such cases the determination of the CO₂ combining power of the blood followed by the administration of alkaline substances, such as sodium bicarbonate, frequently brings about a cessation of symptoms of acidosis. In many such cases the relief may be only temporary, while in others more or less permanent relief may be secured through the early recognition of the condition due to the positive finding of lowered CO₂ combining power of the blood.

Prognosis.—In diabetes and nephritis a marked reduction of the CO₂ combining power of the blood is of grave prognostic value. For immediate prognosis the degree of reduction of CO₂ combining power should afford considerable valuable data to the physician.

Pernicious anemia:

Diagnosis.—Cholesterol, .13 to .06 per cent. (Normal, .14 to .17.)

Chlorides, increased. (Normal, .45 to .50 per cent.)

Treatment.—Cholesterol is regarded as an antihemolytic. It has been utilized experimentally in pernicious anemia with some promising results.

Pneumonia:

Diagnosis.—Urea, 46 mg. per 100 c.c. (Normal, 12 to 15 mg. per 100 c.c.)

Chlorides, low. (Normal, .45 to .50 per cent.)

Killian⁵ presents the chemical changes in the blood of a series of 50 cases of pneumonia of various types. At about the time of the crisis the non-protein nitrogen was increased, followed by an increase in uric acid (from 3.8 to 11 mg.) and a rise in urea (to 20 mg.).

There then followed an accumulation of creatinin, in a few cases exceeding 5 mg. per 100 c.c. The blood chlorides decreased, .28 to .42 per cent, being found before the crisis. Dur-

ing the crisis the chlorides rose to .50 per cent and later dropped gradually.

Mercuric chloride poisoning:

Diagnosis.—Blood sugar, .12 to .20 per cent. (Normal, .08 to .12.)

Urea, up to 300 mg. per 100 c.c. (Normal, 12 to 15 mg.)

Cholesterol, .35 per cent. (Normal, .14 to .17 per cent.)

Uric acid, 15 mg. per 100 c.c. (Normal, 2 to 3.)

Creatinin, 33 mg. per 100 c.c. (Normal, 1 to 2.)

Prostatic obstruction:

Diagnosis.—Urea, 12 to 40 mg. per 100 c.c. (Normal, 12 to 15 mg.)

Blood sugar, slightly increased.

Creatinin, slightly increased.

Uric acid, slightly increased.

Treatment.—Surgical interference should not be resorted to until after the blood-chemistry test for urea. It is stated that urea findings of over 30 mg. indicate renal involvement; and in such cases surgery should be used with caution. Cases which show a urea-blood content of 20 mg. or under offer good operative prognoses.

Leucemia:

Diagnosis.—Uric acid, 10 mg. per 100 c.c. (Normal, 2 to 3 mg.)

In fatal cases there will also be found an increase in urea and creatinin.

Intestinal obstruction:

Diagnosis.—Urea, 44 mg. per 100 c.c. (Normal 12 to 15 mg.)

Uric acid, increased.

Creatinin, increased.

Gastric and duodenal ulcers:

Diagnosis.—Urea, increased, 20 to 24 mg. per 100 c.c. (Normal 12 to 15 mg.)

Cholelithiasis:

Diagnosis.—Cholesterol, .13 to .30 per cent. (Normal, .14 to .17 per cent.)

Treatment.—It should be stated that data recorded in the literature show considerable variation in the cholesterol content of blood, and, therefore, the blood-chemistry test for cholesterol should not be depended upon exclusively.

In the treatment of cholelithiasis and obstructive jaundice, it is possible that reduction of the cholesterol diet may be helpful.

5. Killian: Proceedings N. Y. Path. Soc., vol. 22, 72, January to May, 1922.



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A TYPHOID WARNING

The editor is under the impression that there is more typhoid, at least more cases recorded, in the United States than have been noted before, and incidentally several deaths from typhoid have been recorded in the departments of health. It may be that the resistance of the people has been so lowered that the typhoid germ is more active than usual, or it may be that it marks the beginning of possible water infection by typhoid-carriers.

This was emphatically and intensively illustrated by a recent epidemic in Omaha. When it was found that the water supply of Omaha was infected the health authorities at once issued a warning, and every telephone owner was warned even in the middle of the night, or at various hours during the night, not to drink any of the city water until it had been cleared and made safe. This is one of the possibilities that were not to be expected,—that a water supply of a city could be suddenly infested with the typhoid bacillus.

Recent literature in the medical journals points to typhoid activities, and it is not surprising that in many countries the carelessness of the people should sometimes become a dangerous factor. A number of cases, thousands of cases, in fact, have been reported in other countries,—in France and in Africa,—so that a warning against ty-

phoid infection is timely. In an article by De Lavergne, *Annals de Medicine*, Paris, May, 1923, it is stated that it is generally admitted that typhoid bacilli which have been ingested do not multiply in the digestive tract, and that they are absorbed fairly quickly by the lymphatics of the small intestine. This was determined after some animal experimentation. It was found, too, that bacillus mesentericus or bacillus coli were found associated with bacillus typhosis.

The condition in man, however, is quite different from the condition in animals. In man there is a very important reaction characterized by a swelling of the lymph glands, which is marked in the first days of typhoid infection and decreases thereafter. The bacilli multiply in the glands, and, although their progress is retarded by an inflammatory reaction, they finally reach the blood stream.

This excursion into more or less immaterial matter is introduced simply to discuss the possibility of typhoid-carriers or typhoid infections, and it serves to introduce the question of anti-typhoid vaccine. In the case reports that come from South Africa Johannesburg says that early in November, 1922, an outbreak of typhoid started among the 3,605 natives employed in a gold mine. The most probable source of infection appeared to be unknown carriers through the medium of flies. These natives were vaccinated, per os, but the vaccination produced no malaise. Subsequent to the vaccination 20 cases of enteric fever were admitted to the hospital of which 16 had been vaccinated and of the vaccinated patients 5 died; of the 4 unvaccinated patients 3 died. The method of typhoid vaccination at the present day is the direct method, and its efficacy has been proved by army service. Undoubtedly thousands of soldiers were exposed to typhoid, but those who had been vaccinated were saved from the disease.

The time is at hand when warnings against typhoid should not be lightly passed over, and it emphasizes the necessity of water inspection all over the country, for doubtless many cases of typhoid have developed from tourist camps. Although they are kept in the best possible condition, yet in many instances it is difficult to avoid occasional infections or carriers. So far the supply of water in Minneapolis has been free from any deleterious substances, and no unusual cases of typhoid have developed, but that does not mean that they may not, and a

word of warning to the wise and to the public will do no harm at least.

THE VICIOUS NURSE

Many of the smaller hospitals that are conducted for the convenience of the owners are subject to the intrigues and abuse of the nurse who is migratory in her pursuits. She stays at one hospital as long as she is tolerated and then works for another hospital until her next attack of ungratefulness and display of temper removes her to some other place. Her main occupation between the various hospital engagements is that of abusiveness, criticizing the management of the hospital she has just left to the management of the next one. All good hospital superintendents attempt to discourage open criticism of this kind, but the result is that someone hears of it, and the inside work of the self-appointed critic does more or less harm, whether there are grounds for her criticism or not. Fortunately, these nurses, or this type of nurse, are non-graduates, or have had one or more years of experience in a hospital and then have left or have been discharged for incompetency or insubordination. These are the nurses that wander around and make trouble, not only for the hospitals, but for private families employing them. They are meddling, vicious, and unmanageable and they have a cruel streak in them, sometimes, in which they may do very material damage to a patient. Such a nurse as the writer has in mind struck an old lady, inflicting a black and blue mark on her face, although the nurse knew this woman had diabetes and was mentally deranged. She tried to excuse herself on the ground that the patient was difficult to manage, but this was no reason for an attack or assault on a sick patient. Doubtless this is done in hospitals more than we know of. There should be an interchange of nurses' lists between hospitals, and those that are undesirable should be so indicated on the list and reasons given for their being considered undesirable.

Such a nurse, of course, is far removed from the nurse who is a real nurse, who is trained, who is cultured and refined, and who is interested in the work that she is doing. But in spite of all this, there is an apparent indifference on the part of a good many nurses toward their profession, and not infrequently toward their patients, that is, they become independent and perhaps commercialized. The State Board

of Nurses should in some way be permitted to get in touch with all of the nurses who go from hospital to hospital and who are supposed to be nurses in good standing. They could offer help to hospitals and physicians and to families, if they had this sort of evidence to use for purposes of general protection. They ought to be permitted to disbar one of the vicious type, making it impossible for her to practise nursing in the entire state. This would not interfere with the practical nurse who has acquired experience and has a talent for nursing, even though she be an undergraduate or a non-registered nurse; but it should bar the type spoken of in the earlier part of this editorial from having a foothold anywhere, at any time.

THE DOCTOR'S DILEMMA

The above is not a copy of the title used by Bernard Shaw, but is suggested by the fact that a good many physicians are in rather close quarters, as it were; that is, they are struggling for recognition, struggling to maintain their supremacy in medicine and surgery, and not infrequently struggling to make both ends meet. The reasons are difficult to arrive at. Perhaps in the one instance it may be the doctor himself who is unprepared to combat the world's problems; he is unfitted for the activities that demand personal effort, personal acquaintance, and the acquisition of a practice which is legitimate. Some men very readily succeed in their profession. Perhaps a reputation has preceded them in their various localities; perhaps they have influence which is helpful; they may be associated with others who are commendatory; but, best of all, they are introduced to a class of people who are more or less easily impressed and who boom and boost their doctor on every occasion. The few are very fortunate in that respect, and it is comparatively easy for them to build up a lucrative practice. But the readiness of those same people to employ a new man because he happens to come with a different sort of a recommendation is another dilemma that confronts the doctor. People are still herding in their instincts, and they travel in groups until suddenly something startling diverts their attention, and off they go in an entirely opposite direction.

Another problem may be the non-medical healer; and, as we have said before, we have no objection to their making a living because they do it by their wits and by their newer meth-

ods and by the arguments which they have been instructed in and which they advance although without much actual foundation. As has been referred to before, some of the cults teach, first, the business side of—shall we call it a profession or an industry? They instruct their students to see that they are paid before the course of treatment, and it is good business, but there are very few doctors who really follow out such a line of practice, and it is not possible in a case of acute illness or an acute surgical emergency to get down to a commercial basis and say, "Who is going to be responsible for this bill?" The doctor, then, does his work from a purely professional and philosophical point of view, and does his bit and hopes for his fee; sometimes the fee is forthcoming and sometimes it is not. A doctor in an adjoining state was discussing the dilemma of the doctor and the possibility of the non-medical healer being responsible for the reduction in the doctor's practice. He said he believed this was not true, that very few of these non-medical healers really invaded the doctor's territory or lessened his financial returns; that people were inclined to go to something that is new, particularly to a man who had what they think is a new idea or a new method, and who could promise results. He cited the instance of one of his patients who had been through an experience of this kind. She came back and said she had had a certain number of treatments and they had done nothing for her. Instead of abusing the man who had been her "healer," the doctor said, "Madam, you are expecting altogether too much; this man has had comparatively little education, he has had very few months of training in his particular branch, and it is unfair of you to condemn him for not curing you, when doctors have to spend many years in getting into the profession and in learning something after they get into the profession." This sort of argument does not, as a rule, appeal to the public. They want something definite, they want to be promised relief, and they are willing to pay for it. Very few of these non-medical cults carry accounts on their books, quite in contrast to the medical profession.

The only remedy lies with us and with the medical societies,—to keep on doing better work, attaining a better attitude toward and closer contact with the public, giving them information and the benefit of the latest methods in the medical practice; not skimming over the little

things or ignoring them, but paying more attention to them, thus giving the people something to think about in a logical manner. The doctors will still survive, even if a long wave of health has swept the country. There are a few men in all parts of the country who are busy, but the large majority of them have felt the strain of their professional difficulties, and this is the history in the East and in the West, and all over the country. So one must not be discouraged if his business goes down and he becomes a part of the great unemployed.

MORE TROUBLE FOR THE MEDICAL EXPERT

A recent case of the conviction of a murderer who shot a policeman to death and wounded his former employer, is of interest. The accused set up insanity for defense; that he did not know what he did or where he was. And the testimony as to his mental condition was derived entirely from lay witnesses. No medical man was introduced into the trial. Many of the men testified, and probably in good faith, that he was mentally queer and probably insane, and they were permitted to take the stand because it is part of the statutes that a lay witness may give testimony of this kind. The result is, of course, what might have been expected. The lay witnesses' reasons for believing a man insane are usually sentimental, or are simply brought out for the benefit of the prisoner. They have no foundation upon which to base an insanity, especially when the man was admittedly a drug addict and an alcoholic, and, in addition, had been badly brought up and was undisciplined and untrained as to his conduct. In spite of all of his witnesses he was found to have conducted himself in a manner which indicated that he knew the difference between right and wrong, and knew, in a very definite way, the results of his acts. Probably if the medical expert had been introduced in the case there would have been a lot of squabbling and opposition and contradiction, and the jury would have disregarded the whole situation from a medical standpoint and convicted the man on his own witnesses' testimony or that of the witnesses for the State who testified as to his conduct.

Another curious thing has just occurred, a case in which the Supreme Court of Arizona asked this question, "Was the defendant company entitled to examine plaintiff Garcia's phy-

sician for the purpose of contradicting evidence introduced by Garcia of what the physician did in the course of his treatment incident to the injury?" Garcia's brother testified that fragments of bone were removed from Garcia's leg by the physician. The defendant offered to contradict that testimony by the testimony of the same physician, but was not permitted to do so because of the Arizona statute, which reads as follows:

"A physician or surgeon cannot be examined, without the consent of his patient, as to any communication made by his patient with reference to any physical or supposed physical disease or knowledge obtained by personal examination of such patient; provided that, if a person offers himself as a witness and voluntarily testifies with reference to such communications, that is to be deemed a consent to the examination of such physician."

This is one of the difficulties attending trials in court, and is one of the reasons why they are hampered. The physician is obliged to answer only the questions asked him and is not permitted in any way to offer something that would be supplementary because it is alleged to be a confidential relationship between physician and patient. There must come a time when these relationships must be rather more liberally interpreted, that is, if any real justice is to prevail in personal-injury cases. Physicians are inclined to think that the attorney or the attorneys in a case ask too many unnecessary and trivial questions which to the mind of the physician have no bearing upon the case; but in the minds of the attorney they are of the utmost importance, and for that reason a physician is restrained from answering in a simple way, but must answer according to the legal side and its application to a possible condition. It is almost impossible to get three or four physicians, perhaps two on either side, to make a joint examination, and give a joint opinion that can be taken as a general constructive idea or show the expression of opinion of four medical men or surgeons. This has been tried in cases of personal injury. Three of the four men may agree, while the fourth holds out, has a different opinion, and will not permit it to be swayed by anything that would be vital to the case. The result is that railroad and other industrial corporations throw up their hands when such a thing is mentioned and say that it is impossible to get physicians to agree to any-

thing if they are employed on one side or the other. There is bound to be prejudice, and it is very difficult for any man to express a perfectly honest and unbiased opinion. Until they do, the medical expert is going to suffer in the eyes of the public and certainly in the eyes of the court and jury.

BOOK NOTICES

MANAGEMENT OF THE SICK INFANT. By Langley Porter, B.S., M.D., M.R.C.S., Professor of Clinical Pediatrics, University of California Medical School, and William E. Carter, M.D., Assistant in Pediatrics and Chief of Out Patient Department, University of California Medical School. Cloth. Price, \$7.50. Pp. 654, with 54 illustrations. St. Louis: C. V. Mosby Company, 1922.

This text is quite different from anything that has appeared in the American pediatric literature.

For the practical pediatricist and the general practitioner it should have a tremendous appeal. It surely is in every sense a practical and quick reference work. This idea is successfully carried out in dealing with the different and common disease complexes under the head of some prominent symptoms, such as vomiting, cough, hemorrhage, convulsions, etc.

The chapter on infectious diseases is very good. There is an excellent and most comprehensive chapter on methods of therapeutic procedure. This seemingly covers every known useful procedure practiced at the present time. The directions are clear and easily understood.

There is a good chapter on formulas and recipes, one on drugs replete with a large number of useful prescriptions, and a final chapter on poisoning and the common antidotes.

Throughout the entire text only the practical side of pediatrics is emphasized. This is a complete departure from the usual type of text-book. It should appeal to the general practitioner and furnish him a ready source of valuable practical information.

MEDICAL CLINICS OF NORTH AMERICA. (Issued serially, one every other month), vol. 6, No. 1. July, 1922. St. Louis Number. Octavo of 203 pages with 61 illustrations.

Vol. 6, No. 3, September, San Francisco Number, octavo. 254 pages, with 49 illustrations.

Vol. 6, No. 3, New York Number, Octavo, 373 pages, with 22 illustrations. Per Clinic year (July 1922 to May 1922), paper, \$12.00 net; cloth \$16.00 net, Philadelphia and London: W. B. Saunders & Co.

The Medical Clinics of North America continue to have interesting clinical discussions that require a minimum effort on the part of the reader.

In St. Louis number the discussions of Dr. William Engleback on endocrine adiposity, and Dr. W. C. McKimm Marriott on chronic digestive inefficiency, are especially noteworthy.

The emphasis on treatment makes the San Francisco number stimulating. Paroxysmal tachycardia, Bright's disease, gall-bladder disease, diphtheria, myxedema, leprosy, carcinoma of the mouth, and other conditions are discussed from the standpoint of treatment. The article of Drs. Reed and Wyckoff, on intestinal protozoa, calls attention to an often neglected diagnostic field.

In the New York number Dr. F. M. Allen makes observation on the progressiveness of diabetes and upon the treatment of arterial hypertension by salt restriction. Probably as favorable results have been noted by other therapeutists from rest treatment. In the other articles there is emphasis on treatment.

—C. A. MCKINLAY, M.D.

THE HEART IN MODERN PRACTICE By William Duncan Reid, A.B., M.D. 352 pps. Lippincott: Philadelphia and London, 1923.

This book is written, according to a statement in the preface, "to incorporate the best of the new knowledge (of abnormal cardiac rhythms) with that less recently acquired, but which may be said to have stood the test of time."

Attention is directed to the division of the subject matter under three main heads,—etiological, structural, and functional,—which appears a logical and satisfactory classification of cardiac diseases. The etiology is particularly stressed. The author's interest, obviously, centers in graphic methods of cardiac diagnosis. Of course no original contributions are claimed.

A weakness of the book lies in the consideration of the heart apart from the rest of the circulation, and the omission of certain fundamental principles of the physiology of the circulation essential to an understanding of cardiac function. Röntgen examination of the heart is most inadequately sketched in three pages.

The book is too lacking in basic principles to be used by beginning students, and too incomplete for reference for the trained cardiologist. For the busy practitioner, however, for whom it is primarily written, it gives a concise and adequate account of abnormal cardiac rhythms and the methods by which they are studied, with a clear statement of the accepted facts of cardiac disease. An authoritative treatise in English on normal and abnormal circulatory function is yet to be written.

—HAROLD RYPINS, M.D.

ORIGIN AND HISTORY OF ALL THE PHARMACOPEIAL VEGETABLE DRUGS, CHEMICALS, AND PREPERATIONS. With bibliography. Vol. I. Vegetable Drugs, by John Uri Lloyd. Cloth, \$6.00, pp. 449. Cincinnati: The Caxton Press.

This readable book with its bibliography of over 700 references, sponsored by the American Drug Manufacturers' Association, easily fills the requirements as set forth in the introduction, that is, "An historical investigation of the drugs and preparations official in the Pharmacopeia of the United States, accompanied by bibliographical data sufficient to enable one to obtain first hand references to publications embracing the history of the subjects included."

This volume on vegetable drugs by Dr. Lloyd

should prove a valuable adjunct for the teacher of materia medica and the research student.

—I. SIVERTSEN, M.D.

NEWS ITEMS

Dr. J. Regner has moved from St. Hilaire to Middle River.

Dr. F. A. Moore has moved from Lester-ville, S. D., to Yankton, S. D.

Dr. L. E. Boutelle has moved from Grand Forks, N. D., to Bismarck, N. D.

Dr. W. G. S. Carpenter has moved from Hurdsfield, N. D., to Pingree, N. D.

Ground was broken last month on the site of the new Wadena Methodist Hospital at Wadena.

Dr. Sherman Ripperton, of Brewster, Minn., has returned to Wyndmere, N. D., to resume practice at that place.

Dr. E. L. Bradley, formerly of the Mayo Foundation and Clinic, is practicing in Duluth, with Dr. E. I. Lundgren.

Dr. G. A. Fuson has been appointed city-county health officer at Great Falls, Mont., to succeed Dr. G. A. Fuson resigned.

Dr. S. E. Schwartz, of Butte, Mont., has gone to Chicago, Baltimore, and New York for special study in the clinics of those cities.

Dr. W. E. Ground, of Superior, Wis., has returned from a four months' trip to London, Paris, and Berne, where he went to study cancer.

Miss Florence Mae Lampert of Madison, Wis., and Dr. H. L. Parker, of the Mayo Clinic, Rochester, were married in Madison, Wis., on August 4.

Dr. W. J. Awty, who practiced in Moorhead, Minn., and Fargo, N. D., for thirty years, died last month at Charleston, Ill., at the age of 61.

Dr. G. Bjornstad, of Minneapolis, has returned from a European trip. Dr. Bjornstad was a representative of Minnesota at the Gothenberg Exposition.

The Women's Auxiliary of the St. Louis County Medical Society opened the activities of the year last month and have planned for a year of unusual work.

Dr. Katherine Pardee, formerly of the Mayo Foundation and Clinic, has accepted a position as resident physician at the Minnesota State Teachers' College at Moorhead.

Dr. Robert Murdy, of Aberdeen, S. D., has gone to Philadelphia for an extended course of post-graduate work. He is a son of Dr. R. L. Murdy of the Aberdeen Clinic.

Dr. E. C. Mason who has been on the staff of the Mayo Clinic since July 1, 1921, took up his new duties as Director of the Clinical Laboratories of the Ford Hospital, Detroit, Mich., on September 1.

Dr. Laura Mary Moench, formerly of the Mayo Foundation and Clinic, left Rochester, August 28, for Northampton, Mass., where she has accepted a position as Instructor in Hygiene at Smith College.

Dr. Henry J. Friesen, of Grand Forks, N. D., has moved to California, where he will take up his permanent residence and continue in practice. Dr. Friesen makes this change on account of sickness in his family.

Dr. C. J. Hutchinson, who completed his Fellowship under the Mayo Foundation, left Rochester, Thursday, and will take a cruise on the Great Lakes with the United States Naval Reserve before going into practice.

St. John's Hospital, of St. Paul, will make a drive on Nov. 12 to 24 to raise \$300,000 for much-needed improvements. St. John's is a non-secretarian charitable hospital and has a fine record of service to the public.

Dr. Brand A. Leopard, of Minneapolis, a 1921 graduate of the Medical School of the University of Minnesota, has moved from Melrose to New Richland. Dr. Leopard was married in August to Miss Esther Meyer, of Duluth.

The ladies of the Shriners' Hospital Auxiliary propose to establish a convalescent home for the children unable to leave the hospital. A bazaar will be given on the 4th, 5th, and 6th instant at the West Hotel in Minneapolis to raise funds.

Dr. Orville N. Meland, formerly of Minneapolis, but now of New York City, was married last month to Miss Mildred Langtry, of Minneapolis. Dr. Meland, accompanied by his wife, has gone to Europe for several months' study in London and Vienna.

A course of graduate lectures on neuropsychiatry opens for nurses on Wednesday (Oct. 3) at the Mounds Park Sanitarium, St. Paul. The lectures are given for graduate nurses and social works. They will continue twice a week through October and November, and they are free.

Miss Tessie O'Brien, who assisted in the program and registration during Minneapolis Clinic Week, has opened an office as Public Stenographer at 732 Andrus Building, for multigraphing, depositions, and copying of manuscripts, medical and legal papers. Telephone Atlantic 0171.

The Minnesota Academy of Medicine resumed its regular meetings after its summer vacation on Sept. 19. The following officers were elected for the current year: President, Dr. A. S. Hamilton; vice-president, Dr. Harry P. Ritchie; secretary-treasurer, Dr. John E. Hynes.

Dr. Saxe W. Mowers died last month in Tacoma, Wash., at the age of 53. Dr. Mowers was a graduate of Michigan, class of '96, and practiced in Brainerd for a number of years as assistant chief surgeon in the N. P. Hospital. He was president of the Washington State Medical Society in 1920.

PROGRAM OF THE MINNEAPOLIS SURGICAL SOCIETY

Monthly Clinic Day—Thursday, Nov. 8, 1923
Abbott Hospital

8:00 to 10:00 A. M.: Operative clinics by Drs. Abbott, Strachauer, and Johnson
Northwestern Hospital

10:00 A. M. to 12 M.: Operative clinics by Drs. Law, Mann, Poppe, Bulkley, Yoerg, and Nordland.

Anatomy Building

2:00 to 4:00 P. M.: Surgical Pathological Conference by Drs. Bell (E. T.), Cameron, Mc Cartney, Clawson and O'Brien

6:30 to 8:00 P. M.: Dinner at Elks Club
Minneapolis General Hospital Clinic Room

8:00 P. M.: Presentation of clinical cases and a paper by Dr. S. H. Baxter on
"Retroperitoneal Tumors"

MINNESOTA STATE MEDICAL ASSOCIATION

The members of the Minnesota State Medical Association are hereby notified that the annual meeting of the Association will take place in St. Paul, Wednesday, Thursday, and Friday,

October 10, 11, and 12, 1923, as determined by the House of Delegates on invitation of the Ramsey County Medical Society.

The Council of the Association will meet at 10 A. M., Wednesday, October 10, at the St. Paul Hotel.

The House of Delegates will meet at 2 P. M., Wednesday, October 10, at the St. Paul Hotel.

The scientific meetings will occupy Thursday and Friday, October 11 and 12, and will all be held in the St. Paul Hotel.

CARL B. DRAKE, Secretary.

SCHOOL OF NURSING OF THE UNIVERSITY OF MINNESOTA

The Central School of Nursing of the University of Minnesota will enter during the ensuing year only two classes; the one for the Fall Quarter commencing September 26, 1923; the other for the Spring Quarter, commencing April 2, 1924.

It is important that applications be made at as early a date as possible prior to either entering quarter. A high school diploma is a prerequisite for admission.

The School commands the nursing services, for educational purposes, of four associated hospitals, the University Hospital, the Charles T. Miller Hospital, the Minneapolis General Hospital, and the Northern Pacific Hospital.

All students are entered under University registration. Applications are submitted to the Director, Miss Louise M. Powell, School of Nursing, University of Minnesota.

South Dakota Practice for Sale

South Dakota practice and first-class, up-to-date equipment, including complete dispensary and good library for general and surgical practice; best and richest part of state; worth investigating; thickly settled prosperous supporting territory; \$5,000.00 unopposed practice; collections 95 per cent; nearest competitors: 20 miles east; 13 miles west; 10 miles south; 15 miles north; two good towns on territory; good roads. Will sell cheap for cash or little money with good security. Address 382, care of this office.

Anderson Operating Table for Sale

Table in good shape and price reasonable. Inquire of Mr. Walker, 704 Masonic Temple, Minneapolis, or telephone him. Geneva 6157.

Associate Physician Wanted

An associate physician in the general practice of medicine and surgery in Minneapolis wanted, preferable a man who has newly finished his internship. Wonderful opportunity for the right man. Address 383, care of this office, or telephone Atlantic 5858.

Position as Technician Wanted

Young man, graduate of thorough, complete course for laboratory technicians; also graduate of Chicago Veterinary College; and a city pathologist in Michigan for two years, would like a position as laboratory technician and pathologist in hospital or clinic, preferably in Minnesota. Excellent references can be furnished. Address 385, care of this office.

Work by Male Nurse Wanted

Doctors having paralytic cases or patients in need of care after suprapubic operations where a man nurse is preferable can obtain the services of a registered and highly recommended man nurse by calling Colfax 6532 or writing P. O. Box 718, Minneapolis.

Minnesota Drug Store for Sale

Small investment, low price for quick sale. Low expense. No opposition; good territory. A splendid deal for a doctor. Part cash down, balance on terms. Address W. C. Dieterich, Hanley Falls, Minn.

Microscope for Sale

A Bausch and Lomb F. F. H. 8, as good as new. Will sell for \$100.00, which is \$37.50 below the dealer's price. Address C. A. Butler, M.D., Lake Preston, South Dakota.

Practice and Drug Stock for Sale

I offer for sale my practice and drug-store, fixtures, drug sundries, and private stock of drugs. Town of 400; no other doctor. A good opportunity for a doctor or druggist or both. If interested write C. E. Sargent, M.D., Isabel, South Dakota.

Ophthalmologist, Etc. Wanted

A well-established firm in a large city of North Dakota wants a specialist in ophthalmology, etc., to join it to take the place of its specialist in this line now. Leaving the State. The opening is a splendid one for a high-grade man, one who is a little better than anyone else in this line in the city. The firm's standing and business guarantee a satisfactory income for the right man. Address 387, care of this office.

Practice for Sale

A Northern Minnesota practice and part of office equipment for sale. Good live town. No competition. Going to specialize. Must be cash at time of purchase. Address 389, care of this office.

For Sale

One Scanlan-Morse sterilizing outfit suitable for small Hospital. Consists of two ten gallon water heaters, one instrument sterilizer, one National dressing sterilizer, hospital size. Gasoline or Blau gas heated. Address 388, care of this office.

Location Wanted

Would like location in North Dakota or Minnesota; experience ten years general practice with special training in internal medicine. Prefer country town with good surroundings, close to Hospital. Address 390, care of this office.

THE JOURNAL-~~L~~ LANCET

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LUNG ABSCESS FOLLOWING TONSILLECTOMY*

BY R. D. ALWAY, M.D.

ABERDEEN, SOUTH DAKOTA

There have been so many articles published on this subject the last few years that the nose and throat specialist begins to wonder if he has not been overlooking these cases. On the other hand, when we consider the increased frequency of operations on the upper respiratory tract compared to those of a few years ago, the rate per thousand has probably not increased.

The first cases reported in this country were in 1912 by Richardson,¹ who reported two cases, both of which recovered, one by incision and drainage and the other without treatment.

From 1912 to 1916 the literature does not contain much on this subject. In March of the latter year Dr. Morris Manges² published a paper reporting nine cases in adults, one of whom died, and, stated that abscess of the lungs should never occur if the patient has been properly treated, and these post-tonsillectomy pulmonary abscesses do not occur in private practice. This assertion was denied by Richardson in a paper published by him in the same year. From 1916 to date there have been from one to five articles published each year.

Wessler,³ röntgenologist at Mount Sinai, studied one hundred cases of lung abscess. Twenty-six cases of these were post-operative, and twenty-one of the twenty-six were post-tonsillectomies.

Fisher and Cohen⁴ report five cases of lung

abscess which were treated in a different hospital from that in which the operation occurred. This demonstrates the fact that we do not know how many of our cases are followed by this complication.

Porter⁵ reports two cases under local anesthesia, as do Simpson and Noah.⁹ All four cases showed tuberculous lung complications.

Dr. Wm. F. Moore,⁶ of Philadelphia, sent out a questionnaire to over a thousand laryngologists in this country and Canada, from which he received 508 replies. Three hundred and sixty-four reported no lung abscess following operation, and 144 reported a total of 202 cases. Thirty-nine of these were under local anesthesia.

Dr. C. N. Chipman,⁷ of Washington, published an article in the same year on the relation of the anesthetic to pulmonary abscess, following nose and throat surgery. He tabulated 124 cases, none of which had been previously reported, and he also interviewed eleven surgeons who had treated twenty-four cases of lung abscess; twenty followed tonsillectomy, two followed submucous resection, and two followed operation on the frontal sinus. Dr. Chipman laid particular stress on the failure to cleanse the mouth and teeth before tonsillectomy, also the failure to use suction at the time of operation, which are important measures to prevent this complication.

Etiology.—There has been considerable difference of opinion as to the cause of lung abscess

*Presented at the forty-second annual meeting of the South Dakota State Medical Association, Watertown, S. D., May 23 and 24, 1923.

following tonsillectomy. Three modes of transmission are possible,—lymphatic extension, direct aspiration, and blood stream. Lung abscess, due to lymphatic extension, may be possible; at any rate, it is very rare. In the series analyzed by Moore only one case presented a clear clinical picture of this method of transmission. Clendening believes that it occurs.

A great deal of stress has been laid by some observers on the anesthetic. Coakley advises carrying the anesthesia to the full abolishment of the pharyngeal reflex. Moore and Chipman advise light anesthesia, and they quote Dr. Jackson in stating that "the bechic reflex is the watch-dog of the lung; don't drug it unnecessarily."

Dr. Richardson, in his paper in 1916, stated that the cause of pulmonary abscess following tonsillectomy was in all probability due to embolism, but in the *Journal of the A. M. A.*, October, 1922, he stated that very few cases were due to embolism and that the majority were due to aspirating of septic material which is squeezed out of the tonsil at the time of operation.

Moore contends that the vast majority are of inspiratory origin, and he arrives at the conclusion: (a) the time of development, as in the series examined by him, with the exception of 15 cases, the average time was six days; (b) the lower lobe of the lungs was involved in 60 per cent of the cases; the right lung 41 per cent and the left lung 19 per cent, which is in the same relative proportion as that given by Chevalier Jackson in cases of inspired foreign bodies.

Wessler and Schwartz,⁸ on the other hand, claim that the abscess is usually in the upper lobe and, therefore, is due to embolic infarction.

Porter⁵ takes the view that the plexus tonsillarum and the plexus pharyngeus are always injured in tonsillectomies, and that infected emboli can be dislodged and travel direct to the lung and cause abscess.

Simpson and Noah⁹ maintain that more cases are due to embolic infarction than is ordinarily supposed.

Supporting the embolic and infarction theory is the fact that many cases of lung abscess have been reported following operation under local anesthesia. Dr. Jackson claims that the larynx can be completely anesthetized by the application of 8 per cent cocaine to the lower pharynx, provided one goes deep enough to reach the superior laryngeal nerve. Such being the case,

we can understand how the cough reflex can be abolished and the safeguard to the lungs removed.

Dr. Logan Clendening¹⁰ has suggested, in a couple of articles, that the motor-driven anesthesia apparatus is responsible in many cases by forcing septic material past the glottis, and has been quite severely criticized for this contention.

The general condition of the patient could be the antecedent cause, a lowered resistance from any cause, such as chronic bronchitis or tuberculosis, would add an element of danger. Moore in his selection of cases states that when a tuberculous lesion had previously been diagnosed the symptoms develop earlier.

Symptoms.—Following nose and throat operations—cough, irregular temperature, chills, pain, or fullness in the chest, foul breath, very foul expectoration, hemoptysis, increased leukocytosis, confirmed by the *x*-ray findings and exploratory puncture complete the diagnosis.

Treatment.—The treatment is non-operative and operative. The non-operative is by the use of the bronchoscope, and consists in evacuating the pus and washing the cavity out with a solution of argyrol. This treatment has been used quite extensively in some of the eastern cities. The claim made is that it is a safe and scientific method by which many are cured and all who submit to it are relieved of the very offensive breath.

The operative methods belong mainly to the general surgeon and are as follows: (1) artificial pneumothorax; (2) incision and drainage, preferably by the two-step method; (3) lobectomy.

1. In regard to artificial pneumothorax: Dr. Tewksbury, of Washington, reports having treated nineteen cases with sixteen cures and three deaths.

3. Lobectomy. I do not think lobectomy is to be recommended. It is too heroic. Lilianthal reports thirty-one cases with a mortality of 42 per cent.

The case I wish to report was operated on in a free clinic in one of the western counties of North Dakota on September 6, 1922. The modus operandi was the La Force tonsillotomy and adenotomy and Sornson's suction apparatus. The patient was a well-developed, healthy-looking girl of fifteen years of age. Ether was used by the open-drop method, and there was nothing unusual about the operation.

Two weeks later I received a letter from the girl's father, stating that his daughter had not felt well since the operation, and that the following week she had had chills and fever and pain in the right side of her chest and had coughed up a lot of very foul-smelling pus and blood. The local physician who had been called had diagnosed the condition as abscess of the lung.

I was unable to get the father to bring his daughter to Aberdeen until December 9, three months following the operation. On her arrival at the hospital her physical examination showed the following condition: appearance, septic anemia; pulse, 100; temperature, 101°; respiration, 20; s.b.p., 104; d.b.p., 60. Examination of the chest showed marked dullness over the entire right front, especially marked over the 2d and 3d interspaces, and over this area the breath sounds were very tubular; left lung, normal.

The laboratory findings were as follows: leukocytes, 20,800; polymorphonuclears, 85 per cent; urine, sp. gr. 1,024; acid; albumin, two plus; sputum, a large number of staphylococci; no tubercle bacilli.

The x-ray showed marked increased density over most of the entire right lung. Beginning over the 3d interspace and extending to the 7th rib there was a dense shadow about the size of a good-sized orange.

From the 9th to the 11th the temperature fluctuated between 100° and 102.4°. The patient complained of pain over the right lung and expectorated a great deal. On the afternoon of the 10th, she expectorated over four ounces of blood and pus. An examination following this revealed a pronounced tympanitic note over the 3d and 4th interspaces.

Another x-ray picture was taken, which showed less density and a clearer area in the 5th interspace.

On December 12 she was operated on by Dr. Murdy under local anesthesia. The 3d and 4th ribs were resected just internal to the mammary line; the lung was incised, and two rubber tubes inserted into the abscess cavity.

From this time until the 23d of the month there was profuse drainage, frequently requiring two dressings a day. The temperature exceeded 100° on only two or three occasions from the date of the operation to the 30th of the month, when it gradually dropped to normal and remained there. She was discharged from the hospital on the 13th of January with the wound entirely healed.



Fig. 1. Lung abscess following tonsillectomy, showing involvement in the right lung.



Fig. 2. The same patient after operation.

Before being discharged from the Clinic on January 23, examination revealed the following: dullness on percussion over an area of about three inches in diameter, extending from the 2d to the 5th rib and from the right side of the sternum to the anterior axillary line. In the back there was some dullness extending from the 10th dorsal spine downward. Over this area the breath sounds were almost absent.

Over the remaining area the breath sounds were normal in quality. The left lung was normal to percussion and auscultation.

An x-ray picture taken at this time showed the right lung almost normal at the apex, the lower half still somewhat cloudy.

Suggestions as to how to prevent this sequela of tonsillectomy:

1. Complete physical examination with laboratory findings.
2. Aseptic operative technic.
3. Anesthesia. Avoid too deep narcosis, as there is more danger from this than from the motor-driven apparatus. The reflexes should not be entirely abolished. This precaution should be taken in the operations under local anesthesia. There is danger of abolishing the reflexes by swabbing the tonsils and pharynx with cocaine before the instillation of procaine.
4. The dorsal position with the head lowered. Moore reports that the largest number of his series came from eastern Massachusetts, where the patients were anesthetized in the sitting or semirecumbent position.
5. Keep the throat dry with some form of suction apparatus.
6. Use an instrument which will traumatize the pillars the minimum amount.
7. Coagulation should be a routine and prevent bleeding during the operation as much as possible. Do not swab the pharynx and pillars if it can be avoided.
8. Do not return the patient to bed until all bleeding has been stopped.
9. Place the patient in the prone position with the head turned to the side, and in the same position in bed with foot of bed raised.

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DISCUSSION

DR. J. G. PARSONS (Sioux Falls): I also am unfortunate because I had the misfortune to have one of these cases within the last year, and I wish to congratulate Dr. Alway on the result which he finally obtained in his case, which I am happy to say occurred in the one I had, and also upon the excellent paper he offered.

By way of discussion I wish to lay particular emphasis upon what appears to me to be the patent

fact, namely, that we do not know all there is to know about the cause of pulmonary abscess which follows tonsillectomy. The diversity of opinion and of arguments which can be raised pro and con would lead me to believe that before we can arrive at definite conclusions we are in need of much more definite data than are at present at our disposal. I think we have insufficient data on the following problems: Does this occur more frequently in children or in adults? It is well known that by far the larger number of tonsillectomies are performed upon children. In the clinics this holds true to a large extent. So far as I have been able to determine from the literature, or my own experience, and after reading the Doctor's paper as to the exact number of children and adults, there have been no means by which we may make a definite conclusion regarding children and adults, respectively.

Secondly, tonsillectomies performed under local and general anesthesia, and the number of lung abscesses which occur. Further, they are of embolic or inspiratory origin. We shall have to have these matters pretty well considered before we make definite statements.

Do we find lung abscess in greater proportion following tonsillectomies than in cases following general surgery which has to do with a similar infected focus? The data which we have at our disposal concerning lung abscesses following tonsillectomy and those which follow general surgery are of practically no value unless we know that these cases are dealing with similar kinds of tissues which are infected, because, if we do not have this information, we cannot successfully compare it with the inspiratory.

The ideas one would get from Wessler's investigations of his 100 cases would seem to argue against this conclusion because most of them were cases of abscess found in the upper part of the lung. Also, if the inspiratory etiology were more important there should be many of these cases following intranasal operations, where, as you know, the practice is decidedly against packing the nose. They do not mind letting these cases, the intranasal and sinus operations, carry on bleeding for some little time, and it subsides without packing in the great majority of cases. There should be a much larger number of lung abscesses following nasal operations if this be true. There is also the fact that lung abscesses very seldom occur following adenectomy, which does not argue very much in favor of the inspiratory theory. Furthermore, the cases reported were nearly all in adults.

It is a matter of common knowledge that the greater number of tonsillectomies are in children. The theory has been brought out that during the operation a lot of material is sucked out of the tonsil and gets into the lung, but, if this is true, there should be a much larger percentage of abscesses following the Sluder operation, where, we all know, there is much more squeezing of the tonsil, whether done by the plain Sluder or by the Beck modification; and there should be a much greater risk than in any other way. In a personal letter from Dr. Joe Beck he says he has never had a single case of lung abscess, and he does plenty of operations.

Whatever may be the cause, I am settled in my own mind that the embolic theory is the most tenable. We cannot arrive at any definite conclusions, but, regardless of what the etiology is, we can take to heart very seriously the recommendations that Dr. Alway has given us.

I would like to emphasize again the importance of having a clean field of operation—something we give too little attention in operating on tonsils. It is important to see that the teeth are scrubbed and kept clean, which is seldom done. I pay more attention to this than I do to prescribing a mouth wash, which I think is well to amuse patients with, but which will do little by way of sterilization.

The sterilization of the cavity left by the tonsil after its removal is important, and I have made a practice of swabbing out the cavity with full strength McDonald solution. I formerly used tincture of iodine and other things, but the McDonald solution, I believe, is far superior and should be used as a routine.

A patient I had was a nurse on whom I operated on June 26, 1922. She called me first for a distressing sort of cough which had been bothering her for a time, and she had a laryngeal tonsillitis, which was troubling her quite a bit. Her tonsils were bad, and I said they should be removed. This was done under local anesthesia with novocaine. There was nothing unusual about the operation, and there was practically no hemorrhage. She felt comfortable a day or two afterwards and went to her home in the country, expecting to remain a few days until she was able to go back to work. I have here the further history of her case, which was abstracted for me by Dr. Hedman, of Rochester:

"The patient registered at the Mayo Clinic on December 11, 1922. She complained of spitting up blood, pulmonary hemorrhage, cough and hoarseness. Her family history was negative.

"About five or six days following tonsillectomy, June 26, 1922, she had a little bloody sputum, and a few hours later she was taken with severe pain in the lower left chest with slight chill. The next two weeks were characterized by severe pain in the left lower chest, high temperature (105°), increased respiration and pulse with abdominal distention, and slight cough with little or no sputum. At the end of two weeks she suddenly began to cough violently with expectoration of pus and blood; the sputum was very foul. She had more marked chills with sudden rise of temperature. Pain then subsided, and the cough and expectoration lasted about a week. A diagnosis of lung abscess was made. The cough and sputum became less and less for another week, when another profuse eruption occurred followed by improvement. She had another attack on August 8, with gradual improvement. The temperature was normal and she had only slight cough and sputum, very seldom blood-stained.

"She was able to leave the hospital and was up and around from September 21 to December 5. She was on duty a few days during October and November. Slight cough persisted, which was worse when lying down, and there was pus in the sputum. On December 5 she had a slight cold with hoarseness and then a hemorrhage,

20 ounces with temperature of 101° , and later chills. Had two or three hemorrhages every day during the week just previous to coming here. Had last hemorrhage the night before starting examination at the Clinic, about two or three ounces. During the last weeks of the illness she noticed marked clubbing of the fingers and watch-crystal nails, which are gradually improving at present. The patient had pneumonia in 1912—a very severe case,—in bed two weeks, left side; had pneumonia in 1913 following appendectomy—light case.

"Examination: Systolic blood pressure, 136; diastolic, 74; pulse 120; temperature, 98.4° F. Analysis of the blood showed hemoglobin, 67 per cent; 4,580,000 red blood cells; 7,900 leukocytes. A differential count was as follows: 25 per cent lymphocytes; 1 per cent large mononuclears; 5 per cent transitionals; 68 per cent neutrophils; and 0.5 per cent eosinophiles. Very slight anisocytosis. Examination of the sputum was negative for tuberculosis. An x-ray of the chest showed pleural thickening and possibly small amount of fluid left base, level of fourth rib anteriorly left side. Some of the teeth were carious, and there was some pyorrhea. The patient has tachycardia. Examination of the lungs showed retraction right apex, slight diminution of excursion on left with impaired resonance at left base anteriorly and posteriorly; no râles heard. There was marked clubbing of the fingers with watch-crystal nails.

"A diagnosis of pulmonary abscess following tonsillectomy was made, and the patient was sent to the Colonial Hospital on December 13 for operation on December 14. On December 14 a segment of the eighth, ninth, and tenth ribs was resected and separated from their periosteal coverings.

"The patient had some reaction from this operation and Dakin's irrigations were instituted. Following the irrigations her general condition improved rapidly, and the sputum averaged eight ounces. She was operated on again on December 28, at which time the denuded portions of the middle of the three ribs previously laid bare were resected. The patient was up and about on December 31, and she continued to show improvement in her general condition.

"On January 11, 1923, she was again operated on. A funnel-shaped tract was burned down with actual cautery until pus was reached. The patient coughed as soon as the cavity was reached and forced out necrotic material like granular pus.

"The sputum became less in amount, and her general health was much better. By January 24 the sputum was less than one-half ounce in amount, and by January 27 she had not coughed for two days. The leukocytes on January 27 were 10,000. The patient had gained four pounds. She was taken to the operating-room again on February 1, and the incision was opened for re-drainage of the pulmonary abscess. The wound and skin and subcutaneous tissues had healed, narrowing the drainage tract down to about 1.5 cm. in diameter. Incision was made in the old

scar, opening up the incision in the skin as widely as before. The abscess cavity had decreased to approximately 2 cm. in depth and to 1 cm. in width, and seemed to contain no pus. There was practically no air or other evidence of bronchial fistula except that the patient spat up a little blood at the end of the operation.

"The patient had no reaction following this operation and on February 3 she was not coughing at all. The drainage was seropurulent. Her hemoglobin was 60 per cent, and the leukocytes 8,800. She was dismissed from the hospital on February 10. She had a mild attack of influenza, which set her back for a while, but by March 13 she was again improving rapidly. She was dismissed from the Clinic on April 17, 1923, at which time the wound was in good condition, and the sinus tract was closed."

I saw the patient a couple of weeks after that, and she was rapidly improving.

The fact that these cases are rather rare, I believe, should not decrease our interest in them because in this case of mine I was told that it was diagnosed as peritonitis at first and later as pneumonia. I think the point of particular emphasis is to remember that if anything of this kind develops following operation which might be followed by lung abscess, we should not overlook this possibility.

DR. L. N. GROSVENOR (Huron): We have just had a couple of talks on bronchoscopy. What is the bronchoscope for if we do not use it? Why not go in and find the abscess, put in a drainage tube, and be done with it? There have been quite a number of cases of lung abscess following tonsillectomies, especially in the towns where they take out tonsils with the patient in the semirecumbent position. Why should they not have lung abscess? I think we folk in the West have not had so many lung abscesses because we know how to remove tonsils better. If you go down to New York you are ashamed of the way they operate in comparison with Chicago and further west. I have seen the work of some of the big men there, and they do not do it half as well as we do. Let us not forget the fellows who are qualified to do bronchoscopy and give them a chance.

DR. R. L. MURDY (Aberdeen): I am among those who have been but partially informed as to the extent of lung abscess following tonsillectomy. In fact, I do not think we are well informed as to lung abscess following any type of operation. Just recently we have been better informed by the statistics that have been prepared by the *Journal of the American Medical Association* on the frequency of lung abscess following tonsillectomy.

Now, it is important after knowing that there is considerable danger of lung abscess following tonsillectomy to work out some method by which we may forestall some of these abscesses. I am inclined to think that it is possible to forestall only a limited number of them. When we consider the methods of the infection, the routes by which the lungs become infected, we can easily see that the aspiration method could account for only a small percentage of the cases of lung abscess.

I am inclined to think that a large percentage follow an embolic infection. In support of this theory I wish to call attention to the frequency of lung abscess following other infective processes,—for instance, gangrenous appendix or a suppurative appendix of any sort. I know in my own experience that an abscess of the lung is fairly frequent. There is no way we can explain that except by bloodstream infection, as most of them have occurred too late to be attributed to the anesthetic at the time of the operation.

There are several distinct types of lung abscess. If we are going to treat lung abscesses intelligently our treatment must be directed at the particular type of lung infection with which we are dealing. Certain types can be treated successfully as suggested by the essayist and Dr. Grosvenor, but Dr. Grosvenor entirely overlooks the proposition that many of the abscesses are in the parenchyma of the lung. They are fairly superficial. I think all these abscesses demand a very careful x-ray study. This should also include good stereoscopic x-ray study of these suspected lung abscesses so as to show the relative position of the abscess, and, if you have a superficial abscess, naturally the treatment must be resection of the rib. If there is a deep abscess then I think it is worth while to try the bronchoscopic method.

There is still another type of abscess in which you will not be successful either by the bronchoscopic or primarily by resection of the ribs. This type should be treated by artificial pneumothorax.

Some of these cases, particularly the deep type, show a tendency to become very chronic. Some of them have drained for years, the patients expectorating pus and being treated on the grounds that they have tuberculosis.

Another type follows pneumonia and the "flu," where the abscess is fairly superficial; and following the line of least resistance it breaks into the pleural cavity. This accounts for a larger number of our cases of empyema than we are inclined to admit.

The next important step in the treatment of lung abscess, in my opinion, is that they should be treated under local anesthesia, and this can be done very successfully. The type that is not immediately accessible should be treated by the two-step method. The best plan is to stitch the pleura of the lung to the parietal pleura and do a two-step operation.

DR. H. C. PEABODY (Webster): I wish to congratulate Dr. Alway on his paper. It reminds me of his paper a year ago, but I think he does not emphasize these things enough. The paper last year was on the fatalities that occur under local anesthesia. The trouble is that tonsillectomy is considered too simple an operation, like taking out a tooth. You talk about the propaganda on cancer. I do not know but that it might be well to have some propaganda on tonsillectomy.

The only criticism of Dr. Alway is that he does not pound it into us more that tonsillectomy is a serious operation. In a letter I received from Dr. Loeb recently he quoted statistics on these cases in comparison with the fatalities in appendicitis, and when he says that more fatalities follow tonsillectomy than appendectomy, we should certainly

sit up and take notice that tonsillectomy is a serious operation. Most of the tonsillectomies, particularly in adults, are performed during an attack of tonsillitis. Then the patients want to come, but when the throat is all right again they will not.

One of the reasons that more fatalities occur in the East, I think, is because many men there say it is all right when operating for a paratonsillar abscess to go in and take out the tonsils at that time. I believe they are piling up fatalities by going in too early. How long should we wait before going in? Many men are referring their patients for tonsillectomy, and many patients come in without being referred, but they all say, "I want my tonsils out—I have to go back tomorrow or next day and have not much time to wait."

How many of our lung abscesses could be prevented by thorough physical examination? You would not jump in and operate for appendicitis without a thorough physical examination—you would at least have the consolation of knowing what the condition was. The virulence of the infecting organism, I think, has a great deal to do in these cases.

As to the type of operation, I think it makes little difference which method is selected. In Dr. Loeb's report, which was very comprehensive, it seemed that many of our cases are not covered thoroughly before operation, but so far as the technic of the operation was concerned it apparently made very little difference.

Dr. Alway mentioned the use of a general anesthetic and said the proper thing was not to have the reflexes abolished, but to have them present. I think a report appeared about three months ago in the *Annals of Surgery*, of 100 cases from somewhere down East in which a bronchoscopy was done in every single case, and it was shown that the presence of blood in the bronchi was not noted in these cases that were completely anesthetized, as it was in the cases which were not. That, of course, is a question. Many men say it is proper to have the reflexes not abolished, but the big point I wish to emphasize is that tonsillectomy is not a simple operation, which it certainly is not when we see the fatalities that follow pneumonia, lung abscess, or what not. The other points are the position of the patient during anesthesia, the suction method that was used, the position of the patient after operation—all are preventive measures.

DR. A. J. MOE (Sioux Falls): I have seen the statistics on lung abscess at the Peter Bent Brigham Hospital in Boston during the last nine years. There have occurred in that hospital 23 lung abscesses; and of these patients 17 had been given general ether anesthesia for the tonsil operation. Some deductions might be drawn from that.

Of course, any operation might easily be fatal. I remember hearing Dr. Hartzell, of Minneapolis, make the statement that during a trip through the Southwest they discovered ten deaths following the extraction of teeth. I believe more care is needed in regard to operations on the head than any other part of the body. It has always seemed to me that ether anesthesia is usually productive of lung abscess.

DR. J. P. ISAACS (Freeman): Because of what Dr. Moe said I am reminded of an operation where the teeth were extracted, and I was the anesthetist—and an unfortunate one. The patient died from lung abscess about three weeks afterwards.

Since tooth extraction and tonsillectomy come in the same class, and, in order to make the discussion not too peaceable, I would like to remind the Doctor that dentists to-day, with some justification, consider tonsillectomies so like tooth extraction that they like to speak of tooth extraction as a surgical procedure, and we should grant them that privilege. Certainly, some of them charge enough to justify it. (Laughter.)

In the unfortunate case in which the lung abscess happened I wish to take this lesson to Dr. Alway for the future. In the suggestions in his conclusions he reminded us that abscesses may come from uncleanliness in the mouth. Whether they occur from aspiration, as I am inclined to think most of them do, or whether from some other source, through the blood stream or what not, I think half or three-fourths of the responsibility rests on you as anesthetists, and you should see that the mouth is clean, whether for extraction or tonsillectomy.

DR. PORT McWHORTER (Miller): I would like to know what position they are adopting now—whether the patient is sitting up or whether they have them lie down in tonsillectomy under novocaine anesthesia. I have been using the prone position for six months.

DR. ALWAY (closing): I wish to thank the gentlemen who took part in the discussion.

Now just a word about etiology. After reading all the literature I could find on this subject I am inclined to believe that it is both embolic and by aspiration. Probably the majority of these abscesses are due to inspiration. For instance in Moore's series most of them were in the lower lobe. Chevalier Jackson, who is the last word in this country on foreign bodies, claims that they correspond to the foreign body and that the majority are in the lower lobes.

I also agree with Porter, who says that the plexus triangularis is the plexus which is injured by tonsillectomy, and I think it is quite possible to get abscess in these cases.

It is peculiar that nearly all of the reports of lung abscess are by men in the East. The cases are reported from the East and the South. Clendening has reported a lot from the South. He sees a good many of them.

Another thing is that they are reported by good men. I have seen poor tonsil work in New York and also very good work there, and also the same in the New England states. I have heard of no cases reported from Chicago, and Dr. Brown in discussing this subject in New York said he never knew of a case in Chicago. I heard of three in Colorado. I think there is a better reason for this than that we do better work out here.

I think it is a mistake to go out and do a lot of tonsil work in a school-house or in a short time. It is a wonder I did not have more trouble, for I did not have a nurse with me. I had a fine old

gentleman to assist me, but I had too many tonsils. I think it is a hospital operation and that the patients should be prepared before operation.

I no longer do my tonsil work in the sitting position. The committee appointed by the American

Medical Association regarding the deaths under local anesthesia made their report, and every fatality they reported was in the sitting posture. Since then I have had my patients in the reclining or semireclining position. I thank you.

A STUDY OF ONE THOUSAND CONSECUTIVE CASES PRESENTING GASTRO-INTESTINAL SYMPTOMS*

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In the invitation to read a paper before this Association I was requested to present something that would be of interest to the general practitioner. This always means the vital factors of the subject, and is more difficult to work up than some special study presenting the minute of a rare case, or of investigating along some very narrow line. Solid meat, from start to finish, is what we are all interested in, and I could think of no better subject than the broad analysis of 1,000 consecutive cases presenting predominating gastro-intestinal symptoms.

There is material sufficient in the history and findings in these 1,000 cases to fill several volumes, so, of necessity, I shall merely present a few of the high lights.

Of particular interest are the various conditions found that go to make up this group, their occurrence as to proportion or percentage of the whole, and whether organic or functional. I am using 1,000 cases on account of the simplicity of visualizing the percentage, 10 cases being 1 per cent and 1 case being 0.1 per cent.

Aside from those listed under gall-bladder and appendix, all other cases are listed under the heading of what we considered the most important lesion, for it would be an endless task to classify under all lesions found in every case. As an example, a patient with duodenal ulcer very frequently has a chronic appendix and possibly hemorrhoids, dental sepsis, septic tonsils, and other lesions which are taken care of; but the duodenal ulcer is the main feature, and the case is classified under that heading.

Another point we have made is to place under the heading of neuresthenia or "Neuro" only cases in which the symptoms are classical and no organic lesion found. My experience has been that a large number of cases under this

classification have not been kept under observation a sufficient length of time and the study has not been sufficiently exhaustive to rule out organic lesion, as demonstrated by a recent experience, which is not uncommon.

A woman has been more or less under my observation for eight years. She is an enteroptotic and a classical neurasthenic with occasional attacks of hysteria. She had two lower abdominal operations twenty years ago which greatly aggravated her condition. I suspected she had a chronic gall-bladder, but was timid about advising surgery on account of her general condition and fear of further aggravation of nervous symptoms. Removal of the gall-bladder had been mentioned to the patient as a chance of improving her condition. She decided to have this done. Twenty-four hours after the removal of a strawberry gall-bladder her nervous symptoms had disappeared. A month later she reported herself entirely relieved of all symptoms and with a fifteen pound weight gain and a good color, her color having been sallow-brownish for many years. She has remained in apparent perfect health to date with complete disappearance of all symptoms of neurasthenia. Thus, as time goes by, we have reduced the number of patients carried under the diagnosis of neuresthenia.

The most impressive fact that strikes one in surveying this list of ailments is the very high proportion that are actually common everyday conditions masked by atypical history and findings. The typical text-book cases are usually "picked off" before they reach us.

The histories as first obtained from many of these patients are vague and confusing, and direct leads are difficult to obtain. Additional points are elicited as the examination is being conducted and frequently the real meat comes from the developing of the casual questioning.

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This is particularly so in ulcer cases, where direct questioning is avoided, the patient often coming out with a typical history that was not obtained at the first interview. I cannot emphasize too strongly the importance of a complete history, and the taking of such a history in total time is often greater than the time spent on the other elements of the examination.

It has been my custom to first take as complete a history as the patient will give, and start the examination. During the different stages of the examination, questioning and cross-questioning is continued and by the time the examination is completed the history may be complete and the condition clearly defined. Frequently, however, this is not the case; and with all the data,—historical, physical, laboratory, *x*-ray, etc.,—before one the impression is still confusing, and a further digging into the history is required, and often this last session clarifies the situation.

Another fact impressed itself upon me very strongly as I was working over this list of 1,000 cases, and that is my change in attitude regarding relative values of component factors in arriving at a conclusion. Ten years ago I wanted to visualize the ailment by mechanical means,—laboratory, *x*-ray, etc.,—and these methods were relied upon to a greater extent than they should have been. While the laboratory and *x*-ray technic has been steadily improving and are of more value to-day than they were ten years ago, my estimation of their helpfulness has been steadily lessening in comparison with the facts to be obtained by the history and general physical examination. Not that they can be dispensed with, for the diagnosis frequently hangs on what they disclose, but the point I wish to make is that we all have with us at all times the *most important* equipment essential in making a diagnosis. All of this mechanical and chemical diagnostic equipment is a greater necessity to the novice than to one of acquired experience and judgment. I would greatly dislike working without all of these things around me, yet I feel that I could far more readily dispense with them now than I could ten or even five years ago.

Positive proof of whether one is right or wrong in his conclusions is essential to the acquisition of judgment and a high degree of security in diagnosis, and this is obtained only by observation when the abdomen is opened after a full and careful preliminary study from which a definite opinion has been formed when

possible. The fact that a large number of our cases will be operated on makes the study of the abdomen particularly interesting. In conditions within the thorax the positive proof is very seldom obtained except at postmortem, as the inquisitive surgeon usually confines himself to below the diaphragm. The gastro-enterologist must always be prepared to be checked up, and to be successful he must be right most of the time.

As in every line of endeavor we learn more from our mistakes than from our successes, and this has been particularly so in conditions of the upper abdomen, where by far the most common organic conditions encountered are cholecystitis, peptic ulcer, and carcinoma, in the order named.

Chronic cholecystitis so frequently simulates duodenal ulcer in history and in *x*-ray findings by deforming the cap with adhesions, especially where the acids run high, that oftentimes the deciding factors in making a diagnosis are the minor things. I was formerly of the opinion that a therapeutic check-up with careful ulcer management would differentiate, but this is not always the case, as I have seen a few cases of chronic cholecystitis respond perfectly for the time being. The one greatest help in the differential diagnosis of these two conditions where the main features of the history and findings are those of ulcer, is in the palpation of a definite tender point. I have found it practically useless to carry out the usual method of palpation with the patient on his back. In this position the abdominal contents float toward the diaphragm, bringing the duodenum and gall-bladder in approximation, and letting the liver recede under the costal margins. The only satisfactory and definite way of palpating the gall-bladder for tenderness is with the patient sitting sideways on the table and the examiner behind the patient bringing the hands around over the abdomen. This not only throws the liver down to a more easily palpable position, but a much better controlled pressure can be exerted.

In a rather large experience in chronic cholecystitis cases which have been proven at operation I have found that upward steady pressure over the gall-bladder area with the patient in this position will elicit a very definite tenderness entirely different from the sensation felt at any other point under the costal margins. The duodenum has dropped away from this region,

and the pressure is used up and away from all abdominal contents except the liver. This has been a very definite and valuable sign, not only in our private practice but also at the Veterans' Hospital 68, where I act as consultant, and where we have a large number of this type of cases.

My experience with this particular type of cases since going on service as consulting gastroenterologist to the Veterans' Hospital has been so unusual in demonstrating the prevalence of chronic gall-bladder disease among the young male adults that I wish in this paper to make a brief preliminary report, which will be elaborated in a paper to be presented later.

On going on service at the Veterans' Hospital last November I found that a large number of men presenting indefinite histories of chronic abdominal trouble, with no very definite physical findings, had been returned time after time for further examination and for a definite diagnosis for rating. My impression from previous army experience during the war was that many of these cases would prove to be what are called in service "gold bricks" or "weak sisters." However, on looking these men over, I immediately changed my mind, as they gave a strong impression of having something definitely wrong in the abdomen, of an organic nature.

All had rather indefinite histories of persistent

	Appendix	Uleer	Gall-bladder	Carcinoma
Average Age	35 yrs. 20% over 40	45 yrs. 65% over 40	45 yrs 64% over 40	52 yrs 88% over 40
Average History	10 yrs.	14 yrs.	10 yrs.	3 yrs.
Sex	M.—66% F.—34%	M.—74% F.—26%	M.—33.3% F.—66.6%	M.—64% F.—36%
Pain				
Location	Epig. and lower rt. quadrant	Epig. and pyloric region	Epig. and rt. costal arch G. B. Region	Epig. when present
Time	Usually irregular	2-5 hrs. after eating till complications occur	Irreg. More often immed. after eating	Immed. after eating. In ulcer type 2-4 hrs after eating
Type	Usually dull; Oc. sharp and crampy	Hunger pain, gnawing. Oc. lancinating	Dull, heavy bursting pressure—colic	Dull, sickening
Radiation	Down over abdomen. Frequently to rt. iliac fossa. Umbilicus	Usually none	To rt. costal margin, into back and up to rt.	None
Relieved by	Quiet, heat, cathartics. Oc. by food and alkalies	Marked food, alkalies, and vomit relief until complications.	Heat, rest, more often by starvation than by food	Starvation or liquid diet. Food and alkali in ulcer type
Nausea and vomiting	Irregular. Not marked relief	Frequent 4-5 hrs. p. c. or on empty stomach, marked relief	Irreg. not frequent	Frequently first symptom. Usual
Nutrition	Fair to good	Good at first; emaciation later	Usually good	Marked and continued loss of wt. and color
Appetite	Poor; variable	Very good until complications	Fair, but variable	Usually none; loss of appetite often first symptom
Bowels	Constipated	More often regular	Constipated	Often diarrhea from achylia
Hemorrhage	2%	30%	4.6%	18.7%
Occult Blood (gastric)	17%	35.5%	7.9%	60%
Total acid (average)	62.7	70	56.5	30
Free HCL	50	58	45	12
Microscopic	Negative	Sarcinae in 8% of non-retention and 90% of retention cases	Achylia cases rich in flora of no diagnostic value. Sarcinae in 5% normal and high acid cases negative	Opplier-Boas B. in 60% Sarcinae in 10%
Bi. X-ray	80% visualized showing constrictions, concretions, mobility and direct tenderness.	Positive in over 90%	83% negative; 7% suspicious of duodenal ulcer; 5% adhesions about gall-bladder; 5% showed stones. 12½% of cases rayed containing stones	97% positive

or recurring abdominal pain or distress of many types and varying in intensity, some simulating ulcer and others with gassy indigestion, vomiting, occasionally chronic diarrhea, and more frequently persistent constipation. Those simulating ulcer had been ruled out as ulcer by every means possible, including a therapeutic check-up.

In the last few years my attention has been attracted to the increasing number of chronic gall-bladder cases in young adults, proven by operation, that we have been seeing in the office, and this experience gave me a fairly strong lead as to what to look for in these men. Basing my diagnosis on the method of eliciting localized tenderness, as before described, by the history, often in its very indefiniteness, and ruling out other conditions by objective findings, as far as possible, I began turning these cases over to the surgical service. I have seen somewhat over 200 of this type in five months and about 60 so far have been checked up surgically. In every instance so far a chronic cholecystitis has been found, usually a gray thickened gall-bladder, with a very easily discernable hepatitis. We believe it is the hepatitis with possibly a mild degree of pancreatitis, that is causing the symptoms. There have been stones in only two of these cases.

I have taken considerable time on cholecystitis for the reason that, while it appears on the list as third in frequency, it is actually first, counting diseased gall-bladders found with other conditions; also because its symptomology is so variable, from the most vague and indefinite distress to almost an exact mimicry of duodenal ulcer.

The four most common organic lesions found in the abdomen are appendicitis, cholecystitis, peptic ulcer, and gastric carcinoma. To visualize the important points in differential diagnosis I have prepared a chart which is self-explanatory.

These four conditions number exactly 400, or 40 per cent of the 1,000 cases under consideration.

In previous papers I have reviewed our experience with carcinoma of the stomach,¹ duodenal ulcer,² and the differential diagnosis of gastric ulcer and carcinoma.³ On several occasions I have read papers on the chronic appendix or appendicial dyspepsia, but have refrained from publishing them, as I wished to be more certain of my ground. I shall never forget a conversation with B. W. Sippy in the early years of my experience in this work, in relation to

chronic appendicitis. He did not believe that chronic appendicitis was a clinical entity, and he said, "You wait ten years and then see what you think of it." It is now practically ten years, and I am positive that chronic appendicitis is a definite clinical and pathological entity as represented by 127 cases out of this 1,000, nearly all of which were of the chronic variety, by far the larger proportion never having had an acute attack. I have personally experienced this same condition for several years,—dyspepsia, indefinite abdominal pains of no regularity, with intervals of complete remission of days to months and even two years. There have been so many cases with similar symptoms come under my observation in the last ten years that I felt that I could describe the condition in which my own appendix would be found. It proved to be as we expected, a fibrotic, obliterating, slightly injected affair with small fecoliths, quite free except for one small band.

Patients with this condition get definite permanent relief by removal, and if relief is not obtained it means that the case was insufficiently studied and wrong or incomplete conclusions reached. The most common cause of failure of relief after removal of a chronic appendix is that other pathological conditions were present and not taken care of. We can be certain of our diagnosis in a large percentage of cases if a careful study is made, which fact is proven by our own operative check-up, but, even with no symptoms or findings in the upper abdomen and the preference now of many surgeons of the right rectus incisions, I am in favor of an exploration. It adds practically nothing to the risk or time of the operation.

The chronically irritated appendix as a cause of dyspepsia has been forced on our attention in the past from many cases simulating peptic ulcer which were explored with negative upper abdominal findings and the presence of chronically diseased appendix demonstrated. The removal of this appendix would cure the ulcer symptoms. This experience occurred before the established method of demonstrating ulcer now in use.

The tendency to accept the chronically irritated appendix as the cause of a hitherto unexplained form of dyspepsia is proving the truth of Brinton's prophecy of over sixty years ago, when he stated, "As the progress of scientific medicine has gradually revealed the morbid anatomy of the digestive canal and thus detected

structural diseases with increasing accuracy and frequency, the vague, but useful term, "dyspepsia," has acquired a continually more restricted meaning. Nor can we doubt that it is destined to a still further limitation, and that, as advanced knowledge brings us better means of investigation and so enables us to discover and distinguish structural changes of which we now can observe only the functional results, the aggregate of maladies called dyspepsia must undergo successive subtractions, tending more or less completely to its total subdivision into special maladies, and to the removal of this term from our nosology."

We have long recognized the part played by the diseased gall-bladder in dyspepsia in older adults, but it has been only in the last ten years that the appendix has been indicated and convicted of being nearly as great a causative factor in the production of upper mid-abdominal symptoms. The symptoms of appendicial dyspepsia include practically all to be found in the history of "stomach trouble." The several types are strikingly different in some features, and yet have many symptoms in common. Various classifications have been offered. Lockwood gives perhaps the broadest classification according to predominating symptom,—pain, gas, nausea, which may be made to include all types; but there are occasional cases which do not conform and must be considered singly. Moynihan says that, "In what is perhaps the most interesting group of all these there is a close mimicry, indeed, very often an exact reproduction of those symptoms which have long been attributed to gastric ulcer." As our experience grows in this comparatively new specialty and visualization of organic lesions by *x*-ray becomes more exact we are having less difficulty in determining the real nature of these abdominal cases.

I shall now mention briefly a few of the conditions that are next in frequency in the upper register of the chart:

Constipation, 64 cases: This includes the atonic, spastic, and mixed types, which are purely functional with no organic base and respond to dietary management.

Heart, 43 cases: These represent all types of organic heart lesions, and, while they come complaining chiefly of gastro-intestinal symptoms, no lesion was found below the diaphragm, while a definite heart lesion was detected.

Enteroptosis, 36 cases: Patients with true enteroptotic habitus, usually congenital, and

without marked symptoms of neurasthenia. We do not believe they are benefited by surgery, but must be started with a rest and supportive management. Increased weight is the important point to work toward and definite hygienic, dietetic and calasthenic management must be maintained over a long period of time.

Neurasthenia, 27 cases: These patients presented classical histories of neurasthenia, and a high proportion were of the enteroptotic habitus, but no definite organic lesion could be found. I am convinced that in the course of time an organic reason will be found for the condition of more of this class.

Pulmonary tuberculosis, 26 cases: In these cases the symptoms as described in histories are below the diaphragm. Their physical chest findings are not marked and are of the type that are found by *x*-ray rather than physical examination. Many of them are advanced active cases, and no doubt there is much more involvement of the gastro-intestinal tract than can be demonstrated by the means at our command at present. Farther down the list are two cases of tubercular cecitis or involvement of the ileocecal region. We were not able to demonstrate that there was an involvement of the stomach or small bowel in any of this series.

On account of the length to which this paper is running I shall mention only two more conditions on the list: dental sepsis, 22 cases; and septic tonsils, 15 cases. These patients had various types of gastro-intestinal symptoms,—crisical, hyperchlorhydria, gas, constipation, diarrhea, and some simulating organic stomach conditions, such as ulcer. All were proven reflex by absence of abdominal findings and the clearing up of symptoms after the removal of the infective cause.

The chief points I have endeavored to emphasize in this limited survey are the following:

1. A very high proportion of patients with gastro-intestinal symptoms, notwithstanding obscure histories and findings, are suffering from the most commonly known ailments.

2. So-called neurasthenics require an exhaustive study, as there is usually an organic reason for their trouble.

3. Chronic gall-bladder and appendicial conditions rank higher in frequency as the cause of indigestion or dyspepsia than do organic diseases of the stomach or duodenum.

4. Chronic cholecystitis with hepatitis is of frequent occurrence in young adults.

5. Duodenal ulcer is the most frequent direct organic disease of the stomach and duodenum, and is often difficult to differentiate from diseased gall-bladder.

6. Gastro-intestinal symptoms may be reflex from nearly any disease to which the human flesh is heir.

7. A careful history and physical examination are of primary importance in arriving at a correct diagnosis.

1. Appendicitis	127
2. Duodenal ulcer	115
3. Gall-bladder	98
4. Constipation	64
5. Heart	43
6. Enteroptosis	36
7. Gall-bladder and appendix.....	32
8. Carcinoma of stomach.....	29
9. Neurasthenia	27
10. Pulmonary tuberculosis	26
11. Dental sepsis	22
12. Gastric ulcer.....	21
13. Adhesions	21
14. Nephritis	16
15. Tonsils	15
16. Achylia	15
17. Functional	15
18. Colitis	14
19. Lues	13
20. Hemorrhoids	13
21. Pregnancy	12
22. Obesity	11
23. Hypertension	11
24. Hyperthyroidism	10
25. Gastritis, chronic	10
26. Functional hyperchlorhydria.....	9
27. Angina pectoris.....	9
28. Uterine fibroid	9
29. Pus tubes	9
30. Pernicious anemia	8
31. Carcinoma of bile ducts.....	6
32. Ureteral stone	6
33. Post operative ulcer.....	5
34. Cribber	5
35. Postoperative hernia	5
36. Proctitis, ulcerative	5
37. Hernia	5
38. Functional diarrhea	4
39. Migraine	4
40. Carcinoma of pancreas.....	3
41. Carcinoma of rectum.....	3
42. Carcinoma of colon.....	3
43. Carcinoma, metastatic	3
44. Cardiospasm	3
45. Stock status lymphaticus.....	3
46. Goiter, toxic	3
47. Amebiasis	3
48. Aortitis	3
49. Gastrojejunal ulcer	2
50. Raynaud's disease	2
51. Cirrhosis of liver.....	2
52. Spasm rectosig junction.....	2
53. Stone in kidney.....	2
54. Pyelonephritis	2
55. Eyestrain	2
56. Sinusitis	2
57. Diabetes	2
58. Tuberculosis of cecum.....	2
59. Catarrhal jaundice	2
60. Dementia præcox	2
61. Vagitiona	2
62. Hysteria	2
63. Ischiorectal fistula	2
64. Anal fissure	2
65. Ovarian cyst	2
66. Retroversion	2
67. Appendix, traumatic	1
68. Duodenal ulcer and gastric ulcer.....	1
69. Carcinoma of esophagus.....	1
70. Carcinoma of liver (hepatoma).....	1
71. Sarcoma of lung.....	1
72. General sarcomatosis	1
73. Gumma of liver.....	1
74. Congenital displacement of stomach.....	1
75. Non-rotation of cecum.....	1
76. Recurrent gastric hemorrhage.....	1
77. Polyposis intussusception	1
78. Arteriosclerosis	1
79. Banti	1
80. Malaria	1
81. Stone in bladder.....	1
82. Asthma	1
83. Esophageal spasm	1
84. Prolapsed rectum	1
85. Addison's	1
86. Chronic morphinism	1
87. Heart block	1
88. Multiple serositis	1
89. Prolapsed kidney	1
90. Angioneurotic edema	1
91. Aortic aneurysm	1
92. Tuberculosis of kidney.....	1
93. Tubercular peritonitis.....	1
94. General paresis	1
95. Hypothyroidism	1
96. Erythema nodosum	1
97. Alcoholism	1
98. Papilloma of bladder.....	1

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DISCUSSION

DR. H. G. WOUTAT (Grand Forks): I am interested in this subject chiefly from the röntgenological standpoint. I think we will all agree that röntgenology is helping to change the diagnosis from neurasthenia to some definite organic lesion in many cases. Especially do we find this true in affections of dental and sinus origin, in carcinoma of the stomach, and ulcer of the stomach and duodenum; and in cases of gall-bladder disease there is an increased tendency not to depend so much upon direct visualization of the gall-bladder or gall-stone as upon indirect signs of gall-bladder disease, such as indentation of the duodenum if there is a distended gall-bladder, or angulation of the duodenum due to adhesions and various distortions of the duodenum from inflammatory conditions of the gall-bladder, and also from ulcer of the duodenum. I have been particularly interested in the number of cases of ptosis shown by the *x*-ray. I have never felt satisfied in making a diagnosis of ptosis, for I have always felt that there was something back of it that brought on this condition. A great many of these cases are congenital, but I was very glad to hear Dr. Willson make the remark that he hoped gradually to find more of these cases of ptosis caused by some definite organic lesion.

DR. H. O. ALTNOW (Mandan): I am sure we all feel fortunate that it has been our privilege to hear Dr. Willson's able presentation of this subject. When he speaks of the value of a careful history in gastro-intestinal ailments I feel that he is sounding the modern note in medicine, not only in gastro-intestinal disease, but in other conditions, as well. I believe that the most valuable man in the future will be the man who can interpret symptoms correctly.

In approaching the diagnosis of gastro-intestinal ailments the development of a good history is the thing of first importance. The second thing is to have as broad a comprehension of the causes which underlie such ailments as it is possible to have. In this connection it is well to have some working classification that you can run over in your mind or have access to. One that I have found of great assistance is a simple one that places the organic conditions in one group. This comprises about 15 to 20 per cent of all the gastro-intestinal disorders we see. In this group is peptic ulcer with a ratio of duodenal to gastric of four to one, and carcinoma, which comprise practically the whole group. In the second group are the reflex gastric disturbances about (35 per cent) and of these I notice that Dr. Willson puts the lesions of the appendix first. My impression would be that the lesions of the gall-bladder would come first. Probably the difference is in the type of patients we see, as I understand his statistics were made up largely from

men. The lesions of the appendix, constipation, colitis, and the pelvic disturbances in women are all common causes of reflex gastric disturbance.

In this connection it is well to remember what has been said by someone, that "the stomach is the biggest liar in the human anatomy."

The third group comprises the systemic conditions that produce symptoms referable to the gastro-intestinal tract, and this group embraces 15 to 20 per cent of gastro-intestinal disorders. Among the most prominent are the diseases of the lung, cardiovascular disease, the renal diseases, migraine, and that group of disorders of the stomach that are due to focal infection, for example, chronic gastritis.

In examining a stomach case I feel that the minimum amount of examination that is necessary to rule out the respiratory system, the cardiovascular, and the renal and the blood system, as well as the nervous system, should be made in each case.

In the fourth group are the functional diseases, and they occupy an important place. This group embraces the enteroptoses, if you wish to place them in this group as functional disorders, and also achylia, hyperacidity, and the vagotonic disturbances. No patients should be put in this group, and the only reason they are in the group is that you cannot get them out because of your own lack of diagnostic resourcefulness, but, as experience grows, probably a smaller number will be classified in this group.

DR. VICTOR P. LAROSE (Bismarck): Dr. Willson made a very good point about not depending entirely upon the chemical and *x*-ray laboratories in the diagnosis of these conditions. The fact that the *x*-ray picture shows nothing does not mean that the case is negative. If a careful history and thorough physical examination still point to a possible lesion the chances are that the *x*-ray picture may be misleading or wrongly interpreted.

I agree heartily with Dr. Willson that a great many diagnoses of neurasthenia are made where the condition is attributed to nothing organic. There is something back of all these neurasthenic people, and in the individual who is wearing his internal organs down in his pelvis, due to some congenital postural or abdominal defect, causing absorption of the blood vessels and nerves, it is no wonder that it is possible to have all kinds of symptoms and pains and aches with stagnation in the bowels. Patients of this type come to the physician describing a variety of symptoms, and finally you throw up your hands and say, "There is another 'neuro' who is imagining all kinds of things." They are not imagining them, but they have and feel all the things they complain of, and we must go into the case, find the cause, and try to remedy it.

One condition I would like to mention is that of the so-called "sick-headache" type. We have found that a good many of these cases have a dilatation of the duodenum, due to obstruction at the duodeno-jejunal junction, where there is a sharp angulation, causing a residue of duodenal contents to some extent. During the fluoroscopic examination you can fill this region out to almost twice its normal size. These patients can be helped a good deal by an operation to relieve this stasis in the duodenum.

There is no doubt that there is a great deal of toxemia from absorption of the duodenal contents that produces these symptoms.

DR. FRANKLIN R. WRIGHT (Minneapolis, Minn.): The Doctor classed the neurasthenic in the organic group. To me all neurasthenia has a physical basis. When a man makes a diagnosis of neurasthenia on a patient he has said to me, "This patient has something wrong with him, but I cannot tell what it is."

DR. JOHN CRAWFORD (New Rockford): As a general practitioner I wish to offer my thanks to Dr. Willson. He has come up here and read a paper that is of great benefit to the general practitioner, who is the real backbone of medicine. He has said that if the general practitioner will go into his cases properly, not considering the rare diseases, but particularly the physical findings, he will arrive at a proper conclusion. The general type of paper read before a medical society is on some rare thing, and the practitioner goes home and thinks he cannot do anything—that he is a "has been." I think the future of medicine lies in teaching the practitioner to use everything he finds to establish a diagnosis, not thinking of the rare things, but of the common things, and knowing where each will fit in checking up the findings.

DR. JAMES P. AYLEN (Fargo): I was much interested in Dr. Willson's paper, and there is only one feature that I would like to call attention to. That is the question of chronic appendicitis. It looks to me as if the statement is an error when we say that so many things are due to a chronic appendicitis. It is hard to believe that a fibrous type of appendix in itself causes any trouble, but we are apt to arrive at the conclusion that it is so because so many of these cases are relieved. Have we not overlooked something? Have we not in these instances a case of freely movable cecum? Is there not some trouble in that region that is remedied by the operation, either by adhesions from their manipulation, or infection, or by ligating an append-

iceal stump to the meso-appendix, and thereby suspending to some extent the cecum? Is it not as rational to suppose that we have corrected a lot of these so-called fibro-appendices in this way as it is to make the deductions backward, and say that because we corrected them from the operation it was the fibro-appendix that caused the trouble?

DR. WILLSON (closing): I wish to thank the members of this society for their kind discussion, and I feel that the paper has accomplished some of the results I wished to obtain, mainly in drawing attention to the importance of the history and physical examination.

I do not wish to detract from the value of all of our more cumbersome and technical procedures, but the advance line of medicine is at the bedside in the home; and, in a majority of cases, a working diagnosis must be made under conditions such that the more elaborate machinery necessarily cannot be used.

There has been a tremendous amount of discussion, pro and con, as to chronic appendix as a clinical entity. I am more firmly convinced every day as our number of case records and results are added to, that the appendix is the nidus in a large number of cases, and that its removal relieves the patient of the symptomatology of which he complains. Many other procedures directed at conditions around the cecum such as the Blake-Wilms operation and repair of the ileocecal valve, have had their day and have been abandoned but in thoroughly studied cases the removal of the chronically changed appendix is relieving many patients of their symptoms.

The same arguments are in progress relative to the chronically diseased gall-bladder, and I think about the same answer is being evolved.

Many of this type of both gall-bladder and appendix involvement are fairly comfortable on careful dietary and hygienic management, but, if they do not derive comfort from these measures, the surgeon can usually afford them a great measure of relief.

USE OF GIANT MAGNET IN REMOVAL OF FOREIGN BODIES FROM EYEBALL*

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In 1892 Professor O. Haab, of Zurich, accomplished a truly wonderful and valuable operation when he succeeded in drawing a foreign body forward from the depth of the eye into the anterior chamber by distant traction. The instrument employed was a large electromagnet which was in use in his physical laboratory. Previous to that the belief was that a powerful

magnet could not attract a foreign particle from such a distance. Haab and others for years had attempted with large magnets to draw out foreign bodies that were in the anterior part of the eye, but without success, as the magnets were not strong enough. The only way to extract was to enter the eye with the tip of the magnet and place it in actual contact with the foreign particle. From this idea of Haab's, of distant traction, was born the anterior method

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of using the giant magnet in the extraction of foreign bodies from the eyeball. It was many years, however, before a sufficiently strong giant magnet was constructed.

At first it was not understood just how the particle traveled to the anterior chamber. It appeared so rapidly that it seemed to come right through the lens and iris. Experiments on the eyes of animals demonstrated, however, that the foreign bodies passed around the lens and entered the anterior chamber through the pupil. In spite of this achievement it took years to induce the medical profession and hospitals generally to adopt the giant magnet. Principally I think on account of the cost which seemed excessive especially when they had only one or two cases a year to use it on. Consequently it was only in the large manufacturing districts that one could be found. Now, however, most hospitals possess one and doctors nearly everywhere can avail themselves of this very valuable instrument. There are two principal methods of extraction with the giant magnet. The lateral, through the sclera; and the anterior, through the cornea from the anterior chamber. I shall devote most of my paper to the latter as the one of preference, and endeavor briefly to outline rules to guide us in the operation.

It is well to keep in mind a few fundamental facts. First, that there is a very essential difference in the action of the small and giant magnets. The small magnet was primarily devised to take the place of forceps and has proved to be a vastly superior instrument for extracting splinters of iron or steel from the interior of the eye. It is well known how difficult it is to use forceps without causing a great deal of damage. In fact it was formerly the rule promptly to enucleate most eyes with a penetrating wound and foreign body, especially if the particle was posterior to the lens.

As originally constructed the small magnet attracted the splinter only when it came very close to or in actual contact with it. Later when the distant action of the large magnet was proved and understood, the small ones were somewhat enlarged and have been perfected, so they now have a distant attraction of several millimeters, especially within the vitreous.

The giant magnet, however, has an attraction in proportion to its size and the lines of force which it exerts. The one whose lines of force diverge with considerable diffusion from the tip,

will attract a foreign body more advantageously and draw it forward more rationally.

With these few facts in mind let us consider the operation. Having the eye thoroughly cleansed, cocainized and the pupil widely dilated, if possible, place the tip of the magnet at the center of the cornea, the distance from it to be governed by the probable size of the particle which the clinical history indicates may be in the eye. Turn on the current, and in many cases the particle will promptly appear in the anterior chamber. If not, move the head slowly towards the magnet. The foreign body will be drawn forwards towards the middle of the lens to its posterior capsule, and, following the path of least resistance, it will pass along its smooth surface through the zonular fibers, which offer very little resistance to the posterior surface of the iris.

At this point the current should be shut off, and the patient directed to turn the eye to the side where the splinter is. As a general rule the particle can then be promptly drawn through the pupil into the anterior chamber to the posterior surface of the cornea. On shutting off the current it will drop to the lower angle. We can now complete the extraction by any method we wish, but I see no especial advantage in changing to a smaller magnet as some do,—though I sometimes change to a longer tip so as to lessen the force of attraction.

If there is a recent wound in the cornea, not more than three days old, it should be made use of; otherwise a vertical incision should be made, with a cataract knife, midway between the corneal center and the corneal margin directly above the foreign particle. An incision in the periphery of the cornea, I believe, should never be made, as a prolapse or adhesion of the iris is so apt to occur.

Should the foreign body become entangled in the ciliary portion of the iris, long and persistent efforts should be made to free it and draw it through the pupil into the anterior chamber, rather than resort to an iridodialysis or an iridectomy. These should be omitted if possible. Thus far I have not been forced to perform either, and it seems to me that a large percentage of the bad results reported in the use of the giant magnet were due to the performing of these operations in so many of the cases.

The most important moment of the operation then is when the foreign particle presents at the posterior surface of the iris, to prevent it enter-

ing or becoming firmly entangled in the iris. This can be controlled in many ways: (1) By having the field brightly illuminated and the pupil dilated ad maximum. (2) By instantly shutting off the current. It is therefore essential that the operator have perfect control over the current himself, by means of his foot, and not rely on an assistant. (3) By having the patient sit up in a chair. It is most important that the head of the patient is not rigid or fixed so he can immediately draw it away as soon as he feels the pain from the particle touching the iris. This he will usually do without previous instruction. Then, too, it is better that the operator handle the head rather than the magnet; therefore I much prefer that the patient is not lying down during the extraction.

If, after several successive patient attempts, the particle is not drawn forward into the posterior chamber, it is fair to assume that it is either very posterior or firmly attached somewhere. The tip of the magnet should then be placed close to the sclera, at several different points of the eyeball, if necessary, and attempts made to free the particle and draw it to the equator. As soon as it is attracted to the equator the patient will have a sensation of pain. The current should be immediately shut off and the magnet again applied at the center of the cornea. The point of the magnet should never be drawn along the sclera over the ciliary body, for, if we get the foreign particle caught in the ciliary body, it may be impossible to dislodge it again. And even if we do, the great probability is that a cyclitis will develop.

If repeated attempts still result in failure to draw forward the foreign body, it is best to stop and proceed to an x -ray examination. It is undoubtedly a great help to know before the operation the exact location of the foreign particle, so in all cases where considerable time has elapsed after the injury, I first have a skiagraph made; but in the fresh and very recent injuries I rarely do. Why waste valuable time? However, if the x -ray examination has not been made before the operation, then it is important that one be made after the extraction to make sure that nothing has been left behind. Small particles are attracted with much greater difficulty than large ones; therefore it is possible to remove the large one and leave the smaller one. It is well to keep in mind that particles which have recently entered an eye do not require as powerful an attractive force for re-

moval as in the old cases where they have become firmly fixed in the tissue. In the latter we will need the most powerful attractive force we can get to dislodge them.

If a foreign body has entered the eye through the sclera and the wound is a recent one, shall we extract through the point of entrance? I would say yes, provided we do not have to introduce the tip of the magnet into the eye, and if the point of entrance is not through the zone of the ciliary body. I prefer to leave that region alone as much as possible.

The chief objections to the lateral operation are the following: (1) It is necessary to have an exact localization of the foreign body first with the x -ray. This generally causes a delay of twenty-four hours and means in so many cases the loss of valuable time. I deem it a matter of much importance whether the foreign particle be removed within the hour or at the end of twenty-four. (2) The incision into the vitreous through the sclera, choroid, and retina. This, it seems to me, is adding additional injury and risk, and a future menace to the eye. (3) The introduction of the tip of the magnet into the eye. In general I consider this unnecessary and only to be adopted if there is no other possible way open.

The supporters of the lateral method contend that the foreign particle is extracted by the shortest possible route, and that by the longer way, anteriorly, there is more danger of injury and of infection. I hardly think that their contention is correct. The difference in distance is so small that the attractive force required or used will be the same in either method, but the anterior route has been to me much the easier. As to mechanical injury to the tissues, it is undoubtedly greater in the lateral extraction. If it is possible for a foreign particle to spread infectious germs on extraction, we have a very serious condition anyway, and the danger is just as great one way as the other. We know, however, the phagocytic power in healthy eyes is very strong, then, too, many particles are aseptic; but in the lateral method there is unquestionably a greater possibility of adding a fresh infection to the vitreous by carrying in germs from the conjunctiva.

Therefore, the rule in giant magnet operations should be to carefully attract forward into the anterior chamber, the method through the sclera to be the exception; that all foreign bodies should be removed from the interior of the eye

as soon as possible; that it is not wise in every case to wait for an exact localization of the particle; that in the lateral method it is absolutely indispensable for a skiagraph to be made; that when the magnet is used first, an x -ray examination should be made on completion of the operation; that, whenever possible, the wound of original entry should be used for the extraction of the foreign body; and, lastly, that it is rarely necessary to introduce the tip of the magnet into the eyeball.

DISCUSSION

DR. GEORGE M. STEELE (Oshkosh, Wis.): We have lived a good many years without the Röntgen ray and a few years with it, it is now used as a diagnostic agent, and we know how increasingly valuable it is. Knowledge of the x -ray and experience in its use have permitted demonstration of the very great value it has as a diagnostic agent. As a therapeutic agent, however, it is in its infancy.

I would say, always use the x -ray before anything is done. How do we know that there is anything in the eye, unless we discover it by the use of the x -ray? Even though there may be wrong impressions from the plate, I think these are in the head of the interpreter rather than in the plate. The interpretation of an x -ray plate is the most important point in the work of röntgenography. I

feel extreme weakness in the interpretation of plates myself, and I study the shadow over and over and over again. And especially when taken of the eye, the rays have to pass through so many varying angles of density in the bone that will cast shadows, particularly about the eye, that they are extremely hard to interpret. And still I believe that there is a definiteness about a röntgenogram for a piece of steel that nothing else has unless it be a heavy metal of some other kind, and especially in the case of small pieces.

In one case I had the piece of steel was not removed by the magnet, for it was away back, seemingly attached to the posterior wall of the eye. I could not be sure that a piece of steel was in the eye, but the more I studied the plate the more I felt that I could detect an irregularity of outline. A piece of steel never chips off in a regular form. And in this case particularly the form of the shadow was somewhat irregular and sharp, and in studying it carefully I could detect a definite density in the outline as compared with the surrounding tissues, and especially the bone, with which one should compare it.

In general, such a shadow indicates the presence of a foreign body, which should be removed.

When indicated, I believe that the x -ray should be used everywhere. Two things are required for accurate results in the diagnostic use of the x -ray: First, a good röntgenogram, and, second, a good interpreter, the reading is so very, very important.

INDUSTRIAL REHABILITATION OF DISABLED MEN AND WOMEN*

By MARGUERITE LISON

Director, Industrial Rehabilitation of South Dakota, Department of Public Instruction

PIERRE, SOUTH DAKOTA

To give an idea of how great is the problem of those who are disabled in industry or otherwise, it has been estimated from records of state compensation cases and public accident reports, that there are 180,000 in the United States each year, permanently injured. These records do not include the large number of accidents occurring on farms. Of the 349 cases reported to the Rehabilitation Division of South Dakota, at the present time 33 are hand amputations due to accidents with corn shredders. Neither do these figures include those persons who have permanent disabilities due to disease or congenital conditions. Of the 201 registered rehabilitation cases of this state, 69 were due to employment accidents, 29 public, 81 to disease, and 22 to congenital conditions. Applying this ratio to all the states, it is quite evident that the problem of the physically handicapped is worthy of consideration.

Many of these people are unable to continue

the work which they did before the accident. Some have never worked and have been dependent on their families, or the community for support. The economic loss to the State of this possible skill and efficiency of its disabled men and women is great and unnecessary. By training, the majority of the physically handicapped can take their places in the industrial world and become an economic asset.

This step cannot usually be accomplished by the individual himself for he often lacks the initiative and moral courage to learn a new work. Those few who do possess these qualities, are often not financially able to carry on such a program. For these reasons funds have been appropriated to aid the disabled man and woman to again become self-supporting.

In June, 1920, the Federal Act was passed, appropriating money to match funds given by the various states. In November, 1920, this act was accepted by South Dakota, and an appro-

priation made of \$5,000 a year. By the last legislature an appropriation was made of \$6,050 a year for the biennium beginning July 1, 1923.

The Federal Act does not permit the expenditure of Federal and matched State funds for therapeutic treatment or for physical reconstruction. This situation is met in some states by the use of State aided hospitals and local orthopedic centers, and in some instances through expenditures of State funds not matching Federal allotments. With none of these provisions made by South Dakota, the co-operation of the medical fraternity in general must be depended upon to aid in this fundamental phase of the work.

To restore the physical condition and capacity of a disabled person, wherever it is possible, is the first step in any rehabilitation program. It is more logical to cure a handicapped man so that he can return to his former job than to try training him for a new job which may be suitable to his present disability.

In cases of amputation, many times the application of a mechanical appliance is all that is necessary to fit the man to return to his old job. I have found that those men engaged in farming and who suffer hand amputations, usually return to that work. No matter how handicapped they are, they prefer to do that work than to attempt a new occupation. The advice and assistance which the surgeon gives in the selection of a proper appliance is of great value. Often appliances are purchased which are not at all useful for heavy manual work.

Because of the differences in disabilities, education, and age of the individual, each case presents its own problem, and therefore cannot be handled by a group method. The plan which is formulated for each person includes, besides the assistance in securing medical aid and artificial appliances, the furnishing of cost of instruction and of supplies, and aid in finding employment.

Since there is no provision for maintenance, if it is possible, arrangements are made to teach certain trades in local shops. Linotype operating, photography, motion picture operating, and shoe repairing have been successfully taught in this manner. In cases where it is necessary for the person to go away to a school, and he himself cannot furnish money for maintenance, various organizations must be depended upon for aid. Very often the county commissioners grant this money from county funds.

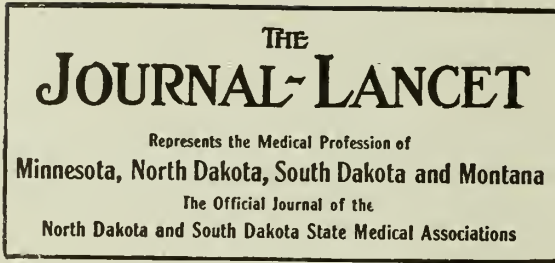
All the aid offered by the Federal and State governments and by the community, is of little

value unless the mental attitude of the disabled person is favorable to rehabilitation. For centuries the public has maintained the belief that the crippled and blind are useless in the industrial world. The depressing effect of the struggle against this prejudice must be eliminated before the disabled man can become successfully rehabilitated. Discouragement and a sense of dependency must be overcome, and in their place be instilled hope and a determination to "make good." The information concerning the accomplishments of other disabled people and the financial aid which the State Rehabilitation Divisions can offer, should have an inspiring effect.

The accompanying cut shows what the Division did for an injured and discouraged man who was ready to give up in despair because of an accident limiting his capacity to earn a living.



Several years ago this man, who is married and has two children, was in an auto accident in which his back was severely injured. He was formerly a plumber. After being told that he could never do heavy work again, he became very discouraged. Through the aid of the Rehabilitation Division, he was given a course in watch and clock repairing, and is now established in a shop of his own.



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OCTOBER 15, 1923

THE FIFTY-FIFTH ANNUAL MEETING
OF THE MINNESOTA STATE MEDICAL ASSOCIATION

The meeting was opened by the House of Delegates, and out of a possible 67 there were 42 members present at the early part of the session. The afternoon was given over to the reports made by the different chairmen, and notable among them was the report of the Committee on Public Policy and Legislation, read by Dr. F. J. Savage, of St. Paul, in which he detailed the efforts of the committee to secure legislation and to prevent legislation, both of which were more or less futile.

Dr. H. P. Ritchie, member of the National Executive Council, gave a report on the educational standards and expectations which have been published in the *Journal of the A. M. A.*

Dr. Thomas H. McDavitt brought out the facts concerning the Gorgas Memorial Fund, which is to be made a national and international affair, and the presidents or vice-presidents and high officials in various countries are accredited chairmen, and they hope to raise \$5,000,000, the interest of which will be for the promotion of Gorgas principles. The grounds and building for the memorial itself will be at Panama, and have already been donated. Business men and professional men in Chicago will undertake the securing of the fund proposed.

Dr. Verne C. Hunt, of Rochester, chairman of

the Committee on Cancer, made his annual report. Although the committee has been in existence only two years much educational work has been done in a very satisfactory manner.

The usual Editing and Publishing Committee reports were made concerning *Minnesota Medicine*, in which the journal was explained from a business point of view.

The report of the Committee on Hospitals and Medical Education, made by Dr. W. F. Braasch, of Rochester, was full of solid matter. He commented on the various efforts in the state to present clinical material for educational purposes and for the benefit of the doctors in the state. He urged the continuance of the clinics, and said they had accomplished much to interest the physicians.

The report of the Committee on Public Health was presented by Dr. E. L. Tuohy, of Duluth, and the substance of his report was the carelessness and indifference in reporting deaths and births to the State Board of Health and thence to the National Statistical Bureau. The investigator evidently uncovered a good many birth reports which had been omitted, and a number of deaths, rather larger than one would expect. And it suggested to Dr. Tuohy's mind that perhaps some of the physicians who were being criticized were suffering from a mild form of lethargic encephalitis,—a very plausible explanation. His report also overlapped some of the others in dealing with nursing problems and other problems affecting the public health service.

Dr. N. O. Pearce, of Minneapolis, presented a report on the State-wide Publicity Committee, of which there are fifty members, outlining the effort of the committee to fix some sort of standard which may be followed by physicians who are ethically inclined. The unfortunate part of this report, as well, as of others, was that all of the points—and there were very many important items—cannot be retained in one's memory. And a resolution was introduced suggesting that the chairmen of the various committees be urged to submit a copy of their report to every Delegate two weeks before the opening of the Association's meeting-time. This is an ideal suggestion, but no man knoweth how many men would fail to report; probably 90 per cent.

Dr. E. Starr Judd, president of the Association, in his brief opening address, after thanking the members for advancing him to the presi-

dency, spoke of the relation of the public to public-health problems, and the necessity of a more intimate understanding between the two, he suggested that an endeavor be made to fill the gap by interesting laymen, as well as public-health officials and physicians.

On Thursday morning the real session of the Association began at eight o'clock (Rochester time,) in which Dr. Judd presented his presidential address. It seems rather an unfortunate hour to rout out medical men who come from a distance to hear a medical paper, but the word had gone forth and the members were bound to attend.

Dr. Savage explained why the medical profession lost the position it once held in the esteem of the public. This is a serious problem and affects us all equally. No man escapes the condemnation, criticism, and apathetic attitude of the public toward the doctor, as was shown by the investigation of the Chicago Medical Society when it interviewed so many people, and published the results in the *Illinois State Medical Journal* and which were reproduced in the *Literary Digest*. This should have been printed in the October first issue of THE JOURNAL-LANCET, but the article was mislaid, unfortunately.

"Association and Fair Play" was outlined by Senator J. D. Denegre, of St. Paul,—a very interesting talk and evidently much needed by the medical men. Thereafter the regular medical and surgical sections met at their respective meeting-places, and the perusal of your own program will show you what was done.

The registration at three o'clock on Friday was 518; of these 158 were from St. Paul, 138 from Minneapolis, 34 from Rochester, and 27 from Duluth, making in all 357 from the four larger cities of the state, leaving 161 who attended from the country districts.

The Association elected for president for the ensuing year Dr. Archibald MacLaren, of St. Paul, and for first vice-president Dr. Edward T. Sanderson, of Minnesota; second vice-president, Dr. Frank J. Hirschboeck, of Duluth; third vice-president, Dr. Frank W. Metcalf, of Fulda. Dr. Carl B. Drake was re-elected secretary and Dr. F. L. Beckley was re-elected treasurer. The Councilors consist of the following: First district, Dr. W. L. Burnap, of Fergus Falls; second district, Dr. J. G. Millsbaugh, of Little Falls; third district, Dr. W. A. Dennis, of St. Paul; fourth district, Dr. W. H. Condit,

of Minneapolis; fifth district, Dr. H. M. Workman, of Tracy; sixth district, Dr. F. R. Weiser, of Windom, who was re-elected; seventh district, Dr. F. A. Dodge, of Le Sueur; eighth district, Dr. W. F. Braasch, of Rochester, also re-elected. The men representing the first and fourth districts were appointed during the year by the president, Dr. E. Starr Judd, due to vacancies occurring by the death of Dr. Alex. Dunlop, of Crookston, and Dr. R. J. Hill, of Minneapolis. Dr. Jennings C. Litzenberg, of Minneapolis, was elected delegate to the American Medical Association in place of Dr. J. W. Bell. Dr. O. W. Parker, of Ely, was elected in place of Dr. J. H. Adair, of Owatonna.

The number of committees was reduced somewhat, and one or two were combined so as to make a smaller number of committees. A reference committee was appointed who really will have active charge of the general committee work.

The next meeting of the Association will be held in St. Cloud.

The total gain in membership for the past year is 78, bringing the total membership up to 1889.

THE DEPARTMENT OF PEDIATRICS OF THE COLLEGE OF MEDICINE, UNI- VERSITY OF MINNESOTA

Since the death of Dr. J. P. Sedgwick, who was at the head of this large department at the University Medical College, the Administrative Board have been looking about for a successor; and at one time it was reported that a man from Minneapolis had been selected, but for some reason or other, which has never been satisfactorily explained, the report of his appointment was not confirmed. Dr. von C. Frie-hoff Pirquet, of Vienna, is the new head of the entire department, and he will participate in the advancing of the five-hundred-thousand-dollar building program on the sixty-five-acre site donated by Mr. W. H. Eustis. The University also plans to build a thirty-bed children's hospital near the Campus in addition to the buildings on the Eustis site.

Dr. von Pirquet is best known as the man who devised the von Pirquet test for tuberculosis in children, and he was for some time a teacher in Johns Hopkins University and also had charge of the children's hospital in its vicinity. Dr. von Pirquet will be an addition to our medical

circle and will confine himself to teaching pediatrics, consequently he will not be expected to do work outside of the University.

Of course, the building of all these hospitals will not materialize in a short time, and there may be some obstacles arising in the development of the plans for the Eustis hospital, the Dowling hospital building, and the building on the Campus, or near the Campus, so that nothing definite can be looked for until next spring, except the plans and specifications, which will take up more or less time.

THE JOURNAL-LANCET welcomes Dr. von Pirquet and wishes him all possible success in his new field of endeavor.

REQUESTS FOR HOSPITAL DONATIONS

Minneapolis has been singularly favored during the last two or three years in endowments given for hospital construction and equipment, and these gifts perhaps will be a good example for others that are to follow. The largest donation was by William Henry Eustis, who gave a million dollars for the establishment of a hospital for crippled children. Having himself suffered an infirmity, he saw the wisdom of doing something for others who were similarly placed. The result is that a large hospital will be built on the western bank of the Mississippi River, in Minneapolis, by funds provided by Mr. Eustis for that purpose. This building will be utilized for the benefit of children, first, and for the benefit of University medical students next, and will do as the Phalen Park Hospital of St. Paul has done for many of its inmates and as the new Shriners' Hospital in Minneapolis is doing now, assisting in the correction of deformities and the re-establishment of health in crippled children. This donation is exceedingly generous, and Mr. Eustis very modestly refers to it as enabling him to do some good in the world.

In conjunction with this new Eustis hospital, although that is not the name for it, the Dowling School will have its building erected on the same ground, and it will be under the same supervision as it is now, namely, the Minneapolis School Board.

Recently Mr. O. C. Wyman, who died a much honored and well-known philanthropist, left \$500,000 to the Board of Trustees of the Abbott Hospital, to be directed by a board of directors from Westminster Church,—a magnificent gift

which will probably provide more land space and provide for an additional building, perhaps, as well as equipment of the hospital. To this is added the addition to Abbott Hospital, which is known as the Abbott Children's Clinic, for which Mr. T. B. Janney gave approximately \$250,000.

Another very generous bequest was made by Mrs. George Chase Christian, in a donation of \$250,000 to the University for the erection of a cancer hospital.

To St. Andrews' Hospital Mr. Charles Gluek has given approximately \$50,000, covering a period of ten years; this includes \$7,000 in 1921, and \$5,000 in 1922.

The Northwestern Hospital has not fared as well as it might, although the Walkers have been very ardent supporters of the hospital and have frequently advanced and given sums of money for this purpose, and particularly for the building of the Nurses' Home. Only recently Mr. Waldo, of the firm of Foster and Waldo, left the hospital \$20,000; and this, so far as we can learn, is the only sum that was left outright to the Northwestern Hospital.

This makes considerably more than two million dollars given within a short space of time for the development of hospitals in Minneapolis. The urge for hospital accommodations is very great, and it is expected that the example set by these few will spread among others of means, and eventually Minneapolis hospital-bed registration will be raised somewhere near its needs. No man can create a better memorial than by building or equipping a hospital. Having done this he goes to his long rest feeling that he has left behind him something that is going to do good for years to come.

DR. EDWARD W. BUCKLEY

Dr. Edward W. Buckley, of St. Paul, died on September 26, 1923, after a long and tedious illness, due to a disorder of the abdominal organs. Dr. Buckley was born in 1860 and graduated from Columbia College in New York in 1888, beginning the practice of medicine, or at least being licensed to practice in Minnesota, in 1890.

Dr. Buckley was an active, energetic, and vigorous man, and soon made himself prominent in medical circles, at one time being president of the Ramsey County Medical Society. His chief work, however, for twenty years was that

of chief medical advisor of the Knights of Columbus. He was supreme in this chieftainship, and had charge of all the medical offices and appointments in the work of the Knights of Columbus in various parts of the country. Consequently, he was very much sought after and was not infrequently abroad in the carrying out of his work. He was abroad during war in this service, and was decorated by the French for his service among the Knights of Columbus. He was in Rome, and was decorated by the Pope for his efforts in war and peace time. So that it may be said that he was honored by many, here and abroad, as he deserved to be. He was instrumental, too, in founding *Minnesota Medicine*.

DR. W. S. FROST

Dr. W. S. Frost, a graduate of the University of Minnesota in 1901, died last month at Spokane, where he had been in practice for a number of years, death being due to an automobile accident six weeks ago. The writer saw Dr. Frost at the meeting of the American Medical Association in San Francisco, and he seemed to be perfectly well, cordial, and cheerful, as he always was.

Dr. Frost was well known in Willmar, where he was born forty-six years ago. He outlived his father, who was a very prominent physician of the old school, and a highly cultured gentleman whom everybody loved and respected.

Dr. Frost is survived by his mother, who lives at 4625 Washburn Avenue South, Minneapolis, and an older brother who is now a practicing physician in Willmar. He went to France in 1917 and served two years with the Reserve Mallet, a motorized hospital unit, and was decorated for conspicuous service. He came back without injury, but full of experience. He was a member of the Phi Kappa Psi and Nu Sigma Nu fraternities. He had made a place for himself in Spokane and was very generally liked, not only among his patients, but among his medical associates. He was full of activity, vigor, and spontaneity, and always enjoyed the good things of life and was genial and wholesouled in the extreme.

Dr. Frost is one of the comparatively few men who graduated from the University of Minnesota Medical School and have died within the last two or three years.

NEWS ITEMS

Dr. J. M. Allaire has moved from Adams, N. D., to Lehr, N. D.

Dr. J. F. Brenckle has moved from Kulm, N. D., to Northville, S. D.

Dr. S. G. Carpenter has moved from Pingree, N. D., to Hurdsfield, N. D.

Dr. J. F. Plane has moved from Edgeley, N. D., to Long Beach, Calif.

Dr. Wm. E. Shea has moved from Missoula, Mont., to San Francisco, Calif.

Dr. James E. Elliott, of Bozeman, Mont., died last week at the age of 40.

Dr. O. A. Olson, of Minneapolis, has returned from a four months' trip to Europe.

Dr. H. D. Diessner has moved from Waconia to Minneapolis, and has offices at 501 LaSalle Building.

Dr. D. M. O'Donnell, of Ortonville, was married last month to Miss Florence H. Clark, of the same place.

About 300 candidates for nurses' certificates took the state examination for nurses at St. Paul last week.

Dr. H. D. Benwell, of Grand Forks, N. D., was married last month to Miss Zoe M. Collins, also of Grand Forks.

A series of talks on cancer are to be given at the Wednesday noon-day meetings of the Hennepin County Medical Society.

Dr. E. W. Buckley, of St. Paul, died last month at the age of 63. Further notice of Dr. Buckley will be found on another page.

Dr. F. P. Frisch, who has recently moved from Gibbon to Richmond, was married last month to Miss Palma Nelson, of Fairfax.

Dr. I. S. Benson has moved from Willmar to Montevideo, where he takes charge of the surgical work of the Community Hospital.

Dr. Paul A. Robertson, of Hancock, Mich., has joined the staff of the Austin (Minn.) Clinic, and will have charge of the x-ray work of the Clinic.

Dr. A. U. Des Jardines, of the Mayo Clinic, presented a paper before the Minneapolis Clin-

ical Association last month on "Radiation Therapy in Cancer."

Dr. A. A. Sornsen, who has practiced twenty-nine years in South Dakota, sixteen of which were spent in Aberdeen, has moved to Los Angeles, Calif.

Dr. S. A. Kleger, of Mellette, S. D., is doing post-graduate work in the Medical School of the University of Minnesota in eye, ear, nose and throat practice.

Work on the building for the Community Hospital at Moose Lake was begun last month, and the building will be ready for occupancy early in January.

Dr. B. A. Melgaard, of Sioux City, Iowa, is spending the month of October in the Childrens' Clinic of Dr. Wm. McKim Marriott of the Washington University, of St. Louis, Mo.

Dr. Lawson Lowry, of Boston, has arrived in Minneapolis to direct the Child Guidance Clinic to be conducted experimentally at the University of Minnesota, which will open on November 1.

Dr. J. H. Rishmiller, of Minneapolis, has gone to Chicago to preside at the annual meeting of the American Association of Railway Surgeons, of which he is president. The meeting is on October 18-20.

Dr. C. E. Proshok, a recent graduate of the Medical School of the University of Minnesota, who has just completed a course of six months' work in the Lying-In Hospital of Chicago, has returned to Minneapolis.

Dr. William S. Frost, formerly of Willmar, died last month at Spokane, Wash., at the age of 46. Dr. Frost died of injuries received in an automobile accident. Further notice of Dr. Frost appears in our editorial columns.

Dr. J. L. McElroy has been appointed superintendent of the Ancker Hospital of St. Paul, to succeed Dr. J. C. Staley, who recently succeeded the late Dr. Ancker and after a short service resigned on account of poor health.

Dr. F. C. Ryken, a graduate of the two-year medical course of the University of North Dakota, who finished his medical education at the University of Pennsylvania, has passed the examination of the National Board of Medical Examiners and will locate at Bellingham, Wash.

Dr. W. J. Mayo, of the Mayo Clinic, has corrected the false report sent out when he spoke

in July in London. He was reported in the newspapers of the world as saying, "There is no cure for cancer." His statement in his London address was, "There is no medical cure for cancer."

The Huron (S. D.) Medical Society held a stated meeting on October 4, when the following program was given: "Two Unusual Obstetrical Cases," by Dr. R. A. Buchanan; "Infantile Intestinal Intussusception," by Dr. J. C. Shirley; and "An Interesting Case Report," by Dr. O. R. Wright, all of Huron.

The Montana State Board of Eugenics announces that sterilization will be performed, in accordance with the law passed last winter, upon feeble-minded children in custodial institutions only when requested by parents or guardians of such children. Requests have been received in a number of cases.

At the annual meeting of the Wright County Medical Society, held at Buffalo on Oct. 2, the following officers were elected: President, Dr. C. L. Roholt, Waverly; vice-president, Dr. O. J. Freed, Cokato; secretary-treasurer, Dr. J. J. Catlin, Buffalo; delegate, Dr. A. E. Phillips, Delano; alternate, Dr. A. G. Moffatt, Howard Lake.

The Northwestern Baptist Hospital Association, which is to spend a million dollars for a Midway Hospital, is conducting a remarkable campaign to raise this amount. The Minneapolis Civic and Commerce Association has endorsed and commended the plan to raise \$50,000 in Minneapolis. The new hospital will be one of a group of which the Mounds Park Hospital of St. Paul was the first unit.

The Abbott Hospital of Minneapolis is to receive \$500,000 from the estate of the late Mr. O. C. Wyman, a merchant of Minneapolis, who died last week. The gift is notable, not only for its size, but for the freedom from incumbering conditions attached to it. The Abbott Hospital was donated by Mr. Dunwoody to the Presbyterian Church of Minneapolis at his death a few years ago, and was later the recipient of sufficient funds to erect a wing or adjoining building for a children's hospital.

Dr. Clemens von Pirquet, who was recently appointed head of the department of Pediatrics of the Medical School of the University of Minnesota, has begun his work, and, it is confidently believed, he will make the department

equal to that in any other college in the world. Our readers know that he gave the world the von Pirquet test, now in universal use. He comes from Vienna, Austria, where many American medical students took work under him. Dean Lyon deserves great credit for persuading the distinguished pediatricist to come to the University of Minnesota.

The Mitchell (South Dakota) physicians and surgeons will hold their Third Annual Clinic at Mitchell November 6 and 7. Many prominent men will appear on the scientific program and will give some very interesting papers. In addition to the scientific papers of the program there will be interesting medical and surgical clinics conducted at both hospitals. These will include demonstrations of medical methods, apparatus, and means of caring for the patients of these hospitals. The scientific program will be given by the following men: Dr. A. E. Benjamin, Minneapolis, Minn.; Dr. Emil S. Geist, Minneapolis, Minn.; Dr. E. J. Huenekens, Minneapolis, Minn.; Dr. P. P. Vinson, Rochester, Minn.; Dr. C. D. Harrington, Minneapolis, Minn.; Dr. John B. Potts, Omaha, Neb.; Dr. C. P. Howard, Iowa City, Iowa; Dr. F. E. Clough, Lead, South Dakota; and Dr. E. L. Cornell, Chicago, Ill. This gives a very good clinic and covers all branches of medicine and surgery.

MINNESOTA ACADEMY OF MEDICINE

Meeting of Sept. 19, 1923

The annual meeting of the Minnesota Academy of Medicine was held at the Town and Country Club on Wednesday evening, Sept. 19, 1923, with the President, Dr. H. L. Taylor, in the chair. There were thirty-three members and three visitors present.

After the reading of the Secretary's and Treasurer's reports the following officers were elected for the ensuing year: President, Dr. Arthur S. Hamilton, Minneapolis; vice-president, Dr. H. P. Ritchie, Saint Paul; secretary-treasurer, Dr. John E. Hynes, Minneapolis.

Dr. H. L. Taylor, the retiring President, then read his Address entitled "Tuberculosis in Man."

Upon motion the meeting adjourned.

JOHN E. HYNES, M.D.
Secretary.

Position Wanted

A graduate nurse desires a position in a physician's or surgeon's office. Good references. Address 391, care of this office.

Physician Wanted in North Dakota

In a town of about 800; must be able to speak German, and preferably a Catholic. Give references in first letter. A splendid location for the right man. A big territory to draw from. Town is located in Southeastern part of North Dakota. Address 392, care of this office.

Apparatus for Sale

One Snook Interrupterless Transformer, ten-inch spark, complete with autotransformer unit for 220 volts direct current; one Coolidge Transformer and Control; one Coolidge amperemeter; one stereoscopic tube stand; one overhead high-tension system. Price \$600, 933 Metropolitan Bank Bldg., Minneapolis; Tel. Atlantic 2550.

Physician and Surgeon Wanted

In good town and large territory. The right man can do from six to ten thousand a year. For particulars address E. V. Peterson, Gary, S. D.

Call for Bids for Rental or Purchase of Hospital

Carrington Hospital Association will receive bids for the rental or purchase of the Carrington Hospital property including all furniture and equipment up to and including the 1st day of November 1923, at 8:00 o'clock P. M., building and equipment, if leased, will be leased on a three year basis with privilege to the lessee to extend the time for a period of two additional years.

All communications concerning bids and all bids submitted under this proposal must be addressed to J. O. Robertson, President of Carrington Hospital Association, Carrington, North Dakota.

Wanted Locum Tenens or Assistantship

By a physician of ten years' experience; available at once. Address 396, care of this office.

Instruments, Books, Etc., for Sale

The Surgical instruments, instrument case, sterile table, microscope, books, etc., of a retired Minneapolis physician are offered for sale. Call at 501 La Salle Building or telephone, Geneva 1593.

Practice for Sale

South Central Minnesota—\$10,000 to 15,000 unopposed medical and surgical practice, 100 miles from Minneapolis, town of 600, prosperous farming country, fully equipped hospital, good churches, high school, modern office, equipped for eye, ear, nose and throat work as well as general work, X-ray, collections 98 per cent, nearest competition 16-18-25-30 miles, Scandinavian community, open to single or married man, thorough introduction, \$4,000 part cash terms for balance, complete details on request, am moving to city. Address 397, care of this office.

Associate Physician Wanted

An associate physician in the general practice of medicine and surgery in Minneapolis wanted, preferable a man who has newly finished his internship. Wonderful opportunity for the right man. Address 383, care of this office, or telephone Atlantic 5858.

Microscope for Sale

A Bausch and Lomb F. F. H. 8, as good as new. Will sell for \$100.00, which is \$37.50 below the dealer's price. Address C. A. Butler, M.D., Lake Preston, South Dakota.

Anderson Operating Table for Sale

Table in good shape and price reasonable. Inquire of Mr. Walker, 704 Masonic Temple, Minneapolis, or telephone him. Geneva 6157.

Ophthalmologist, Etc. Wanted

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PHYSICIANS LICENSED AT THE JUNE (1923) EXAMINATION TO PRACTICE MEDICINE
IN THE STATE OF MINNESOTA

Name	School and Date of Graduation	Address
Alberts, Max Wm.	U. of Minn., M.B., 1923	St. Jos. Hosp., St. Paul, Minn.
Anderson, Arnold Sibert	U. of Minn., M.B., 1923	Milan, Minn.
Anderson, John Gordon	Harvard, M.D., 1921	Rochester, Minn.
Backe, Irma	U. of Minn., M.B., 1923	Kenyon, Minn.
Blumenthal, Jacob	U. of Minn., M.B., 1923	1901 Elliot Ave. S., Minneapolis
Branham, Donald Stark	U. of Minn., M.B., 1923	509 Forest Ave., Minneapolis
Carlson, Herbert Austin	U. of Minn., M.B., 1923	Gen. Hosp., Minneapolis, Minn.
Endres, Wm. Jos.	U. of Minn., M.B., 1923	203 Buckingham Hotel, Minneapolis
Erickson, John L.	U. of Minn., M.B., & M.D., 1923	Twin Valley, Minn.
Frawley, John Milan	McGill, M.D., 1919	Rochester, Minn.
Gamble, Paul Middleton	U. of Minn., M.B., 1923	Ancker Hosp., St. Paul, Minn.
Ginsberg, Harry	U. of Minn., M.B., 1923	1608 11 Ave. S., Minneapolis, Minn.
Gronvall, Paul Russell	U. of Minn., M.B., 1923	2515 10 Ave. S., Minneapolis, Minn.
Harmon, Gaius Edward	U. of Minn., M.B., 1923	Ancker Hosp., St. Paul, Minn.
Heck, Wm. Wilfred	U. of Minn., M.B., 1923	613 North St., St. Paul, Minn.
Hullsiek, Richard Benj.	U. of Minn., M.B., 1923	161 Macalester Ave., St. Paul, Minn.
Holt, John E.	U. of Minn., M.B., 1923	2542, Chicago Ave., Minneapolis
Holt, Wm. Brayton	U. of Minn., M.B., 1923	Cleveland, Ohio
Kokatnur, Gundu R.	U. of Minn., M.D., 1922	Baltic, Mich.
Levin, Bert G.	U. of Minn., M.B., 1923	907 W. Franklin, Minneapolis, Minn.
Madsen, Leo John	U. of Minn., M.B., 1923	2215 Lyndale Ave. N., Minneapolis
March, Kenneth Alan	U. of Minn., M.B., 1923	203 Buckingham Hotel, Minneapolis
Monroe, Paul Burns	U. of Ill., M.D., 1923	Soudan, Minn.
Morris, Francis Jos.	Rush, M.D., 1923	Proctor, Minn.
Morrow, Jas. Jos.	U. of Minn., M.B., 1923	Phys. & Surg. Bldg., Minneapolis
Olson, Ernest Alvin	U. of Minn., M.B., 1923	Gen. Hosp., Minneapolis, Minn.
Peterson, Marvin Garfield	U. of Minn., M.B., 1923	Gen. Hosp., Minneapolis, Minn.
Rosenfield, Abraham Benj.	U. of Minn., M.B., 1923	Gen. Hosp., Minneapolis, Minn.
Scodel, Bension	Tufts, M.D., 1921	Lowry Bldg., St. Paul, Minn.
Souster, Benj. Bruce	U. of Minn., M.B., 1923	Ancker Hosp., St. Paul, Minn.
Stephens, Erwin Edward	U. of Minn., M.B., 1923	Garrison, N. Dak.
Stratte, Alf Kenneth	U. of Minn., M.B., 1923	St. Francis Hosp., Pittsburg, Pa.
Strunk, Clarence Alfred	U. of Minn., M.B., 1923	Gen. Hosp., Minneapolis, Minn.
Urbahms, Robert Durfee	U. of Minn., M.B., 1923	4416 Abbott Ave. S., Minneapolis
Weber, Mandel Leu	Moscow Univ., 1919	Nopeming, Minn.
Whitcomb, Elmer Wm.	U. of Minn., M.B., 1923	Univ. Hosp., Minneapolis, Minn.
Williamson, Carl Sneed	U. of Pa., M.D., 1920	Rochester, Minn.
Wilmot, Harold Eugene	U. of Minn., M.B., 1923	St. Charles, Minn.
Wold, Alvin Pontus	U. of Minn., M.B., 1923	783 Fairmount, St. Paul, Minn.
Zlatkovski, Michel Leibovich	Kiev, Russia, 1913	917 E. 5 St., Duluth, Minn.

THROUGH RECIPROCITY

Becker, Samuel Wm.	U. of Mich., M.D., 1921	Rochester, Minn.
Cobb, Donnell B.	U. of Pa., M.D., 1921	Rochester, Minn.
Delamere, Granville Sinclair	U. of Calif., M.D., 1921	Rochester, Minn.
Dixon, Claude Frank	U. of Kansas, M.D., 1921	Rochester, Minn.
Kilfoy, Edward Joseph	St. Louis U., M.D., 1922	Rochester, Minn.
Lyday, Russell Osborne	U. of Pa., M.D., 1920	Rochester, Minn.
Sturges, Chester Jas.	U. of Iowa, M.D., 1922	Buffalo, Minn.
Tuttle, Thos. D.	P. & S., N. Y., 1892	Aberdeen Hosp., St. Paul, Minn.

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A PLEA FOR SYNTHETIC ANATOMY*

BY C. N. CALLANDER, M.D.

FARGO, NORTH DAKOTA

Topographic anatomy is an anatomy of relations; surgical anatomy is its application to surgery. Although topographic in its form, surgical anatomy draws its features, receives its contributions, not only from the relations of the various organs or tissues, but constantly also from their structure and their development.

So, condensing the features of descriptive anatomy of the systems, those of topography and those of embryology, drawing all of the deductions to properly clarify clinical surgery and operative technic, constitutes a work of synthesis—synthetic anatomy, applied with the highest interest to the physician. It is the methodic study of the different formations, whatever be their nature, which enter into the makeup of the various regions of the body—the anatomy of regions.

In this we must know what resources are furnished by the various branches of the morphology. And in the study of anatomy, especially as applied to the needs of the busy internist or the surgeon, either as an aid to his interpretation of conditions or to the development of the finer technic of his operative skill, he must constantly consider the many-sided complex of structure and functions exhibited by these various elements.

He will, the more deeply he probes into anatomy, thus be brought face to face with some of

the most important biological problems and some of the most striking exhibitions of general vital principles, and, possibly, less of the details than is usual in complete text-books of anatomy.

In noting, then, the various systematic gifts from morphology, whether of comparative or human anatomy, we are forced to notice some facts,—many facts,—which bear upon that ever present problem,—the question of our race.

In the bones, joints, muscles, arteries, veins, and nerves of the hand, for example, we find within a limited compass, evidences of those general vital functioning principles which prevail throughout the animal body. This study leads one at once to an interpretation of functions normally, and it is with disturbed functions, whether of skeletal structure or visceral activity, that the doctor is at all times vitally concerned.

How many times we have been impressed with modifications of anatomic structure,—presence of certain muscles, small bones, extra sesamoids, differently shaped sesamoids, added articulations of carpal with forearm bones, or of spine and pelvis, until we have wished our anatomic knowledge might have been derived from the wider study of the completer science of morphology.

We would appreciate that, as conditions modify in animal life and of man, particularly as his biologic history is modified, we would have the more readily interpreted changes in function due to different needs, newer demands, thus emphasizing still more our need to think into all

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our anatomic study the larger thought of function,—purposeful structure for and development of purposeful functions.

This is strictly manifest in embryological studies.

I will illustrate this in but a slight degree, but sufficiently to appreciate the fact, in demonstrating the findings in the abdominal cavity of this injected cat specimen, where has not occurred, as we find in the human cavity, the rotation of that part of the intestinal tract developed from the two limbs of the primitive loop around an oblique axis drawn from the duodenocolic isthmus to the apex of the loop.

Briefly to enumerate avenues of thought and study, to arrive at purpose and function, as illustrated in the anatomy of the human body, one might name the following as only a few outstanding examples:

- Small bones as additional elements.
- Added articulations.
- Differently shaped sesamoids.
- Absent or additional muscles.
- Under developed muscles.
- Number of digits.
- The variations found in the carpal bones.

The flexure lines of the palms of hands and soles of feet, being the surface registering of the mobility of the parts, the skin joints, so to speak, points of comparative skin rest.

Flexion lines over the lower portion of the abdomen, and the upper portion of the thigh, not that outlining Poupart's ligament, but lower blendings of superficial fascia with the deep fascia, preventing extravasation of fluids between these fasciæ from passing down the thigh.

- Papillary ridges.
- Nails.

The action of muscles.

Here, to properly interpret the movements, we must study the cerebral functions, and we must fall back upon the old dictum that "movements, not muscles, are represented in the cortex."

In the grey matter of the motor areas of the brain, are represented those movements of the body of which we have a definite knowledge, and it is from these areas that the conscious movements are initiated.

There are other movements of which we have no concrete mental picture, and these are initiated, not from the cortex, but from the basal ganglia of the brain, lower centers; and other

muscles are here involved,—the involuntary muscles.

SYSTEMATIC GIFTS

Bone.—The external form and internal architecture of the bones, as well as their modifications from birth to old age, explain the types of fractures and their frequency relative to the different ages. The manner or type of their internal structure, with their periosteal or cartilaginous coatings, or of their internal structure,—spongy tissue, fertile juxta-epiphyseal zones,—is of importance in the election of infectious processes; osteomyelitis striking by preference the fertile epiphyses of the long bones, while tuberculosis hits the short bones, poor in periosteum, and, par suite, poorly nourished—the bones of the carpus and the astragalus.

Articulations.—The laxity of the capsule predisposes to luxation, and the resistance and mode of insertion of the ligaments determine the manner of sprain, fibrous rupture, and tearing of bony fragments (at ankle, knee, or elbow). The extension of the synovial sac or sacs favors the development of hydrarthroses and white swellings.

Muscles.—The form of muscles, fleshy or tendonous and, as well, the aponeurosis surrounding, are characteristics which the surgeon utilizes on his course to the deep organs of a region.

The retractility of the muscle is in relation with the length of its fibers; in every segment of the limb the superficial muscles with long fibers, non-adherent, are more contractile than the deep muscles with their short and non-adherent fibers.

In the rectus abdominis, for example, the lineæ transversæ keep the long muscle from breaking, but these lineæ transversæ do not extend through the posterior sheath, being free. The technic of amputation recognizes this morphological gift.

The length of the fibers of a muscle explains also the frequency of its ruptures.

The tendon sheaths and tendons.—The sheaths are the points of election for tuberculosis. Their structure, as well as their topography, should be continually in the mind of the surgeon that he may localize precisely their situation, in relation to the neighboring organs, and then open in relation to the tendons which they clothe.

Vessels.—All surgical interest in the region centers itself oftenest, especially at the level of the extremities, in the vascular-nerve bundle,

and particularly in the artery which forms the axis.

Arteries.—The origin and course, the precise termination, and the study of the collateral branches interest the surgeon the most keenly, not so much in their exact distribution as in their anastomotic relations with the emanating branches from the neighboring trunks.

In every region these anastomoses form about the principal trunks one or several collateral circles, which the course of the blood pursues after interruption in the principal channels.

In pathological states, in the case of obstruction in a trunk by aneurysm, these circles of anastomosis take an enormous development.

One must also recognize arterial anomalies for the proper interpretation of clinical facts and from the operative point of view to permit the finding of the artery out of its normal bed.

Veins.—More variable than the arteries, it is important to determine their periarterial grouping. Two veins usually flank each artery, enlacing it with anastomoses.

At the root of the extremities, where a single vein seems to accompany the principal artery, the collateral channel completes it, equivalent to a second vein. Recognize them, for the oozing obscures the operative field.

Lymphatics.—Is there any need to insist on the surgical interest in the study of the regional nodes, and of the boundaries of their afferent and efferent territories.

The search for the nodes at the bedside is the indispensable complement of every clinical examination.

The recent works which have made precise the topography have renewed the technic of extirpation of cancers, where nodal excision is the first operative step.

Vascular sheaths.—The knowledge of vascular sheaths assures all the technic of ligation. Each element has its proper sheath; then altogether the vascular bundle, or vascular-nerve bundle, a common sheath.

At one time this is little differentiated; at other times it englobes the arteries and veins alone, shutting them up completely, permitting the comprehension of the simultaneousness of their wound in the same way as the obliteration of the veins in the case of aneurysm, whence the precociousness of the circulatory troubles.

Nerves.—The situation of their trunks explains their traumatic lesions. The frequency of radial paralysis is explained by the course

of the nerve in contact with the humerus and the neck of the radius. The peripheral distribution permits of the diagnosis of the lesion paralyses.

Viscera.—Each viscus presents in its structure the proper characteristics whose analysis gives a comprehension of the clinical features and guides the operative art.

The mode of encapsulation of the eyeball and of the prostrate has given birth to the operations of Bonnet and Freyer.

The modification of the thyroid capsule to the pathological state, and the mode of ramification of the vessels in its surface, have permitted the intraglandular enucleation, this being imperiously necessitated by the conservation of the thyroid function.

All intraperitoneal surgery is based on the adhesive properties of the serous surfaces.

Embryologic facts.—Is it necessary to state that the organogenesis is indispensable for the comprehension of the congenital malformations, and a *bropas* for their surgical treatment reasonable?

The diagnosis of inguinal hernia and its surgical cure is a most convincing example. But it is from comparatively insignificant contributions that the surgeon draws profit in the operative technic.

There is no more remarkable example than the application of the fusion of the fascias of union in the uncovering of the subperitoneal viscera, such as the engluing of the duodenum, that of the colon, and that of the retroprostatic fascia, the latter renewing the perineal route for surgery.

Topographic contributions.—Incisions should not be made until one has carefully considered the aspect of the region. With the eye one perceives the bulges and the depressions, and with the finger one circumscribes an osseous eminence, or one depresses a vascular gutter.

Realizing, then, the contribution from the various branches of the morphology, it remains to study successively their forms, the order of their superposition, and their reciprocal relations,—skin, subcutaneous tissue, superficial and deep fasciæ, aponeuroses, and muscle bundles.

The anatomy of the form is as indispensable to the surgeon as to the artist. By these superficial orientations one determines with exactness the situation of the deep organs.

In teaching, then, what is one of the fundamental divisions of the medical sciences, it is

of fundamental importance that an interest be displayed along a triple point of view, of internal and external pathology and operative surgery.

It should make clear to the student how any morbid symptom—no matter how singular or bizarre,—finds its explanation in the anatomic disposition of the region where it is located. As an example, we must explain the hoarseness of the voice which supervenes in an aneurysm of the transverse arch of the aorta, by the relation of this vessel with the left recurrent laryngeal of the vagus. It must show how other landmarks should constitute a warning which should be most carefully avoided. To cite an example: it should teach us how the relations of the common carotid, on the one hand with the trachea, on the other with the transverse processes of the cervical vertebræ, will permit the surgeon to surely expose the artery, and it should also teach, on the contrary, the intimate relations with the vagus nerve and the internal jugular vein, and the liability of each to injury.

Topographic anatomy, not descriptive anatomy, therefore, should be taught to students, and it should, above all, be applied and addressed at once to the internist and to the surgeon. In effect, to the internist topographic anatomy comes to his aid in directing and clarifying his diagnosis; namely, the paths of conduction of the motor and the sensory nerves illuminate all the pathology of the central nervous system. To the surgeon, however, it furnishes not only the means of diagnosis, but the therapeutic indications and the operative procedure. Thus cranio-encephalic topography explains the pathogenesis of circumscribed Jacksonian epilepsy. It permits one to localize the point of irritation, and, finally, it offers a guide to trephination.

It has long been said for the surgeon, who may at any time be called to search all the different regions of the body, that the human body should be as transparent as crystal. It must be recognized that it is due to a study of topographical anatomy that the surgeon is able to search the complexity of our organs and progress in the midst of most complicated structures, avoiding those whose lesions may have dire results, grave consequences, and to arrive finally at the point searched for, whether to ligate an artery, resect a nerve, open an abscess, or remove a tumor.

Topographic anatomy should be precise and complete to the point to which surgery progresses.

With each new operation there must be a new study, more detailed and more exact, of the organ causing the intervention, and of the region in which it is located.

From that point of view we must regard the progressive steps that operative surgery has taken in the past years. While for a long time limited to intervention on the extremities and face, it has invaded, thanks to asepsis and to the growing audacity and skill of the surgeon, the nasal fossæ, their adjoined accessory cavities, the cranium, the spine, the joints, and the thoracic and abdominal viscera.

DISCUSSION

DR. W. H. WITHERSTINE (Grand Forks): The paper of Dr. Callander is certainly worthy of considerable discussion and will be worthy of a great deal of study when it is printed. From the standpoint of the surgeon, however, I see very little to say about the paper because the facts brought out by the paper and the illustrations are so self-evident that it leaves little to be said. We realize that in the making of a surgeon anatomy is of great importance. It occurs to me that only two other things are of as much importance, or possibly more, and they are physiology and pathology. When a man becomes an expert in anatomy or physiology or pathology he ceases to have any interest in the further development of the surgeon. He is more interested in the scientific part of these studies. When a man becomes a surgeon he is often too much interested in other things to become an anatomist, a physiologist, or a pathologist. I think if we could work out some way—perhaps Dr. French, who is the anatomist at the University, can help us to work out some means whereby we can be surgeon, physiologist, anatomist, and pathologist.

One thing about the knee-joint from the surgical standpoint; we used to go in with a good deal of misgiving but in the last few years we have found that we can go in with about the same degree of safety that we open the abdominal cavity.

DR. H. E. FRENCH (Grand Forks): I did not see the paper and I had no opportunity to prepare any discussion, but I have been intensely interested in Dr. Callander's paper and in the pictures he has shown. I shall not take any time to go into details of anatomy, for I think it is unnecessary.

One question raised by Dr. Witherstine might receive a little consideration: "Is anatomy the most important or is physiology or pathology?" I should say of all three together: "They are it." They make up medicine, and we must keep up in all of them if we are to be the most successful practitioners. Medicine is not any one, nor is it much more than the combined three. We must think in terms of all three.

I like Dr. Callander's definitions and what he said of the relative importance of anatomical details and embryological facts. Both the surgeon and the diagnostician, whatever his line, must know the anatomical details of size, shape, relations, and

blood and nerve supply, but he must know also the nature and origin of every tissue and every organ. He must know, too, that variations are common, for example, the horseshoe kidney, or extra arteries to the kidneys, or the liver; and he must know the embryology that lies back of these anomalies.

DR. J. J. HEIMARK (Fargo): When Dr. Callander was preparing his paper I was greatly interested in the article of Dr. C. A. Roeder, of Omaha, that appeared in the *Journal of the American Medical Association*, of November 12, 1921. This paper deals with the ligament of Treitz, and I think that from a surgical standpoint it is one of the best papers I have ever seen. When I showed it to Dr. Callander he was intensely interested in it and wished to bring it into his paper, but on account of being limited in time he has not been able to do so. I should be very glad if he could explain this to us now.

DR. CALLANDER (closing): It will be interesting to note that in these variations certain clinical findings are evidenced at the duodenal flexure. This (indicating on slide) is the U-shaped duodenum, and in this type there may be a marked kinking at the flexure, preventing the free passage of the barium meal.

Unlike the normal duodenum, where there is no accumulation of barium, there may be a marked slowing of the current, presenting a very definite barium filling; so that where, in a study of the passage of the barium meal there is found such a filling, one should think of such a kinking as would cause abdominal pain.

I wish in this connection particularly to point out the Treitz ligament, for in our work at St. Luke's Hospital our surgeons have been able to relieve some of these abdominal conditions by section of this ligament, changing the angle of curvature.

LACERATIONS OF THE PELVIC FLOOR AND PERINEUM*

By FRANK WEED, M.D.

PARK RIVER, NORTH DAKOTA

Lacerations of the pelvic floor and perineum are conditions encountered by everyone whose practice embraces obstetrics or gynecology. It is upon the proper care and treatment of these conditions that the future health and comfort of the patient depends. We find so frequently cases, where, by proper treatment following delivery, serious after-effects could have been averted that an occasional review of the subject seem justifiable.

The percentage of lacerations encountered by general practitioners at births, runs in the neighborhood of 30 to practically 100 per cent, depending on whether the patients are multiparæ or primiparæ. These figures go to show that, in order for one to give his best service, a thorough understanding of the pelvic floor and perineum is essential.

The two most important structures of the pelvic floor and perineum are the levator ani muscle and the rectovesical fascia. The levator ani muscles, two in number, arise in front, from the posterior surface of the superior ramus of the pubes lateral, to the symphysis; behind, from the inner surface of the spine of the ischium; and between these two points from the obturator fascia¹. The fascia covering the levator ani muscle above is known as the rectovesical fascia. This is strong and very resisting.

There is also a fascia below the levator ani muscle known as the "levator fascia," which is not as strong and resisting as that above. The fibers of the levator ani muscle pass downward and inward to meet its fellow in the mid-line, where they are pierced by the vagina and rectum, these two structures being the weak points in the pelvic floor.

The perineum is that triangular structure which lies between the vagina and the rectum being composed principally of the perineal fascia and sphincter ani muscle externally. These are bounded on either side by the ischio-rectal fossa. Beneath these we encounter the sphincter vaginæ and transversus perinei muscles. The transversus perinei muscles arise from the ischial tuberosity on either side and join together in the center of the perineum with fibers of the sphincter vaginæ and sphincter ani muscles. The pelvic floor acts as a sling which holds the vagina and rectum forward, bringing them out of direct line of pressure, and supporting the pelvic structures above.

Childbirth is the main etiological factor of lacerations of the pelvic floor and perineum. However, there are a number of factors which enter as causative agents, namely:

1. Improper management of delivery, implying the neglect to hold the head back, thus not allowing the elasticity of the pelvic floor and perineum to be called upon gradually; or

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undue haste in delivery on the part of the obstetrician.

2. The improper use of forceps; unnecessary forcible traction without trying to assist nature in the proper rotation of the presenting part.

3. Pituitrin. In the improper use of this drug without full dilatation and anesthesia, the force with which the fetus is often expelled is bound to cause injury to the supporting structures of the pelvic outlet.

4. Malpositions.

5. Anomalies of fetus and parturient canal.

The pathology is that which would accompany any injury of a lacerating nature. We encounter bruised and torn muscle and fasciæ, accompanied by extravasation of blood and serum, and in cases where repair is delayed by numerous leucocytes and bacterial infection; in neglected cases by scar tissue, being nature's attempt at repair.

The diagnosis, as a rule, following delivery is readily made with one or two exceptions.

Upon proper exposure of the vaginal tract a raw lacerated surface is encountered. Frequently it necessitates careful search to ferret out the extent of lacerations which may extend up the vaginal sulcus on one or both sides and be obscured by blood clots. This, however, can be readily prevented by inserting a vaginal pack high up in the vagina, thus preventing the flow of blood from the uterine cavity, and also by mopping out the blood clots with hot sponges.

For convenience in classification, lacerations are classified according to their extent and location.²

1. Those known as "first degree" lacerations of the perineum. This type is confined to the perineum alone, involving the fourchette, skin, and lower part of the posterior wall of the vagina and less than half the depth of the perineum. There is no damage to the pelvic floor proper.

2. "Second degree" lacerations of the perineum, which involve at least one-half the depth of the perineum, but do not involve the sphincter ani muscle. There may or may not be injury to the pelvic floor; however, the tear may extend up the sulcus on one or both sides or around the sphincter ani muscle on either side.

3. "Third degree" laceration of the perineum, which means a tear through the sphincter ani muscle and may continue through into the rectum. This variety is generally always accom-

panied by one or more lacerations of the pelvic floor.

4. This type includes those tears where there is only a slight tear externally, but accompanied by tears of the pelvic floor higher up in the vaginal tract.

5. The "Central" variety, which includes those with no external laceration of the vaginal opening, but may involve one or both the perineum and pelvic floor.

6. In this variety there is no tear of any kind visible in the perineum or vaginal wall, but is a condition of overstretching of the "pelvic sling" with numerous small tears in the muscle. It really is a true "relaxation of the pelvic floor," a term used by Crossen. This type is very difficult to recognize immediately following delivery and is one which frequently causes disappointment to the obstetrician.

If lacerations are not given immediate attention there is a marked increase in the chance of infection and sepsis. The support of pelvic organs is lost, and consequently we encounter displacements of the uterus and other pelvic organs accompanied with leucorrhœa, painful, excessive, or irregular menstruation, and pelvic pain. Laceration of the anterior and posterior walls of the vagina predisposes to the development of cystocele and rectocele.

Various forms of fistulæ may develop following labor, due to severe lacerations or the ultimate result of ulcerations and infection.

In cases where there is complete laceration of the sphincter ani muscle the patient has incontinence of feces and intestinal gases. If all the fibers are not torn through, on occasions of excitement or laughter these embarrassing conditions are encountered. There is more or less venous engorgement of the pelvic structures, increasing the development of subinvolution of the generative organs and vaginal walls, and the development of hemorrhoids. The patient complains of backache and a feeling of loss of support at the pelvic outlet, frequently associated with disturbances of the bladder. There is a predisposition to sterility and abortions, the development of "various reflex phenomena and general poor health."

The treatment of lacerations may be considered under two classes; palliative and operative. The scope of palliative treatment generally includes old lacerations or cases where there are some contra-indications against operation. In these cases warm astringent douches, various postures,

such as the recumbent and knee-chest position practiced a number of times a day, will effect some relief. In fact any treatment which tends to lessen pelvic congestion is beneficial. Cases associated with displacements or prolapse of the uterus, are afforded considerable temporary relief by the use of a properly fitting pessary; however there are cases in which none of the many varieties of pessaries will be of any use. Operative treatment is the only satisfactory method of giving permanent relief.

All fresh lacerations should be given treatment immediately when possible. Obstetricians and gynecologists practically all agree at the present time, that immediate repair of lacerations should be the rule. There are very few cases in which this cannot be done. Before operative treatment is begun in delayed cases, proper care and treatment ought to be given to any other conditions which might be associated with lacerations.

In the normal patient the main supporting sling is posterior to the rectum. In a repaired pelvic floor the main sling is between the vagina and the rectum, so that in reality we do not effect an anatomical restoration of the pelvic floor, but a physiological one.

The pioneer work of Emmett, Hegar, and Tait was the beginning of the demonstration of the necessity of inclusion of deep tissues in pelvic floor repair. Later Harris demonstrated the necessity of definite exposure and lateral excision.³ Noble brought forth a subvaginal approximation of the pelvic sling,⁴ so that, step by step, the progress in the surgery of the pelvic floor has been gradual until to-day the operation of choice is that of subvaginal approximation of the sides of the pelvic sling without any excision except a small portion of the redundant tissue of the posterior vaginal wall, and sometimes this is not necessary.

In this operation the openings of the vulvo-vaginal glands are located and the tissue grasped just below them with tenaculum forceps. These points are brought together to insure that the resulting opening will be of proper size.

The two tenaculum forceps are put on the stretch, and the line of tissue between is cut away with either a knife or scissors. This incision is put well up in the vagina, thus being as far as possible from rectal infections and avoiding the tender perineal skin. After thorough exposure of the pelvic floor, the levator ani muscle is grasped on either side by two or three deep sutures, and brought together in the

median line. These sutures ought not to be tied too tightly, but brought together snugly, thus avoiding any sloughing. After the sling sutures have been tied, the opening that remains should admit three fingers, as the remaining closure and the formation of the scar tissue will cause further decrease in the size of the opening. The excess of the posterior vaginal wall is trimmed away, and the wound closed by a continuous running suture. The suture material should be of No. 1 40-day chromic catgut throughout. As a rule where 40-day chromic catgut is used no tension sutures of silkworm are necessary, thus avoiding the very uncomfortable effect of cutting, caused by this kind of suture material.

In cases where the sphincter ani muscle is torn a thorough dissection of the lower flap of the incision in the posterior vaginal wall will admit access to the torn ends of the muscle. These two points are indicated, as a rule, by puckered points in the skin externally. In long-standing cases the muscle will have to be stretched prior to suture. The sphincter ani muscle having been sutured the rest of the pelvic floor repair, as described above, is carried out. The patient is instructed to keep her knees together, and after micturition or bowel movement the parts are cleansed by an external vaginal douche of bichloride (1-5,000) or lysol solution. Internal douches are not given unless indicated.

Most every pelvic floor repair is accompanied by considerable pain. This may be relieved by hot compresses of 0.5 per cent carbolic solution applied to the perineum, and in severe cases by the administration of codeine or morphine; however, the administration of any narcotics ought to be carried out very cautiously to avoid habit development.

For the first few days the diet should be liquid, until the third day when the bowels are caused to move. After this, regular diet may be given. These patients should be confined to the bed for three weeks, and tonics given for the improvement of their general health.

As a rule, a moderate rectocele is corrected by the ordinary pelvic floor repair; however those of severe form are first repaired by two or three rows of running muscle sutures of the rectal wall, and the regular pelvic floor repair continued.

Cystocele is repaired by median incision of the anterior vaginal wall; thorough exposure of

"uteropubic fascial plane;" and the insertion of two or three rows of running sutures, which takes up the slack beneath the bladder. A good many cystoceles which accompany prolapse of the uterus disappear with the correction of the prolapsed uterus.

Fistulæ of various kinds, which may occur, should receive proper treatment by thorough exposure and excision of the fistulous tract and proper closure.

CONCLUSIONS

1. Thorough understanding of the anatomical construction of the pelvic floor and perineum is essential.

2. Reduce etiological factors of lacerations to a minimum.

3. Proper care and treatment of all other associated conditions before pelvic repair is begun.

4. The operative procedure should be one which shortens the pelvic sling and brings the vagina and rectum forward out of the direct line of pressure.

5. The preferred operation of to-day is that of subvaginal approximation of the sides of the pelvic sling with no excision except that of the redundant tissue of the posterior wall of the vagina.

6. On the restoration of the pelvic floor we do not effect an anatomical restoration, but a physiological one.

7. Sufficient rest in bed following surgical treatment to allow a thorough healing of the approximated tissues.

8. Treatment directed to improve the general health of the patient.

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DISCUSSION

DR. H. W. F. LAW (Grand Forks): Inasmuch as the time is short I shall emphasize only some of the points Dr. Weed has made in his very comprehensive paper. He covered the subject quite thoroughly, but I would like to emphasize the point of using more care in the delivery of these women, for, I believe, many lacerations of the pelvic floor can be avoided if we are not too hasty in the delivery. The rapid delivery will almost always tear the perineum.

In regard to repair, I believe immediate repair should be done. I do not do much of this work, but I make it a rule to repair the perineum before the placenta is expelled. The placenta can easily be passed over the perineum after this repair.

DR. FRANKLIN WRIGHT (Minneapolis, Minn.): I was interested in the Doctor's description of the anatomical repair of the floor of the pelvis, and I arise to correct the impression that this is a recent operation. This operation was described in THE JOURNAL-LANCET, then published in St. Paul, in 1887, by Dr. Amos Abbott, of Minneapolis, and it was taught by him to all students as long as he was teaching. I graduated in 1894, and no other operation was taught by him then. This operation has been in use since 1887 and was described in print at that time.

DR. WEED (closing): In reply to Dr. Wright: I did not mean to give the impression that this was a new operation. At the time I graduated at the University of Minnesota I believe Dr. Wright himself laid stress upon this operation. The point I intended to make clear was that at present we do not do any excision or lateral folding in the pelvic repair.

I think, in many cases, these lacerations are overlooked because of the fact that we do not search for them. I was surprised in some of the statistics from leading men in the United States at the number of lacerations they report. When specialists have such a high percentage I am sure that those of us in general practice must encounter many more.

FREDERICK ANGIER SPAFFORD—AN APPRECIATION*

By J. W. FREEMAN, M.D.

LEAD, SOUTH DAKOTA

I think I first met Dr. Spafford in the year 1886 when he was on the Board of Health of the Territory of Dakota. He and Dr. F. M. Crain made a trip to the Black Hills to investigate the medical profession. A funny experience

happened during their visit. There was a woman who had never attended a medical school, but was practicing, and she was requested to meet them. During the investigation she threw a hysterical fit and fell into the arms of Dr. Crain. Dr. Spafford immediately saw the funny side of the situation and allowed the Doctor

*Presented at the forty-second annual meeting of the South Dakota State Medical Association, Watertown, S. D., May 23 and 24, 1923.

to handle the situation as best he could. He often referred to this incident with a good deal of glee. From that time on our friendship grew, we meeting occasionally during his lifetime.

As a member of the Board of Regents he visited the Black Hills occasionally. As he was very fond of fishing we had several trips to Sand Creek and other places in the Hills.

He was very much interested in education, serving as a member of the Board of Education in his home town for many years. As a member of the Board of Regents, he was very prominent in establishing and building up our state institutions.

As a physician he was one of the best all round diagnosticians I ever knew.

He was a great student of literature, history, and art, and had a wonderful memory, being able to converse on any current topic of the day.

During our travels in Europe he knew the history of every place we visited, just what to see, and where to find it.

When England declared war on Germany we were in Edinburgh, and he became very much excited and worried about our getting home,

and when I said it would not effect us he replied "this means a world war," thus prophesying that the United States would be involved in the war before it was over.

When the United States entered the war the Surgeon General appointed him to assist our Governor in regard to the appointment and management of the draft boards. This appointment carried with it the rank of major in the Medical Corps. It was with great pleasure that I accepted several invitations to visit with him Local Boards.

Occupying the positions he filled in the Territory and State of South Dakota he was better known, respected, and loved than any other one man in our State. To know Dr. Spafford was to respect and love him.

The state and community has lost a valuable citizen, but his memory will live for years to come.

NOTE.—After the reading of Dr. Freeman's paper, a grand-daughter of Dr. Spafford, Harriet Anne Rolfe, unveiled an oil portrait of Dr. Spafford, presented by the Association to the State to be hung in the Capitol. The gift was accepted on behalf of the State by the Hon. Doane Robinson, the State Historian, whose address follows.—THE EDITOR.

THE MEDICAL ADVENTURES OF LEWIS AND CLARK*

BY DOANE ROBINSON
State Historian of South Dakota
PIERRE, SOUTH DAKOTA

I feel myself greatly honored in the privilege accorded to me upon this occasion. For more than a quarter of a century I profited from the friendship of Dr. Spafford. He was one of the first to associate himself with the State Historical Society and few citizens were so well informed in the history of this commonwealth or could so logically deduce its lessons to ourselves and to posterity.

When requested to appear before your Association to accept upon behalf of the State the splendid portrait of the distinguished and beloved physician and friend, I thought I would make the address the vehicle for conveying to you something of the antiquarian practice of medicine in Dakota, but, upon examining the papers of Lewis and Clark, who were so large an article in our history, I found so much relating to health, medicine, medical practice, and sur-

gery that I have determined to confine my paper to what is revealed by the records left by these notable explorers.

As is well known, the Lewis and Clark enterprise was sponsored by President Thomas Jefferson, who was, perhaps, the most cosmopolitan scientist of his period. His instructions to the captains were painfully detailed. For the protection of the health of the party he directed them to supply themselves with such medicines and surgical instruments as the Secretary of War could provide or suggest. He also prepared a questionnaire, upon which they were to make diligent inquiry of the Indians with whom they came in contact.

The questionnaire, as copied by Captain Clark from the original, is as follows:

"What is their State of Life as to longevity?
at what age do both Sexes usually marry?

How long do the Woman usually suckle their Children?

*Address before the South Dakota Medical Association, accepting on behalf of the State the oil portrait of Dr. Frederick A. Spafford.

What is the diet of their Children after they wean them?

Is polygamy admitted among them?

What is the State of the pulse in both Sexes, Children, grown persons, and in old age, by feeling the Pulse Morning, Noon & Night, &c?

What is their most general diet, manner of cooking, time and manner of eating; and how do they preserve their provisions?

What time do they generally consume in Sleep?

What are their acute diseases?

Is rheumatism, Plurisy, or bilious fevers known among them? & does the latter ever terminate in a vomiting of black matter?

What are their chronic diseases—are palsy, apoplexy, Epilepsy, Madness, the goitre [or Swelled Neck] and the Venereal disease known among them?

What is their mode of treating the Small pox particularly?

Have they any other disease amongst them, and what are they?

What are their remedies for their different diseases?

Are artificial discharges of blood used among them?

In what manner do they generally induce evacuation?

Do they ever use Voluntary fasting?

What is the nature of their baths, and at what time of the day do they generally use them?

At what age do their women begin and cease to menstruate?"

I do not find that the captains at any time replied to his questionnaire categorically.

Pursuant to these instructions the captains equipped themselves with the following surgical instruments:

- 6 best lancets
- 4 pewter penis syringes
- 3 Clyster pipes
- 1 Clyster syringe
- 1 set small teeth instruments
- 1 tourniquet
- 2 oz. Patent lint.
- 1 set small pocket instruments."

The medicines were as follows:

- "15 lbs. best powdered bark [most likely Peruvian bark—Cin-cho-na—as frequent reference is made to the use of this tonic.]
- 10 lbs. epsom or Glauber salts [the conjunction is clearly or in the original.]
- 4 oz. Calomel
- 12 oz. Opium
- ½ oz. Tartar emetic
- 8 oz. Borax
- 4 oz. Powder'd Ipecacuana
- 8 oz. Powdered Rhubarb
- 2 oz. White Vitriol
- 4 oz. Lacteam Saturni
- 1 lb. Flour of Sulphur
- 4 oz. Turlington's Balsam
- 2 lbs. Yellow Bascilium
- 2 sticks of Symple Diachylon
- 1 lb. Blistering Ointments

- 2 lbs. Nitre
- 2 lbs. Coperas
- 2 oz. Gum Camphor
- 1 lb. assafoetida
- ¼ lb. Tragacanth
- ¼ lb. essence of Mental
- 2 oz. Magnesia
- 4 oz. Laudanum
- 50 doz. B. Rush Billious Pills"

For the foregoing outfit of medicines and instruments they paid the sum of \$90.69.

They also had in the general equipment other articles of medicinal value, as 30 gallons of spirits of wine, sugar, salt, oil; and many instruments which might have proven useful in surgery.

So much for the outfit. It was undoubtedly useful, but was likewise a source of care to them. On May 15, 1805, Charbonneau by his unskillfulness overturned the boat containing the medicine chest and it was necessary to lie over for a day to dry it out, but several articles were entirely spoiled. Again on August 5, a similar accident "wet our medison." August 20, they cached their medicine, along with other goods, by placing the stuff in rawhide sacks and burying it in the earth.

At Saint Louis they became acquainted with Dr. Antoine Saugrain, a physician, surgeon, and scientist of unusual attainments. Dr. Saugrain gave a "free-hand" course in medicine and surgery to Captain Clark who served as the doctor of the expedition. Saugrain placed them under obligations for many things; among others he made for them a thermometer, which they carried upon the expedition. When they left the winter camp at the mouth of the Missouri they lost the thermometer, but it came to light when they stopped to reship at Oacoma, and thereafter they kept a daily record of the temperature, until the instrument was accidentally broken a year later when they were crossing the mountains.

If "Dr. Clark" made any attempt to practice his new profession until they arrived at the present site of Sioux City, it has escaped my attention. There, to quote his diagnosis, "Sergeant Floyd is taken verry bad all at once with a Biliose Chorlick we attempt to relieve him without success as yet, he gets worst and we are much allarmed at his Situation, all [give] attention to him." "Sergeant Floyd much weaker and no better." He died soon after. Clark does not indicate the nature of his treatment in this, his first important case.

The next day the profession came into its

own and achieved a great success. They had stopped at a point on the west side of the river now known as Ponca Landing. Clark records: "by examination this Bluff Contained Alum, Copperas, Cobalt, Pyrites; a Alum Rock Soft & Sandstone. Capt. Lewis in proving the quality of those minerals was Near poisoning himself by the fumes and tast of the Cobalt which had the appearance of Soft Isonglass. Copperas & Alum is verry pisen." Upon retiring that evening upon the present townsite of Elkpoint, "Captain Lewis took a Dost of Salts to work off the effects of the arsenic."

They were now living largely upon a diet of fresh meat, and their bowels were much disturbed. When they discovered the Missouri washing down these "poisonous minerals," they were convinced they had discovered the source of their ills, and promptly overcame them by dipping the water for potable uses from the depths of the stream, thus avoiding the toxins floating upon the surface.

Four days later we get a reflex of the poisoning incident. The captains with a selected party of the men had left the river at the mouth of the Vermillion to tramp out nine miles to Spirit Mound. As we used to say in harvest time, Captain Lewis was bushed by the exertion, and in explanation Clark writes: "Captain Lewis * * * * in a debilitated State from the Precautions he was obliged to take to prevent the effects of the Cobalt & Min'l Substance which had like to have poisoned him." So they were forced to seek the shady banks of the Vermillion, where they rested for a couple of hours before venturing the trip to the boats.

No further demand seems to have been made upon Clark's amateur medical skill until a month had elapsed, when, on September 21, he records: "One frenchman I fear has an abscess on his they. he Complains verry much we are making every exertion to reliev him." He does not state his treatment or success but three days later says: "the FrenchMan * * * * began to bleed which allarmed him."

At Fort Pierre they had a real good time—a great two-day dog feast, and a dance and carouse that kept them up to late hours. The journal of the last day says: "All in Spirits this evening." The next sentence, opening the journal for the next day reads: "I rose early after a bad nights sleep," and, further on, "I am verry unwell from loss of Sleep." Just what the patient administered to himself for his

ailment is a matter of interesting speculation, but we know he had it in his dispensary.

After this the party was scandalously healthy for a long time. When at Ashley Island, on October 9, Clark says: "I have a slite Plursie this evening," but we hear no more of it. On October 22, however, he had another attack of a more serious nature. "last night at 1 o'clock I was violently and Suddenly attacked with the Rhumetism in the neck which was So violent I could not move. Capt. Lewis applied a hot Stone raped in flannel, which gave me some temporey ease." That day they made twelve miles against a high, cold wind, and he adds: "my Neck is yet verry painfull at times Spasms," but on the 24th he says: "I am something better of the Rhumitism of my neck." The next day the complaint seemed catching, for Reub Fields had the rheumatism in his neck, and Pierre Cruzatte was troubled with the same complaint in his legs, but "the party otherwise is well." On the 26, having reached the Mandan towns, "my rheumatic complaint increasing I could not go," [with Lewis to visit the chief] and on November 5, "my rheumatism very bad," but he kept diligently at work. November 11, two men cut themselves with an axe, requiring the attention of the amateur doctor. The next day three men were sick. Practice was picking up. By the 23, several men had bad colds, and Shields was down with the rheumatism. [All this was probably due to moving into the new cabins, built of green cottonwood and plastered with mud.] On the 30, after a most fatiguing day, the captain-doctor gave a little "taffee" to his men to refresh them.

Cold weather was approaching, and save for a few frost-bites, upon which proof spirits was used, business was slow; but on the 21st an Indian woman came with her child who was suffering from an abscess. She offered as much corn as she could carry to have the child treated. This appears to be the first fee collected.

After that, practice was brisk with the Indian neighbors, but no details are given, until the 10th of January, when a boy about 13 years of age was brought to them "with his feet frosted." He had lain out all night in a blizzard, "the Murkery" 42 degrees below zero, dressed in "Cabri legins which is very thin and mockersons." "I had his feet put in cold water and they are coming to." Two weeks later they found it necessary to amputate the toes of one foot. In the middle of January Captain Clark notes:

"Several men with the venereal caught from the Mandan women." He does not mention treatment. On the 21st an Indian came to the fort "verry bad with the small-pox." That day one of Charbonneau's squaws was ill, and the captain gave her "froot stewed and tee at different times." A few days after one of the men "taken violently bad with the Plurisie, Bleed & apply those remedies common to that disorder," and the next day, "I bled the man with the Plurisy & Swet him." The next day he was well.

January 29, Jesseaume, the interpreter, was taken "verry ill, I gave him a Dost of Salts." It appears to have accomplished its mission. Two days later "George Drewyer is down with the Plurisy bled & gave him sage tea. Soon much better."

The first obstetrical case came on February 11, when Captain Clark was away hunting meat, and Captain Lewis was compelled to officiate. Sa-kaka-wea, wife of Charbonneau, a woman afterward to be among the most famous of Americans, gave birth to a boy. Her labor was prolonged for two hours and very painful, Jesseaume told Lewis that if he would administer a small portion of the rattle of a rattlesnake it would hasten the birth. Lewis pulverized a bit of the rattle between his fingers and administered it in a swallow of water. The delivery was complete within ten minutes thereafter.

It would be cruelly and unjustifiably tedious to follow further the day-by-day health notes contained in the journals. The hardships of the frontier were telling upon the men, and there were more frequent indispositions, and "bleedings," and "dosts of salts" were the ordinary treatments, but once when Wiser was found very ill with a "Cholic," Clark administered "a dose of peppermint and laudinum which in a course of half an hour so far recovered him that he was able to ride my horse." There are, however, a few outstanding incidents worthy of recital:

On June 10, 1805, Sa-kaka-wea, the guide and very notable Indian woman, whose ashes repose in South Dakota soil, was taken sick. I quote the journal entries pertaining to her condition:

"June 10—Sah-cah-gah-wea our Indian Woman is very sick this evening. I bled her.

June 11—The Indian woman verry sick. I bled her which appeared to be of great service to her.

June 12—The Enterpeters wife verry sick, so much so that I move her into the back part of the covered part of our Perogue which is cool. The enterpeters woman verry sick.

June 13—The Indian woman verry sick I give here a doste of salts.

June 14—The Indian woman complaining all night & excessively bad this morning, her case is somewhat dangerous.

June 15—Our Indian woman sick and low spirited I gave her the bark & apply it exteranely to her region which revived her much. [Later the same day] The Indian woman much wors this evening she will not take any medison, her husband petitions to return &c.

June 16—[Captain Lewis had been away on an exploration ahead, but he was back this morning and took a hand in the treatment of the girl. He says:] I found the Indian woman extremely ill and much reduced by her indisposition. This gave me some concern as well for the poor object herself, then with a young child in her arms, as from the consideration of her being our only dependence for friendly negotiations with the Snake Indians. I sent a small canoe to procure the water of a sulphur spring the virtues of which I now resolve to try on the Indian woman. The water to all appearance is precisely similar to that of Bowyer's Sulphur Spring, in Virginia. I found that two dozes of barks and opium which I had given her since my arrival had produced an alteration in her pulse for the better. They were now much fuller and more regular. I caused her to drink the mineral water altogether. When I first came down I found her pulse were scarcely perceptible, very quick, frequently irregular and attended with strong nervous symptoms that of the twitching of the fingers and leaders of the arm; now the pulse had become regular much fuller and a gentle perspiration had taken place; the nervous symptoms have also in a great measure abated and she feels herself much freed from pain. She complains principally of the lower regions of the abdomen I therefore continued the cataplasms of barks and laudnum which had been previously used by my friend Capt. Clark. I believe her disorder originated principally from obstruction of the mensis in consequence of taking cold. I determined to remain at this camp in order to restore the sick woman. [Upon the same day Clark entered in his record:] Indian woman verry bad & will take no Medisin whatever untill her husband finding her out of her senses easily prevailed on her to take medison. If she dies it will be the fault of her husband as I am now convinced.

June 17—[Lewis wrote:] The Indian woman much better today; I have still continued the same course of medicine; she is free from pain, clear of fever, her pulse regular, eats as heartily as I am willing to permit her of boiled buffaloe well seasoned with pepper and salt and rich soope of the same meat. I think therefore there is every rational hope of her recover.

June 18—[Clark was off on an exploration and Lewis was in sole charge of the case which was prospering.] The Indian woman is recovering fast. She set up the greater part of the day and walked out for the first time since she arrived here. She eats heartily, is free from fever and pain. I continue the same course of medicine and régime except that I added one doze of the oil of vitriol to-day at noon.

June 19—[Clark still away.] The Indian woman was much better this morning. She walked out and gathered a considerable quantity of the white apple, [Dr. Coues says this was the Indian turnip, *Posoralia Esculenta*] of which she eat so heartily in the raw state together with a considerable quantity of dried fish without my knowledge that she complained very much and her fever again returned. I rebuked Sharbono severely for suffering her to indulge herself with such food he being privy to it and having previously been told what she must eat. I now gave her broken dozes of dilluted nitre untill it produced a perspiration and at 10 p. m. 30 drops of laudnum which gave her a tolerable night's rest.

June 20—The Indian woman is quite free from pain and fever this morning and appears to be in a fair way to recovery she has been walking about and fishing." [This is the last entry on the subject until the 24th, when Lewis says:] The Indian woman is now perfectly recovered."

I have recited this story at length because primarily it reveals what two crude young bachelor laymen did in a rather critical case, but especially because of the importance of their patient to South Dakota history. Though she was then a mother, she was a mere child, perhaps no more than thirteen years of age.

As before stated, Lewis was away when Sakaka-wea became ill, and he had a small experience of his own, which I relate because it indicates what the hardy frontiersmen were compelled to do in the remote wilderness. On the first day the captain was taken with a dysentery. The next day he says: "I was taken with such violent pains in the intestines that I was unable to eat. My pain still increased and towards evening was attended with a high fever; finding myself unable to march I determined to prepare a camp of some willow boughs and remain all night. Having brought no medicine with me I resolved to try an experiment with some simples; and the Choke Cherry which grew abundantly in the bottoms first struck my attention. I directed a parcel of the small twiggs to be gathered, stripped of their leaves cut into pieces of about two inches in length and boiled in water until a strong black decoction of an astringent tast was produced, I took a point of this decoction and about an hour after repeated the doze. By ten in the evening I was entirely relieved of pain and in fact every symptom of the disorder forsook me; my fever abated, a gentle persperation was produced and I had a comfortable and refreshing night's rest." The next morning the journal continues: "This morning I felt myself quite revived, took another portion of my decoction and set out at sunrise."

That day Captain Lewis walked twenty-seven miles.

Thereafter there were almost daily ills to be treated. Boils, felons, dysenteries, colics, and other disturbances were common, but no really serious trouble came until the return trip. It will be recalled that when they reached the summit of the Rocky Mountains, Lewis came down the Missouri by the route they had gone out, but Clark cut over to the head waters of the Yellowstone and explored down that stream. Lewis reached the junction of the two streams, a day or so in advance of Clark, as he supposed, and spent the waiting time in making and drying meat. In fact Clark was ahead. On August 11, 1806, Lewis went out to hunt elk in company with Pierre Cruzatte, the French boatman. Lewis says:

"We fired on the elk, I killed one and he wounded another; we reloaded our guns and took different routes through the thick willows in pursuit of the elk. I was in the act of firing * * when a ball struck my left thye about an inch below my hip joint, missing the bone it passed through the left thye and cut the thickness of the bullet across the hinder part of the right thye; the stroke was severe. I instantly supposed Cruzatte had shot me in mistake for an elk as I was dressed in brown leather and he cannot see very well. * * I called out to him, 'damn you, you have shot me.' * * I now got back to the perogue as well as I could. * * With the assistance of Sergeant Gass I took off by cloaths and dressed my wounds myself as well as I could, introducing tents of patent lint into the ball holes, the wounds bleed considerably but I was hapy to find that it had touched neither bone or artery. As it was painful for me to be removed I slept on the perogue; the pain I experienced excited a high fever and I had a very uncomfortable night." [Next day] "my wound felt very stiff and sore this morning but gave me no considerable pain; there was much less inflammation than I had reason to apprehend there would be. I had last evening applied a poltice of peruvian barks" [On this day, the 12th, they overtook Clark, who tells this additional about the casualty:] "I was alarmed on the landing of the Canoes to be informed Capt. Lewis was wounded by an accident. I found him lying in the Perogue, he informed me his wound was slight and would be well in 20 or 30 days. This information relieved me verry much. I examined the wound and found it a very bad flesh wound the ball had passed through the fleshy part of the left thy below the hip bone and cut the cheek of the right buttock for three inches to the debth of the ball. Captain Lewis informed me the accident happened the day before by one of the men Peter Crusat mistaking him in the thick bushes to be an elk. * * This Crusat is Near Sighted and has the use of but one eye, he is an attentive, industrious man and one whom we have Both placed the gretest confidence during the whole rout."

It was all in the day's work, and not another word is said of Captain Lewis or his condition until twelve days had passed, when Clark wrote:

"I am happy to have it in my power to say that my worthy friend Cap. Lewis is recovering fast he walked a little today for the first time. [They were then at the mouth of the Moreau.] I have discontinued the tent in the hole the ball came out. [The next day, the 23rd, at the gorge of Little Bend,] my friend Captain Lewis is recovering fast, the hole in his thigh where the ball passed out appears to be nearly well. The one where the ball entered discharges very well. [On the 26th, when at Cedar Island at DeGrey,] Capt. Lewis is still on the mending hand. I have discontinued the tent in the whole where the ball entered, agreeable to his request. He tells me he is fully convinced the wound is sufficiently healed for the tents to be discontinued. [The next day at Big Bend] my friend Capt. Lewis hurt himself very much by taking a longer walk on the sand bar, in my absence, than he had strength to undergo, which caused him to remain very unwell all night. [The next morning] Capt. Lewis had a bad night's rest and is not very well this morning. [On the 30th,] Captain Lewis is mending slowly. [On Monday September 1, when at Running Water, a party of Indians appeared who were thought to be hostile and the men were called to arms.] Captain Lewis hobbled up the bank and formed the party in a situation well calculated to defend themselves. [The next day,] Capt. Lewis is mending fast." [The following day he was reported well. The Captain was a good prophet: twenty days had found him recovered.]

One other incident in connection with this great historic exploration is worthy of recital. It will be recalled that the captains took Big White, a Mandan, with them from his village in North Dakota to Washington, where he remained during the winter of 1806-7. The next spring they detailed Sergeant Pryor and a dozen soldiers to return him to his people on the upper Missouri. They got as far on their way as the Arickara villages at Grand River, South Dakota, when the Rees attacked them, and a real battle ensued in which several lives were lost by both sides. Pryor was driven back and compelled to return to St. Louis. George Shannon, the boy who had accompanied Lewis and Clark to the coast, received a serious bullet wound near the hip-joint in this affray. Pryor

had no adequate facilities for treating him, and hastened down the river until St. Charles, Missouri, was reached. By this time the wound was in a deplorable condition. Learning that Dr. Saugrain was at the post, Shannon was taken to him, and the leg was amputated at the hip-joint. This is said to have been the first operation of the character in the West. The patient recovered and became a notable jurist.

Knowing very well Dr. Spafford's predilection for such antiquarian researches, I have no question that he would have read the medical experiences of the great explorers with joy, and I therefore make no apology for making this the occasion for collating the health items they so conscientiously set down in their record.

It is no small satisfaction to me that you, gentlemen of the State Medical Association, who are so capable of properly characterizing the professional position of Dr. Spafford in South Dakota, should have accorded to him such eminence. I believe he was almost equally equipped for preëminence as a historian, and I am convinced that had he given his talent to literary pursuits he would have achieved the widest fame. In truth I have rarely, if ever, met another individual who had so vast information so perfectly systematized for instant use. I could write extensively of the adaptability of his knowledge. He was very helpful and unselfish. He voluntarily came to Pierre in 1905 to assist me in getting the Vital Statistics Bureau properly organized.

I am happy that it should have fallen to my portion to accept upon behalf of the State of South Dakota this enduring memorial which your Association has so generously provided. I do accept in behalf of that broad and ever-widening section of the public who appreciate the value of commemorating the names and the virtues of those citizens who have, through capacity, attainments, and integrity, won the high esteem of the people of the commonwealth. Among such, no South Dakotan is worthier than Dr. Frederick A. Spafford.

THE HEART OF AN OLD EMPLOYEE*

BY CLIFFORD E. HENRY, PH.G., M.D., F.A.C.P.

MINNEAPOLIS, MINNESOTA

The writer wishes to confine himself, in this paper, to the cardiovascular conditions of the old employee, and their bearing on the question of his retirement or pension, with some outline of a plan for dealing with the latter issue to the satisfaction of both the Company and the employee.

Everyone who has studied the subject realizes that it is a difficult matter to determine at what age and under what conditions a man should be pensioned. The generally accepted plan has been that of fixing (1) an elective age, at which an employee may, if he choose, retire on a small pension; and (2) an arbitrary age, usually about 65, at which he is automatically retired on full pension. The drawbacks of this plan as applied to individual cases have long been apparent; for, while many old employees welcome the day when they reach the age limit and may look forward to a pension the rest of life, others, on the contrary, feel that the forced reduction of income causes serious hardship. In the first case, since the man wants the rest and can get along on a smaller sum, no one should prevent him from taking his pension. I see no reason, however, why the second man, if still physically capable, should be prevented by an arbitrary age limit from continuing in his work at full wages as long as he is willing and able to earn them. The working-man would not be the only one to benefit by a change from this plan; it would be to the employer's advantage also. Companies employing large numbers of men have found a considerable portion of their annual expenses to be due to the loss of men familiar with the work, and to the cost of "breaking in" new men.

The question is, At what age and for what causes does efficiency decline, and by what means may it be prolonged? A man should be in his prime at forty, yet it is at this age that the great onslaught of cardiovascular disease begins. Over 85 per cent of all the deaths from this disease occur within the period beginning at forty. Insurance statistics give heart disease as the cause of 18.8 per cent of the entire mortality from the age of forty and above.

J. A. Andrews, of London, has compiled some interesting statistics as to age, incidence, sex, and comparative frequency of cardiovascular disease in middle life. The total number of cases studied was 1,474. From his compilation the following is quoted:

Angina Pectoris.—13 cases, or 0.8 per cent. Between the ages of 40 and 60 there were 5 males and no females.

Dilatation.—45 cases, or 3.05 per cent. Between the ages of 40 and 60 there were 16 males and 4 females.

Chronic Endocarditis, Aortic.—336 cases, or 22.7 per cent. Between 40 and 60 there were 124 males and 22 females.

Chronic Endocarditis, Mitral.—933 cases, or 63.2 per cent. Between 40 and 60 there were 160 males and 113 females.

Ulcerative Endocarditis.—7 cases, or 0.4 per cent. Between 50 and 60 there was 1 male and no females.

Fatty Heart.—20 cases, or 1.3 per cent of total. Between 46 and 60 there were 6 males and 3 females.

Fibroid Degeneration.—4 cases, or 2 per cent of total. Between 40 and 60 there were 3 males and no females.

Functional.—3 cases, or 0.2 per cent. Between 40 and 60 there was 1 male and 1 female.

Myocarditis.—8 cases, or 0.5 per cent. Between 40 and 60 there was 1 male and 1 female.

Acute Pericarditis.—25 cases, or 1.6 per cent. Between 50 and 60 there was 1 male and 1 female.

Chronic Pericarditis.—14 cases, or 0.9 per cent. Between 40 and 60 there were 4 males and no females.

Senile.—57 cases, or 3.8 per cent. Between 40 and 60 there were 10 males and 5 females.

The largest number of cases of chronic aortic disease, occurs between 40 and 50 years, and the largest proportion of cases of various degenerative heart lesions were above 50.

The economic significance of these figures is indicated by L. I. Dublin, statistician of the New York Metropolitan Life Insurance Co., who states in an article in *Metropolitan Life*: "If it were possible to calculate the money loss to the country through deaths from the heart affections and long periods of sickness which precede them, the importance of cardiac disease economically would be much more impressively demonstrated than is possible by the publication of mere numbers of deaths and the corresponding death rates" Again, in the *American Journal of Public Health*, vol. III, 1913, the same author states that in the ten years ending with

*Presented at the annual meeting of the Soo Surgical Association.

1910, deaths from organic diseases of the heart had increased 39.3 per cent, and Bright's disease 18.1 per cent. The most surprising increase in mortality was shown in diseases of the arteries, which had risen from 5.2 to 25.8 per cent.

In this discussion I endeavor to show the relation between cardiovascular deterioration and the efficiency of the middle-aged employee. From an economic point of view, this disease is more important than any other. It is *the* disease of middle age, and is always to be expected in the old man.

There is but one way of meeting this situation,—that is, by regular and thorough physical examination. This is particularly necessary in the case of railway employees, whose efficiency is vital to the public. The reasons for this need are obvious—

1. Because regular examinations serve as preventives. Heart disease does not come on in a moment. It is often preceded by renal disease; high blood pressure or metabolic changes frequently give warning. And when these symptoms are noted in examination the incipient trouble may usually be averted; for heart disease is, in many cases, preventable. Within a decade the effect of such a policy would appear in the reduction of cardiovascular mortality and in the longer period of service possible from employees, or, in other words, in the retreating age line of physical breakdown.

2. Examinations are the only reliable index of an employee's physical fitness, and should be referred to in deciding the time of his retirement, instead of the unscientific arbitrary age limit. A pension system based on physical fitness would not interfere with the *elective* age of retirement fixed by the Company; it would, however, result in substituting for the automatic retirement at, say, 65, a *flexible* scale in which health conditions would combine with years of service in determining the pension age.

3. A third important use of examinations would be in cases of promotion. Men expecting advancement to positions of greater responsibility would first undergo examination to determine whether they were physically able to bear increased strain. In this regard it is interesting to note that the United States Navy requires annually a thorough physical examination of all officers. Moreover, the same thing is required of officers who are to be advanced in rank, and, if they are not found in good physical condition, they will not be advanced. I

remember well one officer who was promoted from Commander to Captain, but on examination was found to have high blood pressure. He was on rigid diet for six months before he could accept the new commission.

Turning to the examination itself, the first question that arises is that of frequency. In general, the period should be graded according to age and the importance of the work. For men in offices and shops, the period might well be every three to five years; for men engaged in work involving heavy physical strain and direct responsibility to the public, examination should be annual.

The scope of such examinations as are given at present is very limited, hardly going further than is necessary to determine deterioration of sight or hearing in trainmen. Yet the heart bears the shocks and trials of prolonged and sudden strains, and, if it gives way, it is of at least equal importance with the eye or ear. I, therefore, suggest that in all cases sphygmographic pulse tracings be taken, in order to have an absolutely reliable knowledge of cardiovascular conditions. Make the heart write its own record; otherwise there may always be a difference of opinion as to the degree of deterioration or detraction from normal. The sphygmographic record is objective, may be taken in a moment, is permanent, and may be compared from year to year. Sir James Mackenzie, considers it of great value, and, in some ways, superior to the electrocardiogram.

With the examination and recording of the condition of the heart, the blood pressure should be taken—sitting, standing, full recumbent, and after exercise. The variation between the blood pressure taken at rest and after exercise is often quite marked, and it will frequently give some idea as to the degree of arteriosclerosis present.

Syphilis is one of the very important factors to be considered whenever cardiovascular diseases are under discussion. No man objects to having a urinalysis made. He recognizes that nephritis is a serious condition, and that its presence will cause heart trouble and many other fatal maladies; he is anxious to know if his kidneys are normal. The same man, however, frequently will object to giving blood for a Wassermann or Noguchi test. No insurance company that I know of has included in its blanks requirements for a Wassermann test. Perhaps the omission is due to the great variation in reliability of laboratories; but nevertheless, it is

my belief that before long the Wassermann, Noguchi, or some more reliable form of examination will be obligatory in the physical records of men holding positions that require great mental or body strain.

Before leaving the subject of the examination proper, it may be well to quote again from Sir James Mackenzie, who offers a word of caution to cardiovascular enthusiasts: "In later life you will find many departures from the standard which are in perfect accord with the idea of the healthy organ. These departures are different from those met with in earlier life, and, therefore, here again the first question you should ask yourself is, Is this sign a manifestation of changes which do not indicate a disease, nor embarrass the heart in its work, but which are, in fact, the changes that accompany advancing years?"

Much of the practical value of the examination will depend on the preservation of individual records. Fitness reports should be kept on file, and compared from year to year. By means of this comparison the examining physician will be able to determine at once whether some newly detected symptom indicates a disease or merely the natural change incident to age.

To provide for this extensive program of examinations, it is suggested that a permanent Board of Examiners be appointed, with a four-fold function. They should examine men, first, for their periodical fitness report; secondly, when going up for promotion; thirdly, in special cases, they should decide whether a man was wholly unfit for service, was able to do light work, or was capable of full duty; fourthly, in connection with these recommendations, the Board should act as advisory body to the regular Pension Board of the Corporation.

To be adequate, the Board should be composed of a surgeon, an internist, an eye, ear, nose, and throat specialist, a neurologist, and a man chosen from the employees to present the employee's case, if required.

CONCLUSIONS

1. Cardiovascular diseases are very prevalent after the fortieth year,—the time when a man should attain his greatest efficiency. They, therefore, deserve greater attention from those concerned with industrial medicine.

2. To safeguard the interests of the public, the Company, and the employee, periodical phy-

sical examinations should be given, and the records kept, by a Board of Medical Examiners.

3. This Board should cooperate with the Pension Board.

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DISCUSSION

DR. ALFRED M. RIDGWAY (Annandale, Minn.): The condition of the cardiovascular system is very important, and in the case of an old employe should certainly be looked after. I feel that the changes occurring between the ages mentioned by Dr. Henry, from 40 to 65, are usually found in most individuals. The arterial system normally changes, and the old saying that a man is not any older than his arteries would seem to be true. In my experience I have found that many people of 40, 45, or 50 are a great deal older than others at 70. As regards the old employe: A great deal in the way of treatment could be done to properly care for him. To arbitrarily retire men at a certain age might be an injustice, as some of them might be in the service many years longer than others. We should perhaps make frequent examinations from 60 on, for undoubtedly it would be a great encouragement to an old employe to remain in the service until 70 years of age if he is physically able. He would feel much younger every time he received a good report on his heart and blood-vessels. We have all seen people who have had serious heart trouble early in life, but by instituting proper rest for a period we have overcome the condition, and they have gone into hard active manual labor without any unfavorable results. So I believe it might be an injustice to the employe to fix arbitrarily an age of retirement on account of possible physical condition.

In my experience heart disease progresses very slowly. The patient presents himself for examina-

tion without any special subjective findings. The first symptoms complained of are usually a tired feeling and a great deal of dyspnea on slight exertion, and they wonder what is the trouble. The disease does not have a sudden onset by any means. I feel that the statistics of the different insurance companies referred to by Dr. Henry, are from the various physicians who report these cases and make out the death certificates, as a great many of us do, not knowing the cause of death and for convenience, knowing that we have to give a satisfactory cause, we call it heart failure, acute cardiac dilatation, acute or chronic myocarditis, or angina pectoris, and in so doing increase very materially the percentage of deaths from heart troubles. It has been a question with me for several years whether these sudden deaths that are supposed to be from heart disease are really due to this cause. Occasionally where we get sudden death from heart trouble the condition is either angina pectoris or an acute dilatation, and the result is foreseen long before the end comes. However, I remember one case of angina pectoris, and I know others have had similar experience, in which the second attack caused death.

The changes that we usually find in the cardiovascular system are, as a rule, accompanied with interstitial kidney trouble, and that will show up long before the myocarditis that we find in older people. The cardiovascular conditions that are perhaps most common in people of advanced age are myofibrosis, a fibrous tissue replacing the true muscular tissue to a certain extent. Endocarditis, mitral insufficiency and aortic stenosis are all conditions that we find in early life.

In my opinion the rule for retirement should not be based on an age limit, but on the physical condition, as some men are much more fit to perform their duties at the age of 70 than others at 55, although I believe they should be examined more frequently as age advances.

DR. THEODOR BRATRUD (Warren, Minn.): I will cite three cases in point: In 1912 I came from Chicago on a train carrying two hundred and fifty passengers. The conductor called me into the baggage-car where the engineer was lying on the floor dead. He died so quickly that the tobacco he had been chewing was still in his mouth. Investigation was made when it was noticed that, instead of the train slowing up in going down a certain hill, it was increasing speed, and the fireman found the engineer on the floor of the cab.

Another case occurred this year on the Soo Line. While oiling the engine an engineer dropped dead, and we learned from his friends that for over three years he had carried a blood pressure of 240. How could he remain in the service carrying that pressure?

The third case was an engineer on the Chicago and Northwestern who had been running an engine for thirty-seven years and was a trusted employe. He fainted twice while on his run. The local surgeon examined him and could find nothing wrong, but advised him not to go back to work. The chief surgeon suggested that he take a rest for a month. His heart showed no physical signs, no dilatation, no murmurs. A week later that man died in his chair while reading his paper.

Many of these cardiac cases will show no physical signs, at the same time they die suddenly, and we ought to bear in mind the warning that some of these cardiac cases which suffer sudden death show no ordinary signs on physical examination, but we have to elicit a history of lowered cardiac reserve,—as emphasized by Mackenzie.

DR. JOHN H. RISHMILLER (Minneapolis, Minn.): This opportunity is taken to give a general idea of how the physical examinations of applicants for employment are conducted on our System. We have nine examining-points, corresponding to the principal points where men may hire out for employment,—Minneapolis, Thief River Falls, Enderlin, Bismarck, Superior, Stevens Point, Fond du Lac, Gladstone, and Chicago. This gives the examining surgeons considerable practical work, therefore, making better examiners, as, for instance, when a new examiner starts with his work, he does not even know the difference between color-blindness and color-ignorance. The color-sense of all the examining surgeons is tested by the Chief Surgeon before they are allowed to make examinations. Of the seventy-five men in this room, three are color-blind; in other words, 4 per cent are color-blind according to English statistics.

When a new applicant hires out at one of our division points, the employing official fills out a request slip for examination, indicating age, height, weight, color of hair, color of eyes, and marks of peculiarities of the person to be examined, also bearing the signature of the prospective employe; and this is sent, in a sealed envelope, to the examining surgeon.

All the examining surgeons like the hiring officials have a Fairbanks scale, so that an applicant can be weighed and his height recorded; and the age, height, weight, color of hair, etc., must be identical with the notation on the request slip. This is very important, as it eliminates a great many "healthy pals" who are too willing to take examinations for defective friends. The applicant makes out, in his own handwriting, the first page of two examination-report blanks, "Statement of His Physical Condition." Two copies of the second page, which is devoted to the "Report of Examination of Vision, Color-Sense, and Hearing," are made out by the examining surgeon, and likewise two copies of the third page, the "Report of the Physical Examination." A complete physical examination is made, with the examinee entirely stripped, and any physical defects are recorded.

After the completion of the examination, the examining surgeon either qualifies or disqualifies the applicant, according to his findings, and issues a slip, bearing also the signature of the applicant, to the employing official.

These two copies of the examination, original and carbon, the examining surgeon forwards, via railway mail, to the Chief Surgeon's office. The Chief Surgeon approves or disapproves the examination, retaining a carbon copy for his file and sending the original copy to the Employment Bureau.

Firemen and brakemen have to pass an absolutely normal examination. After a man has been in the service for five or six years, the Company is obliged to protect him. If we find one imperfect at that

time, we have to take care of him. We cannot turn him loose, for the reason he has given five or six of his best years to the Company; therefore, in these cases we have to do the best we can. Some of these men, whose physical condition has to so marked degree deteriorated that their retention on fast trains would be a detriment to the service, are passed on to branch lines, and their interests thus protected.

At the end of the year, the Chief Surgeon makes out an annual report of all physical examinations on the System, which gives a comprehensive idea of the number of men qualified and disqualified, the conditions for which they were disqualified, and the number examined at each division point by our different examining surgeons.

In this manner, all examiners are checked up, and their work compared, as for instance, in regard to color-blindness. The number disqualified should, in the aggregate, correspond. By this checking system sometimes flaws are detected where an applicant has been disqualified, say, for instance, at Stevens Point, and a few days later hires out at Enderlin and is qualified.

I am happy to state that our physical examinations are looked upon by other railway systems as a stride in advance. While we may appear strict when the applicant enters the service, it is, nevertheless, a great comfort to the employe when he comes up for promotion, in his examination for either engineer or conductor.

Our present system of physical examinations has been in effect since January 1, 1911. A booklet of instructions, twenty-one pages, was at that time compiled, so that we have a uniform and systematic regulation in qualifying and disqualifying applicants for employment. On the average, I may state that every fifth applicant is disqualified. For 1920 the average percentage of disqualification was 16.245 and for 1921 the data will be found at the end of this volume.

The Soo Line more than comes up to the physical standard of recommendation of the Medical and Surgical Section of the American Railway Association.

DR. WILLIAM P. THELEN (Wilton, N. D.): The insurance companies were quoted in regard to the trouble we are having with the Wassermann test and also in regard to taking the blood pressure. I was present at one of the meetings of the insurance companies as an examiner, and they stated that they do not require a Wassermann. Some of the large insurance companies, such as the Mutual Life of New York, do not any longer require a blood pressure in their examinations, claiming that this is on account of the great variations due to differences in the methods of examination. For example, a Wassermann made by one laboratory will be 1-plus or 2-plus, while that of another laboratory in the same case will be negative, and the same variation exists in taking blood pressures. They say that one physician will get a high blood pressure, the man is then referred to another physician who will report normal blood pressure. The insurance companies claim that when the Wassermann test is standardized so that we can have a standard on which we will all agree they will take it into

consideration, and the same is true with reference to the blood pressure. These things get out among the railway employes and the laity through various misunderstood publications in some insurance and other pamphlets, and there is where we have trouble. They go on and say that they do not want a Wassermann made because it is not a positive proof one way or the other, and in the same way they object to the blood pressure being taken. The essayist mentioned the fact that none of the insurance companies require a Wassermann, and that is why they do not require it. It seems to be the general opinion of the laity that the Wassermann is not as completely done as it ought to be and is not always as sure as it should be.

DR. JOHN J. MCGOVERN (Milwaukee, Wis.): I believe that the difference in the Wassermann reactions can be easily explained. If the laboratory man takes the blood himself he can eliminate the so-called accidental errors. He can place his antigen low and catch the 1-plus and 2-plus. To illustrate: A few years ago I wanted to check up on the Wassermann reactions, so I sent half of the blood to Hopkinson's private laboratory and the other half to the State Laboratory. In some doubtful cases the State Laboratory reported a negative, and Hopkinson either a 1 or 2-plus. In every case where I got a plus I was pretty sure from the clinical findings that we had syphilis. We asked Dr. Lorenz of the Mendota Laboratory why we always got a negative in these low cases. His explanation was that he did not know whether or not the person who took the blood was careful to eliminate the accidental errors that will produce positive reactions. That is reactions of plus one or two. When the blood is taken carefully the antigen can be placed low, and then the low reactions can be found.

In a short time railway employes everywhere will be forced to accept the Wassermann test.

Four years ago I was asked by the Soo head of the Milwaukee freight department to call on a Soo employe who was sick at home. This man was a freight agent. His duties required him to travel on freight trains to check up cars and work of that sort. He was under the care of his family physician. I made a diagnosis of gumma of the brain. The Wassermann confirmed the diagnosis. After he recovered sufficiently to go to work he came to me to get a certificate stating that he was well and ready for his old job. Such a certificate was required by the head of his department. I refused to give him the certificate because his condition was not perfect. His muscular control was quite uncertain. I felt that a return to his old work meant an accident. How many accidents are caused by the physical inability of the employe to perform the work assigned to him?

A man with a very high blood pressure or with a heart that shows marked symptoms of decompensation is not a very safe person at the throttle of an engine whether he is young or old.

I agree entirely with the essayist that we should have no fixed age for retiring a railroad employe or men in service anywhere. The physical condition of the employe is the safest guide. The safety of the public and of the individual should be taken into

consideration in every case. One man is young at sixtyfive and another dies of senility before he reaches that age.

DR. JOHN M. DODSON (Chicago, Ill.): I think a distinction should be made between the relative importance and feasibility of the Wassermann test and the blood pressure test. In spite of all that may be said, the Wassermann test is open to accidental errors, even in the hands of experts. It is a laboratory test requiring carefully prepared and conserved materials, and should be made always by an expert. The blood pressure test is just as simple as taking the pulse. Taken by the auscultatory method, one cannot err far either way. While a single high reading should not condemn a man nor necessarily exclude him from the service, it does indicate the necessity of observing him from time to time to determine what his high blood pressure means. It is perfectly true that a patient with a blood pressure of 180 to 190 may live for a long time, not only in good health, but apparently feeling better than ever before. By and by, however, that continued strain on the vascular system begins to tell. If the reading of blood pressure is used, not as a radical means of excluding an employe from service just because of a single high reading or even two or three readings, but as a means of pointing out to him in his interest that he has an abnormal condition, and we tell him that he is a proper subject for occasional observation, I do not believe the Unions would seriously object to it. I think that the insurance companies which have discarded the blood pressure test as a means of determining the insurability of the applicant are making a mistake.

DR. PIERRE C. PILON (Paynesville, Minn.): Since we have taken up the subject of blood pressure tests I wish to say that the insurance companies have had a great deal of trouble in this connection, due probably to the spring instrument having come

into general use. If we examine the instrument we will see that it varies with the temperature as well as with blood pressure. For that reason the manufacturers have made a dial which is movable. It should be the aim of the man who takes blood pressure with a spring instrument to set his dial zero on the needle every time he takes a blood pressure. I think that care will be very useful and eliminate much difficulty. Most of us are familiar with the Tycos model of blood pressure instrument. In this we will find that the dial is movable and is thus made by the manufacturers in order to give the man taking blood pressure a chance to adjust the instrument. It is of great assistance, but, on the other hand, it may be a source of much error if we do not adjust the instrument every time we use it. Accidentally the dial will turn away from the needle and 200 will be shown, when as a matter of fact the pressure is practically normal.

DR. HENRY (closing): Dr. Ridgway believes examinations should start at a certain age. My opinion is that examination should be made annually or every three to five years, depending on the work the man does, from the time he enters service of the Company; not waiting until they are middle-aged, but picking them up from time to time. In that way we will eliminate a great deal of trouble.

In regard to taking the blood pressure: It seems that nobody caught my point,—to bring out its full value the blood pressure should be taken under various positions and after exercise. If after taking the blood pressure of a man seated we put him in the full recumbent position and take it, then take it again after exercise, we shall get well marked variations. In order to arrive at an accurate estimation, I believe it is important to make the test under various postures and after exercise. I also believe that the mercurial instrument should be generally used.

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WHAT THE LAITY THINK OF US

In the *Illinois Medical Journal* for July, 1923, there was a very interesting article entitled "The Laity's Idea of the Physician," by Buda Carroll Keller, of Chicago. It is an inquiry by workers of various sorts, under the direction of Dr. James H. Hutton, of the Jackson Park Branch of the Chicago Medical Society, in which an attempt is made to find out why the public go to quacks, cults, and practitioners of little value. In order to gather this information, several volunteer workers and some paid workers, including traveling salesmen, city salesmen, office people who have much contact with the general public, the welfare workers in one of the biggest middle-west industrial concerns, a club woman on the South Side, and a society woman on the North Side, went into the highways and byways to ask a few simple questions of the sick people whom they met. The first question was, "What did you do the last time you were sick?" and if the next question could be gracefully added, it was, "What led you to do that?" There was nothing said in any way which led these people to understand that this was an inquiry for the benefit of the doctor.

The number of people interrogated was 6,772. Of this number 5,719 persons lived in Chicago, and 1,053 outside of Chicago. From this total number only 931, or 13 5/16 per cent, had never dabbled in any cult or pseudoscience; and of

the 931 only 384 had no curiosity about any of the said cults or quacks and had no intention of experimenting just a little bit with them. Of the 5,841 who were directly opposed to the physician and stood up directly for the other fellow, which is quite a different matter, or who had at some time or other been interested in the other fellow to the point of investing money in his healing methods, only 7 per cent of them were directly opposed to the physician on account of some fault of his own, that is, malpractice, either real or imagined, or his failure as an individual to adapt himself to the situation. However, 93 per cent of them had visions due to confused impressions in regard to the medical profession.

The objections which were collected and classified are given under twenty-two headings, which we append.

The history of this venture is a remarkable one, and the information gleaned from it is equally so; and the result to the doctor or to the detriment of the doctor is equally interesting.

The discussions that followed the paper brought out one or two points:

One of the first criticisms, by Dr. Edward H. Ochsner, of Chicago, was that people ran to the quacks and to the cults partly to satisfy their curiosity; and he criticized the medical men who do not look after the little things,—the backaches and the slight discomforts that people complain of (if we did there would be a smaller number of people going to the cults than there are now;) in other words, we are neglecting our duty to our patients and depriving them of some scientific advice and assistance.

Dr. Meyer Solomon, in discussing the subject said that when a physician is in a group of people who are interested in a cult or in quack medicine of any kind, he can easily convert them by the presentation of arguments and facts that the doctor is the safer man. He furthermore expressed the idea that there should be more publicity given to the people; that the doctor should come out into the open more and explain why people are sick, or why they go to cults; the doctor should tell the people more about themselves and more about the things they should know. In other words, the doctor should be more human and enlightening in his contact with his patients.

After all, it is a matter of burning out a situation. The cults will last, whatever you do

to them; and eventually the doctor will come into his own.

TWENTY-TWO GROUPS OF ANSWERS MADE BY
NEARLY SEVEN THOUSAND PERSONS

1. There is a large group of people who will tell you that the physician is negative. He tells you what you must *not* do, warns you of ensuing fatalities, the osteopath, chiropractor, docs something concrete for you. You feel an immediate physical reaction. He tells you what to do and assures you of a chance to improve your condition. The mental reaction is better.

2. There are others who will tell you that the physician has too good a graft. He looks at you once and charges you five dollars for a prescription which he gets from a book on the shelf. You can do quite as well by going to the corner drug store and asking the pharmacist for the remedy which his customers have found satisfactory for your particular ailment.

3. There are those who say that doctors resent questions. They either shut you up summarily or overwhelm you by an utterly incomprehensible explanation.

4. Others say that doctors set themselves up as wiser, less fallible, than other people. One woman said that the last doctor she had was as pompous as a New Zealand devil dancer.

5. It is said that doctors habitually criticize treatments and healing methods of which they know nothing. How many doctors have questioned carefully a patient who has been helped by chiropractic treatment? How many of them have even seen a treatment? Yet they criticize it, regardless.

6. Some people said that the chiropractic schools at Davenport had really amazing equipment; and that the students there worked *so* hard that they must be very competent when they came out.

7. Others say that physicians are not consistent in their ethical practices. The man who goes after business by the business method of advertising is likely to be thrown out of his society. Yet the doctor with a spectacular patient, and with enough of a graft with a city editor to exploit him, becomes a high-priced specialist and everybody is anxious to call him into consultation.

8. Numbers of people commented on the osteopathic advertisements which have been running in national magazines, and claimed to have been interested to the extent of trying out the treatments.

9. Another group says that the doctors' attitude toward one another is about as friendly as two strange bull dogs in a back yard. Suppose you dismiss one physician from a case and call another. He will come in, inspect you sorrowfully, shudder with horror as he sniffs at the bottle of medicine his predecessor left, and say in a deep voice; "You did well to send for me; in another hour you would have been no more. But I shall cure you!"

10. There are people who misunderstand your ethical ideals. They say that an honest man will protect a crook. That if another doctor has blundered disastrously on a case, you will do absolutely nothing to prevent his repeating the performance

on any patient who may stray into the office.

11. There are those who believe that successful doctors use for their patients parts of the very same treatments that make the practitioners successful—diet, massage, adjustment, and let nature do the work—but they drag it out longer, clutter it up with useless medicine, make it cost more, and don't tell you the truth about it.

12. Others think that when you actually get down to cases, the doctors do the same things that they revile in their competitors. There is a famous clinic in the middle west which is so prosperous that nobody in the profession dares criticize it. Yet they used to flood all that part of the country with their advertising literature, report has it, and later entered into a deal with a railroad to advertise the town as the home of that clinic.

13. The cults—Science, New Thought, and a dozen others—make you a factor in your own healing. It is subjective. Medicine treats you merely as an objective—a clod of a thing to be worked upon.

14. Another group says that doctors are always a bar to progress because they fight social legislation, such as the Sheppard-Towner bill, and the only news stories to be found in the public press show their motive to be a selfish financial one.

15. Others say that doctors won't talk competition from a fair angle. They will never admit *any* good in mental or related aids and their attitude bears the stamp of a narrow outlook, because such great movements as Christian Science could not exist so long or flourish so wonderfully without a foundation of truth.

16. The cults—and this comment was made of many—draw upon forces that are greater than man. The doctors' resources are human and mechanical!

17. There is a large group which refuses to believe that only the doctor who has studied allopathic medicine is competent to practice the art of healing. Yet the doctors have never given the slightest degree of approval to anything which did not originate in their own ranks. And what is more, the discovery must be told to the doctors in convention assembled before it reaches any other group of citizens, or it's no good!

18. Another group wondered if anyone interested in healing methods hadn't better read the exposé of the medical profession recently appearing in a popular magazine. It showed how little most doctors knew about the drugs they prescribed.

19. Another group said that since doctors seem to be responsible for the vast group of drug addicts so much discussed now, that it is dangerous to let yourself be given drugs for any kind of illness and drugless healers are, therefore, best.

20. Another group says: "The last doctor I went to gave me the wrong treatment and I nearly died; I went to an osteopath, or a naturopath or a chiropractor, as the case may be, and was cured."

21. Others say that there are too many specialists. It is too expensive to be handed around from one to the other for each separate thing they think might be the matter with you. It is better to go to some one who can take care of everything at once.

22. And, finally, there is the group that says that there is no way of telling which is the good doctor and which is the bad one, and it is too dangerous to experiment with them. Osteopathy—or each man's favorite practice—can't hurt you, and has cured every difficulty so far.

DR. WILLIAM J. AWTY

Dr. William J. Awty, who has been the medical backbone of Moorhead, Minnesota, for many years, died at the home of Mrs. Awty's father, Mr. L. C. Lord, in Charleston, Illinois, on September first, as has been hitherto noted in our news items.

Those who knew Dr. Awty will recall him as a kind and cheerful doctor. Not only that, but he had the substance of the real medical man, and yet he was not old in years, but was learned in his practice. He acquired his knowledge and wisdom through long years of hard labor, and he became one of the men who was looked up to by all his professional brethren in Minnesota, and he served on the various medical boards of the state from time to time and was prominent in the official life of the State Medical Association.

Dr. Awty was born on January 24, 1863, in Mitchell, Ontario. He began, as many physicians do, by working for a living. He was in several lines of business, but finally finished an academic course at Victoria College, which is affiliated with the Toronto University, and graduated from Trinity University with the degree of M.D. He was an interne in the City and County Hospital, of St. Paul, where he remained until he moved to Moorhead, in 1893, practicing medicine there until 1917,—a period of twenty-four years. He then moved to Fargo.

Nineteen years ago he married Ethel Lord, daughter of Mr. L. C. Lord who was for many years president of the State Teachers' College at Moorhead. Dr. Awty belonged to all of the clubs in his vicinity and to the medical societies in his own and in adjoining counties. He was president, also, of the Moorhead News Company.

A friend who summed up Dr. Awty's career remarked: "Lots of folks will miss him, but the down-and-outers will miss him most." That is to say, he was the kind of man who did a great many things for the poor and unfortunate, and no one knew of it but those benefited and himself. Dr. Awty had been ill for more than a year following a cerebral hemorrhage.

MISCELLANY

BUGS

At the last big Bug convention
We discussed the Medic's skill,
We received his cursed prevention
And concerted work to kill.
All the foci of infection
With the x-ray have been found,
And their logic for removal
With the scalpel is quite sound.

Science found a potent virus
That is shot beneath the skin.
It surely makes it sickening
To ourselves and to our kin;
With the infinitesimal dosing
They handicap our work,
And in fields of immunization
Our labors we soon shirk.

The doctors called us rigours,
When we gave a person chills,
And promptly they would physic
With a dozen different pills.
The microscope then helped them
Our identity to view,
And our labors were made harder
As the laboratories grew.

"We will eliminate contagion,"
States their scientific chart;
So we agreed to form a compact
With those who took our part,
And we promptly swore allegiance
To our sympathetic friends,
We joined old Christian Science,
Who for us make prompt amen (d) s.

With the drugless healers rubbing
We most ardently can toil,
For they give us little trouble,
And help cultivate our soil;
Then its pleasant, too, to function
With fellows who at heart
Would like to be real doctors
And do a Medic's part.

So we voted at our meeting
To associate with those
Who quite ignorantly battle
Against our scientific foes;
We have joined the pseudohealers
Of the backbone and the mind,
Who tell the doubting public
There is nothing in our kind.

WAN O. SQUILL

BOOK NOTICES

THE ELEMENTS OF SCIENTIFIC PSYCHOLOGY. By Knight Dunlap, Professor of Experimental Psychology in the Johns Hopkins University, Baltimore; etc. Illustrated. St. Louis. C. V. Mosby Company, 1922. Price, \$3.50.

It is by its last chapter particularly that this book is connected with medical literature through a discussion of abnormal psychology and of mental inefficiency. Reserved as it is for a short final chapter, this discussion is necessarily of an elementary character that perhaps will not interest the alienist, but has much value for those who have no special knowledge of mental disorders, in that it gives a brief description of the principal forms of mental disorder and of the neurosis. That this discussion should follow a study of the normal mind is as fitting as it is that the study of pathology should be preceded by a course in anatomy.

Psychology, the study of the mind, is looked upon as a difficult subject. And so it is. But the difficulties of understanding it are not insurmountable. This author leads the reader along the difficult path by as simple and easy a method as can be devised. After defining psychology the next thing is to define the mind of which it is the study and that definition is "the totality of conscious adjustments or conscious processes." But what is meant by "consciousness." Consciousness means "awareness of something." Now we are off and ready for the study of the senses in their various relations, thought, perception, feelings, emotions and finally the ego or "me."

—WM. DAVIS, M.D.

THE HEALTH-CARE OF THE BABY. A Handbook for Mothers and Nurses. By Louis Fischer, 13th edition, 214 pp., illustrated. New York and London: Funk and Wagnalls Co. 1922. Cloth \$1.00

Chapters on general care and training are good except for clothing of the infant. The advice here is not suitable to this climate. The chapters on feeding are not up to date, and the author recommends many of the proprietary foods. He also makes the mistake of advising nursing mothers without consulting their physician to employ drugs, such as thyroid extract, Fowler's solution, etc.

CECILE R. MORIARTY, M.D.

NEWS ITEMS

Dr. C. A. Kerner has moved from Hannaford, N. D., to Casper, Wyoming.

Dr. O. T. Peterson has moved from Northwood, N. D., to Minot, N. D.

Dr. E. Klaveness, of Minneapolis and formerly of South Dakota, has located in Monticello.

The physicians of Dodge Center will ask the county authorities to convert the Dodge County Home into a county hospital.

Dr. W. F. Cantwell, of Littlefork, expects to spend several months in post-graduate work in surgery, mainly in New York and Boston.

The *Sentinel*, a weekly paper of Fairmont, Martin County, Minn., recently gave a list of 56 medicinal herbs that grow in that county.

The Allen Memorial Hospital of Carlton College, at Northfield, was opened last month. Local and Twin City physicians will make up the staff.

Dr. A. W. Yell, of the University of North Dakota is now at the head of the Department of Pharmacology of the Emory University of Georgia.

The Norwegian Lutheran Deaconess' Institute or Hospital of Minneapolis, is hereafter to be known as the Lutheran Deaconess Home and Hospital.

Dr. A. D. Hawkins has sold his practice at Monticello and will not enter practice again for some time. His present address is 1846 Summit Ave, St. Paul.

The Minot (N. D.) Clinic is moving into new quarters, occupying the entire second floor of a new building, 25 by 84 feet in size, planned expressly for clinic offices.

Dr. Ruth Boynton, of the Department of Preventive Medicine, University of Minnesota, succeeds Dr. E. C. Hartley as Director of Child Hygiene, State Board of Health.

Dr. E. L. Newcomb, of the University of Minnesota, is one of the fifty experts chosen to revise the United States Pharmacopeia, which is revised every ten years.

The Mississippi Valley Conference on Tuberculosis has chosen Sioux Falls, S. D., for its 1924 meeting. Its annual meeting for this year was held last month in Evansville, Ind.

Dr. A. A. Whittemore, the new Director of Public Health in North Dakota, is making a strenuous effort to put that state in the regulation area for the official recording of births and deaths.

Dr. E. H. Ruediger, of the Pathological Laboratory of the Bismarck (N. D.) Hospital, has accepted work at the head of the Pathological Laboratory of the Angelus Hospital of Los Angeles, Calif.

The College of Dentistry of the University of Minnesota has received a straight "A" rating by the Dental Educational Council of America, and has been highly praised by the Council for its efficient work.

The Maternity Hospital of Minneapolis is offering to women a home-maker's course in personal and home hygiene, domestic arts, and social hygiene. Competent teachers will head each department.

The McKennan Hospital, of Sioux Falls, S. D., with a staff of twenty-four physicians, has announced that no physician can have a patient in the hospital without complying with the newly adopted standards of the hospital.

Dr. B. A. Dvorak, of New Prague, was married last month to Miss Beatrice G. Pesek, of Minneapolis. Dr. Dvorak is a recent Minnesota graduate, and has an appointment as head of the students' infirmary at Ames, Iowa.

The Minnesota State Board of Examiners of Nurses now consists of Margaret Crowl, R. N., Pres., Dora M. Cornelisen, R. N., Sec., Caroline M. Rankfellow, R. N., Sophie Olson Hein, R. N., and Sister M. Domitilla, R. N.

Minneapolis has an ordinance establishing a "quiet zone" about all hospitals in the city, which is too much of a dead letter. Mr. William Mills, Supt. of the Swedish Hospital and president of the Hospital Council of Minneapolis, asks the city for the enforcement of this ordinance.

The St. Louis County Medical Society held its annual meeting in Duluth last month when the following officers were elected: President, Dr. T. R. Martin; first vice-president, Dr. James Steward (Cloquet); second vice-president, Dr. J. R. Manley; secretary-treasurer, Dr. F. H. Magney.

The canvass for a million dollars for the Baptist Hospital to be erected in the Midway district of the Twin Cities and for several hundred thousand dollars for St. John's Hospital in St. Paul, shows how generous the public is when rightly appealed to, and that the hospital appeal has not hitherto received proper emphasis.

The annual meeting of the American College of Surgeons was held in Chicago last week. A large list of hospitals recognized by the College, after thorough examination, as standardized, was made public, and we shall publish the list of such hospitals in this territory in our next issue.

Dr. Charles H. Mayo, of Rochester, was elected president.

The Minnesota State Registered Nurses Association, the State League of Nursing Education, the State Organization for Public Health Nursing held their annual meeting in St. Paul on October 18-20, and 650 nurses registered. Three days of intensive work marked the interest of the nurses of the state in their work, as well as in their personal improvement.

Dr. Charles M. Cannon, of St. Paul, died last month at the age of 62. Dr. Cannon graduated from Bennett with the class of '88, and after practicing a few years in Alden and White Earth he located in St. Paul in 1892. He was a member of the State Board of Medical Examiners from 1902 to 1905. He was a member of the medical societies and many fraternal organizations.

It is reported that Yale's new school of nursing, endowed by the Rockefeller Foundation, will be modelled upon the School of Nursing of the Medical School of the University of Minnesota, the first of its kind established in the United States. A representative from Yale and also one from the Western Reserve University are expected to visit the Minnesota School this month.

At the annual meeting of the Park Region District Medical Society, held in Fergus Falls last month officers for the current year were elected as follows: President, Dr. W. E. Wray, Campbell; vice-president, Dr. P. G. Cowing, Evansville; secretary and treasurer, Dr. T. S. Paulson, Fergus Falls; delegate, Dr. A. C. Baker, Fergus Falls; alternate, Dr. J. A. Freeborn, Fergus Falls.

The Minnesota State Board of Examiners of Nurses have appointed as Educational Director Miss Mary E. Gladwin, of Akron, O. Miss Gladwin has had a wide experience in both small and large hospitals, has a notable war record, and has made nursing-school surveys in several states. She will study nursing conditions, supervise curricula, and methods of teaching in schools of nursing and assist in any way possible Superintendents of Hospitals and Nurses.

The next monthly clinic day of the Minneapolis Surgical Society is Thursday, November 8. From 9 A. M., to 12 M., work in general surgery will be seen at Abbott Hospital, Drs. Abbott, Strachauer, and Johnson (J. A.) operating.

From 2 to 4 P. M., there will be a pathological meeting at the University; and at 6:30 P. M., dinner will be served at the Elks Club, followed by the presentation of clinical cases and a paper by Dr. S. H. Baxter on "Retroperitoneal Sarcoma."

The resignation of Dr. von Pirquet, who but recently came to the Medical School of the University of Minnesota to take charge of the Department of Pediatrics, is a great disappointment to both the University and the medical profession of the Northwest. His resignation was frankly due to homesickness for his Vienna Clinic and to the conviction that the new constructive work required at the University would interfere with the research work which has hitherto absorbed his whole time, aside from some teaching.

Part Time Position Wanted

A technician who can do routine laboratory work and x-ray and bacteriological work, desires a position in the Twin Cities for work for three days in the week. Address 399, care of this office.

An X-Ray and Clinical Laboratory Technician Wanted

One who can make blood counts reliably and expeditiously and can make routine blood chemistry examinations and also do x-ray work. We prefer a University graduate with the degree of B. Sc., and, if a girl, with the proper office or laboratory temperament.

We will give profitable and permanent employment to the person prepared and willing to do this work in a fine Northern Minnesota town. Address 400, care of this office.

Physician Wanted in North Dakota

In a town of about 800; must be able to speak German, and preferably a Catholic. Give references in first letter. A splendid location for the right man. A big territory to draw from. Town is located in Southeastern part of North Dakota. Address 392, care of this office.

Location Wanted

A recent Minnesota graduate with two years experience in country practice, wishes a location in a Minnesota town with hospital convenience. Prefer partnership with an older physician. Can speak Scandinavian fluently. Address 401, care of this office.

Apparatus for Sale

One Snook Interrupterless Transformer, ten-inch spark, complete with autotransformer unit for 220 volts direct current; one Coolidge Transformer and Control; one Coolidge amperemeter; one stereoscopic tube stand; one overhead high-tension system. Price \$600, 933 Metropolitan Bank Bldg., Minneapolis; Tel. Atlantic 2550.

For Sale

One Scanlon-Morris operating-table with nickel top, price \$300.00. One National Sterilizer, medium size, price \$75.00. Both practically new. For further information call Highland 6609, or call at 1402 Fremont Ave. No., Minneapolis.

Physician and Surgeon Wanted

In good town and large territory. The right man can do from six to ten thousand a year. For particulars address E. V. Peterson, Gary, S. D.

Call for Bids for Rental or Purchase of Hospital

Carrington Hospital Association will receive bids for the rental or purchase of the Carrington Hospital property including all furniture and equipment up to and including the 1st day of November 1923, at 8:00 o'clock P. M., building and equipment, if leased, will be leased on a three year basis with privilege to the lessee to extend the time for a period of two additional years.

All communications concerning bids and all bids submitted under this proposal must be addressed to J. O. Robertson, President of Carrington Hospital Association, Carrington, North Dakota.

Wanted Locum Tenens or Assistantship

By a physician of ten years' experience; available at once. Address 396, care of this office.

Instruments, Books, Etc., for Sale

The Surgical instruments, instrument case, sterile table, microscope, books, etc., of a retired Minneapolis physician are offered for sale. Call at 501 La Salle Building or telephone, Geneva. 1593.

Practice for Sale

South Central Minnesota—\$10,000 to 15,000 unopposed medical and surgical practice, 100 miles from Minneapolis, town of 600, prosperous farming country, fully equipped hospital, good churches, high school, modern office, equipped for eye, ear, nose and throat work as well as general work, X-ray, collections 98 per cent, nearest competition 16-18-25-30 miles, Scandinavian community, open to single or married man, thorough introduction, \$4,000 part cash terms for balance, complete details on request, am moving to city. Address 397, care of this office.

Position Wanted

A graduate nurse desires a position in a physician's or surgeon's office. Good references. Address 391, care of this office.

Ophthalmologist, Etc. Wanted

A well-established firm in a large city of North Dakota wants a specialist in ophthalmology, etc., to join it to take the place of its specialist in this line now. Leaving the State. The opening is a splendid one for a high-grade man, one who is a little better than anyone else in this line in the city. The firm's standing and business guarantee a satisfactory income for the right man. Address 387, care of this office.

THE JOURNAL-~~L~~ LANCET

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A PLEA FOR SYNTHETIC ANATOMY*

JOHN T. ROGERS, M.D.

SAINT PAUL

Ladies and Gentlemen of the North Dakota State Medical Association:

As the title of my paper indicates, my message to you concerns those unfortunate individuals whom we class as neurasthenics and visceroptotics. Not all neurasthenics are visceroptotics, but it is safe to say practically all visceroptotics are neurasthenics. The well-nourished and even the fat neurasthenic, while not so frequently encountered, is, nevertheless, a most difficult problem for the surgeon, and it requires all the knowledge of psychology possible to deal intelligently with this class of individuals. In this connection it seems to me that the education of the surgeon of the future will demand a thorough study of psychology during his preparatory course in medicine and surgery. It is in this class of cases that machine-made diagnoses, so popular with the present generation of surgeons, fall flat, and that unnecessary and even mutilating operations disgrace the science and art of surgery and cast a stigma on the individual operator. Such mistakes drive these patients and their friends into the ranks of the various cults which are thriving in every community, whereas had the surgeon used his five senses which God gave him and a little common sense he would not have fallen into the trap set for him.

The present tendency to *x*-ray and laboratory

diagnosis is much to be deplored. Our universities are at fault in a large measure, but the medical profession as a whole can have a tremendous influence in correcting the present tendency. While I do not for a moment underestimate the value of all scientific methods used in diagnosis, I feel strongly that we should use clinical methods, rather than laboratory methods, in a very much larger proportion of our cases.

The neurasthenic is primarily a case for the neurologist. It is rarely necessary to be in a hurry to operate in this class of cases, even though there is a palpable pathologic condition. Without surgery these unfortunates, by proper suggestions at the hands of a psychologist, may escape chronic invalidism; with surgery they become almost invariably chronic invalids throughout their lives.

The following case reported by Hugh T. Patrick describes exactly the type which we see so often and with which many of you are so familiar.

"A middle-aged woman had been operated on for ruptured perineum, rectocle, and ulcer of the womb; and, later, for hemorrhoids and laceration of the cervix; still later, she had a curettage, and then the ovaries and tubes were taken out; and, finally, a hernia, a relic of one of the previous operations, was repaired. No very exhaustive investigation was required to show that this patient never had been physically disabled, but that she always had been intellectually and

*Presented at the forty-second annual meeting of the North Dakota State Medical Association at Grand Forks, N. D., May 31 and June 1, 1923.

temperamentally absolutely unequal to life's demands. Each operation was only an additional urge into physical invalidism as an escape from the toil and responsibilities that fell to her lot. That such treatment tends to perpetuate the trouble is obvious. If dysmenorrhea and pelvic pain are really a recourse from laborious house-keeping, ventrifixation fixes the mental attitude of the patient. And the next operation for adhesions makes her more adherent to her disability."

This describes graphically an increasingly large number of cases which have come to our Clinic and to the hospital. It is no unusual day when three or four such cases present themselves for examination and for further operation. Hardly a day passes that I do not encounter one or more patients with three to five scars on the abdomen. No matter what the history or what the findings in such a case the diagnosis can be made from the scars without a word from the patient. They are victims, many of them in many instances, of the unscrupulous surgeon; in many more instances they are victims of the careless, enthusiastic laboratory diagnostician.

In my experience post-operative hernia, following operations for whatever cause on fat neurasthenics, is a remarkably frequent occurrence, and operation for repair in such cases is not only more difficult but the results are disappointing. Just why this is so I am unable to explain.

The following case is rather characteristic:

Mrs. A. W., aged 39, two children, comes to the Clinic complaining of nausea coming on at intervals. A year ago she had an operation for hernia; since then she has frequent spells of pain and vomiting. The pain is not influenced by eating. Has been in the hospital twice for observation since her operation. During attacks she can retain nothing on her stomach. Her bowels as a rule are regular. Her childbirths were normal. She had two operations, one for abscess of lower abdomen and another for retroversion after the last childbirth. At the time of operation for abscess one ovary was removed. Examination of the abdomen shows marked sensitiveness on deep pressure over the epigastrium, and there is some soreness all over the abdomen. Pelvic examination reveals two scars, one in the right inguinal region, the other in the median line between the umbilicus and pubes. The vaginal outlet is intact. The uterus is in good position and apparently fixed by firm adhesion to the abdominal wall; the right ovary is not palpable; the left is free. She is very sensitive to palpation. Patient's color is good. She is well nourished, rather fat, and states that she feels well between attacks. X-ray examin-

ation is negative. Blood and urine are negative. Proctoscopic is negative. Blood chemistry is negative.

The patient was sent to the hospital for observation. No attacks occurred while in the hospital. Two weeks later after leaving the hospital the patient developed a severe attack strongly resembling bowel obstruction. She was returned to the hospital.

After recovery from attack x-ray pictures were again taken; no information gained other than few adhesions. I was prevailed upon by patient and husband to explore. Except for adhesions following three previous operations and so-called chronic obliterative appendicitis nothing was found. Wound was closed without drainage. Operation January 12th, 1923. April fifth, patient returns to the Clinic for examination. Says she has been free from attacks but examination reveals a large post-operative hernia with wide separation of the muscles. Recovery from my operation was uneventful, the abdominal wound was closed in the usual manner, each layer sutured separately. There was no stitch abscess, and no suppuration. Patient remained in the hospital three weeks and the abdomen was perfectly healed when she left the hospital.

This is a typical case of the fat neurasthenic,— a case in which I did an unnecessary operation, and it was followed by a post-operative hernia, which must be closed in the near future as it is beginning to give symptoms. This patient should have been referred to the nerve specialist and not to the surgeon.

The visceroptotics are of two types, the congenital and the acquired. The congenital type seems to be on the increase and may be said to be a product of our higher civilization. Both the congenital and the acquired visceroptotics are by far most often among females. Frequent pregnancy is the most prolific cause of the acquired type. It has often occurred to me that were mothers properly instructed as to the muscular exercises and care of their female children they might avoid such pronounced symptoms as usually come on in early adult and middle life. There is no doubt but that there are many congenital visceroptotics who never give symptoms, although their organs are all misplaced. It has seemed to me that symptoms are a result not so much of displacement, as of the circulatory changes which occur from asthenia and stasis and loss of muscle power. Were the diagnosis made in early childhood and these children compelled and trained to proper habits, muscular exercises, and proper carriage, the condition would be much less pronounced in later life. In the acquired type, due to pregnancy or pregnancies, we find no defect in the embryologic development of the viscera, but, through pressure and stretching of all the supports, with absorp-

tion of abdominal fat, termination of pregnancy allows the organs to become ptosed. Here again prophylactic advice, muscular training, massage, and proper diet might prevent the development of symptoms later on. It is the duty of the general practitioner and the obstetrician properly to instruct their pregnant patients with this in view.

The diagnosis of the congenital visceroptotic is easy. The straight spine, the flabby rather prominent lower abdomen, and the contracted upper abdomen are almost pathognomonic. Palpation of such an abdomen demonstrates movable kidneys, low-lying liver, sagging often retroverted uterus, practically all the viscera in the pelvis. A pallid drawn face, the drooping mouth, and mental attitude complete the perfect picture of the visceroptotic, and one needs the *x*-ray only to verify the diagnosis and convince the patient of its correctness. The manifold symptoms are so diverse and yet so characteristic that a mistake in diagnosis is hardly possible. The diagnosis being made, and, if you please, verified by the *x*-ray, what should be our line of procedure? First let me report the following case, which I will make as brief as possible:

Miss A., aged 48, single, occupation librarian, came to the Clinic complaining of hyperacidity, sick headache, nausea, loss of weight, constipation, pain in the right abdomen, shortness of breath on exertion, unable to work, and menses irregular. She is sallow, long flabby abdomen, pulsating abdominal aorta, upper abdomen contracted, spine straight, lower abdomen somewhat distended. General tenderness over the entire abdomen; both kidneys freely movable; pain on palpation marked in right epigastrium and right iliac region. Pelvic examination shows a retroverted fairly large uterus; tubes and ovaries, normal. Hemorrhoids present but giving no symptoms. Blood and urine, negative. Wassermann, negative. X-ray examination demonstrates marked visceroptosis, gall-bladder containing many stones, duodenal ulcer, probable chronic appendicitis. In view of the presence of gall-stones and ulcer, giving marked symptoms, operation was advised.

Operation March twenty-fifth: Right rectus split. Adherent appendix removed. Distended, thin-walled gall-bladder containing many stones removed. Duodenal ulcer on the posterior wall obstructing and densely adherent. Posterior gastro-enterostomy was performed.

Recovery uneventful.

The patient left the hospital at the end of three weeks much improved in every way. She returned to work after one month following her release from the hospital. She had been working two weeks when practically all symptoms returned. She had gained in weight during the rest; now losing and very miserable. At this time hemorrhoids became strangulated; she was sent to the hospital, and the

hemorrhoids were removed under gas anesthesia. At the same time both tonsils were removed, and both were diseased. This operation was done on August the third. On September the fourteenth the patient developed a right-sided pyelitis.

Operation September the twentieth. The pre-operative diagnosis: stricture at the uretero-pelvic junction of the right kidney. Pyelotomy and dilatation of the stricture. Nephropexy. Following this operation all her urinary symptoms have disappeared. She has gained thirty pounds in weight, color is good, but she comes to the Clinic regularly with an entirely new set of symptoms each time. She will never be well and cannot be taught to conserve her strength or to know her limitations. X-ray pictures show a perfectly functional gastro-enterostomy opening and a healed ulcer; in spite of that her digestive disturbances are many and frequent.

She will finally prevail on some other surgeon to operate for adhesions, which she has heard about and which are no doubt present. Had this woman not been operated on I am convinced she would be in better condition to-day even though there was definite pathology. She should have been put to bed and given complete rest with forced fat-producing diet, after an initial medical treatment for ulcer, abdominal massage, and exercise. Following a course of two months of such treatment, gradual return to her daily work would, in my opinion, have produced better results than the operation.

As a routine, it is our policy to treat all visceroptotics with rest, elevation of the foot of the bed, forced feeding, abdominal massage, and exercise, and no operation. Medical treatment, we are convinced, gives far better results than the Coffey operation or any of the radical procedures advocated by Lane and his followers.

In conclusion I wish to stress the following points: In all neurasthenics a careful history, in the absence of clinical findings, should lead us to call in the neurologist and the psychologist, and by all means to avoid surgical procedures. The study of psychology should be in the curriculum of the prospective surgeon. The time has come to call a halt on the removal of suspected appendices and gall-bladders, the diagnoses having been made by *x*-ray and the patient's complaint of pain.

Deaver reports a study of 500 operations for chronic appendicitis in which 27 different varieties of inflammation were found, and Morris would have us believe that practically all these vestigial organs are giving trouble through the involutional changes, irritating the ganglia of the sympathetic nervous system by connective-tissue formation.

Codman, in a carefully studied series of 98 operative cases of chronic appendicitis, found pathologic changes in only 61, and of these 61, 51 had definite histories of classical acute attacks.

Operation for so-called chronic appendices is a disappointment to the patient and to the surgeon, and the same may be said of the gall-bladder. The removal of either of these organs in the neurasthenic or the visceroptotic is a questionable procedure and should be condemned. Most errors leading to operation are made by depending too much on laboratory findings, to the neglect of careful history and clinical findings. The visceroptotic is primarily always a medical and not a surgical case. Where the operation of any kind in the neurasthenic or visceroptotic becomes imperative, the surgeon should be exceedingly guarded in his prognosis.

Early prophylactic exercise, feeding, posture, and attempts to demonstrate to the visceroptotic his or her limitations would avoid much mental as well as physical suffering.

Operations for post-operative adhesions are extremely rarely necessary, and are more often a harmful procedure. Every failure in these cases drives one or many more to the charlatan or the cultist. It behooves us, therefore, to give this suggestion our most serious thought.

"The thin asthenic ptotic woman may and can have organic disease, but she is the vamp of the diagnostician and the curse of the surgeon." (Haggard.)

DISCUSSION

DR. J. P. AYLEN (Fargo): I can only heartily endorse what Dr. Rogers has said regarding this condition. Particularly, I wish to emphasize his attack on the surgeon who wilfully makes an onslaught on an unoffending gall-bladder and appendix. There are too many of those operations. Dr. Rogers has well said that all neurotics are not visceroptotics, but that all visceroptotics are neurasthenics. It is well not to confine our observations merely to women who have been pregnant. I have seen many cases in young women and in old maids of a thin type. I had not had much experience in this matter until my attention was called to it by a paper by Dr. Coffey and one by Dr. Quain. Since that time I have been a little more conservative about operating on patients, particularly those with right-sided pain. I have found that many of these patients are visceroptotics. I have a letter here from a woman who came in and whom I looked over for trouble, and all I could find was a retrodisplaced uterus. When I was shortening up her round ligaments I took a look at her appendix and thought it might be better to take it out. She was much improved in her general picture and went home. She had been home for a little more than a month when she claimed that her symptoms had all returned.

From this I judged that the benefit in her case was more from the rest in bed than from the operation. She came back to the hospital after a short time and said she wished to have another operation, but she did not like it very much. I told her I did not see what there was left to do, but that I would look her over again. She had all the laboratory paraphernalia at her disposal, and a radiogram merely showed a marked visceroptosis that, as Dr. LaRose mentioned this morning, showed that her stomach and colon were strung up by her blood vessels and nerve supply, and there was more or less constant trouble, particularly as she was caring for a child that had had infantile paralysis, and she was carrying that child around a great deal of the time. She was sent home, because she did not think she could stay in the hospital with instructions to remain in bed, elevated at the foot, for six weeks, with forced feeding at two-hour intervals, and before she got up she was to have a pad made similar to the one described by Dr. Quain. I have since received a letter from her stating that she has been in bed for four weeks and is feeling fine, that the soreness has all left her side. She asks if she will have to "keep the bed raised after she gets up and about," and how the bandage should be made.

I have seen several cases during the past year handled in about the same way. I will not go as far as Dr. Rogers in saying that half of the cases will not have to go through some form of fixation, but I am satisfied that with co-operation on the part of the patients the majority of them will not require any operation.

In looking over some of these so-called neurasthenic cases I believe we often overlook the rectum. We examine the pelvis and adnexa carefully, but overlook little things like rectal ulcers and perhaps hemorrhoids or a caruncle. They may not talk much about those little things, and they may be overlooked. Frequently in some of these neurasthenic cases the pain can be traced to an ulcer of the rectum.

In the removal of gall-bladders and appendices the profession has made rapid strides. In fact, I think they have won the race without any competition. I think you all probably feel guilty, and so do I, because we, at some time or other, for the sake of nothing better to do, have removed the gall-bladder that was a perfectly good gall-bladder, but the symptoms were up in that corner, and there was nothing else to blame them on. Perhaps we did not look for visceroptosis of the hepatic flexure.

DR. THOMAS MULLIGAN (Grand Forks): I think after listening to Dr. Rogers' excellent paper we will all admit that there are still conservative surgeons, and after admitting his mistakes in one or two cases we will have to acknowledge that there are brave and honorable surgeons who admit their mistakes. It seems that there has been a fortunate sequence of papers to-day. The President who, in his very able paper, which, with all due regard to the former presidents' papers, I think will have to be considered a climax, brought perceptibly to our minds the fact that there is some lack of confidence between the public and the profession. I think Dr. Rogers has emphasized the reason for some of that lack

of confidence between the profession and the public. It is a good thing that we should look at the mote in our own eyes before we look at the beam in the eye of the public. The statement has also been made to-day that if a person admitted that he made a diagnosis of neurasthenia it was an admission that he had been unable to make a diagnosis. That was the extreme. Then Dr. Wilson, in his excellent paper, admitted that there was a certain number of gastric cases that could be contributed to neurasthenia, but the general consensus of opinion seems to be that there must be an organic background for neurasthenia. As I did not have the privilege of seeing Dr. Rogers' paper after being asked to discuss it I did a little research work to prepare what I could on the subject. I read Strümpel and got his ideas and also the ideas of Dr. Cabot of the University of Michigan, and they stressed the opposite side, that the great majority of neurasthenics were congenital and that the question of how many symptoms would develop would depend upon the environment of the individual.

I believe the conception of neurasthenia has changed very considerably since Beard, the American neurologist, first baptized this common and so all-embracing malady. It is my conception, at least, that in times past we were more apt to emphasize the physical aspect of neurasthenia. Now we regard it largely as a mental state, primarily with the physical symptoms and signs as the result of the disturbed mental life.

A sound mind in a sound body is the ideal relation. We have had many historical examples of a great mind in an unsound body, as Robert Louis Stevenson, but a sound body and a disturbed mentality are not conceivable. Neurasthenia is a hereditary matter, and the incidence and intensity are a matter of environment.

The diagnosis is the crucial point, as upon it depends the proper course of treatment and the future welfare of the patient. Much discredit has been brought upon surgery by unnecessary operations upon these people. In the March, 1923, issue of the *Medical Clinics of North America*, Dr. Hugh Cabot, of the University Hospital of Ann Arbor, in his *Clinic*, discusses the subject of those "painful" women. It is an able and cogently handled treatise of a very important subject.

He cites case after case of women of all ages who have had from one to several abdominal operations over various periods of years and who again return for further operations for the relief of abdominal pain. After reading this very illuminating article, there are few of us who have been doing surgery for some years who cannot duplicate some of those pictures which he so clearly visualizes.

In view of the fact that the peritoneal cavity under modern aseptic conditions can be opened with impunity so far as infection is concerned and in view of the fact that exploratory or take-a-shot-at-it operations are still somewhat popular, I deem it not inappropriate to quote Cabot on this point. He says: "We have overlooked the very definite effect of the trauma of modern surgery upon personality. I gravely doubt whether any important surgical operation ever leaves the patient as sound a personality as before. If this is only partly true,

it follows that in those people with abnormally sensitive personalities, and often abnormal personalities far greater damage will be done."

My personal observation and experience verify fully Dr. Cabot's statements, but I do believe that surgeons are more conservative in this respect by far than they have been owing to the better understanding of the disease, and the higher plane upon which the modern surgeon stands, due to better standards of medical education, fewer cheap colleges of a mercenary nature, the better standardization of hospitals, etc.

The main guide-posts to accuracy in diagnosis as I see them are the following:

1. Personal interest in the patient as a human being and not a commodity.

2. A very careful family, as well as personal, history. This is eminently important in these cases. I will here cite the case of Mrs. J. H. to show the bearing which the history has upon the diagnosis. This woman, the mother of a large family, I had in the hospital for about three weeks six years ago for neurasthenia. Organically she was sound. She did well and continued so up to last fall, in the meantime having a baby, and she said she felt well all during and after labor. She turned up again about two weeks ago, in the same old rut, but not so bad, being in much better flesh. She had a small cervical papilloma which was removed. She was quite positive in dating her return of symptoms to last fall, but in response to inquiry as to why they came she was most indefinite, saying she could give us no reason—they just came on. Her daughter who was present and who had evidently been brushing up her memory, interpolated and reminded her mother of how she worried over her son, who had a hand badly crushed at the Fargo Agricultural College and was interned in a hospital for some time, and how soon thereafter a younger brother had diphtheria at home, necessitating much attention and great loss of sleep on the mother's part, since which she had been the anxious, restless, introspective neurasthenic. There was a definite, exciting cause when persistently looked for, and she was intelligent enough to appreciate the significance of cause and effect, with a consequently great mental boost toward getting her out of the mental rut.

3. A very careful physical and laboratory check to make sure that one does not overlook any organic background which may act as an exciting cause or even as an incidence in the trouble.

4. Repeated observations are very necessary in these people, as the picture is a very changeable one, depending on the temperament of the individuals.

5. Tact and some working knowledge of human nature are necessary to change the current of their thoughts long enough so that one may, for example, determine whether the rigidity of muscles, in the region of a claimed painful part, is a real reflex rigidity, the natural defense of the organism on guard, or simply mental or pseudodefense.

Just a word on visceroptosis. There are two classes, namely:

1. Visceroptosis in people with a good nervous organism and sound mentality. In other cases the

problem is simple enough, for you will have intelligent co-operation.

2. Visceroptosis with neurasthenia. This coincidence when it happens is unfortunate, as it is more apt to confuse the issue. I have no statistics on the subject as to the frequency or interrelation of this incidence, but in my own experience I have found neurasthenia quite as often, or even more so, where the patient was in good flesh and visceroptosis was absent. I believe the mechanical restitution of the ptosed organ by surgical procedure is fast becoming obsolete, but I would mention one organ which is still quite a mark for surgery in these cases, namely, the uterus. I do believe that a uterus which is retroflexed or retroverted and still freely movable, normal in size, and especially where it can be restored to the anteflexed position bimanually, requires no surgery. A pessary will answer much better if you want a psychic effect. The ptosed kidney, transverse colon, and sliding cecum are, in the great majority of cases, subjects for proper feeding, manual exercise, well-fitting external supports, etc., and not surgery. We must not forget, however, that there may be an actual pathological visceroptosis from some previous inflammatory condition. For instance, I recently operated on a young woman about thirty years old, who complained of pain in the upper abdomen, especially after using the abdominal muscles in exercise or after a rough auto ride. She had stomach distress quite constantly. The operation revealed an immobile appendix from adhesions, also a very firm adhesive band extending from the fundus of the gall-bladder to the lower part of the duodenum about the thickness of the little finger. This was doubly ligated and divided, and the cut ends immediately retreated about two inches. This gives you a vivid idea of the amount of traction and ptosis on the gall-bladder. She commented emphatically on the absence of upper abdominal pain after using the muscles when she was up and about after operation.

Fortunately, we have two great aids in helping us to distinguish between congenital visceroptosis and acquired or surgical, namely:

1. The ptotic stature of the former; namely, the long thin neck extending forward at an angle to the trunk, flat chest, inverted cone abdomen.

2. The x-ray film and fluoroscopic shadow, and the technic which is now worked up to such a fineness that its value is becoming invaluable.

In conclusion the following points are the most essential to remember:

1. A personal interest in the patient; do not try to "kid" them out of their dilemma, or to get psychic effects from overdrugging or surgery. You will find most of these people will respond to a kindly, honest interest in their case, and have intelligence enough to appreciate and benefit by an honest explanation. Institutional treatment is desirable and imperative in many cases, where there is not an intelligent co-operation on the part of the patient and friends at home.

2. Use every modern scientific means, aided by common sense, in handling these two classes of patients, with especial reference as to whether they are amenable to surgery or not.

3. An unsuccessful, because unnecessary, operation upon this class of case discredits surgery, promotes suspicion of the motives of the profession, deters patients who actually need surgery, and breeds isms; such as osteos, chiros, Abramists, et cetera.

DR. FRANKLIN WRIGHT (Minneapolis, Minn.): Dr. Rogers says that there are two forms of visceroptosis, the acquired and the congenital. If a woman has worn her stomach in the pelvis for thirty years if she does develop neurasthenia there is no reason for thinking that the cause of her neurasthenia is the visceroptosis, so we can dismiss the congenital group. In the acquired form these patients usually lose weight and in those cases they have lost the support of the fat pad for their internal organs. Nature did not make any attachment for our internal organs. Why? Because our ancestors walked on four feet, and their internal organs hung on the spine and rested on the abdominal walls. Now we have got on our feet, and we have to have the support for these organs. We must have the pad of fat for these organs to rest upon. We must put these patients into such position as to restore the fat that originally held these organs in their adopted position. We must put them to bed and on their back. The foot of the bed must be raised, and they must be kept in that position until such time as they have again acquired the bolster of fat in their mesentery that supports the internal organs.

DR. C. N. CALLANDER (Fargo): This seems to be almost an experience meeting in many ways, but there is no question but that the medical world has gotten a severe jolt from the general public because we have failed to take care of these cases. Whether we think as Dr. Willson and Dr. Rogers or as Dr. Wright, we still have to take care of these cases, or they will go to the charlatan, and we deserve it.

I am heartily in sympathy with what has been said relative to the congenital forms. Nobody who knows anything of the development of the embryological anatomy but knows that there occurs the condition referred to by Dr. Wright, and we also know that we must have the layers of fat, or the proper "shelves" for the internal organs to rest upon, so we must not only put these patients to bed, but they must also get up and get exercise. Then, realizing that we have in the brain the cells by which we can ourselves influence the movements, it is up to us to bring these muscles into a capacity and sequence to bring up and hold up these organs, and that must be done in a systematic way. We must train the muscles to full functional capacity.

DR. E. P. QUAIN (Bismarck): In my opinion this is the biggest problem in medicine to-day. I cannot quite follow Dr. Rogers in his reference to "machine-made diagnosis." Diagnosis must be worked out by means of very complex machines, including x-ray and other physical paraphernalia, as well as a well-organized machine of gray matter, like the one Dr. Rogers has at his disposal in the Miller Clinic in St. Paul.

There is no doubt that poor surgery, and too much surgery, have increased greatly the suffering from this class of diseases. In this connection I shall mention only one thing, which I believe has

done more to increase the troubles of the neurasthenic than we are at first apt to confess. I refer to the right-rectus incision made by the hand of the inexpert operator.

I have gradually arrived at a conviction that stasis as a cause of neurasthenia in the visceroptotic was overestimated in the past, and that the mechanical effects of the dragging viscera should receive more attention in the study of these cases. Changing the patient's posture in such a way that all dragging is released from the upper abdomen, has such a beneficent effect on many patients that it is hard to see it and not become convinced of the statement just made. Derangements in the production of internal secretions must also have due consideration.

While we must severely criticize much of the surgery practiced on visceroptotics, there are, nevertheless, a number of surgical procedures which may and should be offered to many of these sufferers, with the very best of prognostic outlook. After having studied along these problems for some time and

seen a number of post-operative patients relieved from distressing symptoms I feel that we should by no means be discouraged but rather encouraged in our search for mechanical causes of neurasthenia in the visceroptotic.

DR. ROGERS (closing): I am sorry I did not hear from some of the nerve specialists who are present, because I said in the paper that I think it is primarily a nerve specialist's business to treat these cases.

I agree with Dr. Quain about stasis. It is not my idea that it is stasis *per se*, but the disturbed circulation as the result of angulation and visceroptoses, where the musculature is loose. The patient is disturbed and suffers from pain and some absorption undoubtedly, but such cases I do not consider surgical and believe, on the whole, the best treatment is medical.

I thank you, gentlemen, very much for your discussion.

ABDOMINAL INJURIES*

By F. E. CLOUGH, M.D., F.A.C.S.

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LEAD, SOUTH DAKOTA

Until the arrival of the automobile upon the scene, an intra-abdominal injury came to the attention of the general practitioner so infrequently as to be of little importance in his work. Of late years, however, this factor of modern life has changed the doctor's work to such an extent that every man must now be prepared to handle this additional type of serious accident.

In a series of more than twenty-five thousand accident cases which have occurred in our general and mining practice in the past twenty years, there have come under the care of our staff a considerable number of intra-abdominal traumas. These cases can immediately be divided into two groups: the one, with characteristic symptoms pointing toward visceral injury, while the other group showed no early symptoms pointing toward a serious lesion. In view of the fact that these mild cases are stumbling-blocks to every doctor, I am taking the liberty of briefly summarizing a group of fatal cases of different types which were not considered serious on the start. Each of these developed danger signs which were not given sufficient importance at an early enough time, and it is with the idea of emphasizing these points that this paper is written.

*Presented at the forty-second annual meeting of the South Dakota State Medical Association, Watertown, S. D., May 23 and 24, 1923.

CASE 1.—S. B., aged 39.

10 A. M.: A loaded mine car, weighing more than a ton, jumped the track and tipped over on its side catching the patient against the side of the tunnel, pressing the abdomen between two flat surfaces. Examination soon after the injury was negative as far as an intra-abdominal lesion was concerned, a tentative diagnosis of contusion only being made.

5 P. M.: He vomited a little food.

Next day: Vomited freely, greenish color, complaining of some pain in the abdomen. Temperature, normal. Once during the day the pulse jumped to 106, but immediately returned to normal.

Second night: Temperature, 99°; pulse, 80. Slept finely, no pain; no opiates administered.

Next day: Temperature and pulse still normal. No pain or tenderness present. Having apparently recovered, he was given a laxative, and several normal movements were obtained without any distress.

Next day: Seventy-two hours after the injury, with a temperature of 99° and a pulse of 84, fecal vomiting suddenly made an appearance. Immediate laparotomy was performed, which showed a perforation of the upper jejunum with peritonitis already present.

Next day: He died.

CASE 2.—M. L., aged 32.

2 A. M.: He rolled down a loose rock pile sixty feet high and was almost buried with rocks, receiving bruises over the entire body, but especially in the right lumbar region.

Immediate examination: Normal temperature and pulse. Diagnosis, contused back.

4 A. M.: Two hours after the injury, he vomited food containing a trace of blood and was having

considerable pain over the upper left abdomen, with tense abdominal muscles.

7 A. M.: Four hours after the injury. The pulse, which was of poor quality, began to climb. Catheterized urine showed no blood, but many hyaline and granular casts.

8 A. M.: Six hours after the injury, an exploratory laparotomy was performed. No visceral lesion was found, but there was considerable extravasated blood behind the peritoncum, not coming from the kidneys.

Next day: He died.

Autopsy findings were muscle contusions of the lumbar region with hemorrhage. No viscus was injured, and no cause was demonstrated for the vomited blood. Undoubtedly the nephritis played an important part in this case.

CASE 3.—A. P., aged 44.

11 P. M.: A large rock fell about ten feet and struck him on the abdomen. He was seen soon after by two doctors, and nothing was found pointing toward an intra-abdominal injury.

2 A. M.: Slight vomiting.

8 A. M.: Abdominal tenderness, but not having much pain.

11 A. M.: Slight vomiting. Temperature 98°; Pulse 72.

4 P. M.: Vomiting and pain increasing; pulse began to climb.

7 P. M.: Twenty-hours after the injury, laparotomy was performed. A complete severance of the jejunum was found, with no tear in the mesentery. End-to-end anastomosis performed.

Next four days: General condition excellent; no peritonitis present. Then he developed a lobar pneumonia and died three days later. Autopsy showed a perfect anastomosis with no peritonitis present.

CASE 4.—H. T., aged 40.

10 A. M.: Was buried in a slide of rock, receiving a backward dislocation of the hip, numerous scalp wounds, and severe contusions of every part of the body. No intra-abdominal lesion was demonstrated. Under ether a reduction of the hip was accomplished.

Next day: Upon return of the x-ray, it was shown that the backward dislocation had merely been changed into one of the obturator type. Although he had just eaten a full breakfast, he was given primary ether, and the hip was properly reduced. Soon after this he vomited, but this was erroneously attributed to the irritative action of the ether.

Seventy-two hours after the injury, laparotomy was done. There was a marked contusion of a foot of the small bowel without any perforation, but with a paralytic ileus, developed above this point.

Next day: He died.

CASE 5.—R. S., aged 27.

11 A. M.: Auto accident, falling over a thirty foot bank. Immediate examination showed no abdominal tenderness, but marked pain in the chest which was accounted for by two broken ribs. Temperature, 98°; Pulse, 70.

An hour and a half later, his pulse began to climb, and he commenced having abdominal distress and muscle rigidity on the right side. Laparotomy was immediately performed but no intra-abdominal in-

jury was found. This man made an uneventful recovery.

In this case the pain and rigidity were probably referred from the injured pleura in the same manner as abdominal pain is frequently found in pneumonias and pleurisies.

This series of illustrative cases, covering a period of years, brings out many interesting points which should be gone over in more detail.

What should be considered in making a diagnosis in these apparently mild cases?

First: The history of an injury to the abdominal region in the shape of a blow or a squeezing between two flat surfaces, or a fall from a height, alighting either upon the abdomen or the back. We have had several fatal accidents in which abdominal symptoms were present, but in reality the lesion was an injury to the back muscles and the adjacent sympathetic nervous system.

Second: The relative fullness of the viscera.

A tightly filled viscus is more prone to rupture under a blow than an empty one, hence careful inquiry should be made as to urination, and the elapsed time since eating. We have had several ruptured bladders, one of which, distended by ten hours accumulation was completely divided into two sections by an auto blow. A thin person with a small fat cushion is more liable to an intra-abdominal injury than a fleshy person in whom the fat acts as a buffer against the bony parts.

Third: The appearance of vomiting.

This is the most important symptom that develops, and it cannot be too strongly emphasized. After a careful study of all our abdominal injuries, I believe these rules can be laid down: Should vomiting occur immediately after an injury it may be due to temporary shock, but, if continued beyond the first hour, should be classed as a danger signal. If vomiting begins later than an hour after the receipt of the injury it is generally a definite sign of an intra-abdominal lesion, demanding immediate and not delayed operation. In the light of our later experience, I am satisfied we erred in several of these cases in not placing sufficient importance upon this point, but were prone to wait for fecal vomiting, a signal for almost too late interference..

Fourth: An increase in the pulse rate.

This always means trouble, for in a simple contusion the pulse rate will drop a short time after the injury is received and should not become more rapid at any time, while in an intra-abdominal injury the increase may not start for

several hours. On the other hand, too great stress cannot be laid on the fact that many serious injuries of this type occur with practically no increase in the pulse rate for hours or until a general peritonitis has developed.

Fifth: Abdominal pain with muscle rigidity points to peritoneal irritation, and this means visceral injury of some type, thus showing another danger signal, but in a severe bruising it is often difficult to distinguish between the rigidity due to the injury and that due to peritoneal irritation.

Sixth: The appearance of a normal bowel movement is often misleading, for a perforative lesion high up in the jejunum may permit such a movement before peritonitis has developed.

Seventh: The presence of blood in the urine should always be sought for in order to rule out a lacerated kidney which can easily simulate an abdominal injury, but such a lesion in our practice is very uncommon. Perhaps the rarity of this condition can be explained on the grounds that the back muscles of a miner are so well developed they offer additional protection to the kidneys.

In analyzing our series it is too evident that, if a case were mild at the beginning, it progressed to the status of a beginning or advancing peritonitis before operative interference was undertaken. In the light of our later experience this was undoubtedly wrong, for too much valuable time was wasted and the cases had already progressed beyond the recuperative period.

To summarize a typical case:

If a person receives a heavy blow upon the abdomen or back with no symptoms pointing to an intra-abdominal injury, he should be watched carefully from the time of the first examination. If vomiting is persistent or begins after the first hour; if the pulse begins to climb; if pain becomes more severe or muscle rigidity more pronounced, then, by all means, get busy and do an exploratory laparotomy. Any one of the above signs is usually of sufficient moment to justify immediate operation, while delay may lead to a fatal issue.

I am firmly convinced that, if we give the patient the benefit of the doubt and immediately open every abdomen showing any suspicion of trouble within, not waiting for the classical symptoms of peritonitis to develop, we will be saving some lives and do no damage to the occasional case in which no lesion is found.

Finally, neither the erstwhile watchword of

one of our political parties "Watchful waiting," nor the outstanding feature of this paper "The Next Day," can be used in handling these cases, for the best results will be attained only when we throw aside our ideas of conservatism, place full value on these preperitonitis symptoms and open all abdomens before serious complications have placed the case beyond our reach.

Even so, if we continue the practice of emergency surgery another twenty-one years, we shall still be of the opinion that this type of case offers a greater probability of a wrong diagnosis than any coming into such a service.

DISCUSSION

DR. R. L. MURDY (Aberdeen): In discussing Dr. Clough's paper it seems that there is not much to say about four of the cases, for in these cases no one can say just where they are, but perhaps there is a good deal to say about the one he saved. The saving of this one emphasizes a good point in abdominal injuries; that is, the early diagnosis and the early exploration. It is conclusive that, if a patient has received an abdominal injury of sufficient severity to rupture the bladder or a kidney, the appendix or liver, that the best chances for the patient lie in early operation. The frequency of these abdominal injuries should be considered in the light of early treatment. Some very serious consequences develop from what seem to be rather minor injuries to the abdomen.

The automobile, as suggested by Dr. Clough, has introduced a new source of danger.

My series of cases includes rupture of the appendix, rupture of the kidney, and rupture of the liver.

The question of traumatic appendicitis has been discussed pro and con, and I think the answer to the question is both "no and yes." "Yes," that you can have a case of traumatic appendicitis; "no" to this extent, that it is hardly possible to have a case of traumatic appendicitis from abdominal injury unless you already have a diseased appendix. In two cases in my series the patients developed fulminating appendicitis following a railroad journey in which they were thrown against the seat in front of them. Both of these patients had a large endolith and the force of the injury so damaged the coats of the appendix that, while they did not rupture at the time they set up the trouble, and the patients were saved only by drainage.

In the case of liver injury the liver is so friable that, unless the case is treated early and the hemorrhage controlled, you are very likely to lose the patient.

This is not true of injury or rupture of the kidney. I would say that this is one type of abdominal injury where it is well to delay. Even though there is pus in the kidney, and there are signs of extravasation and a hematoma of the kidney unless there are signs of an exceedingly large hemorrhage it is well to delay because they soon cease to bleed, and progress toward recovery is rapid. If there is leak-

age behind the kidney you have time to establish your drainage some days after the injury has been received.

DR. T. F. RIGGS (Pierre): I wish to emphasize a few points the Doctor made; namely, the advisability of going into the abdomen following injury regardless of the severity of the injury, provided the abdominal muscles do not relax under morphine and provided the pulse begins to rise. Of course, there are always exceptions. In some cases of abdominal injury there is no spasm of the abdominal muscle, probably because there is no injury to the parietal peritoneum. In some cases we cannot judge of the pulse rate because of the lack of care of the person taking the pulse. I have seen a trained nurse take the pulse after turning the patient over or doing something else that might stir up the pulse. If you are watching the pulse after an abdominal injury it should be taken when the patient is just as quiet as possible and has been quiet. Then it is a valuable aid in diagnosis.

Another thing Dr. Clough mentioned was the likelihood of a full belly rupturing, whereas an empty belly does not rupture. In one case a man went out to harness his team in the morning before he had breakfast, and as he walked between the horses they pinched him between them. He finished harnessing the team and went in to breakfast, but could not eat. He did not go to work, but went out and unharnessed the horses. Forty-eight hours later his brother-in-law brought him into town because he had not had a bowel movement for four days. You can well believe that by that time he had large quantities of fecal matter leaking from the ileocecal junction, and the next day he died.

About three weeks ago another man was out bringing in a bunch of saddle horses, and one of the horses suddenly turned, and the horse he was riding came down stiff-legged. The man insisted that he did not strike the horn of the saddle—this was a matter of pride with him. He evidently took the jar on the straight legs. He went into the house, and the next day he was pretty sick, and the following day not so sick. The next day he began vomiting blood. On the third day after the injury he was brought in. He had a partially undescended right testicle, which left a little mass just above

the internal ring. This was a secret he had kept from everyone. When I found it he said he had always had it, but did not admit that the lump was larger than it had been.

Microscopic examination showed no blood in the vomitus. The pulse rate three days after the injury was 120-130. He was rigid in spite of the hypodermic which had been given, and I advised immediate operation. We found a direct rupture through the transversalis muscle with the inclusion of a loop of small bowel and a strangulation so far as fecal matter was concerned. The reduction of this rupture, which had no sac, with closure of the parietal peritoneum and of the muscle relieved all the symptoms, and the boy is doing finely.

DR. CLOUGH (closing): I might have put in a few cases that got well, because we occasionally have them the same as the rest of the crowd.

I take exception to one remark of Dr. Murdy's. I do not belong to the class of physicians who "save" the patients. They get well. This reminds me of a letter from a friend of mine who had been doing mine work in Mexico. In a little town 175 miles from a railroad a man was shot through the thigh. He did an amputation, and the man recovered and said, "The Lord is certainly good to the Mexicans down in this country." I think the Lord is certainly very good in some of our cases. (Laughter.)

You can say what you want to of abdominal cases with the abdominal tenseness and tenderness—you are always puzzled. Not longer ago than last week we had an automobile accident in which the machine went over a sixty-foot bank. A woman was brought in with bruises all over the body. The pulse stayed around the seventies during the first twenty-four hours, and there was no vomiting, but some spitting up of a bitter substance. She was so rigid you could not touch her anywhere, in spite of morphine. She had a Pott's fracture, and the question was coming up, Is this a severe abdominal lesion demanding immediate operation or not? It ultimately was determined that she had no abdominal lesion. After I had my paper written I said I did not see how I could get away from reporting this case, but it all comes down to the final judgment and experience of the man handling the case.

CANCER OF THE UTERUS*

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Each year cancer occupies a more important place as a cause of death throughout the country. A census of twenty of the largest cities in the United States shows that deaths from this disease have increased from 71.6 per annum for each 100,000 in 1904 to 104.1 per annum for each

100,000 in 1922. The increase is due to several factors.

Through the standardization of hospitals by the American College of Surgeons, more accurate records of patients are maintained and more reliable causes of death are recorded. A higher percentage of correct diagnoses, particularly of malignant conditions, is possible as the result of

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advancement that has been made in diagnostic procedures, the increasing frequency of surgical exploration, necropsies, and microscopic examination of specimens removed. The progress made in preventive medicine has advanced the average longevity ten years, so that more people now arrive at adult age; thus a higher percentage are carried into the so-called "cancer age," and it is probable that the increased incidence of cancer is relative rather than actual.

While no specific remedy for cancer has been brought forward, much has been accomplished in its treatment by the various therapeutic measures that have been advocated. Malignant lesions which are superficially located and thus readily accessible to treatment are eradicated with better ultimate results than those that are deep-seated. Cancer varies in its degree of malignancy in different parts of the body, and, as Broders has shown, varies in its degree of malignancy even in the same organ. In one situation growth and metastasis may be slow, and there is little tendency to recurrence after removal, while in other situations the reverse is true. Likewise this difference in the behavior of cancer is seen in all organs heir to the disease. The treatment of cancer of a given degree of malignancy in young people is not attended with as good results ultimately, everything else being equal, as in those of advanced years. The occurrence of cancer in particular parts of an organ influences the progress of the disease and the ultimate result of treatment. As the cecum is the most favorable site in the colon for cancer, from the standpoint of late extension to surrounding structures, late metastasis, and little tendency to recurrence, so the body of the uterus is more favorable for cancer than the cervix.

Age, duration of symptoms, the location and degree of malignancy, are all factors which influence the progress and ultimate results of the accepted methods of treatment of cancer, but these inherent factors alone should not remain the major features determining the results of treatment. The treatment advocated has been variable surgical procedures, radiation, and combinations of surgery and radium applied to all degrees of advancement, and these measures have been used for a sufficient length of time so that quite definite conclusions may be drawn regarding their efficacy. It is not reasonable to expect, however, that the recent results of treatment of cancer by the accepted methods

will be materially improved by further development of these methods; instead, we must look for greater success in our efforts to combat the disease by employment of the methods that have reduced the incidence and death-rate from tuberculosis. It seems, moreover, that with the energetic support and co-operation of the profession in the educational campaign conducted annually by the American Society for the Control of Cancer, ignorance, misinformation, and delay on the part of the public will cease to remain obstacles to the early application of efficient remedial procedures.

The onset of cancer of the uterus is characterized by features and manifestations at an age when they are too frequently looked on by the public, and often by the profession, as natural. They should be repeatedly brought to the attention of patients, looked on with suspicion, and regarded as a menace until, without delay, proved innocent. It is imperative that menstrual irregularity or post-menopause bleeding be promptly investigated. The delay occasioned by ignorance and misinformation of the public is responsible for cancer of the cervix being inoperable in more than 50 per cent of the cases presented for treatment.

In a series of 855 cases of cancer of the uterus observed at the Mayo Clinic between 1910 and 1919, and studied by Mahle, 70.3 per cent were in the cervix, and 29.7 per cent were in the uterus. As a rule, cancer of the cervix is the most malignant, involves the vagina and adjacent structures early, and tends to recur, while cancer of the body of the uterus tends to remain localized and metastasize late, and does not tend to recur. Obviously, then, treatment of cancer of the body of the uterus is attended by better results than that of cancer of the cervix. However, the results bear a direct relation to the degree of malignancy on the scale of 1 to 4, based on cell differentiation (described by Broders). Fibromyomas of the uterus were associated with cancer of the body in 30 per cent of the cases, which clearly indicates the necessity of not considering the presence of innocent palpable fibroids a sufficient explanation of symptoms of menstrual irregularity or post-menopause bleeding. The importance of any irregular manifestations should not be minimized, and in the presence of the least doubt of malignancy a diagnostic curettage should be done, or a specimen removed from the cervix for microscopic examination.

OPERATIVE PROCEDURES AND RADIUM TREATMENT

Cancer of the body of the uterus.—Cancer of the body of the uterus is very favorable from the standpoint of ultimate results, and, even though symptoms have been present for some time, is usually operable, and can be most satisfactorily removed by abdominal hysterectomy. However, in the presence of considerable prolapse, vaginal hysterectomy is at times preferable. Should the patient be a poor risk by reason of apparent inoperability, marked obesity, cardiorenal disease, and so forth, intra-uterine radium is often effective in reducing discharge and pain, and retards the progress of the disease.

Cancer of the cervix.—Cancer of the cervix presents an entirely different problem. Most of these cases, when first seen, are inoperable by virtue of extension into the vaginal mucous membrane, at least, and often invasion of the broad ligaments, bladder, and so forth. Cancer in this situation varies greatly in its degree of malignancy and amount of involvement, and by sight and palpation it is not always possible to determine the exact extent of the disease. A flat small cancer, involving only the cervical canal, is often more highly malignant than a large cauliflower growth projecting into the vagina. Removal of a specimen for diagnosis, and to determine the degree of malignancy after the method of Broders, has been a very important guide at the Mayo Clinic in estimating the activity of the growth and in selecting the best method of procedure. When the involvement is confined to the cervical canal, abdominal hysterectomy is the operation of choice, and in low-grade malignancy is productive of results comparable to those from hysterectomy for cancer of the body of the uterus.

Formerly cancer of the cervix, involving the entire cervix or the vaginal vault, was subjected to the Percy cautery and the entire growth destroyed, following which, in cases of low-grade malignancy, a hysterectomy was immediately performed; in the cases of high-grade malignancy hysterectomy was performed at a later time. The application of the Percy cautery to the apparently inoperable cases often reduced them to a condition of operability, with marked improvement of the general condition of the patient,—increase in weight and so forth. However, this method has been discontinued on account of the ultimate poor results and the high percentage of subsequent fistulas. Fistulas into the bladder or rectum occurred in

24 per cent of the cases treated by this method, a complication in itself sufficient to justify discontinuation of the procedure.

Radium therapy has supplanted the cautery method, and apparently is more effective in eradicating the disease, is followed by few fistulas, and has reduced many borderline cases to a stage of operability. It has also proved a very valuable palliative agent in cases of inoperable malignancy of the cervix, and there is very little risk in its application. Radium is often used in conjunction with surgery in borderline cases; and in those cases in which the cervix has been reduced to operability, it has seemed inadvisable to consider abdominal hysterectomy in less than two or three months following radiation. The inflammatory reaction and edema around the cervix is slow to subside, and the best results have been obtained when hysterectomy has not been attempted until the uterus is free from all surrounding inflammatory reaction.

The present status of treatment in the Mayo Clinic for early cancer of the cervix confined to the cervical canal is abdominal hysterectomy, or, in the presence of prolapse, vaginal hysterectomy, without preliminary radiation. When there is involvement of the entire cervix, radiation is used preliminary to hysterectomy. In the inoperable cases radiation alone is used. All cases that have been subjected to hysterectomy receive postoperative radiation, and postoperative local recurrences are best treated by radium.

Radium has come to occupy a very important position in the treatment of cancer of the cervix, and its use in conjunction with surgery has markedly improved the ultimate results. Although we have reason to believe from our own experience, as well from that of others, that radium in the treatment of cancer of the cervix is capable of producing a cure in suitable cases, we have not depended on it alone if the uterus could be removed subsequently with a fair degree of safety. It is not unreasonable to assume in a given case of extensive involvement of the cervix that, when radium has caused all trace of malignancy to disappear, when the uterus is movable and no palpable thickening in the broad ligaments is demonstrable, total hysterectomy increases probability of complete eradication of the disease and certainly diminishes the tendency to recurrence.

The method of using radium has undergone

considerable change and modification in the treatment of cancer of the uterus. Formerly radium was given in small doses at intervals of several weeks or months, but such treatment was not followed by striking results, and was accompanied by a considerable number of vesical and rectal fistulas.

Stacy and Bowing, of the Mayo Clinic, stress the importance of giving during the first series of treatments all of the radium that is ever to be given, amounting to about 6,000 or 7,000 milligram hours, depending on the size of the growth. The radium is applied to the cervix, the vagina, and in the fundus in a dosage of 700 milligram hours every two or three days, depending on the amount of reaction, until the patients have received the full amount of treatment intended, which usually requires about three weeks. This method possesses the advantage of eliminating the development of fistulas.

In the Mayo Clinic radium is now used in practically all cases of cancer of the cervix, except in early cases in which surgical removal of a specimen from the cervix for diagnosis is necessary; in the latter, in the absence of general contra-indications, immediate hysterectomy is performed. All other apparently operable cases are given a full course of radium treatment, and referred to surgery after about three weeks, which allows the hysterectomy to be performed between the stages of inflammatory reaction and induration. Cases apparently inoperable at the time radiation is begun, at times become operable later by virtue of shrinking of the uterus, disappearance of induration in the broad ligaments, and so forth; and when they become operable they are best treated surgically three or four months after radiation, with the disappearance of the inflammatory reaction and induration. In totally inoperable cases radium has often effected marked amelioration of the discharge and pain, and, if not actual cure, certainly marked prolongation of comfortable life.

Furthermore, radium has been exceedingly effective in holding in check postoperative recurrences in the vaginal mucous membrane. All cases of cancer of the cervix treated by hysterectomy receive, postoperatively, three or four treatments of 700 milligram hours of radium in the vagina, and deep Röntgen-ray exposure over the abdomen and back routinely.

END-RESULTS: MAYO CLINIC SERIES

Of the many factors influencing the results of any type of treatment employed in the treatment of cancer of the uterus, the degree of malignancy based on cellular differentiation is most important. Mahle has shown that tumors of low cellular differentiation and high malignancy grow larger and invade more extensively in the same period of time than tumors of a lower degree of malignancy and higher cellular differentiation.

As a group the results in cancer of the fundus surpass those of cancer of the cervix by virtue of the tendency of cancer of the fundus to remain as a localized disease, and, furthermore, the favorable outlook for cancer in this situation has the pathologic basis in that the number of cases which show a high degree of differentiation are in the majority, and the more malignant types are rare; whereas the reverse is true in cancer of the cervix. (Table 1.)

TABLE I

DEGREE OF MALIGNANCY OF CANCER OF THE FUNDUS AND CERVIX

Cancer of the fundus, 186 cases		
	Cases	Per cent
Grade 1	10	5.37
Grade 2	114	61.29
Grade 3	54	29.03
Grade 4	8	4.30
Cancer of the cervix, 269 cases		
	Cases	Per cent
Grade 1	0	
Grade 2	23	8.54
Grade 3	153	56.87
Grade 4	93	34.57

Mahle traced 136 patients in a series of 186 cases of cancer of the fundus in which hysterectomy was performed in the Mayo Clinic, and in which specimens were available. That the degree of malignancy bears a direct relation to the results is shown by 100 per cent good result in Grade 1 malignancy, 71.76 per cent in Grade 2, 38 per cent in Grade 3, and no patients living after one year in Grade 4. Irrespective of the degree of malignancy, 61 per cent are living after an average of seven and twenty-three hundredths years. Total abdominal hysterectomy was followed by good end-results, 6 per cent better than those following vaginal hysterectomy, although abdominal hysterectomy had a primary surgical mortality rate nearly 3 per cent higher. Of the entire series 16.54 per cent lived

ten years or more, 30.93 per cent lived five years, 21.58 per cent lived three years, and 30.93 per cent lived less than three years. Thirty-five and twenty-nine hundredths per cent of the patients treated by vaginal hysterectomy died from cancer, whereas only 28.44 per cent treated by abdominal hysterectomy died from this disease. In view of Mahle's studies it is evident that, although abdominal hysterectomy has a primary surgical mortality rate 3 per cent higher than that for vaginal hysterectomy, the former is the operation of choice, all else being equal, because of the better end-results and the lesser number of deaths from recurrence.

The comparatively poor results obtained in the past in the treatment of cancer of the cervix were due to the high percentage of high grade malignancy in the cervix as compared to the fundus, and also the late date at which patients presented themselves for treatment. Ross, in a review of 475 cases of cancer of the cervix, found but 43.5 per cent were operable in the sense that the vaginal mucous membrane was not involved; an additional 18.3 per cent were inoperable on account of vaginal involvement; the remainder were entirely inoperable. Of those that were operable, and whom it was possible to trace, only 18 per cent lived more than five years, as contrasted with 63.92 per cent of the cases of cancer of the fundus. While the results of the treatment of cancer of the fundus compare favorably with the treatment of cancer elsewhere, it is toward cancer of the cervix that the concerted efforts of the members of the profession must be directed, and this can be most effectively accomplished through their co-operation in the educational cancer campaign, rather than by hoping materially to improve the remedial procedures at our disposal.

CONCLUSIONS

1. Inasmuch as cancer of the fundus of the uterus is not as highly malignant as cancer of the cervix, its early treatment by hysterectomy is accompanied by good results.

2. Cancer of the cervix is highly malignant, is inoperable in more than 50 per cent of the cases, and is most successfully treated by combining radiation and surgery.

3. Blood-tinged vaginal discharge is the outstanding signal; it occurs in 92 per cent of cases of cancer of the cervix. Intermenstrual and post-menopausal bleeding or spotting should be regarded with suspicion and investigated without delay. If there is the least doubt of the presence of malignancy, a specimen removed from the cervix for microscopic examination, or a diagnostic curettage dispels the uncertainty.

4. It is unlikely that further development of the present accepted methods of treatment of cancer of the uterus, particularly of the cervix, or the institution of new methods, will materially improve the results. The time of application, and not the method of treatment, is at fault. Education of the public furnishes the most effective weapon in combating cancer, and it is chiefly through the energetic support of and coöperation in the conduct of educational cancer campaigns that material improvement in the end results can be expected.

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WHAT THE MEDICAL PROFESSION IS DOING FOR THE CONTROL OF CANCER*

By J. E. RUSH, M.D.

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Mr. Chairman, my Medical Brothers:

You all know much more about cancer and cancer prevention than I do, so I am not going to attempt to speak particularly on any of the specific

phases of cancer. You are all probably well-acquainted, too, with the American Society for the Control of Cancer. You know that it was founded as an outgrowth of our national surgical and gynecological societies in 1912, these far seeing individuals being impressed with the fact that many of the cases of cancer which

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they see in the non-operable stages and which eventually lead to the death of the individual, could have been prevented if these individuals had been properly educated. There are many types of public-health problems, and I like to make a division of public-health procedures depending upon the amount of education which it is necessary for us to have in any particular locality before we, the medical profession, may be successful in putting across a public-health program. For example, it is very simple in the matter of typhoid prevention to educate, as we have done in the past, a few members of the community and put into operation a slow and rapid filter or hypochlorite plant for the treatment of the water, and see typhoid fever reduced to practically nothing. It is easy for us to go into a community and tell those who have police power that it is necessary for them to quarantine certain diseases to protect public health. This depends upon the co-operation of the people in the community.

There is another type of public-health problem, like tuberculosis or perhaps cancer, which is much more difficult to attack for the reason that we must educate practically every individual in that community before we can affect the death rate. We have had the co-operation—I mean the American Society for the Control of Cancer has had the co-operation—of practically every State Medical Association since its inception, but yet we have not particularly affected the cancer death rate. As a matter of fact the statisticians do not agree at the present time. Hoffman, of the Prudential Life Insurance Society, says any man is a particular kind of fool who does not believe that cancer is increasing at the present time. On the other hand, Dublin, of the Metropolitan Insurance Company, claims that there is no proof that cancer is increasing. However, it is a big public-health problem, or a personal problem, which depends upon education of the masses.

If we look at the cancer rate we are impressed with the fact that it has increased tremendously per one hundred in twenty years. But why should it not be so? What are the factors that are entering into this cancer problem? Let us enumerate a few of them. In the first place, we have seen more applied sanitation in this country than in any other. We have had typhoid reduced materially. We have had infant mortality reduced materially. We have seen tuberculosis practically cut in half as regards the

death rate. Now, what will happen to these individuals who have been saved from these earlier age groups? We cannot have the slightest hope of keeping them alive indefinitely. They get into the older groups where cancer takes its toll, and, undoubtedly, that rate is going to increase, although the statistics are not absolutely definite that we have this increase.

We should have an increase from other sources, and I should like particularly to call your attention to these. During this period our slogan has been "Early cancer is curable because it is a localized condition," and we have tried to educate the people that in the localized state it is curable if they will but recognize the symptoms of that local condition and go to their family practitioner at once, without any delay. What has been happening in this twenty-year period? Being an old New Englander, and worse than that, a Bostonian, I have seen the rise of the Christian Science Church in that period. With its adherents the lady with the lump in her breast has no lump. She does not go to her family practitioner, but attempts to pray it away, and perhaps you or I sign her death certificate a few years later.

What else has happened? We have had the advent of the Chiropractors—a lump in the breast is nothing, everything can be regulated by the manipulation of the spine. Cancer of the fundus means nothing. We have had our friend Abrams and a little later Coué.

All of this leads me, gentlemen, to this point: Some of us have been too busy with curative procedures to take cognizance of the rapid march of preventive medicine. We can no longer ignore the fact that the public is being instructed in some cases by perfectly ethical procedures regarding the conditions upon which they demand explanation. We can no longer delay. Preventive medicine is here to stay, and we have our choice. Either we are going to lead and control this preventive medicine or we are going to have preventive medicine in our communities over which we have absolutely no control. We have to take our choice of these two things.

I wish to point out one thing: We are all of us doing medicine that is not only curative but preventive. Not infrequently when I go in to meet an individual who is interested in our campaign I meet with this statement: "The average physician is not interested in preventive medicine; do you know that, Doctor?" "No," I say, "the average physician is practising pre-

ventive medicine; did you ever hear of the blood pressure apparatus?" There is only one kind of preventive medicine, and that is *all* medicine. I like to say to such a man, "Do you suppose if there were ten contractors bidding on a road between Minneapolis and St. Paul and one of them won out on the job would the other nine try to dynamite his road? Certainly not, and are we trying to get away from preventive medicine? No, since we see the advantage of it we want more." The public sees the advantage of some preventive medicine and want more. They are not willing, as a friend of mine was, to go through life a cripple because he had a pain in his side that every once in a while laid him low for a few days. Now they know that it may be a chronic appendix and that if they go to the hospital and have it out it will be the end of their trouble.

Our Society is attempting, through the medical profession, to help classify this subject of cancer and teach the public enough of the early symptoms of cancer so that they will come to us while there is yet time, instead of taking the Abrams treatment and having secondary foci set up. We want them to come to us and to come *at once*.

Some questions not infrequently are put up to me with regard to cancer, and it would perhaps not be out of place for me to bring them up here now. One is, Are we always sure that cancer always starts as a localized condition? I would say that we are pretty much in agreement that cancer always does start as a localized condition, and that in that localized condition, if the symptoms are recognized, those symptoms are curbed by proper interference.

The second question usually is, Are we sure that cancer is not communicable, that it is not transmitted from one to another? The third, Is cancer hereditary, as some claim that it is according to some Mendelian principles? Some claim that it is not. I believe that the truth is somewhere in the well. We may have a predisposition to cancer, which, through irritation, may eventuate in cancer.

My reason for coming down here to-day was to ask you to get behind the question of cancer prevention. It is a perfectly ethical program. We want you behind it because we want every medical man interested in this type of preventive

medicine, and we want you to associate yourselves with the American Society for the Control of Cancer. If these public-health programs are not handled by the profession they will be handled by the laity, and that is the reason we are not in favor of many of the public-health programs that are in force to-day.

With about 146,000 physicians in the United States if they were all available for this teaching work of about 112,000,000 people it would mean that every physician would have a class of 750 students to teach this cancer question to. No medical man can be too busy to take a part in this program. He must recognize this and take his part and attend to it. He is not doing it for himself, but for his State and for his National Society, for, through the proper organization of the medical profession to carry out procedures of this kind, we shall have no excuse for any lay organization to carry on work in preventive medicine. Surely, when your automobile breaks down you do not take it to a barber shop to have repairs made, and why should lay organizations handle things for which they are not trained? Through the profession's proper care of these things I see the answer to that problem of State medicine that hovers in the background; and, second, I see the answer to the cults. It may not be that here in your city or in your state they are making much of an inroad on your profession, but let me assure you that in some communities they are actually driving out the medical men. Through your co-operation I see the preservation of some of the things that are not being properly controlled at present.

I brought along a few statistical slides and also some of our propaganda slides which I thought you might be interested in.

I want to point out that this is not only a perfectly ethical society, but it is yours, so it cannot be anything else. You founded it, and you must actively support it, and not only this but every other public-health campaign that comes along. We must see that these public-health campaigns are properly carried out, for there are certain tendencies in the country at present to belittle the amount of interest and to curtail the amount of activity which we are exerting in the matter of applied medicine, and we would not think, as I said before, of taking our automobiles to the barber shop to have them repaired. (Applause.)

THE SURGICAL KIDNEY*

By D. S. BAUGHMAN, B.S., M.D., F.A.C.S.

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My subject has been selected for the purpose of bringing before you some of the features of this class of cases, which frequently confront the surgeon in the small city. I have nothing new to offer, but shall attempt a brief summary of the ideas that seem to me to be the most practical.

Surgical conditions of the urinary tract, and especially of the kidney, appear to be more prevalent throughout this part of the country than in many other parts of the United States. At least it has been my experience to encounter relatively more here than in other places where I have practiced. The extremes of the climatic conditions and the water have been considered responsible for this increased prevalence.

These conditions and their management are not so well understood by the average practitioner and by the laity. So much emphasis has been placed on the symptoms and treatment of appendix and gall-bladder affections that the average layman makes his own diagnosis and not infrequently comes direct to the hospital for care. It is a pleasure to know that our cases of ruptured appendices and ruptured gall-bladders with general peritonitis are getting fewer and fewer each year. This is due to the fact that the general practitioner and the laity are better informed regarding these conditions. Such is not the case with reference to affections of the kidney and frequently the patient is so ill that extensive diagnostic procedures are inadvisable when he finally reaches the hospital.

Of the congenital nephropathies ectopic kidney must be kept in mind by both the surgeon and the obstetrician. It is usually located low in the pelvis, may develop a hydronephrosis, become the seat of calculus-formation, or give rise to serious dystocia in pregnancy. Malformations, such as horseshoe kidney and double pelvis, predispose to infection and calculus-formation. Nephroptosis when accompanied by Dietl's crisis or other serious symptoms may require nephropexy or, in certain cases, nephrectomy. The neoplasms, such as sarcoma, neurocytoma, and hypernephroma, call for radical removal when

diagnosed early. Of the injuries, rupture of the kidney usually requires operation. In severe cases with extensive hemorrhage and extravasation of urine the kidney must be removed promptly, while in the less severe cases the surgeon is frequently called upon later to drain a perinephritic abscess. Tuberculosis of the kidney, especially when unilateral, is strictly surgical. The affected kidney, together with as much as possible of the ureter should be removed as soon as the diagnosis is established. Pyonephrosis requires operative treatment after mechanical measures have failed and when the condition is so severe that the life of the patient is threatened. Nephrectomy is the method of choice provided the other kidney is in good condition. Nephrolithiasis, with or without infection, is always a serious condition and calls for removal of the stone by the method best suited to the conditions present. Many of the smaller stones will be passed spontaneously in a few days to six months, but the patient should be kept under careful observation until it is passed. Many times these stones will be dislodged and passed by the aid of ureteral catheterization, with or without the injection of sterile olive oil or novocaine. When the stone is single and in the pelvis of the kidney it should be removed by pyelotomy, provided the kidney can be delivered into the wound in such manner as will make this operation possible. If multiple calculi are present and especially when they are embedded in the calyces or in abscess cavities, the method of approach must be through the kidney substance and, in the case of large stones, may require an incision nearly the whole length of the cortex. If infection is present the kidney must be drained. When the kidney is badly diseased and the opposite kidney is in good condition nephrectomy is indicated. In certain cases of hydronephrosis, where the kidney is useless, operation is indicated. Puncture of the cysts has been recommended for cystic kidneys and decapsulation for certain cases of nephritis.

Before operation is undertaken every effort must be made to establish an accurate diagnosis and to determine, not only the presence of, but also the function of, the other kidney. Cysto-

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scopic examination with ureteral catheterization should be performed when possible, and the urine from each kidney submitted to careful chemical and bacteriological examination. If tuberculosis is suspected guinea-pig inoculation should be made. The function of each kidney should be determined by the phenolsulphonephthalein test. X-ray examination, including pyelograms, should be made in many cases.

A careful preparation of the patient previous to operation with particular attention to diet and elimination is desirable when possible, and the operation should be performed under nitrous oxide and oxygen anaesthesia.

The following case reports have been selected because each of them has presented a different angle of the problem and all of them are more or less of the nature of surgical emergencies.

REPORT OF CASES

CASE 1.—Mrs. R.; housewife; aged 53; entered the hospital December 13, 1919. Family history is negative. Past history: the patient has had "kidney trouble" ever since she can remember. The early symptoms consisted of backache and heavy sediment in the urine. In 1911 she began to have attacks of renal colic. The first year she had two severe and several mild attacks. These attacks were characterized by severe pain in her back radiating to the front of the abdomen and accompanied by high fever and vomiting. The attacks were so severe that hypodermic injections were required for relief. Her attacks became more frequent, and in 1913 she entered a hospital where she underwent a very thorough examination. She remained there six weeks and was informed that both of her kidneys were infected, the right one so badly that it should be removed. She returned home and her condition remained about the same except that the attacks were not quite so severe. She has been more or less of an invalid during the past eight years. Present trouble began four days ago. She did not feel as well as usual all day, but during the night became much worse. She complained of severe pain in the abdomen, which has localized in the right side. She vomited several times, and the pain was somewhat relieved by an enema. The trouble has continued for four days, and at no time has she been free from pain except when under the influence of a hypodermic. On the evening of the fourth day she entered the hospital, where I saw her for the first time.

Physical examination: An undernourished, frail little woman who looks very ill. The head, neck, and chest are negative. The abdomen is distended, and the right side is tender and rigid. There is an indefinite, dull, tender mass rather high up in the right abdomen. The temperature is 103°; pulse, 120; and respirations, 22. The blood pressure is 140/80. The urine has a specific gravity of 1018, is acid in reaction, cloudy, and contains some albumin and pus cells. Casts and sugar are absent. The

leucocyte count is 20,000 with 80 per cent polynuclears.

A diagnosis of acute appendicitis was made with the possibility of a septic condition of the right kidney being present. On account of the serious condition of the patient immediate operation was done.

On opening the abdomen through a right rectus incision a moderately inflamed appendix was removed. The kidneys were examined, and the left seemed to be normal in size and consistence, while the right was enlarged and the pelvis dilated. The abdomen was closed in layers, and the wound was covered with a collodion dressing. The right kidney was then quickly removed. The pedicle was very thick and friable, and, although it was ligated, it was considered best to leave the pedicle clamp in place. A split-rubber tube and a strip of gauze were introduced for drainage. The patient was returned to her room in poor condition, but responded nicely to supportive measures and left the hospital at the end of three weeks in good condition. The kidney was about twice as large as normal, dark bluish in color, and contained several small abscesses. The pelvis was dilated and filled with pus. The tissues about the pedicle were thick and friable. The patient gained twenty pounds in weight and her urine soon became normal.

CASE 2.—Mr. F.; farmer; aged 58; entered the hospital November 9, 1919.

His family history is negative. Past history: he has had frequent urination for the past six years. Five years ago he had the grippe, which left a chronic cough. Had typhoid fever sixteen years ago. Present trouble—began last night with severe pain in the back radiating to the right side of the abdomen, the external genitals, and the inner side of the right thigh. He had chills, high fever, and sweats, and had to have two hypodermic injections for the relief of his pain. He is nauseated and complains of abdominal distention. He states that he has had other attacks of pain in this region, but never as severe as this one. Physical examination reveals a poorly nourished, sick-looking man. He has a few infected teeth, and his chest presents the signs of an extensive bronchiectasis. The abdomen is distended and tympanitic with tenderness and rigidity extending from the right lumbar region around to the right side of the abdomen. The right kidney is palpable and very tender. X-ray examination of the kidneys, ureters, and bladder is negative. The urine is loaded with pus, blood, and bacteria (mixed bacilli and cocci.) It is acid in reaction and has a specific gravity of 1016. There is a moderate amount of albumin but no casts. Repeated examinations of the urine and the sputum for tubercle bacilli are negative. Guinea-pig inoculation failed to demonstrate tuberculosis. Cystoscopic examination performed by Dr. R. S. Westaby revealed the function of the left kidney good, while the pus came from the right. The blood pressure is 160/100. The temperature ranges from 98° to 104°; pulse, 70 to 120; and respirations, 20. Leucocytes number 18,000 during the attack.

The patient was kept in the hospital and careful attention paid to his diet and elimination, together

with the administration of hexamethylenamin. His cough improved, but his kidney became worse. It was noticed that as soon as the pus would disappear from the urine he would have a chill and his temperature would rise to 104°. There would be typical renal colic pain attended by vomiting. This would be followed by the appearance of a large amount of blood and pus in the urine.

Operation was performed on November 19, 1919, and the right kidney was removed. The kidney was quite large, dark-bluish in color, and the pelvis and calyces were dilated and filled with pus. No evidence of stone or tuberculosis was found. The patient made an uneventful recovery and left the hospital in four weeks. He has had no further trouble with his kidney or bladder since. He recently went through a severe attack of influenza complicated by bronchopneumonia and stood the ordeal well.

CASE 3.—Mrs. F.; housewife; aged 45; entered the hospital February 18, 1921. Family history is negative. Past history: She underwent an operation for suppurative appendicitis two years ago. Present trouble began six months ago at which time she had an acute attack of pain in her back and right side, radiating downward and accompanied by chills, fever, vomiting, and abdominal distention. Since then she has had five attacks of a similar nature. These attacks last from twenty-four to forty-eight hours and are followed by the passage of pus in the urine. They leave the back and side quite sore for several days. She has lost about twenty pounds in weight and is unable to attend to her work. She has been dieting and taking medicine continuously, but the attacks seem to be getting worse each time. The last attack occurred a week ago.

Physical examination reveals an undernourished, anemic, middle-aged woman. The head, neck, and chest are normal. The right kidney is palpable and tender. The urine is acid and has a specific gravity of 1015. Albumin, pus cells, and mixed bacteria are present. Tubercle bacilli are absent. X-ray examination of the kidneys, ureters, and bladder is negative. Temperature is 100°; pulse, 80; and respirations, 24. The leucocyte count is 15,000 with 80 per cent polynuclears.

On February 19, 1921 a right nephrectomy was performed. The kidney was somewhat enlarged and had a double pelvis, and the ureter was double for a distance of about three inches from the pelvis. The upper pole of the kidney contained an abscess about an inch in diameter, and both of the pelvis contained pus. Recovery was uneventful and the patient left the hospital on the seventeenth day. The urine soon became normal, and the patient regained her normal weight and health.

CASE 4.—Mr. H.; single; farmer; aged 30; entered the hospital September 6, 1921.

Family history is negative. Past history: Patient was operated on four years ago for stone in the right kidney, at which time the kidney was removed. He enjoyed good health for two years when he began to have pain in the left kidney region. He has taken various kinds of treatment, but has been gradually failing and has lost twenty-five pounds in weight. Present trouble began four days ago with

pain in the back radiating to the left side of the abdomen and downward to the left testis and left thigh. There has been complete anuria for seventy-two hours. He has chills, fever, sweats, nausea, and vomiting.

Physical examination reveals a pale, undernourished, anemic, toxic-looking young man. His mentality is somewhat sluggish. There is no edema. The tongue is heavily coated, and the breath is foul. The vision is normal, and the eye-grounds are normal. There are a few scattered râles throughout the lungs. The heart is normal in size and slow and strong in action. The abdomen presents a large, tender left kidney. The bladder is found empty when catheterized. The temperature is 100°; pulse, 64; and respirations, 16. The blood pressure is 118/80. X-ray examination reveals one large stone in the pelvis of the left kidney, extending down into the ureter and five smaller stones apparently in the calyces. Operation was performed soon after the patient entered the hospital. The greatly enlarged kidney was delivered into the wound and incised longitudinally. As soon as the pelvis was reached a large quantity of pus escaped. The calculi were removed, and a large ureteral catheter was passed down the ureter into the bladder and allowed to remain there for several hours. A split rubber tube was placed in the pelvis for drainage, and the kidney was sutured with interrupted mattress sutures of chromicized catgut. The patient was returned to his room in good condition. The kidney began to function almost immediately. He made a good recovery and left the hospital on the twenty-fifth day. He gained thirty pounds in weight and resumed his work on the farm.

On April 1, 1923, when apparently in good condition he contracted a heavy cold. He was confined to the house for a few days, but seemed to be getting along satisfactorily when he suddenly developed a severe hematuria. He insisted that he had no pain and refused to go to the hospital even for x-ray examination. Within twenty-four hours from the time he first saw blood in his urine he developed uremia and died after having one convulsion. The autopsy revealed a very large fibrous left kidney with a markedly dilated ureter. About two inches from the bladder was a large stone, which was causing the obstruction.

CASE 5.—Mrs. R.; housewife; aged 38; entered the hospital February 23, 1923.

Family history: Both parents died of cancer of the alimentary tract.

Past history: the patient has had more or less pain and discomfort in the right side of her abdomen for the past five years. For a long time she has had to urinate several times during the night. Present trouble began five days ago with a severe coryza. The next day her right side became painful, and yesterday she began to vomit and has vomited everything she has taken ever since.

Physical examination reveals an undernourished, pale, middle-aged woman. Her head, neck, and chest are negative. The abdomen contains a hard, tender, movable tumor high up on the right side. X-ray examination shows this mass to be numerous,

urine is neutral in reaction and has a specific grav-
large and small calculi in the right kidney. The
ity of 1014. It is cloudy, contains a small amount
of albumin, some pus cells, bacteria, and a positive
chemical test for blood. A test for kidney function
using phenolsulphonaphthalein intramuscularly was
made. The dye appeared in ten minutes, and 42
per cent was excreted the first hour and 20 per
cent the second hour. The temperature was 100°;
pulse, 90; and respirations, 20. The blood pressure
was 140/90.

Operation was performed March 6, 1923. The
right kidney was removed. The kidney substance
was almost completely destroyed, being replaced by
abscesses and calculi. The patient made an un-
eventful recovery and left the hospital on the twelfth
post-operative day. She has regained her normal
weight and health.

CASE 6.—This patient was a middle-aged, single
man whom I operated on at the U. S. Marine Hos-
pital in San Francisco in 1918 while in the Service.
I am unable to give you his complete history. The
case is interesting in that it shows how nature some-
times attempts to take care of these cases. The
patient was on a merchant ship and took sick out
at sea several days from the nearest port where
medical aid could be obtained. An abscess pointed
on his back and opened spontaneously. He came
in with a discharging sinus, and on examination
was found to have a large kidney full of calculi.
At operation a probe passed down the sinus led to
the calculi in the kidney. The kidney was removed,
and the patient made a good recovery.

CASE 7.—J. M.; male; aged 5 years; entered the
hospital May 5, 1923. This patient was seen in con-
sultation with Dr. H. E. Kellog at the time he en-
tered the hospital. The family history is negative.
Past history: about four months ago the patient
had a fall at which time he had some difficulty
with his left side, which was diagnosed as pleurisy
and which apparently cleared up in a few days.
Present trouble began twenty-four hours ago follow-
ing a fall over an apple box. The patient com-
plained of pain in his abdomen and after a few
hours began to vomit. His condition has been pro-
gressively getting worse.

Physical examination reveals a well-developed,
well-nourished boy. He seems to be suffering severe
pain in the abdomen. His temperature is 101°;
pulse, 130; and respirations, 30 and of costal type.
The head, neck, and chest are negative. In the
upper left abdomen extending half way to the pubes

is a very tense, dull, tender tumor. The tumor is
so large that it is readily seen causing a protrusion
of the abdominal wall. X-ray examination shows
the mass to be subdiaphragmatic. The urine is
reported normal. A diagnosis of ruptured kidney
was made and immediate operation advised. On
account of the size of the tumor the transperitoneal
route was chosen, and the abdomen was opened by
a left rectus incision. There was found an extensive
hematoma extending from the diaphragm to the
pelvis behind the parietal peritoneum. The kidney
was greatly enlarged, and some difficulty was en-
countered in its removal. The pedicle was ligated,
and drainage inserted. The patient died about a
half hour after he was returned to his room.

The kidney was found to contain a large tumor,
which was the cause of the rupture from such a
slight injury. The laboratory diagnosis of this
tumor is neurocytoma.

DISCUSSION

DR. M. A. STERN, (Sioux Falls:.) I think the Doc-
tor is to be congratulated on his paper. I cannot
add anything to what he has said, but I wish to
emphasize the fact that careful examination is nec-
essary in all cases in which surgery is performed
on the kidney. I think the Doctor brought that
out very nicely.

There are two points I wish to bring up: I
think in the large coral stones that occur, especially
if they are bilateral, they should be left alone. The
removal of those stones with the branches extending
up in the calices of the kidney entails so much
trauma that practically all of the kidney substance
will be destroyed, and I believe those coral stones
with the branches extending up into the calices
should be left alone.

Another condition in which they should be left
alone is the large, cystic, congenital kidney. You
may be sure they are bilateral, and, if you remove
one kidney, you are likely to shorten the patient's
life by so doing.

DR. BAUGHMAN (closing): The other point about
the congenital cystic kidney: I would not advise re-
moval of the kidney, but stated that puncture of the
cyst was advised.

I have nothing more to add, but want to thank
the doctor for his discussion. Regarding the case
of large stone in my series, the patient had but one
kidney and had been suffering from total anuria
for three days. The operation seemed to be the
only course left in his particular case.

THE HEALTH AND HOBBIES OF THE DOCTOR*

By JACOB F. BRECKLE, M.D.

KULM, NORTH DAKOTA

We are taught that the wise man who would
enjoy the fullness of the earth must divide his
daily time into three equal parts; that is, eight

hours for his usual vocation, eight hours for
recreation and to help a worthy brother, and
eight hours for refreshment and sleep. I would
here consider that part of our time which we
should devote to recreation. It is during this

*Presented at the annual meeting of the Soo Sur-
gical Association.

time that we should accumulate health, happiness, and enthusiasm for another day. To learn to play successfully, to keep up our youthful ideals and desires, and to acquire habits and hobbies that are a lifetime of satisfaction, require thought, direction, and daily practice. The capacity for enjoyment is limited in any one day. We cannot expect to take it all during a short vacation once a year or perhaps once a lifetime after our fortune is made. A short story by Wm. Allen White, "Teaching Perkins to Play,"¹ well illustrates what I attempt to say.

The necessity of change in work and thought has been felt by many of our successful forbears. Dr. Oviatt, of Oshkosh, spoke to us, a class of his students, on the value of studying the natural sciences, both as a pastime and for the broadening effect it has on our professional thought and actions. In an article on "Henry Jacob Bigelow,"² Dr. Wm. J. Mayo gives us a glimpse of his non-professional activities, particularly that part in which he tells of Dr. Bigelow leading the great geologist Louis Agassiz to the rock strata which he wished to investigate. Prof. Taylor, in an address before students said, "The four-square man is he who not only is successful in his profession, but is also successful in his sparetime occupation. He must have a worthwhile hobby."³ In his excellent article on "How Hard Should We Work?"⁴ Dr. Stanly Reinhardt expresses better than I can the reasons for and the desirability of a diversion which can hold our attention.

What form shall our diversions take? We should take in all the popular amusements and get what we can from them. I think, however, as members of a profession we need something more, especially those of us who live in isolated places. Some do research work in medicine, others discover new tonsil instruments, or develop a pet herniotomy. Did you in your youth want to be an explorer and discoverer? You can still re-discover the earth, particularly that part where you live. Consider geology.⁵ In the earth is recorded the history of life itself and the length of time. By its mass you can discover the minuteness of man and his insignificance. The record of American geology has only been begun. Every locality affords an opportunity for new discoveries in railroad-cut, mine, or quarry. Very interesting landmarks are everywhere, can we but see them.

Botany has been an old favorite of the profession, and there is hardly a locality now but

where many new things will be discovered. Get acquainted with your plant neighbors: the weeds in your yard, the trees near you, and the host of parasites and saprophytes living on them. The mushrooms are a set of puzzle pictures to tax the most nimble wits, but all the more satisfactory when once mastered.⁶ Probably no state in the Union has a complete list of its plants. Among the smaller forms many new species remain to be named and described. The lichens, a peculiarly interesting family illustrating symbiosis, an occurrence in nature which probably had an important bearing on the formation of the higher plants and animals and perhaps the formation of special organs.⁷ The myxomycetes or slimemoulds, animal like, have the ability to move about in mass and hunt their food over sticks and stones but become stationary when producing fruit and spores.⁸

Knowledge of these subjects greatly enanches your pleasure while traveling, camping and hunting, more of which we should do. No part of our country is so desolate but that it has something to hold our attention. A daytime trip across the Nevada desert, a thing usually dreaded by the tourist, was to me a most interesting experience. Think of traveling on a dried ocean bed with the islands standing around. Enjoy our national parks; do not simply pass through them.

Not to stray too far from the usual medical paper I here insert a case history:

One of our financially, surgically, and medically successful brethren moved to California this summer. He went by car to enjoy the beauties and wonders of our country and sent home to the paper a description of his trip. After recounting his progress from day to day, telling of roads, hotels, and people, he says of the Yellowstone Park: "We made the park in two days. The only accident we had on the trip occurred here. Another man ran his car into ours at a dangerous place on a high road." He paid for fixing my radiator after we left the park.

He then tells us how much gas his car burned, how many miles,—the price of eggs and butter in California. Can you see him enjoying the beauties of the country? He made the Park in two days and wrote an ad for his car. Why say more? It seems to me, however, that if one is getting anything out of such a trip he would forget gas, miles, minor accidents, and people.

I believe a more or less intimate knowledge of these subjects would make more of us contented in the country places. I believe it would leave little room for the usual bickering among the profession. It helps us place the mass of humanity in its proper niche in the scheme of the Universe and not to expect too much from it.

One important point more relative to the doctor's good health, I would emphasize. That is that he learn something of banking and business early in his career. It saves much mental stress and strain and makes for a happier life.

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HERNIA: ITS FREQUENCY; RESULTS OF DRAINAGE IN INFECTIONS OF ABDOMINAL VISCERA AND TRAUMA; ITS PREVENTION AND TREATMENT*

By JOHN V. R. LYMAN, M.D., F.A.C.S.

EAU CLAIRE, WISCONSIN

The subject of hernia is one of great interest to practitioners of medicine, and has always furnished a rich field for devising of various methods to effect its cure. In reviewing the literature it is extremely interesting to read of the different types of operations described and the results claimed for each method of treatment.

CAUSES OF HERNIA

An hereditary predisposition to hernia can be traced in about 20 per cent of cases. (Macready.)

H. R. Trick says the generally recognized causes of abdominal hernias are (1) contributing causes, such as developmental defects, ascites, tympanites, abdominal tumors, etc.; and (2) active or exciting causes, such as coughing, sneezing, violent exercise, etc.

Concerning the dynamics of abdominal herniæ he states that the most potent force in their production lies latent inside the bowel and is applied from within outward, that is, increased intra-visceral pressure due to concentric compression exerted by the abdominal wall. Development defects do not cause herniæ, but they represent the sites of potential herniæ and are more probably the result of this force applied during intra-

uterine life. Proper repair of the transversalis fascia determines the integrity of the wall at that point.

Poorly developed or deficient musculature in the lower half of the abdominal wall may be said to be the underlying cause in practically every instance.

Barthalemy maintains that apart from the herniæ due to trauma or congenital defect, the majority of all spontaneous herniæ described under the name of Spiegel's herniæ are herniæ of the external angle of Douglas' fold and that Molliere was the first to recognize the true mechanism of their formation.

Cosens from observations on cause during the five years he was at a prisoner-of-war camp believes the explanation given by many,—that they had to perform manual labor for which they were unaccustomed,—truthfully explains the causation of their herniæ. Congenital and acute herniæ are due to incompetent muscular action and intra-abdominal pressure. Lack of resistance is due to (1) anatomical deficiency, (2) loss of nerve power from disease or senile change, and (3) deficiency of muscular control caused by lack of physiological use or by nerve disability.

Pitzman states that all types of hernia are caused by greater intra-abdominal pressure than

*Presented at the annual meeting of the Soo Surgical Association.

the particular wall can withstand. The newer point of view that the hernia causes the sac, in contradistinction to the sac causing the hernia, deserves serious consideration.

Traumatic hernia caused by direct violence applied to the abdominal wall or by a fall is rare. Where it does occur it is due to some congenital defect, in all cases excepting those where there is loss of muscular substance or injury to the nerve supply of the abdominal wall.

FREQUENCY OF HERNIA

Cosens in the examination of 27,635 German prisoners reports hernia in 10.77 per cent. Rudisill in the examination of 5,000 applicants for railroad service found 397 with one or more herniæ. From these and other statistics one is led to believe that more than 10 per cent are affected with hernia. A much higher percentage is recorded following operations of the "Acute Abdomen," as resulting from sepsis and formation of scar tissue.

RECURRING HERNIA

A series of 1,500 operations for inguinal hernia are analysed by L. Davis with regard to complications and sequelæ. The operations were performed by 75 surgeons of varying degrees of experience. In 50 there had been a previous operation, with recurrence.

In the 1,500 cases there were 1,756 operations, counting double hernia as two operations. In the male cases the Bassini technic was employed 834 times; the Ferguson, 764; and the Halsted, 15; and 24 of miscellaneous technic. Data subsequent to discharge were obtained in 140 patients by letter and in 614 in person. Fifty-nine patients had definite recurrence within the year; 5 of these double; 2 are known to have recurred after a year, making 66 recurrences. There were 6 cases in which there was questionable recurrence. If these are counted as recurrences, the percentage is raised to 9 per cent of the cases traced. Of the recurrences, 3.1 per cent followed the Bassini operation; and 4.4 per cent the Ferguson.

Taylor says that from January 1, 1899 to January 1, 1918, there were performed in the Johns Hopkins Hospital 256 operations for direct, and 2,230 operations for indirect inguinal hernia. In July, 1918, letters were sent to all patients treated between these dates with the request that they present themselves for examination, if possible, and, if unable to do so, that

they send a report from their physician regarding the local condition. The results have been ascertained in 910 cases.

Of 816 cases of indirect hernia, the results in 356 are known from examination in the hospital, and those in 460 cases from reports of physicians or of the patients. In the 356 patients examined at the hospital, 30 recurrences were found. Of the 460 patients who responded by letter only 16 reported recurrence. As the percentage of recurrence in the patients examined by surgeons at the Johns Hopkins Hospital is more than twice as great as in those who reported by letter, the author believes that recurrences have been overlooked by the patients themselves or their examining physicians, and hence that the actual number of recurrences is greater than the figures indicate. In 770 cured cases the average time that had elapsed since operation was six years; and in 46 recurrent cases, 42 months.

In an examination at the hospital 14 recurrences were found and 3 patients reported a recurrence by letter. The average period of recurrence in these direct cases was eight and six-tenths months after operation.

In attempting to determine the factors involved in the recurrence of an inguinal rupture, the type of the hernia, the condition of the structures, especially of the conjoined tendon, the features of the operation, the healing of the wound, the age and sex of the patient, and the operator's technic have been taken into consideration.

Sheen draws the following conclusions as a result of operative experience with many recurrent herniæ:

1. In indirect hernia the usual cause of recurrence is non-removal of the deeper part of the sac.
2. An occasional cause of recurrence is failure to find a small sac.
3. Some recurrences are due to a direct hernia.
4. Occasionally a primary indirect hernia is cured, and a direct hernia is overlooked or develops subsequently.

Masson, in his consideration of recurrent hernia, informs us that of 7,016 cases at the Mayo Clinic there was a little less than 1 per cent following cord transplantation, and a little over 1 per cent after the anatomic operation. Of 5,364 inguinal herniæ operated on (1907-December 31, 1917) 2,234 were on the right; 1,430 on

the left, and 850 bilateral. There were 330 for recurrence (260 elsewhere, 70 from the Clinic), including 29 bilateral, counted as 58. The number of previous operations was one, 258; two, 44; three, 20; and four, 8.

The herniæ particularly difficult to cure are those, either direct or indirect, associated with a poorly developed internal oblique; and this type can always be determined by examination through the external ring. The normally developed internal oblique and conjoined tendon (when present) can readily be felt, and the distance between these structures and Poupart's ligament accurately estimated. In the other cases no resistance is encountered until the edge of the rectus is reached. Another hernia difficult to cure, and yet indirect, is the one so often found in old men with a large mass of omentum or omentum and bowel descending into the scrotum, and who have probably worn a truss for many years with complete satisfaction until the last few months. In these cases the deep epigastric vessels are drawn down almost to the pubes, and the internal ring is directly behind the external, with marked enlargement of both rings, and surrounding tissue very poor for plastic work. The direct-indirect, saddle bag, bilocular or pantaloön herniæ, as they are variously called, present no difficulties that are not common to all direct herniæ, except it is also necessary to remove the part of sac that accompanies the cord, as well as to treat that portion which comes through the transversalis fascia below the deep epigastric vessels.

More than half of all recurrences were in patients over 40, clearly showing that any operation is satisfactory in children and young adults, but in older persons the strongest possible closure must be made.

Of 256 cases, 189 recurred in the first six months, 26 between six and twelve months, 19 between one and two years, and 22 between two and eight years. If a hernia recurs within 6 months, either the operation was not sufficient or the patient over-exercised after operation. On the other hand, recurrences after twelve months are more apt to be due to the development of a new hernia as the result of stretching in scar tissue or atrophy in the muscles.

DRAINAGE

When the abdominal wall is sutured with non-absorbable suture material, and especially when drainage is prolonged, there is always danger of

infection, and of hernia in abdominal scars.

Abel examined 586 patients some time after operation and found that 20 per cent of the cases closed by simple through-and-through sutures presented a hernia, and that only 9 per cent of the cases sewed layer by layer showed a similar condition. If there had been suppuration for two weeks, 40 per cent presented a hernia; for three weeks, 54 per cent; for four weeks, 65 per cent; and 80 per cent of the cases that supplicated for more than four weeks had a hernia, while 68 per cent of the cases closed by through-and-through sutures that supplicated showed a hernia, and only 31 per cent of the cases that were sewed layer by layer. Harrington reports 236 cases of appendectomy in which 85 were completely closed at the time of the operation; and of these, 3.5 per cent showed subsequent hernia; 88 were sutured down to the drainage-tube, or almost completely closed, the great majority with infection present. These showed hernia in 12.5 per cent; 63 were treated by the "open method," and these showed 20 per cent of hernia. The two striking features of these statistics are, first, that the primary complete closures should give as many as 3.5 per cent, and, second, that those treated as open wounds gave only 20 per cent of herniæ. An aseptic edge-to-edge apposition of similar histologic layers of the abdomen with healing per primam should not give 3.5 per cent herniæ.

Nigst reports a series of 127 cases of appendectomies in which drainage was used; a scar hernia developed in 14 cases within a few weeks or months after the laparotomy. Two of these followed a McBurney incision; 2, a pararectal incision; 8, an incision under Poupart's ligament; 1, an incision 10 centimeters long; and one, an incision through the rectus to a point two finger-breadths above the anterior superior spine of the ilium.

The drainage tube is condemned by many surgeons who claim they have obtained brilliant results without it. Long reports 39 cases of acute, some of the gangrenous type, of appendicitis in each of which the abdomen was closed, with gratifying results in 37 of the series. Stetten says that in recurrent cases or cases of large hernia in which there has been considerable oozing a small split rubber tube drain should be placed subcutaneously at the lower angle of the incision to relieve the serous accumulation which is apt to be formed. This drain may be removed after a few days.

Frank LeM. Hupp, in an exhaustive paper on drainage, points out that the tendency to dispense with drainage following peritoneal infection led Monro to formulate three factors:

1. The individual equation as regards susceptibility to infection. This factor cannot be determined by any known reliable method of examination. Judgment that comes from experience counts for much in estimating its value.

2. The virulence of the infection. The species and the presence of the organism may be quickly and quite accurately determined by a cover slip examination.

3. The presence or absence of distinct foci of infection. Kelly says that a drain must be watched, and, as soon as it ceases to discharge, it must be loosened or wholly withdrawn. William J. Mayo says that drainage of the abdomen should never be used in tuberculosis of the peritoneum. Pure products of tuberculosis in the pelvis should be removed by clean, careful operation.

Dr. Thomas J. Watkins claims that the presence of pus is not so important as was formerly considered. The treatment he advocates for infection of abdominal wounds is the closed method. No sutures are removed until the wound is healed. No drainage material is inserted. No probing or manipulation of the wound is permitted. Moist dressings are kept continuously over the wound as long as it remains reddened or indurated, care being taken not to macerate the tissues excessively. An important feature of the closed method is the slight disturbance of the patient, as the treatment occasions no pain, and assurance can be given that the suppuration is of minor importance. The most important observation has been the absence of hernia with the closed method of treatment. The increased length of time which patients with infected abdominal wounds have been required to stay in the hospital when treated by the closed method is seldom more than one week.

The whole subject of drainage is based upon certain definite scientific principles which must be applied with judgment to each individual case.

PREVENTION

The preventive treatment of hernia consists in keeping the abdominal muscles in a state of efficiency by daily drill and in keeping the rectus and oblique muscles in a slight degree of tension. Healthy people should exercise on the

floor, sitting up and reclining alternately without using the arms. The passive movement of the abdomen during normal respiration is not sufficient to keep the muscles "fit." Deep-breathing exercises are invaluable, especially in children. The prevention of postoperative hernia by posture after operation is of importance in getting firm union between the tissues. Schley, with many other operators, suggests moderate elevation of the trunk and thighs, which is easily obtained with the Gatch bed, relaxing both rectus and aponeurotic tension, and not only makes the patient more comfortable but gives physiological rest.

SURGICAL TREATMENT

As to the surgical treatment of hernia, many methods have been advised and advocated, and the advantages of each method pointed out.

Masson says that the good results usually obtained from operation for inguinal hernia are due to the fact that the intractable direct type represents only about 10 per cent of inguinal herniæ.

For unilateral rupture the usual oblique incision is used, and for most bilateral cases the transverse incision. If the external oblique aponeurosis is incised about one-fourth inch inside of the inner pillar of the external ring and cut across, the contents of the inguinal canal will be exposed and sufficient aponeurosis left in the lower flap to cover the cord later. The sac is located through an incision about one inch long in the covering of the cord close to the internal ring. If the sac is firmly adherent it is cut close to the neck, and the cut end of the distal section is left open. The neck of the sac, freed from the edge of the cremaster and transversalis fasciæ, is ligated as high as possible.

The stump is transfixed to prevent the slipping of the ligature, and the distal portion is cut off. The free end of the ligature is drawn by a large hand needle through the transversalis and the internal oblique muscle about one and one-fourth inch above the internal abdominal ring. Drawing the neck of the sac tightly up and fixing it to this point by tying the catgut prevents it from pressing at the internal ring during the process of healing. The opening in the cremaster is closed. While the canal is being closed the cord is held out of the way with a piece of gauze. In cases of direct hernia the sac is not opened unless it is large, but is simply turned in with its covering of preperitoneal fat. A few stitches

placed in the base prevent it from making pressure on the suture line while healing is taking place.

The closure is begun at the spine of the pubes. Continuous chromic catgut is used to approximate the internal oblique and external oblique muscles down to Poupart's ligament. The cord structures are covered by the lower layer of the external oblique aponeurosis. A stitch or two is inserted above the internal ring.

Light absorbable suture material, No. 1 catgut, under moderate tension should be used for the subcutaneous continuous suture.

A light gauze dressing, a suspensory bandage on the scrotum, and rest in bed for about seven days constitute the average postoperative treatment. Patients operated on for recurrent hernia are kept in bed about fourteen days. Light work is allowed in from six to eight weeks and heavy work in from three to six months.

Eisendrath gives the details of femoral herniotomy by the inguinal route in the following description:

1. The inguinal canal is opened as for the repair of an inguinal hernia.

2. The contents of the sac are reduced through an incision, which, if necessary, may be carried clear to the neck of the sac. Such high exposure affords better access to the point of strangulation and gives more space for an intestinal resection than the older methods.

3. The adherent omentum is freed from the neck of the sac, the empty sac is pulled upward through the femoral ring, a high ligation of the sac is done, and the distal portion is removed.

4. The external iliac vein is now retracted outward and the inner aspect of the femoral ring exposed. This is obliterated by three chromic catgut sutures, two of which are passed through Cooper's and Poupart's ligaments and the third through Cooper's and Gimbernat's ligaments.

5. The inguinal canal is closed by the Bassini method or the Andrews' imbrication method, and the skin is closed in the usual way.

Ochsner's method of closing the incision of the abdominal wall in cases where the abdomen has been opened for infection of the abdominal viscera, is to sew up each layer separately using interrupted absorbable sutures excepting for the skin, which is closed with horsehair. The cutaneous stitches are placed from three-fourths to one inch apart in order to allow the serum

to escape. The after treatment consists in the application of gauze wet in an antiseptic solution (Ochsner's solution preferred) over the wound. This gives excellent results and lessens the danger of infection of the wound and the subsequent postoperative hernia.

In the time allotted, it is not possible to cover the essentials in technic of the various methods employed for the cure of hernia, and it is only natural that each surgeon is likely to utilize that method which has given him the most satisfactory results.

From a study of the literature it would seem that no one operation yet devised can be a safeguard against recurrence. The fact that many methods are still being advocated for the repair of inguinal hernia seems to be convincing evidence that no one method is perfect.

The results obtained by Long and Watkins in complete closure of the abdomen in the presence of infection will encourage many operators to adopt this method of treatment, and the percentage of postoperative herniæ diminished. In using this technic the virulence of the organism should be determined, when possible, and judgment exercised as to the cases suitable for closure or disaster may follow.

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THE TRI-STATE DISTRICT MEDICAL ASSOCIATION: A GREAT MEETING

The recent gathering of 1,500 registrants at the meeting of the Tri-State District Medical Association in Des Moines, Iowa, was one of the most remarkable medical gatherings held in one room under one roof, and this is said with the full knowledge that many other medical meetings have taken place; but the unanimity of opinion is that this was one of the most democratic, earnest, intensive, and thoroughly satisfying post-graduate courses ever given in the United States. The meeting room was the theater of the Women's Club of Des Moines, which seats about 1,600 people; and from seven o'clock in the morning until ten-thirty or eleven-thirty at night, for four consecutive days, this room was practically filled all of the time. The editor has never seen a more consistently successful and well-conducted meeting anywhere, and it was due, largely, to the fact that the Des Moines physicians had prepared carefully, in advance, their clinical material, which they generously permitted the outside men to present and discuss. Due credit must be given to the Des Moines physicians for their careful preparation and selection of their patients, which must have cost them much time and effort and very intensive work. It was quite evident from what the men who presented the clinics said that there was

very little difference of opinion in the diagnosis of the patients. The entire forenoon and part of the afternoon of each day were given up to dry clinics. Hospital cases were brought in on stretchers or cots, or were ambulatory, so that there was a rapid succession of all kinds of valuable material. And to the specialist who sat in the room from seven o'clock in the morning until time to retire, from fifteen to seventeen hours, the lesson was impressive and illuminating. It is a great thing to be able to review most of the practical phases of medicine in a four-day period, and the man who is already prepared and has had the benefit of some years of experience is quite ready to be instructed in everything that pertains to the human body, from medicine to surgery in all of their forms.

If the spectator were nervous and apprehensive and given to self-analysis and introspection, he might have come away from the meeting feeling that he had pyorrhea, chronic tonsillitis, all possible diseases of the pulmonary organs, a typically damaged heart with everything that goes with it, a surely defective gall-bladder and its appendages; that he must have either a gastric or a duodenal ulcer, diabetes, or forms of nephritis, and fractures of nearly all of the bones of his body. However, one who was less nervous gathered valuable material for his future work.

The speaker of the Assembly, Dr. G. V. I. Brown, of Milwaukee, was an eminently fitted presiding officer, who held and controlled his audience under all all conditions, whether they were gay or tired; his gavel meant order. To Dr. Horace M. Brown, also of Milwaukee, the president of the association, much praise must be given for his work as a high official. Dr. Wm. B. Peck, of Freeport, Illinois, who acted as manager and who practically is the presiding officer of the executive board of the association, must be accorded unstinted praise for his accomplishments. It was due to him and his associates on the Executive Committee that the Tri-State District Medical Association (which hereafter is to be known as the Inter-State Assembly) has raised its registrations from 500 last year, when the Association met in Peoria, to more than 1,500 in Des Moines this year. And to the men in Des Moines, the courteous, kindly men who looked after their guests unceasingly and the Women's Club, who built the theater in connection with the club house and who have perfected probably the best and the most acoustically fitted auditorium that we know of,

should come due appreciation for their accomplishments. The meeting has seemed to demonstrate the necessity and the advisability of having a one-room meeting-place where the varied program and clinics may be given to the entire audience, for we all need instruction in the various branches of medicine, even though we supposedly limit ourselves to some of the specialties.

Not less than thirty clinics were given in the four days, during the forenoons. The afternoon and evening programs were made up largely of symposia or papers delivered by men of eminence. Aside from this innumerable lantern-slide talks were given either in conjunction with the clinics or a symposium. Perhaps one of the most astounding and most dramatical and yet thoroughly practical clinics was given by Dr. Elliott P. Joslin, who gave a clinic on diabetes; and he had approximately thirty people, all diabetics, on the stage in various processes of relief or cure, and among them children whom he gave as illustrations of what a child may do in the way of looking after its own care and the amount of information it may absorb in order to keep in the best of physical condition. One little child, not more than ten years old, made a urine analysis of two specimens of urine before the audience. She knew the value of foods, as did many other younger and older patients. One very amusing circumstance took place when Dr. Joslin presented to the view of the audience an apple and asked how many men knew how much sugar the apple contained, and only one man guessed anywhere near the right amount, this varying from one-half teaspoonful to five teaspoonfuls, showing the dense ignorance of the medical profession even in the most simple things; and yet, of course, there are many men who are thoroughly conversant with the proper foods for diabetics, and their caloric and sugar values.

Insulin was discussed by Dr. Joslin, as well as by others, and he gave some very instructive information as to the use of insulin, and how to use it. He said that insulin should be used with great care; that a blood culture should be made before the patient was subjected to his first injection, in order that, if a surgical case with diabetes came up for operation, the sugar content would be known, for if the patient died it could be easily shown that he died from the blood sugar or his diabetes and not from the operation.

It would be quite impossible in the length of

an editorial to comment on all of the admirable papers presented, because they were all so uniformly good that it is only possible to select here and there a suggestive clinic or paper.

Dr. Wm. A. Jenkins, Professor of Medicine of the Medical Department at Louisville, Ky., presented, really, a very snappy and meaty paper on arterial hypertension, in which he presented the problem of the early study of the capillary system of the arterial system in general which led up to arteriosclerosis, kidney, or heart disease, and he thought the last three named were the result or the outcome of capillary disorders rather than to be looked upon as entities in medicine. He certainly put the proposition up in a very definite way and showed us the necessity of making earlier investigations, rather than assuming that the heart and kidneys are the original cause of many of our illnesses.

There were only two or three speakers who failed to get across to the audience, and they were men who were badly equipped with voices or who failed in their delivery and who could not be heard even in a well-proportioned room.

THE DISTINGUISHED GUESTS

Sir Robert Falconer, President of the University of Toronto, Canada, delivered addresses both at the Assembly meeting and on the evening of the banquet. His address to the Assembly was of a general nature, pleading for the finishing of English-speaking races; and yet he made a very favorable impression by his general talk to the physicians, as did Dr. Ray Lyman Wilbur, President of the American Medical Association, who advocated the improvement of educational methods in general, particularly urging that medical men keep in closer touch with the people.

Dr. Charles F. Martin, Dean and Professor of Medicine of McGill University, talked on cardiac sufficiency.

Last, but most engaging, was Sir William DeCourcy Wheeler, President of the Royal College of Surgeons, of Dublin, Ireland, a dapper little man who is a typical Irishman, full of wit and humor, who, in the midst of his address on fracture of the long bones frequently injected a witticism which illustrated his point admirably. And when he was introduced by President Brown, who referred to him as an Irishman and a democrat, he promptly admitted it and said that he was very glad to be at a meeting which was not run by rules and regulations, for that sort of thing always appealed to an Irishman;

he further said that he hadn't very much new to present in the way of surgery, for they had been doing nothing but war surgery ever since 1914, and were still at it! He introduced a new suggestion in the way of treatment of aneurysm; and he said his most successful case went away cured with the instruction to do light work, and he found that he was employed by Ginnises Brewery, doing all kinds of things with ale and porter, and that when war broke out he was the first to enlist and instead of choosing some light part in the war he became the heaver of ammunitions and cannon and eventually was wounded and came home to die, but he carried with him a recovered aneurysm, of which Sir Wheeler seemed very proud.

There were two papers among those presented by distinguished visitors which should be noted: Dr. Charles H. Frazier, Professor of Neuro-Surgery in the University School of Medicine, Philadelphia, gave us a new angle from his experience in brain tumors. Both he and Dr. Ernest Sachs, of the School of Medicine, St. Louis, discussed trigeminal neuralgia, as well as other common forms of neuro-surgery.

It was good to hear Dr. George W. Crile, who is always illuminating, always enthusiastic, and full of vigor and new ideas; and it was also good to hear Dr. Frank Billings, a friend of the medical profession from Chicago, give us one of his interesting talks on the heart. Then, too, our own state men,—Drs. William J. and Charles H. Mayo,—both gave clinics and read papers during the meeting.

It must have been an entertaining meeting for the stranger, and we wonder what impressions Sir William Wheeler took away with him when he was introduced and found the entire audience on its feet applauding and shouting, and finally singing to him 'Tis A Long Long Way From Tipperary," and some of the more common college songs of Iowa and Wisconsin. Certainly, a man never had been more happily greeted than was this wonderful Irishman from Dublin.

STANDARDIZED HOSPITALS

It is rather encouraging to get press news of the meeting of the American College of Surgeons, which includes both the United States and Canada, during its fifth annual meeting which was held in Chicago last week. It is, furthermore, encouraging to note that many more hospitals in our field have been placed on

the approved list of the American College of Surgeons.

We look upon this as a return to the recognition of hospitals and the physicians who are supporting them by their patronage, who are conducting them by their management, and who are operating them, sometimes, at their own expense or, at least, are contributing, in large numbers, their services to these various hospitals, both standardized and unstandardized. The state of social advancement of a country can be gauged rather closely by the number and character of its hospitals, public and private. This statement cannot be too often repeated; it will bear inspection. At one time hospitals were looked upon as places of refuge. Now they are looked upon as proper places to which surgical and medical cases are to be taken,—patients who need close and constant bedside attention.

All this is due to the attention and equipment, as well as nursing and scientific treatment, given in hospitals. It is recognized all over the country now that the hospital, rather than the home, is the proper place for the care of the sick. In spite of the fact that many people misjudge the attitude of the doctor in his care of the sick, and in spite of the fact that the family become intensely interested to such a degree that they not infrequently overdo their visiting to the sick, the hospital still remains the better place for anyone who needs medical or surgical attention.

The report of Dr. Franklin H. Martin is herewith appended, as are the comments made by Dr. MacEachern. The report and editorial noted were found in the *Minneapolis Journal* and the *Minneapolis Tribune*; and it is comforting to know that they are looking up again and have noted the advance not only of the hospitals but of the medical supervision of hospitals. We have been a little anxious, perhaps, at times that the public press was not doing its educational work for medical men quite as much as it did some time ago, and it is to be hoped that the public in general will take more interest in the advancement of the hospital than it has done previously. The report says:

In making this official announcement Dr. Martin complimented the hospitals of both countries which had taken the steps laid down by the College as necessary to merit such well-marked recognition.

"By your action," he said, "you have pledged yourselves to see that the best care possible is given to the patients in your hospital."

The report is based on a detailed survey made

by experts through a personal investigation of all general hospitals of 50 beds and over in the United States and Canada. This investigation is made for the purpose of appraising the service rendered the patient, based on the definite requirements set forth in the minimum standard. Hospitals totaling 1,786, with a bed capacity of 237,946, were included in the survey. Of the group 1,176, or 65.9 per cent, met the standard.

Dr. M. T. MacEachern, in charge of hospital activities for the College, in addressing the hospital meeting said, "This is the greatest hospital movement the world has ever seen or perhaps ever will see. It strikes right at the root of things that have a vital bearing on human life. It is a movement destined to lessen the number of days stay of patients in the hospital through better service, to reduce complications and infections to a minimum through better supervision, to lessen incompetent and unnecessary surgery through better diagnostic facilities, more consultations and closer checkup, and, finally, greatest of all, to lessen the hospital death rate. These things are noticeable in standardized hospitals.

What a great thing it is to industry to realize that the stay of the industrial patient in the hospital can be reduced one or two days for each individual. What a great comfort it is to a person obliged to go to the hospital to know that his case can be more thoroughly and accurately studied and not infrequently an operation avoided, or done with maximum safety. How gratifying it is to realize that, in the highly standardized hospital, the former usual death rate of 40, 50 or even 60 per 1,000 patients can be reduced to 30, 20, or even less, under the influence of this program. There is not a hospital on this continent that can turn a deaf ear in the future to the movement. It is entirely in humanity's interest.

The list of recognized hospitals in this territory will be found in our news items on another page.

DR. WARREN A. DENNIS

On the morning of Thursday last, November 8, the death of Dr. Warren A. Dennis, of St. Paul, was announced, and the announcement came as a great shock to practically all medical men in the Twin Cities, for few knew of his sickness and all thought of him as a young man, although he died at the age of 54.

Dr. Dennis was the best type of the modern physician. He was genial and companionable to an unusual degree, and the medical profession had the utmost confidence in him both as a man and a physician; due to his high standard of honor both as man and physician.

He graduated from the Medical School of the University of Minnesota with the class of '96, and after an extended course of postgrad-

uate work, in this country and abroad, he located in St. Paul and at once made a reputation for continuous hard work.

At the time of his death he was associate professor of surgery in his Alma Mater, a member of the staff of the Miller Hospital of St. Paul, and secretary of the Western Surgical Association, all positions of honor and responsibility.

NEWS ITEMS

Dr. Judd D. Fuller has moved from Plaza, N. D., to Brillion, Wis.

Dr. C. F. Morsman has moved from Jamestown, N. D., to Hot Springs, S. D.

Dr. Kenneth Bulkley, of Minneapolis, was married last week to Mrs. Arthur Gosling, also of Minneapolis.

The North Dakota Association of Registered Nurses will hold their next annual meeting in Jamestown on April 23, 24, and 25, 1924.

The schools and churches of Preston, a Minnesota village of 1,300 population, have been closed by the health officer of the village to prevent an epidemic of diphtheria.

Dr. J. C. Jackson, who has practiced in Minot, N. D., for the past six years, has moved to Neihart, Mont., where he has contracts with several mining companies.

Professor Hans Finsterer of Vienna gave a Mayo Foundation lecture before the Mayo Clinic and Foundation staffs on October 19. His subject was "Gastro-Jejunal Ulcer."

Dr. Warren A. Dennis of St. Paul died last week after an illness of three or four weeks at the age of 54. Further notice of Dr. Dennis appears in our editorial columns.

Dr. Max Seham, of Minneapolis, spoke a day or two ago before the Ramsey School Parent-Teachers' Association of St. Paul on "A Rationalized Schedule for School Children."

Dr. George Smith of Park River, N. D., has moved to Grafton and has become associated with Dr. J. C. Suter, taking up the work of Dr. J. E. Countryman, who will locate in California.

The American Society for the Control of Cancer will conduct a cancer campaign in Hennepin

County from the University of Minnesota beginning next week, Nov. 19, and lasting three days.

Dr. Arthur W. Ide, of the Northern Pacific Hospital, St. Paul, has returned from an extended trip to Europe, where he went in July to visit the hospitals and clinics of the principal medical centers.

Dr. P. F. Holm, who has been absent from Wells for the past few years, has returned and purchased the practice of Dr. S. H. Anderson of that place. Dr. Anderson will probably locate in California.

Dr. Arthur T. McCormack, Health Officer of Kentucky, spoke to the medical students of the University of Minnesota last week on health problems. He came as the representative of the U. S. Public Health Service.

Dr. A. E. Chase, of Northville, S. D., has moved to Long Beach, Calif., where he will specialize in urology. For the past two years Dr. Chase has been connected with the Lincoln Hospital of Aberdeen, S. D., in surgical work.

The Huron (S. D.) Medical Society held a stated monthly meeting last week, when a paper on "Pellagra" was presented by Dr. G. E. Burman, and one on "Gall-bladder Cases" was presented by Dr. B. H. Sprague, both of Huron.

The health department of Minneapolis is advising parents to have their children take the antidiphtheritic serum treatment to prevent a possible epidemic of diphtheria. Dr. F. E. Harrington, Health Commissioner, strongly advises such treatment.

Dr. Harris R. Sutton, of Hoffman, was married last month to Miss Clara Stock, also of Hoffman. Dr. Sutton was a prominent athlete in his university days. He graduated from the Medical School of the University of Minnesota with the class of '16.

The Minneapolis, St. Paul & Sault Ste. Marie Railway Surgical Association will meet on December 11 and 12 at the Hotel Radisson, Minneapolis. A full program of scientific papers has been completed, with banquet at the Radisson on the evening of December 11.

The Interstate Assembly of Physicians and Surgeons (formerly the Tri-State Medical Society,) which met last week in Des Moines, Iowa, will come to Rochester, Minn., next year for its annual meeting. Notice of the Des Moines meeting appears in our editorial columns.

Dr. A. G. Beyer, of Red Wing, has returned from five-months' postgraduate work in Europe, mostly in Vienna. Dr. Beyer went in a party of forty medical men conducted by Dr. McKenzie of the University of Pennsylvania. Dr. Beyer specializes in eye, ear, nose and throat work.

Dr. Ruth Mahon, a graduate of the Medical School of the University of North Dakota and of Rush Medical College, has joined the Clinic of Drs. Wheeler, Campbell, Williamson, and Benwell, of Grand Forks, N. D. Dr. Mahon will specialize in children's diseases. She did extended postgraduate work in Boston after graduating from Rush.

Minneapolis held last week a largely attended "Preventive Dental Week Clinic," which was closed by a monster mass meeting at which Dr. Charles H. Mayo, of Rochester, and Dr. D. Wallace Secombe, of Toronto, Canada, made addresses. *The Evening Journal* distributed \$200 in prizes to the children and deserves the credit for the public enthusiasm in the Clinic.

Dr. Bruce W. Jarvis, who has been associated with Dr. W. A. Jones, of Minneapolis, in neurological practice, has accepted work with the Methodist Episcopal Church as a medical missionary. He left, with his family, for China last week, and will be located in Peking. Dr. Jarvis graduated from the Medical School of the University of Minnesota in the class of '15.

Mitchell (S. D.) held its third annual clinic last week. The names of the following men outside of Mitchell appeared upon the program: Dr. J. B. Potts, Omaha, Neb.; Dr. C. P. Howard, Iowa City, Iowa; Dr. E. L. Cornell, Chicago; Dr. P. P. Vinson, of the Mayo Clinic; Dr. F. E. Clough, of Lead, S. D.; and Drs. A. E. Benjamin, E. J. Huenekens, Emil G. Geist, and C. D. Harrington, of Minneapolis.

Miss Anne W. Goodrich, Dean of the new Yale School of Nursing, endowed by the Rockefeller Foundation; Miss Carolyn Gray, Dean of the School of Nursing of the Western Reserve University; and Miss Martha W. Russell, of the School of Nursing of the University of Colorado, were in Minneapolis last week studying the work and plans of the School of Nursing of the Medical School of the University of Minnesota.

At the annual meeting of the Minnesota State Sanitary Conference, held in St. Paul last week, Dr. L. L. Sogge, of Windom, was elected presi-

dent, Dr. G. G. Balcom of Lake Wilson, was elected vice-president; Dr. A. J. Chelsey, of the State Board of Health, was elected secretary and treasurer. Dr. G. S. Wattam, retiring president emphasized the great decrease in the death-rate from practically all diseases during the past twenty-five years. Sanitation was discussed from all viewpoints.

Four students of the Medical School of the University of Minnesota (class of 1924) and two students of the Medical School of the University of North Dakota (class of 1924) passed the recent examination of the National Board of Medical Examiners, with no failures from these schools. The names of these students are as follows: Walter L. Forster and Leander W. Riba (University of North Dakota) and Clyde H. Frederickson, Thomas B. Moore, Gardner S. Reynolds, and Huldah E. Thelander (University of Minnesota.)

Dr. W. Miguet, of Belgium, visited Fargo, N. D., last month to observe the work being done in the Fargo Child Health Demonstration under the auspices of the United States Public Health Service. Dr. Miguet was attracted to Fargo by the reports of work being done there made at the recent Detroit (Mich.) meeting of the American Child Health Association. Dr. Miguet represents the Belgian National Child Health Welfare Association. Child Welfare work has taken a strong hold of the medical profession of North Dakota.

The next monthly Clinic Day of the Minneapolis Surgical Society will be Thursday December 6, 1923, with the following program: At St. Mary's Hospital, 9:00 to 12 A. M., operative clinics by Dr. Sweetser, Dr. Farr, Dr. Corbett, Dr. Mann, Dr. Lynch, Dr. Maxeiner, Dr. Webb, Dr. Bratrud, Dr. Zierold, Dr. Hayes; at St. Mary's Hospital at 2 to 4 P. M., pathological meeting; dinner at St. Mary's Hospital at 6:30 P. M., followed by the paper of the evening on "Oral Surgery" by Dr. T. W. Brophy, of Chicago, with discussion by Dr. H. P. Ritchie, of St. Paul.

The Minnesota Hospital Association held its annual meeting in Milwaukee at the time of the meeting of the American Hospital Association last month. The Association elected officers as follows: President, Dr. K. H. Van Norman, Supt. of the Miller Hospital, St. Paul; first vice-president, Miss Ada Patterson, of St. Luke's Hospital, St. Paul; second vice-president, Mrs. Jeanette E.

Eitel, of the Eitel Hospital, Minneapolis; third vice-president, Miss Irene Dillion, of Lakeview Memorial Hospital, Stillwater; and secretary, William Mills, Supt. of the Swedish Hospital, of Minneapolis.

The Noble prize for the greatest advancement in medicine goes this year to Drs. F. G. Banting and J. R. McLeod, of Toronto, for their discovery of Insulin. Each of the discoverers divides his share with his assistant, thus bringing each assistant a handsome sum of money and proper recognition of his work. Dr. McLeod's assistant is Dr. J. B. Collip, of the College of Physicians and Surgeons of Alberta; and Dr. Banting's assistant is Dr. C. H. Best, of Toronto. The total prize money is \$40,000. The discoverers have refused to accept any profit from the manufacture of Insulin.

The first two volumes of Abt's "Pediatrics" are just off the press. This voluminous work will be composed of eight volumes of contributions from 150 specialists. In the first two volumes are papers from seven Twin City men, all of whom are, or were, connected with the School of Medicine of the University of Minnesota. These specialists who are also in active practice in the Twin Cities are Dr. Walter R. Ramsey, of St. Paul, and Drs. N. O. Pearce, Frederick C. Rodda, and Frederick W. Schlutz, of Minneapolis. Other Twin City contributors are Dr. J. P. Sedgwick (deceased,) and Professor Jesse F. McClendon and Richard E. Scammon, also of Minneapolis.

The Mayo Foundation at Rochester, in cooperation with the local chapter of Sigma XI and the Universities of Wisconsin, Minnesota, Nebraska and Washington (St. Louis), has arranged a course of lectures to be given during the present fall and winter on the various phases of heredity. The first of these was given on Monday evening, October 29, at the University of Wisconsin by Professor William Ernest Castle, Professor of Zoölogy at Harvard University on "Heredity—the General Problem and Its Historical Setting." Professor Castle will deliver the same lecture at Rochester Tuesday, at Minneapolis Wednesday, at Omaha Thursday, and at St. Louis Friday. On November 5, Professor J. A. Detlefsen, Wistar Institute, Philadelphia, spoke on "The Inheritance of Acquired Characteristics." Nov. 19, Miss Maud Slye, University of Chicago, Chicago, "Heredity in Relation to Cancer." On Dec. 4, Professor H. Gideon

Wells, University of Chicago, Chicago, will speak on "Human Cancer from the Standpoint of Heredity."

STANDARDIZED HOSPITALS IN MINNESOTA,
NORTH DAKOTA, SOUTH DAKOTA,
AND MONTANA

The following hospitals in our territory have been recognized by the American College of Surgeons as standardized hospitals. Those whose names are marked by an asterisk have been recognized and given further time to carry out the requirements in some minor details.

MINNESOTA

100 or more beds

*Abbott Hospital, Minneapolis
Ancker Hospital, St. Paul
Bethesda Hospital, St. Paul
Charles T. Miller Hospital, St. Paul
Colonial Hospital, Rochester
Deaconess Hospital, Minneapolis
Eitel Hospital, Minneapolis
Fairview Hospital, Minneapolis
Kahler Hospital, Rochester
Maternity Hospital, Minneapolis
Minneapolis General Hospital, Minneapolis
Minnesota State Hospital for Indigent Children, St. Paul
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, Minneapolis
St. Mary's Hospital, Duluth
St. Mary's Hospital, Rochester
St. Paul Hospital, St. Paul
Swedish Hospital, Minneapolis
University of Minnesota Hospital, Minneapolis
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

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

McKenna Hospital, Sioux Falls
*Sacred Heart Hospital, Yankton
St. Luke's Hospital, Aberdeen

50 to 100 beds

Bartron Hospital, Watertown
Lincoln Hospital, Aberdeen
Luther Hospital, Watertown
*Moe Hospital, Sioux Falls
New Madison Hospital, Madison
Methodist State Hospital, Mitchell
*Peabody Hospital, Webster
*St. Joseph's Hospital, Deadwood
*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

50 to 100 beds

*Bozeman Deaconess Hospital, Bozeman
*Northern Pacific Beneficial Association Hospital, Glendive
Northern Pacific Beneficial Association Hospital, Missoula
St. Ann's Hospital, Anaconda
St. Joseph's Hospital, Lewiston
St. Patrick's Hospital, Missoula
St. Vincent's Hospital, Billings

Part Time Position Wanted

A technician who can do routine laboratory work and x-ray and bacteriological work, desires a position in the Twin Cities for work for three days in the week. Address 399, care of this office.

An X-Ray and Clinical Laboratory Technician Wanted

One who can make blood counts reliably and expeditiously and can make routine blood chemistry examinations and also do x-ray work. We prefer a University graduate with the degree of B. Sc., and, if a girl, with the proper office or laboratory temperament.

We will give profitable and permanent employment to the person prepared and willing to do this work in a fine Northern Minnesota town. Address 400, care of this office.

Location Wanted

A recent Minnesota graduate with two years experience in country practice, wishes a location in a Minnesota town with hospital convenience. Prefer partnership with an older physician. Can speak Scandinavian fluently. Address 401, care of this office.

Practice for Sale

South Central Minnesota—\$10,000 to \$15,000 unopposed medical and surgical practice, 100 miles from Minneapolis, town of 600, prosperous farming country, fully equipped hospital, good churches, high school, modern office, equipped for eye, ear, nose and throat work as well as general work, X-ray, collections 98 per cent, nearest competition 16-18-25-30 miles, Scandinavian community, open to single or married man, thorough introduction, \$4,000 part cash terms for balance, complete details on request, am moving to city. Address 357, care of this office.

Practice for Sale

A \$4,200 practice in Southeastern Minnesota in town of 500 population. Good collections, territory, roads, etc. Location with equipment, \$650. Will sell part or all of equipment if desired. Reason for selling, other interests. Address 403, care of this office.

Wanted

Assistant interested in internal medicine and x-ray in group in city of five thousand population, North

Dakota. Liberal salary from start, with partnership proposition at the end of first year for the right man. Address 404, care of this office.

Practice and Drug Stock for Sale

I offer for sale my practice and drug-store, fixtures, drug sundries, and private stock of drugs. Town of 400; no other doctor. A good opportunity for a doctor or druggist or both. If interested write C. E. Sargent, M.D., Isabel, South Dakota.

For Sale

One Scanlon-Morris operating-table with nickel top, price \$300.00. One National Sterilizer, medium size, price \$75.00. Both practically new. For further information call Highland 6609, or call at 1402 Fremont Ave. No., Minneapolis.

Physician Wanted in North Dakota

In a town of about 800; must be able to speak German, and preferably a Catholic. Give references in first letter. A splendid location for the right man. A big territory to draw from. Town is located in Southeastern part of North Dakota. Address 392, care of this office.

**PHYSICIANS LICENSED AT THE OCTOBER (1923) EXAMINATION TO PRACTICE MEDICINE
IN THE STATE OF MINNESOTA**

Name	School and Date of Graduation	Address
BY EXAMINATION		
Berdez, Georges Louis	Lausanne, 1914	St. Mary's Hospital, Duluth
Davidson, Thorald Edward	Rush, 4 yr. Cert. Med., 1923	Ancker Hospital, St. Paul, Minn.
Feeney, John Matthias	N. W., 4 yr. Cert. Med., 1923	Ancker Hospital, St. Paul, Minn.
Houck, Knut Hoegh	N. W., M.D., 1922	221 5th Ave. N. W., Rochester
Kjos, Clarence Eugene	Rush, 4 yr. Cert. Med., 1923	Ancker Hospital, St. Paul, Minn.
Rohwer, Christian Jacob	U. of Pa., M.D. 1921	Mayo Clinic, Rochester, Minn.
Spaulding, Olive Gertrude	U. of Pa., M.D. 1921	Mayo Clinic, Rochester, Minn.
Tregilgas, Harold Richard	N. W., 4 yr. Cert. Med., 1923	Ancker Hospital, St. Paul, Minn.
UPON RECIPROCITY		
Adams, Leon P.	Marquette, M.D., 1923	Rosemount, Minn.
Bargen, Jacob Arnold	Rush, M.D., 1922	Rochester, Minn.
Boysen, Herbert	U. of Ia., M.D., 1922	511 21st St., Sioux City, Ia.
Callahan, Francis Fowler	U. of Md., M.D., 1913	Pokcgama, Minn.
Collins, Harry Aloysius	Creighton, M.D., 1922	Rochester, Minn.
Comfort, Mandred Whitset	U. of Tex., M.D., 1921	Rochester, Minn.
Cook, Jay Milton	Creighton, M.D., 1922	Staples, Minn.
Crane, Wm. Whitfield, Jr.	Stanford U., M.D., 1922	Rochester, Minn.
Davis, Austin Clifford	U. of Ia., M.D., 1916	201 9th Ave., Rochester, Minn.
Dorsey, Geo. Chas.	N. W., M.D., 1921	310 Hulct Block, Minneapolis, Minn.
Espenlaub, Geo. Henry	Ind. U., M.D., 1922	Rochester, Minn.
Fossum, Cornelius	Loyola U., M.D., 1919	Moose Lake, Minn.
Huffman, Lester Dale	Ind. U., M.D., 1916	Rochester, Minn.
Keiser, Venice Duncan	U. of Ind., M.D., 1917	519 6th St. S. W., Rochester, Minn.
Leech, Chas. Hoyt	U. of Cin., M.D., 1922	825 5th Ave. S. E., Rochester, Minn.
Marquis, W. James	Harvard, M.D., 1922	Rochester, Minn.
Marsh, Fred Eugene	Vanderbilt, M.D., 1922	518 5th Ave. S. W., Rochester, Minn.
Mentzer, Stanley Hernan	U. of Cal., M. D., 1923	Rochester, Minn.
Morse, Harry Dodge	McGill, M.D., 1918	Rochester, Minn.
Nixon, Samuel Henry	Med Coll. Va., M.D., 1920	Rochester, Minn.
Offutt, Susan Rebecca	U. of Pittsburgh, M.D., 1919	Rochester, Minn.
Parson, Lester Raymond	Rush, M.D., 1922	Elbow Lake, Minn.
Raiter, Roy Ferdinand	N. W., M.D., 1923	Cloquet, Minn.
Stinson, John Wesley	Jefferson, M.D., 1921	Rochester, Minn.
Webber, Isaac Mervyn	Bowdoin, M.D., 1920	Rochester, Minn.
Yoakem, Howard Haynes	Ohio State U., M.D., 1921	Rochester, Minn.
BY NATIONAL BOARD CREDENTIALS		
Bothe, Frederick Augustus	U. of Pa., M.D., 1921	Rochester, Minn.

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SOME PROBLEMS IN MEDICAL EDUCATION*

By C. P. LOMMEN, B.S.

Dean of the Medical School of the University of South Dakota
VERMILLION, SOUTH DAKOTA

We have traveled a long way since the proprietary schools controlled medical education in this country. That such a distance could have been covered in so short a time seems almost incredible. Especially does it appear astounding when we consider the load which was carried and the obstacles in the way. We blush with shame when we look back to the place from which we started. The disgraceful lack of proper standards of medical education prevalent in our country forty years ago was without a parallel in the whole civilized world. Even our Spanish-American neighbors in Mexico and South America had standards very much superior to ours.

The work of transforming medical education in the United States has not been accomplished by one man or by a small number of men. It is the result of the co-operation of several organized forces, among which may be mentioned the medical schools, through the Association of American Medical Colleges; the medical profession, through the Council on Medical Education of the American Medical Association; and the people themselves, through their state licensing boards.

But the co-operation of such large and varied forces representing so many and often divergent interests is not a fortuitous happening. It was

the result of well-planned intensive campaigns of education which first made all these elements see the need of fundamental changes, and then inspired them with the determination to do their share in securing them. But such campaigns require leaders. They call for men with vision, men who not only themselves see clearly the aims to be attained and the methods to reach them, but who also can make others see them, and who have the enthusiasm necessary to stir others, and the persistence to keep on, in season and out of season, until men of different training, mental make-up, and economic interests are ready to put their shoulders to the wheel to reach the desired goal.

And such leaders have not been lacking. Men appeared in many places who saw that American medical education must be established on a plane at least as high as that of European countries, and with standards of work in no way inferior to the best to be found there. However, it must not be a bodily adoption of any foreign system or systems, but something founded on American schools and developed to meet American conditions. It was clear to them that such results must be realized by the slower process of consciously directed evolution, rather than by a more rapid and radical revolutionary one. Schools must go on turning out practitioners every year without waiting for the ideal conditions which appeared so attractive in the distance.

And so the forward march began. As soon

*Presented at the forty-second annual meeting of the South Dakota State Medical Association, Watertown, S. D., May 23 and 24, 1923.

as one vantage point had been gained and securely established, preparations were made for an advance on the next logical objective. The introduction of orderly graded courses of instruction where formerly there had been chaos; making laboratory instruction more and more the backbone of the fundamental medical and pre-medical courses; gradually extending both the medical curriculum and the courses necessary for entrance upon medical studies; the systematization and general improvement of the clinical courses in many directions, especially by having them given in hospitals under the control of the medical schools—these indicate some of the main lines along which progress has been made from the time when a man with less than an elementary school education could enter a medical course consisting of two six-months sessions in which the courses taken the first year were repeated the second, but the completion of which secured him the M.D. degree and entitled him to practice medicine upon suffering humanity.

Now we have reached the goal our leaders had in view; and the standards of American medical education are fully equal to those of any country in the world. But this forward movement has gained such momentum that it does not stop at the original goal. One after another of our schools of medicine are establishing standards for themselves higher than those of the schools of Europe. Thus it would seem that the time is not far distant when our medical education will be on a plane all by itself.

But this rapid onward march of progress has been accompanied by some undesirable manifestations. It is evident that the results obtained could not have been realized without definite regulations regarding entrance requirements and curriculum. It became necessary for standardizing agencies of national scope to prescribe more or less in detail the amount and character of the high-school and college courses which must have been completed by candidates for matriculation in medicine, and to require all medical schools to adopt a curriculum in which all the subjects were arranged in accordance with their natural sequence, and given the amount of time which their importance required. This has been done with the result that we have had inflexibility and rigidity both in the pre-medical and the medical curriculum. On the one hand, so many semester hours of physics, so many of biology, so many of chemistry, so many of English, so many of modern foreign lang-

uages, and so many in all; and, on the other, so many total hours of anatomy, so many of physiology, and so on to the end of the list. This resulted in medical schools which were machine-like, with no discretion allowed anywhere, no individuality, everything imposed from the outside, everything measured in mathematical units. Naturally there would be a uniformity and lack of individuality in the product.

Results like these are difficult to avoid as long as standards are to be wholly controlled by outside agencies, since such control is difficult to exercise except through the application of mathematical and somewhat mechanical measurements.

As soon as these manifestations were noticed steps were taken to correct them. A committee of the Association of American Medical Colleges appointed to study the question, reported a few weeks ago some changes which it is believed will improve matters. Instead of demanding that all schools require the same fixed number of hours for the different subjects of the curriculum, arrangements were made for greater flexibility by prescribing a minimum and a maximum number of hours for each subject. It is left to the student to decide in which department he takes only the minimum number of hours and in which he takes more. Since he must have completed a more or less fixed total number of hours it follows that, if he takes only the permissible minimum in some subjects, he must take more, possibly the maximum, in others. Provision is therefore made for the development of the individuality of each student, and at the same time it is made possible for each school to find expression for any strong points which it may possess.

At the time the medical course was extended to four years it was decided to devote the first two years to the fundamental laboratory sciences, and the last two to the clinical subjects. This made possible the two-year medical schools in connection with universities so located as to have no clinical facilities. At first these schools were viewed with suspicion and were considered largely as experiments. Little by little, however, they demonstrated their right to existence. Their students trained in small classes under the direction of skilled and scholarly instructors were getting the benefit of the personal touch and the close supervision which mean so much to the student. They were likewise profiting from contact with students and instructors

working in other lines, both cultural and professional. Therefore, the students from the two-year schools have been characterized by their thorough mastery of the fundamental branches, by the impress they bear of the personalities of outstanding instructors, and by the breadth and catholicity of vision to be obtained only in a university atmosphere.

During the last twenty years the two-year medical schools have furnished superior training and instruction to the young men and women of their states, at more or less nominal rates of tuition, thus making it possible for many with small means to enter the medical profession who otherwise would have been barred.

But now, when the position of the two-year school was becoming safe, difficulties are looming up in their way in two or three different directions. While many of the schools are still limiting their clinical instruction to the last two years of the curriculum, thus making it easy for the two-year schools to articulate with them, there are some which are introducing a number of clinical courses into the last third of the second year. The two-year schools could quite readily arrange to furnish these courses since they are largely didactic in nature or else have a character which does not require extensive clinical material. But the difficulty comes from the fact that, so far, these schools do not agree on the courses they have pushed back into the second year. If this policy of giving more time for clinical instruction at the expense of the fundamental branches is to be generally adopted it is hoped that soon there will be a general agreement on the clinical courses to be required in the second year. However, when we consider that if the fundamental branches are to be mastered at all it must be during the medical course, while the facts and principles of the clinical courses are under consideration during one's whole professional career, it would seem that we ought to continue to give all of the first two years to the fundamental branches.

During the last year there has been a great deal of criticism of the present course of study. It is claimed that there is not the proper correlation between the fundamental and the clinical branches, that the hard and fast separation between them in the curriculum is causing each of the fundamental subjects to be taught as ends in themselves rather than as parts of a larger whole, and that most of them are forgotten by the time the clinical subjects are reached. It

is proposed that some clinical subjects be pushed back into the first and second years to give added interest, and to serve as constant reminders that it is the practice of medicine which is the real aim, and not the study of anatomy or physiology. It is also proposed that certain phases of the fundamental branches be extended into the third and fourth years for the purpose of securing a greater mastery of them, and of fostering the idea that they are not to be put on the shelf just because the students are now devoting themselves principally to clinical subjects.

While these contentions seem plausible enough at first sight, they will hardly bear a critical examination. It may be true that there has not been the proper kind of co-operation between the staffs of the fundamental and clinical subjects, but there is no reason why this cannot be secured without changing the order of the subjects in the present curriculum. It may seem that much is taught in connection with the fundamental branches which is of no use to the practitioner, and serves only to round out the student's knowledge of the subject itself. Nobody knows this better than the teacher of the fundamental subjects. But he also knows that the particular facts and principles which are of use would lose much in value if they are to be presented as fragments rather than as parts of a whole, and likewise that the useless fact of to-day is of the greatest importance to-morrow. And then he has it forced upon him that these students are still sadly in need of training both in observation and in straight thinking, and so he feels called upon to present his subject from the disciplinary point of view. And while he is doing all these things the good teacher points out the relation of the subject taught to other fundamental branches and to clinical ones.

All teachers of fundamental branches know that there is nothing more disconcerting than a student in the class who is constantly running off on a tangent on questions of clinical interest. He does not have the proper foundation to get anything of real value out of them, and at the same time he usually fails to show the proper interest in the main subject he is studying. Real teachers of fundamental branches do not need any extraneous aids in arousing interest in their subjects. And it would be largely waste of time for a student in the first two years to attempt to take clinical subjects before he has had the proper foundation; he cannot properly

appreciate them. The whole plan would be like an attempt to erect the superstructure of a building at the same time the foundation is being laid,—waste of time and a poorer structure in the end.

And, lastly, it is quite clear that, if the students are permitted to forget their fundamental branches during the two clinical years, it is due to poor teaching on the part of the clinical teachers. Good clinical teachers do not permit their students to grow rusty in anatomy and physiology.

It can readily be seen that if the proposed plan should materialize it would be a severe blow to the two-year schools.

A third development in medical education during the last two or three years also threatens to make the road of the two-year medical school more difficult to travel. A large number of the best medical schools in the country have begun to limit very rigidly the number of students admitted to their courses. Since the number of applicants far exceeds this limited number, it becomes possible to exercise considerable selection in admitting students. The better grade of students resulting from this selection means that fewer fail during the first and second years of the course. Consequently there is less room in the third-year class for students from the two-year schools.

Until a year ago it was possible to find room for all students we had, at any one or two of the schools which are mostly sought by students who are applying for advanced standing. At present, although our students are more than twice as numerous as they were before, we succeed in placing them, but we have to spread them among a larger number of institutions. But, nevertheless, it is clear that the question of placing the ever-increasing number of students from the two-year schools is becoming more of a problem.

Besides the problems already referred to, South Dakota is facing a problem of its own in medical education. When the medical school was organized nobody entertained ideas of ever undertaking more than the first two years of the medical curriculum. In fact, the large majority of the members of the medical profession of the state were skeptical regarding the ability of the school to do the first two years well. And those in immediate charge of the work of the school stated repeatedly in the University

bulletin that there was no intention of undertaking the work of the third and fourth years.

However, the development of medical education in our country is now proceeding along lines which were not anticipated earlier, and which may make it necessary for our State to undertake to do more in training its own physicians than it has done heretofore. That such is the case had escaped the notice of those immediately in charge of our school of medicine. It was brought to our attention by Dean Bardeen and Dr. Colwell, who inspected the school on behalf of the Association of American Medical Colleges and of the Council on Medical Education of the American Medical Association. In their report they made the point that the trend of American medical education is such that soon it will be necessary for States like our own, with a predominantly rural population, to train their own physicians, and they recommended that preparations be made gradually for such a time by securing the establishment on the University Campus of all public institutions which may be utilized for clinical teaching.

There can hardly be any doubt but that these men are right in their contentions. But it is also certain that they over-estimate the ability of our state to force such a program. The problem, however, is one that must be faced. If the state is to undertake to train its own physicians, it must enter upon the project with a proper understanding of what it involves. This means that an active, and probably prolonged, educational campaign must be carried on to convince the people that the state should commit itself to such an undertaking. But before this can be done very effectively, the medical profession of the state must have considered the proposition carefully, and decided to stand back of it whole-heartedly. On this question, too, we need men of vision, to see what our commonwealth must have, to take and hold its proper place among the sister states of the Union; men who have proper faith in the growth of our state in wealth and population, and who can estimate wisely its future needs, as well as its future capacity to do. Our thinking on this question must be done with due regard to the needs and the ability to accomplish, not only of the present, but also of the future.

That a medical school is not dependent upon location in a large city has been well demonstrated by Michigan and Iowa, and needs no discussion here; but we might say a word or two

about what may be done in paving the way and laying the foundations.

There are two institutions which the State needs without reference to medical education, but which would be of great value in clinical instruction,—a children's hospital and a psychopathic hospital. In a gathering like this the mere mention of them ought to be sufficient. A hospital where the crippled and otherwise defective children of the state can be given treatment which will make them happy and self-supporting citizens, instead of dependents upon their friends or the public, would naturally appeal to both the profession and laity, and ought to receive generous and hearty support. The same ought to be true regarding a hospital where treatment may be given, under proper surroundings, to those suffering from mental and nervous troubles, which may restore them to their friends and families and keep them from becoming a burden upon the public.

The call for a general State Hospital without reference to requirements connected with clinical instruction may not be so apparent; but at the recent meeting of the Council on Medical Education of the American Medical Association a paper was presented containing exhaustive and convincing arguments in favor of the proposition that a State-supported general hospital is justified irrespective of its value in connection with medical education.

The establishment and successful operation of three such hospitals on the University Campus would form a respectable nucleus for a clinical school. From the nature of the case such a program could not be carried out in a hurry. Patient planning and persistent work for a number of years would be necessary. Will the State Medical Association of South Dakota espouse this cause with its many immediate values, and its still greater promises for the future?

DISCUSSION

DR. H. J. PRENTISS (Iowa City, Iowa): I wish to say, Mr. President and Gentlemen of the South Dakota State Medical Association, that because I am connected with the University of Iowa does not mean that I am fitted to discuss this very excellent paper, but perhaps I can bring out a few things.

One thing: several years ago I was going down to Baltimore, and President Van Hise, of the University of Wisconsin, was on the train and I had

a good long talk with him. He said Wisconsin did not intend to have a four-year medical course unless it was delivered on a silver platter. The interesting thing is that in the last two years the University of Wisconsin has had us up there and has been with us to see how we were working out our own salvation. We are not interested in all that happened there, but I wish to say that we got a great many points from Michigan in working out our problem. It is certain that a four-year medical school does not have to be in a city. The only criticism is that the out-patient clinics cannot be as large in the rural district as in the city. Being a New York Cityite I know what that means, but it has been proven in the State of Iowa and in Michigan and now in Wisconsin that the four-year course is necessary.

Another thing I would like to say is that a college in a small community has it all over, in a great many ways, the college in the city. Take our college to illustrate: I am at present President of the University of Iowa Medical Society, and I am a laboratory man. The point is that we are all closely interrelated. The internist comes over to my place or I go to his, my assistant works with the professor of anatomy and with the professor of neurology, and they talk over things and work them out together, and the professor of surgery and I talk things over together, because at one time I did some surgery in New York. There is one thing certain, and that is that in the small colleges we all work together, and that is one of the great advantages.

Regarding the paper that has been presented here: it is true that there has been trouble in the last two years in placing men in the larger schools. When a school reaches four hundred they should not increase the size of that school, but should build another. In Colorado I was asked why it was not possible for the State of South Dakota to have its school without waiting for John D. Rockefeller to donate his part. It has seemed expensive, that is true, but you are going to make your two-year course, and it is stimulating for the pure laboratory man to meet with the clinical men and see their problems and help work them out. When Charlie Rowan asks me if I know anything about the seventh rib you may be sure that I get pretty dizzy about it, but we work it out, and I go over to his place and wash up and we operate and work it out together, helping each other.

You may be sure, gentlemen, that the Doctor is perfectly reasonable in his requests. It does not seem reasonable that we should ask some wealthy gentleman from another city to help out in these things. It is true that Harvard and Yale are taking the cream from the schools. I get letters all the time asking about this, and we young fellows and the others are left out.

I feel as if I had talked very ineffectually, but it was just thrust upon me and I am glad to have an opportunity to say these few words.

CHOLECYSTITIS*

BY RALPH EMERSON WEIBLE, M.D., F.A.C.S.

FARGO NORTH DAKOTA

The purpose of this paper is to give a short survey of the subject of cholecystitis and the impressions and deductions gained by a review of our cases of cholecystitis of last year, accenting the diagnostic difficulties and the relation of symptoms to the pathology.

Theories as to the mode of production of cholecystitis, which have stood many years, have been swept away, and others based on experimentation and laboratory studies have taken their places.

Rosenow has shown by his experiments that cholecystitis may be produced by injection of suitable bacteria into the blood stream. This fact suggests that the nose, throat or mouth could harbor the focal infection. It is difficult to correlate these views in actual clinical work. It is true that acute pharyngitis often ushers in the acute attack of appendicitis, but with the removal of the appendix the problem is ended: the gall-bladder is not involved. On the other hand chronic appendicitis, probably a different disease from the acute variety, and, to a lesser degree, duodenal disease are very frequently present with cholecystitis.

To Evarts Graham belongs the great credit for suggesting that the liver—that great clearing-house for all substances taken into the blood stream from the intestines—first harbored germs which traveled through the lymphatics connecting with the gall-bladder and produced cholecystitis.

Peterman, a former collaborator of Graham, strengthens this view by showing that pathogenic bacteria injected in the most distant veins of the portal system will produce hepatitis and cholecystitis. Hence with any chronic intestinal disease, of which chronic appendicitis is one, sooner or later cholecystitis may follow.

Peterman's work will undoubtedly direct the attention of medical men to the intestine. The reason for the predominance of the disease in women can then be surmised, since it is an established fact that they are much more subject to intestinal torpor. Cholecystitis is more common in the unmarried female than is usually believed. However, the earlier stages are more difficult to diagnose; and by the time diagnosis is easier

to make the woman is usually married and a mother. Pregnancy perhaps increases this susceptibility, or at least seems to have some influence on the production of gall-stones.

Childhood is not exempt from disease, and doubtless many of our cases have started earlier than we credit. In a study of G. B. disease in childhood E. L. Kellog has counted a list of 64 cases ranging in ages from still-born to fifteen years.

An analysis of 49 cases of cholecystitis that came to operation brought out the following facts: There were nine males and forty females. Nine of the females were unmarried. Under the age of twenty, there was one; from twenty to thirty, fourteen; from thirty to forty, ten; from forty to fifty, sixteen; from fifty and over, nine.

As to operations; In one case the gall-bladder was drained, the other forty-eight were excised,—two by stripping out the mucosa. In twelve cases the appendix was also removed, and in one case an old appendiceal abscess was drained. There was one case of cholecystectomy with gastrectomy. In two cases choledochotomy was done. Six cases had impacted stone or stones in the cystic duct; one had stone in the duct and in the ampulla of Vater. In two cases, eleven and eighteen years before, we had removed stones and drained. These two cases had recurrence of stones. Altogether there were thirteen cases which had stones. In seven cases the appendix had been removed elsewhere. In twenty-nine cases, a liver specimen was removed and studied along with the gall-bladder.

In nine cases we were unable to detect any abnormality on the outside of the gall-bladder, and perhaps six of these looked normal on viewing the inside. In the majority of cases where liver changes were sought at operation they were found.

As to results: One case still has occasional hepatic colic, probably due to an overlooked stone in the duct. Two other cases are not improved. Five report improved. The rest are well or have no symptoms referable to the gall-bladder. There were no deaths.

Cholecystitis can be divided into classes in many ways. After reviewing the classification given by other authors, the following very simple classification is offered:

Presented at the thirty-sixth annual meeting of the North Dakota State Medical Association at Grand Forks, N. D., May 31 and June 1, 1923.

1. Gastro-intestinal type.
2. Hepatic colic type.
3. Migraine type.
4. "Masked" type.

In the gastro-intestinal type the predominating symptoms are gas and indigestion. These cases frequently start in by finding that one or two foods disagree with them, only to progress to where nearly all foods disagree. It is often difficult to distinguish them from chronic appendicitis and duodenal ulcer.

The hepatic colic type has attacks, more or less acute, of epigastric pain. Most often the pain is near the right costal margin and mid-epigastrium and radiates around the right side to the back or shoulder. When pancreas is also involved, the pain may go straight through from epigastrium to back; however, it is not uncommon for the pain to be in the left epigastrium and radiate around the left chest to the back.

Migraine, the old-fashioned sick headache with vomiting, is produced so often by cholecystitis that this cause should always be considered.

In these three classes discoloration of the skin is common. At first only the sclerae of the eyes and patches about the mouth, temples, or neck, show it. As time goes in and the liver becomes more involved, the sallow complexion may deepen to a permanent yellow or tanned appearance.

The last class of cases of cholecystitis we choose to call the "masked" type. The symptoms complained of often appear to bear little relationship to the gall-bladder. On close questioning some slight symptoms which might be ascribed to abdominal trouble may be elicited, quite often there are none. The only symptom may be intense headaches. Neuralgias are common in such locations as the neck, arms, or pelvis. Neuritis may cause great suffering, or arthritis of many joints, large or small, with marked swelling, may be present. They may complain that they often feel the cold or have chills, or are always tired or are neurasthenic. Increased blood pressure and heart troubles are also found.

The number of individuals who fall into this last group is rather astonishing, and in their way they often suffer as much or more than the easier diagnosed hepatic colic type.

While it is impossible to accurately divide one's cases into classes, as many of them start out as one type and develop into another, and others present the symptoms of more than one type, an attempt to do so was made with the following results: There were twenty cases of the hepatic colic

type, eighteen of the gastro-intestinal, four of the migraine, and six of the "masked" forms. Under the "masked" forms was one severe arthritis, one general break-down, two of neuritis, one of severe headache without other symptoms, and one of extreme neurasthenia who had spent much of the eight preceding years in hospitals and has since gained forty pounds.

Diagnosis begins, especially so in the last type of cholecystitis, with a most painstaking history, and usually only after such focal diseases as pyorrhea, abscessed teeth, and nose and throat diseases are remedied.

After using the Lyon's test for two years we have practically abandoned it. Stomach analysis is also of little value.

The physical examination begins with the observation of the color of the skin and eyes. Tenderness on palpation of the right epigastrium and costal margin is of value and is doubled if there is none in the lower abdomen.

During exacerbations of the inflammation, Murphy's finger-percussion may bring out the local tenderness in a more dramatic manner. I am certain, however, that this method will produce pain in the normal gall-bladder if it is distended with bile at the time and in good position for percussion. To be of value the result must be interpreted in the light of the rest of the investigation. Further, in many cases epigastric tenderness may be entirely absent.

The *x*-ray examination is of great value in diagnosis, but not always in the way that many enthusiastic röntgenologists would have us believe. Just as an example of what is to be found in the literature, Friedman, in a paper on the "Röntgenological Diagnosis of Cholecystitis and Adhesions," quotes Cole as saying "the röntgenologist can recognize and differentiate these conditions with almost the same degree of certainty as can a surgeon at the exploratory operation without a microscopic examination of the specimen." Since we believe that we usually can make a diagnosis of cholecystitis at operation when there have been no *x*-ray findings specific of cholecystitis, no further comment is needed.

Does the normal gall-bladder ever cast a shadow? This cannot be answered with certainty, but if fairly well defined, it is of some value as an indication of disease. Stones may show; more frequently they do not. Adhesions of the gall-bladder to the stomach or the duodenum can often be diagnosed or suspected. But here again our enthusiasm may be parent

to the thought that a duodenum extending upward and to the right must be adherent to the gall-bladder. A hooking up of the colon to the gall-bladder should also be judged conservatively. For while adhesions of colon or its mesentery are often found at operations, they are not always the product of inflammation. A shaded area in the skiagraph in the region of the gall-bladder, a hooking up of the colon, and duodenum, while all being of some value, should be judged very conservatively.

On the other hand, cholecystitis of many years duration may have produced no adhesions. The *x*-ray is then of great importance in a way of negation. If no gastric or duodenal disease, appendicitis, colonic stasis, renal, or ureteral disease is present, and the history is favorable, a diagnosis of cholecystitis can be made.

In the present literature on the subject the gross pathology of cholecystitis with its complications is usually dealt with in a somewhat superficial way. At operation, when gross pathology is present, it can be determined by the examining hand alone. The old scene of the surgeon, standing with his back to the patient, making his examination through a median incision, and quickly reporting the gall-bladder condition, is familiar to us all. This method will not do for the average case of chronic cholecystitis. More frequently, in addition to palpation, careful inspection is needed.

Evidence of the disease should be sought for in the gall-bladder, the glands along the duct, the ducts and pancreas, and the liver.

A flesh color, instead of the blue-plum color, means a diseased gall-bladder and is caused by thickening of the walls. Occasionally fat will produce the same appearance. This thickening can be told more often as our fingers practice comparison with a normal viscus.

Enlarged glands along the cystic duct are excellent evidence of gall-bladder disease, and thickening of the head of the pancreas usually means the same.

A common sign found by us are liver changes. If by chance a surgeon faced an early and moderately acute case, the liver would likely be somewhat swollen, the edges more rounded than usual, and perhaps there would be a slight change of color from the true liver color. This might be somewhat difficult to judge. But in many cases of longer duration liver signs are usually very easy to see and are, in my opinion, diagnostic, since

hepatitis or perihepatitis from other causes present a different picture.

The signs consist of two types. The first consists of changes due to an inflammation of the liver immediately adjacent to the gall-bladder. There may be present a slight grayish cast to the liver surface, which fades out into the normal liver color a short distance away.

The second type consists of fine white interlacing lines on the liver surface. All surgeons are familiar with the appearance of them. In mild or new cases of cholecystitis these may be very few in number on either side and near to the gall-bladder. At other times they are more numerous and extend further away, while in old cases they are often found over to the lateral margins of the liver. Their great diagnostic value is attached, in my belief, to the fact that, if present with a cholecystitis, they are always most numerous about the gall-bladder and grow progressively less as the distance from the gall-bladder increases.

If few in number, these white lines may be limited to the inferior surface only. If they are numerous, the superior surface will show them also. Here, again, in the area directly opposite to the gall-bladder they are most noticeable and progressively become less in number towards the lateral margins of the liver. Whether these white interlacing lines are thickenings of Glisson's capsule where it dips down between the lobules, I am still uncertain, but hope soon to determine.

Sudler worked out the anatomy of the lymphatics of the liver and gall-bladder. Graham showed that disease spread from one organ to the other through the lymphatics. What is more probable, then, than that disease spreading from gall-bladder to liver in this manner should produce liver signs noticeable more in the liver close to the gall-bladder and less so as we examine farther away?

Often at operation we are confronted with what seems to be a normal gall-bladder. To determine the truth, one should turn to the glands and liver.

The pathologic findings, then, on which the diagnosis is made, are changes in the gall-bladder, enlarged duct lymphatics, and liver changes. In the absence to the eye of some of these signs, any one of them can be deemed sufficient evidence of the disease if the case has been studied properly beforehand, and the adjacent organs are normal.

The treatment of chronic cholecystitis is cholecystectomy, and the same holds good for chronic pancreatitis and hepatitis. The method of dissection out of the duct and removal from below upwards is favored when possible by most surgeons since it secures the important structures first and produces the smallest amount of trauma. In the earlier excisions, we used small plain gut for the ligation of the duct. Plain gut easily swells, softens, and stretches, and following its use sometimes a little bile was noticed, especially if a drain was used. We now use No. O chromic. It ties into a small knot and no further leaking has occurred.

After tying the vessels and removal of the gall-bladder, further treatment of the mesentery of the gall-bladder varies with the surgeon.

yet we all peritonealize the stump. Such careful attention to the toilet seems to have worked out well in our cases.

Whenever the operation shows a clean dry field we close without drain. And in all cases we strive by delicate handling and careful attention to details to make it so. This is a great advantage. Recovery is smoother and no adhesions due to foreign bodies follow.

An attack of pain in the epigastrium radiating straight through to back, not around the right chest, occasionally occurs after operation. This is due to pancreatitis and will not recur many times. It is probably wise to mention this to patients.

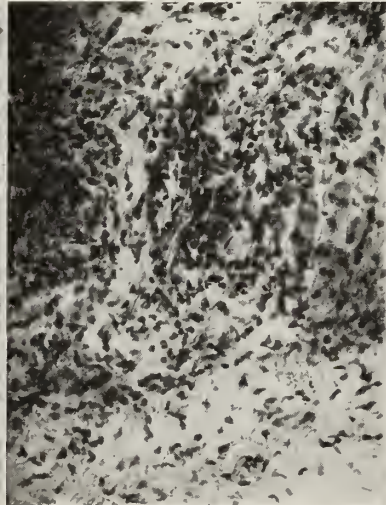
In our forty-nine cases, the abdomen was closed without drains in twenty-nine. With improve-

"Marked Type"

Mrs. M. C. H. Age 27 years. No symptoms but frequent intense headaches. No X-Ray signs of any kind.



Gall-bladder. Marked leucocytic infiltration of deeper layers.



Liver. Moderate leucocytic infiltration in an area of increased interlobular connective tissue.

Richter, who was an early champion of closure without drains, says that he does nothing further. However, we usually cover the stump with a couple of fine plain stitches through the adjacent peritoneum and sew the mesenteric attachments of the gall-bladder with a running or button-hole suture.

It has been suggested that any peritonealization makes a place for the retention of secretions. If the operation is done without any rough handling, each step and stitch made with proper nicety, there should be no secretions. Wyeth's early method of dealing with the appendix by simple ligation and excision is fairly practical,

ment in technic, this proportion of closed cases is now very much higher.

The gall-bladder was examined microscopically and, as previously stated, in twenty-six cases a section of liver was also removed and studied. These specimens of liver were removed sometimes from the right side, an inch or two or three away; at others from the left side of the gall-bladder.

The gall-bladder frequently looked entirely normal, but under the microscopic round-cell infiltration in the submucosa and muscular layers would be found. Even in such cases, the liver changes were usually either easy to determine

or very marked. In nearly all cases where a liver section was made, the microscope showed characteristic changes.

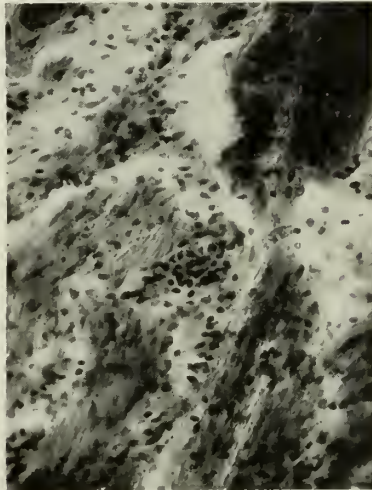
The most characteristic findings in the liver is an increase of fibrous tissue between the

liver changes and enlarged glands. Hepatitis, nearly always to the naked eye, always to the microscope, is present when the gall-bladder is diseased.

Improvement of technic will permit the closure

"Marked Type"

Miss B. H. Age 35. Complaint, General weakness. Nothing in history to suggest gall-bladder disease.



Gall-bladder. Leucocytic infiltration of deeper walls.



Liver. Marked leucocytic infiltration about vessels and ducts with increased fibrous tissue.

lobules and about the vessels, with round-cell infiltration in and about this connective tissue. Other less common findings are round-cell infiltration of the liver substance, hemorrhage, and swollen liver cells.

The value of a study of a liver specimen can hardly be overrated in developing our ability to recognize the true pathology of cholecystitis. Where we doubt the presence of mild hepatitis, a specimen should be taken from close to the gall-bladder or even the bed of the gall-bladder. We are still studying the liver and hope to have more facts to present to you later on.

In conclusion it should be emphasized that cholecystitis with little or no local symptoms and few or no x-ray signs of the disease frequently produces other symptoms that are very distressing or render the patient unfit for the duties of life. Hence we must diagnose these cases when the x-ray shows no gall-bladder signs. We must diagnose them when the local symptoms are absent and the constitutional symptoms big. The gall-bladder when the cause of much illness, may be absolutely normal in appearance; therefore the diagnosis rests on the

of the abdomen in a large percentage of cases without drain and without unpleasant sequelæ, and with greater improvement to the patient.

And, finally, it seems as though the liver has a great power to throw off inflammation and become normal. On the contrary, when once inflammation reaches the walls of the gall-bladder, it is apt to persist and infect and re-infect the biliary tract.

In view of these facts, it is wrong to allow the disease to continue for years until permanent damage is done before advising operation, for then the operation will not always bring the results desired.

To those who may think that the carrying out of these ideas means the unnecessary removal of normal gall-bladders, I would say that the microscopic examination of all specimens will prevent this.

We are still studying the liver and hope to have more facts to offer later on.

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DISCUSSION

DR. AUGUST EGGERS (Grand Forks): The Doctor sent me his paper, and I wish to express my gratitude for that courtesy. There is not time to pass any bouquets, but I wish to pay my compliments to Dr. Weible for his paper, which was very stimulating.

I will not speak of the different theories regarding the possibility of infection from the portal circulation, from the general circulation, and from the liver, but I think it is a wonder that we do not have more infections of the gall-bladder than we do. I agree with Dr. Weible that it is extremely important to make a thorough history, for this will usually solve the question. If he finds tenderness below the right costal arch he can consider the case almost certain. In the cases where the history is negative and where there is no tenderness I do not think it is possible to make a diagnosis.

I agree with Dr. Weible that the röntgenogram is of little value in these cases; I have never found it of any. I have never been able to show shadows of gall-stones. An x-ray of the stomach itself may help in making a differential diagnosis by excluding the diseases of the stomach. When we come to the masked form the diagnosis will depend upon the very fine points which the doctor can only obtain by long personal experience. They are matters of personal equation that we must leave to each individual doctor himself.

In the question of opening the abdomen by exploratory incision, I fully subscribe to the statement of Dr. Rogers. I hate it just as much as he does, and then some. I would never limit the operation under these conditions to an exploratory incision. In those cases indicating possible gall-bladder disease I would not so much examine the gall-bladder as I would the rest of the organs, and if I find them free from disease so far as we can judge, I most certainly would not close the abdomen without extirpating the gall-bladder, even if I found not the slightest evidence of change there. I would most certainly extirpate it in the cases in which the symptoms are so evident as to force us to suspect the gall-bladder. It must be remembered that we not only have to consider the gall-bladder itself, but the cystic duct, and that this may produce symptoms and severe colic at any time. I do not know how aware you are of the fact that the gall-bladder is very sensitive to distention. I had this demonstrated twenty years ago when I was operated on by Professor Kehr in Berlin. He did not remove the gall-bladder, because I had a chronic pancreatitis, and he demonstrated that upon injecting fluid into the gall-bladder the distention caused severe pain up to the right shoulder and the back. As we cannot examine the cystic duct in an exploratory incision I would certainly remove the gall-bladder.

It is well that Dr. Weible came out flat-footed for cholecystectomy. Too many patients have been made invalids by drainage of the gall-bladder.

On the question of drainage I cannot agree with Dr. Weible. I have never been able to get up courage enough to close the abdomen without drainage after removal of the gall-bladder. He speaks of the mesentery of the gall-bladder but I have never been able to find anything that would justify the name of a mesentery, and I never did get a perfectly dry bed. Then, too, we never know how septic the bile is; and it would be very bad to get a septic abscess in such a case.

DR. FRED EWING (Kenmare): Those of us who have heard the discussion to-day have been struck by what appears to be a great difference of opinion as to what we should do in cases of infected gall-bladder. One fellow says if we remove them we clear up our neurasthenia. Another says that by operating we do harm. We begin to think like Hamlet: "To do or not to do." I wonder if the surgeon who removes the gall-bladder of the neurasthenic does not have to follow it up with proper medical treatment, and I wonder if it is not true that, in some cases, no matter what we do, these patients will continue to be neurasthenics. If we could always get perfect results with neurasthenics our offices would be packed continuously.

If for any reason you are examining a gall-bladder how can you determine whether it should be taken out? I believe it is possible to feel a gall-bladder without being able to determine whether or not it should be removed. If we have marked thickening and marked changes in the gall-bladder it is very easy to tell, but when there are slight changes, if the patient has had symptoms of gall-bladder involvement which are distinct and marked, even though you cannot feel much pathology in the gall-bladder, you frequently get good results by removing it.

I want to stress the method of examining and palpating the gall-bladder with the patient sitting up, as Dr. Wilson brought out. If we have a history of definite gall-bladder infection, then we should remove the gall-bladder, even though we cannot feel much pathology in it.

Just a word about taking out a gall-bladder. Every man who tries to take out a gall-bladder should have a big opening. It is obviously foolish to try to take it out through an incision of three inches. There is no harm in a longer incision, and then you can see the ducts and all that you are doing. Bevan after he liberates the gall-bladder, before he clamps off the ducts, changes places with his assistant and goes to the left side of the patient instead of the right. The field is much nicer for that part of the operation. This little thing helps out a good deal.

DR. JOHN T. ROGERS (St. Paul, Minn.): When I was a youngster I used to go out and catch musk-rats and all kinds of animals with the rest of the youngsters of the neighborhood, and we would come in and skin them and put the skin up over a shingle and wait for them to dry. I was visiting a celebrated clinic not long ago where they were removing these gall-bladders. They are not diseased to

the sight and yet the patients have had symptoms, with pain and colic, and the doctor by his examination from behind, which, by the way, was taught me by Dr. Wheaton thirty years ago, has found evidences which he believes indicate removal. A large proportion of the diseased gall-bladders are so far underneath the abdominal wall that it is impossible to feel them, and the palpation of the diseased gall-bladder, unless it has stones or is markedly thickened, is very difficult. This clinic I visited removed three gall-bladders that morning, and they came in stretched over a shingle, and it required an experienced eye to see the spot which they said was the cause of the trouble, and for which they operated. Those are the cases in which I claim it is a crime to remove the gall-bladder.

The symptoms of gall-bladder disease can hardly be distinguished from the cases Dr. LaRose described this morning in the visceroptotic where the pull on the ligaments has dilated the duodenum, and they get exactly the same symptoms.

The last case I operated on was one in which I was positive from the clinical signs in the young woman that she had gall-bladder disease, and yet the röntgenologist, one of the best I know of, came in with the statement that she had duodenal ulcer

or malignant disease, but operation showed a stone in the cystic duct.

The Doctor forgets one thing, and that is that only about 10 per cent of all gall-stones give any symptoms whatever and it is this percentage that we are operating on and trying to diagnose. If the patient is neurasthenic, better leave those stones alone, for you will not cure the patient and you will give her a certain amount of adhesions, and she will start on an abdominal career.

DR. KENT DARROW (Fargo,) closing the discussion: In this paper we were not trying to diagnose gall-stones, but the obscure cases of chronic cholecystitis and to find some means of making us more certain of our diagnosis when we were in the abdomen. We feel that these changes in the liver were quite definite and quite pathognomonic of the disease. (Exhibited a series of lantern slides).

I wish to show that these changes, which we can see with the naked eye, on the liver, these interlacing white lines, are oftentimes diagnostic of cholecystitis when the gall-bladder itself may look perfectly normal. We have examined carefully and feel that these are not neurotic patients and these patients are cured by cholecystectomy.

PROCEEDINGS OF THE MINNESOTA ACADEMY OF MEDICINE

Meeting of October 10, 1923

DR. A. S. HAMILTON, Presiding

The regular monthly meeting of the Minnesota Academy of Medicine was held at the Town and Country Club on Wednesday evening, October 10, 1923. The meeting was called to order by the President, Dr. A. S. Hamilton. There were 29 members and 8 visitors present.

There were no papers read at this meeting, but the following case reports were given.

DR. H. P. RITCHIE, St. Paul, reported a case and showed lantern slide of a bicornate uterus removed by vaginal hysterectomy as follows:

Mrs. E. W., a patient of Dr. Frank Manson, aged 59, the mother of three children, had complained of cystocele and rectocele for several years. For the past year a vaginal discharge led to an examination revealing an ulceration of the cervix so gross as to suggest malignancy. Biopsy proved it to be not so. But the suggestion of operation upon the cervix and cure of the prolapse met with her approval. This was done May, 1923. In view of the ulceration the procedure selected was an interposition operation. The usual steps were accomplished to the bringing down the left horn which, as illustrated, was so small that it was most evident that it would be

of no value as a support. It was then decided that the broad ligaments were better used, so the left ligaments were secured. It was then discovered that there were no right ligaments, but, instead, there was felt a hard body suggesting a malignant infiltration. But in the manipulation the right horn was uncovered to find it the site of a fibroid. Back of this was a movable ovarian cyst of appreciable size. It was not until the right horn was discovered that the conditions were read out. The operation was completed, and the patient recovered.

The features of the case are the following: the lack of symptoms leading to a diagnosis; the fact that this congenital deformity is a mother uterus; the presence of complicating tumors; and the almost exact symmetry of the surgical specimen showing a common cervix.

DR. A. R. COLVIN (St. Paul) reported a case, with operation, of fracture of the anatomical neck of the humerus and dislocation of the head fragment into the axilla.

DR. A. SCHWYZER (Minneapolis) reported two cases, one of carcinoma of the stomach, the other carcinoma of the uterus, both operated on and treated with radium.

DISCUSSION

DR. A. N. COLLINS (Duluth): I feel as though my experience along this line is very limited compared with that of the men in the Twin Cities. I can distinctly remember the case of a man I saw some years ago. He ran a lumber yard and was in thriving circumstances up to the time he came under my observation, at which time he had symptoms of a gastric carcinoma. We went over him carefully and finally decided to do an exploratory operation. At operation we found both walls of the stomach involved with carcinoma and about the same involvement in both, each about three and one-half inches in diameter. I remember searching over the surface of the liver and finding no involvement. I did no further operation except to close him up. I told him quite frankly what the situation was, and he closed up his affairs and went to California. About a year afterwards I heard from him, and he had been touring all over California. About fourteen months after the exploration he died. I feel that we were justified in leaving this growth alone. We have seen two or three not quite so extensive as this since that time. I did do an extensive resection and lost one case after two or three months.

Dr. Schwyzer mentioned the fact that the blood supply was insufficient in the remnant of stomach left after resection. It occurred to me that it was possible to increase the circulation of the remaining stomach wall by scarifying and bringing the omentum around it and anchoring to encourage adhesions.

DR. W. H. MAGIE (Duluth): The doctor's first case brought to my mind a case I had about twenty years ago. It has occurred to me since whether it is not possible for carcinomas to die. I do not see any reason why occasionally they might not die out from natural causes within themselves. I had a case of carcinoma of the stomach involving the lower end, or pylorus. After opening the abdomen, I found it was inoperable and did a gastro-enterostomy. The man got well and lived for more than two years afterwards to my knowledge, and, as far as the tumor was concerned, it disappeared entirely.

The thought comes to my mind if it is not possible occasionally for these tumors to die out. I have had surgeons tell me that they have had similar experiences with patients who were suffering with cancer of the stomach.

DR. W. A. COVENTRY (Duluth): I shall speak largely on the question of radium in Dr. Schwyzer's case of carcinoma of the uterus. If you go over the literature you will find the mortality rate in cases of cancer of the uterus after five years, which have been operated on, is approximately from 85 per cent to 90 per cent. We are switching from the operative procedure and going over to radium. We have given as much as 9,600 mg. in one dose, and it is remarkable the way these cases shrink down until no ulceration or visible evidence of cancer is apparent.

I might criticize one point: the doctor says he uses the cautery and then uses radium. Then he does not know which is doing or has done good, the radium or the cautery.

At a recent meeting I heard Dr. Crile and his associates discuss this subject, and for the last year and a half they have been refusing to operate on all cases of carcinoma of the uterus except carcinoma of the body of the uterus and are using radium and x-ray in other cases of carcinoma of the uterus. The outcome of this will be most interesting to compare the mortality rate from the operative and radium standpoints. The case he reports having treated with radium I would not now attempt to operate on.

DR. H. B. SWEETSER (Minneapolis): I think that Dr. Schwyzer is right in refusing to operate on a carcinoma of the uterus which has receded as this one has, following his application of cautery and radium. Some years ago I had occasion to look up this very subject, and Dr. Lynch, of San Francisco, reported a patient on whom he had used radium with the result that his case, which was inoperable, became apparently operable. He then did a radical operation, and found active foci of carcinoma which had apparently been held in abeyance far out in the broad ligaments, and apparently his operation lighted up an active process, inasmuch as his patient died shortly afterwards from a recurrence. Radium, as we know, has a penetrating influence over a not very large area, and Percy claims that the dull heat which he uses has a far greater penetration than radium. I agree with Dr. Schwyzer that the combined application of cauterization with radium is better than either alone, and this is the method which we use. I have one patient who is still free from recurrence four years after removal of the uterus with cautery and the application of radium. I have another patient who is well three years after such treatment. I do not think we can get better results than this by a radical operation. We can never be sure how widespread the carcinomatous process is, and cutting through apparently healthy tissues may result in disaster. Our radiologist advises that a cautery should be used and that radium be applied immediately following such cauterization.

DR. F. A. DUNSMOOR (Minneapolis) I would say, first of all, that in my opinion it is only those cases which have no glandular involvement that give promise of any hope for a complete cure, and that the only operation which should be made where there is glandular involvement is that made for temporary relief, like an intestinal anastomosis for obstruction.

I am also convinced that the application of the actual cautery is much more likely to produce a cure than the use of the Percy method.

In Dr. Schwyzer's case I certainly endorse his opinion as to the sound judgment exhibited when he used the radium instead of resort to hysterectomy in such an extreme case.

In answer to the doctor's question as to an opinion regarding the cause of the slough or necrosis in the stomach following the removal of the cancerous growth, I will say, it is quite possible that the incision for the anastomosis on the anterior surface of the stomach may have shut off some of the blood supply at the site of the original operation, and Dr. Schwyzer may have gotten a better result had he

made his anastomosis on the posterior side of the stomach.

DR. E. S. JUDD (Rochester): Dr. Schwyzer, in reporting these cases, has brought up some interesting and important points. The question as to whether radium or the cautery will ever convert an inoperable condition into an operable one was brought out both in the case of malignancy of the stomach and that of carcinoma of the cervix. Our experience makes us feel that if we start to treat malignancy by radiation or the cautery, it is probably better to continue with that line of treatment than to institute any surgery.

The stomach case was interesting, though it is probably similar to cases reported previously. In a few instances we have made an exploratory incision and found what we thought to be an inoperable malignancy of the stomach and had the patient live a considerable time afterwards—long enough so that we questioned that the lesion was really malignant. I doubt very much whether the change produced by radium would make the condition operable, and that the man could be benefited by removing the lesion at this time. I doubt very much from Dr. Schwyzer's description but that his case was malignant.

When we first began to treat malignancy of the cervix with the cautery we had the patient come back later after the ulcerated and burned surface had healed and at that time removed the remainder of the uterus by a total abdominal hysterectomy. We have also carried out this procedure in quite a number of cases in which the malignant ulcerating surface had been healed over after the use of radium. In the first place we often found that there was no demonstrable evidence of malignancy in the uterus after the carcinoma of the cervix had been destroyed by the radium. This, however, did not mean that the malignancy had been eradicated as it frequently sprung up later in the lymphatics. It, therefore, seemed that we were operating on these cases unnecessarily. We also found that the abdominal operation was difficult to perform as it was necessary to expose the ureters and the base of the bladder.

As I stated before, I think our experience rather justifies our feeling that it is seldom if ever that the inoperable lesion is converted into an operable one by radium or *x*-ray.

DR. A. T. MANN, Minneapolis, reported a case of ulcerating carcinoma of the right breast, as follows:

Mrs. T., aged 47. Operated on five years ago, still living. Cancer paste had been used on her by a quack, and when I saw her first she had a raw red granular mass two by two and one-half inches in the upper outer quadrant, reaching across the midline of the breast. The mass of the tumor seemed to extend into the breast tissue about three-fourths of its thickness. The axillary glands were palpable but not large. It seemed almost a forlorn hope to operate on her. A complete breast operation was done, however, five years ago. There were secondaries in the axillary glands and in one close below the clavicle against the main vein where it runs

through under the clavicle. Microscopic examination showed an adenocarcinoma. The wound healed nicely. She was given a course of *x*-ray and radium treatments. About one year later small secondaries appeared at or near some of the stitch-marks, from pinhead to a little larger in size. She was again given a course of *x*-ray and radium. The nodules disappeared, and she remained well for over a year and a half when they again appeared and were again treated as before. About nine months ago two or three very small ones appeared in the same place. These were again treated, and they disappeared. At the present time she is apparently well. After the second *x*-ray and radium treatments distinct edema of the arm of a moderately good size showed up, though she had had a slight edema before. This has grown somewhat better, but still persists.

How long she may stay well, or whether further secondaries may come, I do not know. Now at the five-year period she seems well.

The *x*-ray and radium do not kill all the cancer cells. They kill some of the cells, and they stop the growth of others. These weakened cancer cells no doubt become hedged in by scar tissue. Some of these weakened cells may be so hemmed in by the scar tissue that they are not able to go on increasing, but lie more or less dormant. Other groups of them, after a longer or shorter period of time, months or years, gradually gain enough vitality to become active, to grow into and through this tough surrounding scar tissue and show up as late secondary cancer growths. Further radium and *x*-ray treatments repeat the periods of the death of some of the cancer cells and the stunted and retarded growth of others. This explains the necessity of keeping the cases under long periods of observation so that if these secondary growths start to grow they may be seen, and the treatment may be repeated so that there may be another period of quiescence, but also with the hope that finally the growth may be stopped altogether. What has been said about the weakened vitality of some of the cancer cells after treatment and their later encystment in scar tissue, explains the reason why a late secondary operation may start a rapid and unexpected growth of the cancer, which may be disastrous to the patient, by cutting through some of these scar areas and liberating a few cancer cells into fresh tissue where they can have abundant nourishment and grow with great vitality.

DISCUSSION

DR. SWEETSER: I assume that Dr. Mann believes, as we all do, that radium inhibits cancer cells, and in this connection I would like to relate an experience in a case where radium was not used.

Twelve years ago I operated on a woman for cancer of the breast, and she remained without recurrence until about two year ago. At that time, coming downstairs she bumped the scar against the newel post, and very shortly a cancerous nodule appeared in the scar. My query is, Were cancer cells there from the time of the primary operation, which had become encysted in the scar tissue and had remained latent, and did the trauma stimulate the dormant cancer cells that might have been there? or was this a new cancer occurring in a patient

with a predisposition, coming there as a result of the trauma?

DR. L. C. BACON (St. Paul): A case which I saw many years ago may help to answer Dr. Magie's question, "Whether cancer cells die?" A woman came to me with a large nodule under the pectoral margin in the right axilla. She gave me a history of having a lump in the breast some months before and that the lump had disappeared. At the operation the mass in the axilla gave the impression of being a carcinomatous lymphatic, and the fact that there were many lymphatics made me quite certain, and I removed the breast at the same time. The pathological examination showed that the nodules in the axilla were cancerous, but that the breast was absolutely free from cancer cells. At the outer portions of the breast we found some scar tissue, but at no place in the breast were we able to find any carcinomatous cells. The cancerous growth in the axilla must have originated in the adjacent breast, and it is quite certain that the primary growth had disappeared.

DR. A. E. BENJAMIN, Minneapolis, reported the following case:

I wish to report a case of interest. A child, 8 years old, who came with a history of having abdominal pains for six months with ascites gradually developing to such an extent that the abdomen was very tense. The patient was very anemic, vomiting considerably, the bowels alternating between diarrhea and constipation, with some enlargement of the right testicle, and the x-ray showed great dilatation of coils of intestine and a shadow,

possibly an enlarged spleen. A large area of dullness showed that the spleen was enlarged.

It was apparent that owing to the obstruction of the bowels something had to be done. Pre-operative diagnosis was possible sarcoma of the spleen with ascites.

Operation was done to drain off the fluid and relieve obstruction. We found a spleen four or five times the normal size, with many adhesions throughout the intestines, and bloody serum. Part of the omentum was removed for diagnostic purposes, some adhesions broken up, and a drain left in. I gave the parents an unfavorable prognosis. Deep x-ray therapy of 200,000 volts in three treatments was employed. The operation was about two months ago, and the x-ray treatment followed shortly after that. Two weeks ago I saw the child with a much-changed appearance. He was a little anemic, but the abdomen had flattened out almost entirely. He was eating three meals a day. He still complained, however, of pain over the right testicle, which was considerably enlarged and tender. We operated and removed what appeared to be, macroscopically, a sarcoma, and, microscopically, was found to be round-celled sarcoma. The child did very well, and went home in about a week's time and apparently in perfect condition.

I do not think I have ever seen such a change in the appearance of a patient in so short a time, but I cannot hold out a very favorable prognosis. I think that metastatic growths are likely to occur in other parts of the body, and I would like to know if that is the opinion of others here.

—J. E. HYNES, M.D.
Secretary.

CLINICS*

AT THE

SURGICAL AMPHITHEATRE, OF COOK COUNTY HOSPITAL

CLINIC No. 1

By FREDERICK G. DYAS, M.D., F.A.C.S.

CHICAGO, ILLINOIS

CASE I—CHRONIC APPENDICITIS

History: This patient is twenty-five years of age and for the last year has been subject to attacks of pain in the right lower fossa, accompanied by nausea, vomiting, tenderness on pressure, and slight elevation of temperature. In connection with these attacks of pain there has been difficulty in using the right leg, although not to the point of completely incapacitating the patient. These attacks have increased in frequency and severity until the present time.

Her previous history is without anything of importance. Menstrual history shows that it is of the twenty-eight day type and regular, and that the last period was two weeks ago. It is very necessary in women of this type to go carefully into the menstrual history, for frequently women who are pregnant will endeavor, under one pretext or another, to have an operation performed in the hope that it will terminate pregnancy. We all know that abortion frequently follows laparotomy. It does not always do so, but the laity believes it will, and some women will submit to operation if they wish to interrupt

*Presented at the annual meeting of the Soo Surgical Association.

the pregnancy. A good menstrual history should tell every detail and especially the date of last period.

In a history such as this, appendicitis is the likely thing. But patient complains of pain in the right leg and difficulty in walking. Could there be any connection? Yes, there could very easily be a connection and often is. While in the army I operated for appendicitis in a case which had previously been diagnosed hip-joint disease. The man entirely recovered following the removal of his appendix. I remember one case in which a friend of mine removed an obliterated appendix with nothing but a fibrous cord in a nervous, emaciated, and anemic woman. He was terribly chagrined at the operation because his diagnosis of acute appendicitis was wrong. In a short time, however, the woman had put on forty pounds in weight. She had only an obliterated appendix, and yet the removal of that fibrous structure completely restored her health. When we bring the condition down to its last analysis, the patient suffered a disturbance of the physiology of the intestinal digestion due to pain brought about by the constriction of the appendix. Therefore a chronic fibrous appendix may often give rise to a great many serious symptoms. The same thing may happen in the case of a small ventral hernia. I remember a case reported by Dr. J. N. Hall, of Denver. The patient had gone the rounds and had been treated by many men, who diagnosed the condition as gastric ulcer. Dr. Hall discovered a small ventral hernia, which pinched the peritoneum and caused pain. When that was removed the patient's symptoms all disappeared.

Operation.—In operating upon women it is always advisable to use either a median or rectus muscle splitting incision because of the frequency with which one encounters pathological conditions in the pelvis. Personally, I prefer a rectus incision also in the male, because of the facility with which the entire abdomen may be explored. It will be remembered that at one time the removal of the appendix through a button-hole incision was considered a mark of great surgical dexterity. It is apparent to every one now, however, that such surgical practice is wrong, in that it is blind surgery and leaves the operator absolutely in the dark as to any further pathology within the abdomen. The patient's life is no further hazarded nor his convalescence prolonged by making an incision large enough to insert the entire hand into the peritoneal cav-

ity for the purpose of palpating or inspecting all of its contents. One may often save a considerable amount of time and trauma to the viscera by bringing the appendix up by first locating the cecum. Operators frequently search for many minutes to find the appendix when they could bring it up immediately by first sweeping the hand to the extreme limit of the right posterior part of the peritoneal cavity and bringing up the cecum, then following down the white line which is characteristic of the large bowel until the appendix comes into view.

Removal of the appendix is usually done by clamping the mesentery and tying it off; however, it is very probable that considerable post-operative pathology is brought about by burying the ligated stump of the appendix in the wall of the cecum. It is better practice to invaginate the stump after surrounding it with a purse-string suture but without ligating it, or after ligating it and cutting it off very short to carbolize it and then cover it with the remains of the mesoappendix. The latter method is the one we will use in this case. There is no further pathology in the abdomen and it will therefore be closed in the usual manner, without drainage.

NERVE BLOCKING FOR CHRONIC PAIN

We had hoped to show you nerve blocking, but did not have any cases on hand in which it could be used. I will, however, say a word or two about this method of controlling chronic pain, because I believe it is something we are all going to use more or less.

In cases of recurrent, inoperable carcinoma or sarcoma in which morphin cannot control the pain, the situation is just about unbearable to the patient. In these cases, especially in carcinoma of the breast, the patient goes around carrying the arm on a pillow because of its weight and size. Those patients can be made comfortable with nerve block of the brachial plexus with novocain. The brachial plexus is reached at the point where it passes under the clavicle. The needle is inserted until the patient feels the sensation down the arm. As much novocain is then injected as is necessary to control the pain. It is true that this does not control pain in the thorax, but if, in addition, the intercostal nerves are blocked close to the spine, which is easily done, the whole area can be rendered painless. I believe in time to come this will be the means of controlling chronic pain. A superficial lesion can nearly always be

healed over by radium, and this controls the local pain, as in carcinoma of the tongue. The metastases remain, of course, but the patient is comfortable. In controlling pain in superficial lesions about the orifices of the body radium is practically specific.

I believe the progress that is now being made in the investigation of the etiology of cancer is going to result in something definite, perhaps before a great while. There are certain great truths that have been discovered, as the change in the chemical reaction of the tissues and fluids of the mouth in epithelioma. In pyorrhea and other chronic infectious diseases of the mouth, the reaction of the tissues and juices becomes acid instead of alkaline, as normally. As one goes down the alimentary tract the incidence of carcinoma becomes more rare. It is common in the stomach, particularly in the more acid portion of the stomach, the pyloric region. For a considerable distance below the pylorus carcinoma is very rare, but it again becomes increasingly more common as the rectum is approached, and at that point the secretions are acid. This is something that cannot help but impress every one of us. Is there an acidosis that comes on with the decline of the activity of the ductless glands—the time when cancer commences? And yet to refute that theory, the reaction of the vaginal secretions does not correspond. Possibly this question may have something to do with the type of secondary infection that occurs in cancer of the vaginal canal.

CASE II—RIGHT CERVICAL ADENITIS

History: R. Z., female, came in with a diagnosis of cervical adenitis. Present complaint is swollen glands of the neck, this condition having existed for four months. She states that about four months ago she noticed pain when she washed her neck on the right side, but there was no visible swelling. Since then the glands have been getting larger and larger and causing a pinching pain at night, but none whatever during the day. A physician lanced the gland twice within three days about two weeks ago, then gave her some salve. At present the gland does not pain so much, but is larger than before. She states that only blood came out when the doctor lanced it, and that there was subsequently only a little "matter" discharged at night.

General history: No history of trauma to the neck; no dysphagia; no change in the voice.

Since this was written there has been a change in the voice. Cough was present two months ago, but is not now. It showed no increase at any particular time of day, and was productive of thick yellow sputum. No night sweats; no chills or fever; no pain in chest or abdomen; no hemoptysis.

Past history: Pneumonia at two years. Constipation. Urinated three or four times a day, nocturnally three times a night since the onset of the present complaint. No burning, no dysuria, no incontinence. Venereal disease denied. Menstruation began at 12, every month lasting two days; no pain, but not regular; last period, September 20, 1921.

Family history: No history of tuberculosis or glandular disease.

Physical examination: A well-developed but rather anemic white girl, who was large for her age, and does not appear severely ill. Temperature, 100°; pulse 100; respirations, 22. Head examination negative. Neck: large tumor about the size of a hickory nut is present in right supraclavicular region extending above the skin and surrounded by an areola of thin scar tissue, and the surrounding tissue is infiltrated. Tumor is brownish in color, and there is a bloody discharge. The chest shows fair expansion, no increased fremitus, no area of dullness, few râles. A slight increase in voice sounds over right upper lobe posteriorly. Heart apex at 5th interspace. Borders, normal; no murmurs. Abdomen: No tenderness or rigidity. The liver, kidneys, and spleen are non-palpable. Reflexes, negative.

Diagnosis: Right cervical adenitis of undetermined etiology.

Presentation of patient:

X-ray examination showed that evidence of malignancy of the clavicle was not obtained. There is an unusual round soft tissue shadow above the inner half of the clavicle. (Patient stands.) This is an indurated mass which shades off gradually into the surrounding tissue. It has a frozen-in sensation to the palpating fingers, which is familiar to all of us, and it is growing very rapidly. I saw the patient day before yesterday, and her appearance has changed very much since that time. She also has a moderate goiter. A marked huskiness indicates that her recurrent laryngeal nerves are probably being compressed.

Of course, the first question that comes up is the pathology. In practice you cannot begin

with the etiology; you have to go along with the pathology and symptoms. The things the patient is interested in are, first, the prognosis, and then the treatment. (Dismisses patient.)

The tumor is probably a periosteal giant-celled sarcoma, originating from the glands of the clavicular region.

The question is what to do. If one could only have the same results that Coley has with his fluid! I am not criticizing the results. I merely state as a matter of fact that those who have written on the subject of the treatment of sarcoma by these different strains of bacteria injected in and around the tumor, have not had the brilliant results that Coley reports. That is a plain statement of fact. His reports in many instances have been brilliant to say the least.

I do not believe that surgical intervention is indicated in this girl. I do not know what to do—there seems to be no limit to the process. The sarcoma cells are, I believe, beyond the reach of surgical intervention. The next thing is to employ *x*-ray or radium. Whether or not one is justified in resorting to the treatment of Coley I do not know. I have seen severe reactions follow injections of these various strains, and it is a very serious question. However, it is awful to let a patient go and say nothing more about it. But this I do want to say: I believe we have just touched the surface of the science of chronic infections. With the single exception of the tubercle bacillus, those organisms which produce acute self-limited diseases are the ones easy of cultivation, easily detected under the microscope and easy to stain, and they were all easily brought under the category of Koch's law because they were big, strong, virile organisms. As time goes on we are gradually bringing into the category of chronic infections, all those pathologic states which spread by lymphatic involvement. The organisms that cause these chronic conditions are not easy to cultivate, or classify. Generally speaking, they produce no temperature until there is a breaking down with secondary infection. Take, for instance, the organism of syphilis, which was one of the last to be discovered. We all believed that syphilis was caused by a germ, but it was a difficult organism to cultivate, and to find under the microscope, and yet it lived in the tissues over long periods of years, lulling the patient into a sense of security, and then, when he thought he was past his troubles, the lightning would strike. I am speaking of this now to

justify the belief that cancer is caused by an organism. I cannot see it any other way in the light of physiology and pathology. I believe the organism of cancer can only grow in a soil previously prepared. Hodgkin's disease is now generally conceded to be caused by an organism, although it is true there is discussion as to the specificity of the organism. Yates and Bunting have prepared a serum with which they claim to have had the same results as with the Coley serum in sarcoma. Others have not had the same results that the discoverers have had, yet while there is a discussion as to the particular type of organism that causes Hodgkin's disease, there is little discussion as to the fact that some pathogenic organism is causative.

So I believe that sarcoma, carcinoma, and Hodgkin's disease, and many other conditions which we were taught belonged to the section called "Diseases of Metabolism", are rapidly being brought into the section of chronic infections. And I believe we will find methods in bacteriology whereby we may grow and detect these low-grade organisms, that we will after a while be able to classify them with the same accuracy that has been obtained in the classifying of malaria. Osler stated that malaria was the one entity in all medicine that everything was known about, and it is to be hoped that many of these other conditions which now seem so obscure will be brought into the same category.

Question: How about radium—what will it do in this case?

Dr. Dyas: Just use plenty of it, that is all. I would not have much faith in it as a curative agent in the case shown here, but it will probably limit the pain and swelling and make the patient more comfortable.

CASE III—LYMPHOSARCOMA OF THE GLANDS OF THE NECK

History: This woman, aged 56, came in complaining of swelling of the neck on the right side, pain in the throat, cough, inability to eat solid food. Four months ago she was perfectly well, then gradually began to complain of swelling in the neck followed by difficulty in eating. The swelling increased very rapidly, then subsided, increased again, but disappeared entirely about 1-1/2 months ago, and has been larger than it is at present. Loss of weight has been marked. No night sweats. Pain extended into the sternum and down into the abdomen. Her medical history is negative. No history of lues.

Family history obscure. She has four sons and four daughters living and well. Very anemic, and markedly emaciated. She has normal temperature, pulse 96, respiration 22. Blood pressure: Systolic 180, diastolic 70.

The Mouth: Marked enlargement of the right tonsil, which is stony hard and somewhat pedunculated, interfering with respiration. The surface is rough and hemorrhagic.

The Neck: In each side of the neck extending into the sternocleidomastoid muscle and upward into the parotid gland, is found a new growth which is stony hard and immobile. There is a small scar in the right side which looks as if the tumor might have been incised. Supraclavicular glands are large and firm, but are movable, as are the axillary glands.

The chest is negative. There are a few coarse râles posteriorly near the bases of the lungs. There is a systolic blow at the apex not transmitted. Pulmonic second sound not accentuated.

The Abdomen: Continuation of mediastinal dullness extends down a few inches below the umbilicus. Liver dullness extends down about two inches beyond the costal margin.

(Presents patient.)

This lump on the right side is very hard, as described in the history. The posterior aspect of the neck shows an unusual conformation. Why might that not have originated as an infection of the tonsils? It came on once, subsided, then returned, and again for the third time. I believe if we knew the truth that is what it would prove to be.

As to the treatment, in my judgment it resolves itself into the same problem as in the other case shown. I do not see that anything in the way of operative procedure would indicate what could be done. I believe this is a lymphosarcoma of the glands of the neck.

BOOK NOTICES

DISEASE OF THE RECTUM, ANUS, AND COLON. By Samuel Goodwin Gant, M.D.; LL.D. New York City, Professor and Chief of the Department of Diseases of the Colon, Rectum and Anus at the Broad Street Hospital Graduate School of Medicine; formerly Professor of Diseases of the Colon, Rectum, and Anus, New York Post Graduate Medical School and Hospital. Attending Proctologist to the Broad Street and Harbor Hospitals; Consultant to the Joint Disease, Huntington Jewish Memorial and Hackensack Hospitals and

Sing Sing Prison. Philadelphia and London: W. B. Saunders and Company, 1923.

This new work by Gant is by far the most exhaustive work thus far devoted to the subject of proctology. There are over fifteen hundred pages of text in the three volumes and it has been unnecessary to omit any details as is usually the case where the author endeavors to cover the subject in one volume.

Practically every known method of treating in any of the conditions seen by the proctologist is described, or at least mentioned in this text. The portion of the text dealing with malignant growths and with surgery of the large intestine is especially good. The only criticism is that it is written in the somewhat dashing style of Dr. Gant with some disregard of detail.

The section on fistulas is very complete and well illustrated as is also that on hemorrhoids. In dealing with hemorrhoids the writer of course is governed by his own personal experience and ideas. The reviewer feels that the so-called non-operative or ambulatory methods should have been given more space. He feels that these methods are growing in importance and deserve careful consideration. This, however, is entirely a personal feeling, and as was before said the section on hemorrhoids is excellent.

To one who has some knowledge of proctology the work is of immense value, for there is little left to be said. To the general practitioner who does not have the time or desire to digest the entire subject of proctology a smaller, more compact volume, except for reference, is probably more suitable. It is a monumental work and one which should be well received by Proctologists and surgeons generally.

—W. A. FANSLER, M.D.

HOW WE RESIST DISEASE: An introduction to Immunity. By Jean Broadhurst, Ph.D., Assistant Professor of Biology, Teachers College, Columbia University. Cloth. Price \$2.50. pp. 248. 138 illustrations. Philadelphia: Lippincott Company, 1923.

This book, as stated by the author, is designed as a brief introduction to the exceedingly technical and apparently limitless field of immunity, and has been prepared with special reference to nurses and general college students, the needs of medical students being already well met by several excellent and comprehensive text-books on bacteriology and immunology. It presents the modern conception of the principles and the practical applications of immunology in as elementary and non-technical form as is possible.

The relation of bacteria to disease and the various ways in which bacteria may produce effects upon the body are clearly presented. The strict acceptance of Vaughan's theory of split-proteins as the toxic agent in most infections would meet with much support but some criticism. The pages devoted to a discussion of ptomaines as cause of disease are hardly justified in view of the recent work of Rosenau and his colleagues.

The natural defenses of the body against infection by bacteria and the importance of keeping the body

in the best of physical condition are well explained. Well-chosen illustrations accompany this chapter, as well as most other parts of the book.

The various manners in which the body may react to infections are nicely tabulated and discussed. Such parts of the theories of immunity as are necessary for an understanding of the processes of immunity are included, diagrammatic representations being inserted wherever these add to understanding of the theories. In the consideration of toxins and antitoxins well-chosen practical applications are emphasized. The possibilities of the Schick test and toxin-antitoxin immunization against diphtheria are clearly set forth.

In various chapters the parts played in combatting disease by agglutinins, precipitins, opsonins, lysines, and white blood corpuscles are fully discussed and illustrated. Laboratory procedures and clinical tests are explained, but the details of technique are omitted. These chapters especially can be studied with profit by medical students in connection with courses in bacteriology.

The merits and shortcomings of the several methods of producing vaccines and therapeutic sera are analysed. With most of the opinions given as to the values and the practical uses, of vaccines and sera, one can heartily agree, but a few statements, such as those concerning streptococcal sera and vaccines, might better be modified until there is more careful scientific evidence as to their value.

The chapter on anaphylaxis is an unusually lucid presentation, in simple form, of the general facts and various theories of this condition. The relationship of anaphylaxis, or hypersensitiveness, to immunity is pointed out and clinical applications of our knowledge of anaphylaxis are made to the diagnosis of disease and to the treatment of such conditions as hay fever, and asthma.

On the whole, the facts presented in this book are scientifically accurate, but a few statements are encountered which are incorrect, or at least unjustified in view of our present knowledge. Among these might be mentioned the following: first, "when bacteria do penetrate this thin alveolar membrane (of the lungs) they find themselves immediately in the blood stream, in contact with white blood corpuscles and special blood antibodies;" second, "organisms from a localized site or focus may find their way into the blood stream. This is true in diphtheria;" and, third, "Our own army used a triple vaccine containing typhoid, paratyphoid, and dysentery organisms." Also a few interesting, but rather novel explanations for well-known conditions are offered; for example, the fact that worry, fatigue, exhaustion, etc., decrease the resistance of the body is explained as follows: "lack of food, due to actual deficiency or to incomplete digestion, related to overwork, fear, worry, etc., may leave unsatisfied and unoccupied cell affinities or cell combinations by which toxins or other bacterial products may enter the cell."

Another criticism which might be offered is that the work is too extended for the students for whom it is intended. How it could be shortened, however, without omitting essentials, is difficult to say.

Even considering the minor inaccuracies, which are introduced chiefly as illustrations, the book as

a whole is certainly an interesting and easily understandable presentation of the important facts and theories of immunity. Physicians, as well as nurses and college students, will find it helpful in understanding phenomena with which they are constantly dealing.

—H. S. DIEHL, M.D.

PAPERS FROM THE MAYO FOUNDATION FOR MEDICAL EDUCATION AND RESEARCH AND THE MEDICAL SCHOOL. The Graduate School of the University of Minnesota. Volume II, 1921-1922. Philadelphia: W. B. Saunders Company. 1923.

The book is a collection of papers most of which were submitted by the fellows of the graduate school of the University of Minnesota as theses for the Master's degree or Ph.D. It contains seven hundred and sixteen pages of excellent material which would be of interest and profit not only to the general practitioner but also to the specialist. It is divided into eleven sections each section taking up papers involving work in a certain group of organs.

With very few exceptions the articles are written in an abridged or abstract form. A good many of them have been previously published in other journals and are reprinted in this volume in a condensed form.

There is such a vast amount of interesting and profitable material that one would do an injustice to the book if he discussed only a few of the articles; special mention, however, must be made of the excellent papers of Dean E. P. Lyon, Dr. C. M. Jackson and Dr. L. B. Wilson on medical education.

—W. JOANNIDES, M.D.

THE TONSILS: FAUCIAL, LINGUAL AND PHARYNGEAL. By Harry Barnes M.D. Illustrated; second edition. St. Louis: C. V. Mosby Company, 1923.

Those familiar with the first edition of this book will welcome the new edition. It is a compact volume of 200 pages, devoted exclusively to the tonsils, as subject of much interest to medical men as well as to the specialist.

There is much written on the tonsils, but this volume appeals to the essayist for its completeness, and at the same time its brevity.

The anatomy, histology, pathology, and bacteriology are thoroughly covered by one-hundred pages. The indications for their removal and the different methods used are all given proper explanation. Also radium and x-ray for reducing hypertrophy of the tonsils are given as a method, but not as a substitute for the removal of focal infection.

The essayist feels that local anesthesia as a method for removal of adults' tonsils should have a more important place in the book.

The author gives illustrations for sewing the pillars, either with sutures or Michel clips. The objection raised by most specialists to this technic, is the fear of adhesions of the pillars or danger of aspirating metal clips.

The book is well bound, and the best paper and type are used. It is very well illustrated with about forty-five cuts. It is a book that can be highly recommended.

—E. A. LOOMIS, M.D.

THE JOURNAL-LANCET

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North Dakota and South Dakota State Medical Associations

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MANY, MANY MEDICAL MEETINGS

Dr. Wm. House, of Portland, Oregon, in the A. M. A. Bulletin, has a very timely short article on the question of medical-society meetings, and he dilates on the numerous demands made upon doctors to attend some sort of meeting almost weekly or not infrequently bi-weekly. The situation is really growing beyond the scope of the average medical man and has gotten to a point where it is questionable whether the average physician will be able to keep up his interest in medical societies or even his interest in medicine. And yet he must have some outlet for his written or oral expressions; he must have the benefit of discussion with others of his kind. But he lives in the sea of medicine and not infrequently flounders helplessly therein. He is trying to divide his attention between his obligations to the American Medical Association, his own state medical society, and, what is very important, his own local county society. Aside from this he is led into temptation to join one of the many special societies, if he lives in a large city; and, to add to his labor, if he is on the staff of a hospital, he is obliged to attend a certain number of staff meetings each year in order to help "standardize" the hospital. One query at this point is, how long does it take to standardize a hospital, and when once standardized can there be a legitimate excuse for not attending many of the meetings.

If he is a teacher he gives from two to four hours a week in instructing students in medicine; he spends some time at a dispensary; he makes the rounds of from one to three or four charitable institutions which maintain dispensaries, and yet he does it uncomplainingly because he knows he is doing his duty to the public. What does he get out of it? Experience; and experience, after a time, leads him to become more or less of an authority. Then he acquires wisdom and becomes a leading man in his community, but all the time suffering under the pangs and misfits of too many medical meetings.

The remedy lies in the selection of two or three as a choice with the possibility of two or three other national societies as a consideration. He must attend his local county society. That he should obligate himself to do under all possible handicaps, unless his duty calls him into the field of practice. He should attend his state association because it is the attendance and the men who are most interesting to hear and to discuss papers that are making the state association worth while. At the present time it looks as if the state association were slumping, that is, considering various state associations. The attendance is a matter of form and not infrequently a matter of attending a social function. Then, too, he should look forward to the American Medical Association as his probable goal, unless he is convinced that all of these societies must change their method of imparting information—must be more practical and less didactic; must be clinical rather than theoretical.

If he is a man in a specialty, he probably will attend some American association in which he is especially interested, and where he will hear the opinions of medical men of large experience or meet and see them in a social way. These outside meetings, both the state and the A.M.A., as well as other American societies, require time and money, the absence from business, and the possibility of trouble during absence. The average doctor has very little time to read. After a day of hard work, with many troubles and problems to contend with, he is tired, and he probably wants to go home and go to bed and read something that is entertaining rather than educational; but he is not permitted to do that very often because the chances are that his family will demand some attention, which the poor tired doctor is willing to give, but frequently is unable to make his presence known.

There must, and probably will, be a radical

change in the conduct of meetings of medical men whereby more substantial information can be imparted, more practical results obtained, and less of the theoretical side of the medical problems given. The medical profession is in much the same state as the nations who are at war—they are discussing things, but they arrive at no result. This is the situation at present.

FAKE MEDICAL DIPLOMAS

The editor had almost reached a point where he began to rely upon his belief that medicine was improving; that medical students were being better educated; that there was more honesty and uprightness among medical men. But to his dismay he was told that the fee-splitting system is still the order of the day; that it is still popular among men in the country; that it has not been crushed, but is again gaining in favor, probably in part because there are so many so-called medical centers that rely upon adjoining country contributory to them; that there is so little money in the country for the doctor that his associate feels he must in some way compensate the man who has brought him a case. Perhaps the practice is more universal than we suspect, and yet we have been led to believe that there is much less fee-splitting than there used to be.

And now comes the astounding information that spurious diplomas can be obtained at various headquarters, and the headquarters named in the press connect St. Louis and Kansas City and call them the fountain-head of fake diplomas. At all events, an investigation has been going on in Hartford, Connecticut, where a number of purchased diplomas were found, and the so-called physicians were called upon to appear before the grand jury and report upon where their diplomas were manufactured and how they succeeded in getting them. It also cites the effort of a former photographer in St. Louis who took a case of a laboring man and decided that amputation of the finger was necessary and had one of the other laboring men give the patient an anesthetic. The second laboring man, under the suggestion of the so-called photographic surgeon, used up three cans of ether. The outcome of the case was finally decided upon by the coroner.

It seems almost incredible that these "joints" are still in the country, unlocated and unprosecuted. We certainly have a sufficient number of Class A medical schools to educate medical students. But the time is long; it takes from five

to seven years to acquire a diploma, whereas it requires a few dollars to purchase one. No wonder the country is infested with non-medical healers. No wonder the people are indifferent because they are uninformed. And it is no wonder at all that when the people are informed or educated, or any attempt is made to educate them that they decline with thanks. So long as they feel that way about it, why not let them go on and reap their own harvest? There are a few people in general and low widely diversified are the ex-eral who really have some intelligence and who can be educated, but the majority can only stand a little in the way of reading, writing, and arithmetic—perhaps sufficient to put them on their feet in order to maintain a livelihood. They, of course, acquire knowledge and wisdom as the years go by and their experience increases, if they can think at all. But the rest of the people, those who do not think and who do not want to think, are the most credulous things on earth, and they will accept anything in the way of a theory or a remedy without hesitancy.

FEES, MEDICAL AND LEGAL

An evening newspaper of November twelfth contained the statement of the fees in the celebrated Wm. D Stokes case. Mr. and Mrs. Stokes are, and have been, very much interested during the past five years in a rather spectacular divorce suit; and apparently, from the decision of the court and the jury, Mrs. Stokes has, so far, won out. The account estimates that the Stokes' fight cost reaches \$1,320,000, and thus far no one has won in the case except the lawyers. The items which follow show how much and how widely diversified are the expenses and fees in a case of this kind.

Alimony, five years at \$18,000 a year.....	\$90,000
Stenographers minutes, all trials.....	60,000
Max D. Steuer, retrial of divorce.....	250,000
Herbert Smythe, first divorce trial.....	40,000
Francis L. Wellman, first divorce trial.....	40,000
Milton Cohen, associate counsel dower case	15,000
Isadore Gainsburg, dower trial.....	75,000
Albert H. Gleason, dower trial.....	35,000
Nugent & Nugent, attorneys of record	
divorce	75,000
Expenses, private detectives, investigators	80,000
Expended by Stokes in Chicago investiga-	
tion	100,000
Limousine for Mrs. Mattie Johnson con-	
fidential aid	2,500
House at 45 West One Hundred Twenty-	
seventh street for Mrs. Johnson.....	35,000
Endowment Mrs. Johnson's spiritualist	
church	10,000

Traveling and boarding expenses of witnesses	30,000
Legal expenses, Martin Littleton, attorney for wife.....	25,000
Samuel Untermyer, defense counsel in divorce retrial.....	30,000
Depositions in other states, allowed wife by court.....	2,500
Approximate cost to prosecute appeal, dower case.....	50,000
Other appeals from decisions adverse to Stokes	100,000
Total	\$1,145,000

The one outstanding feature of the whole situation, however, is the fee of Attorney Max D. Steuer, the cross-examiner, whose fee has been paid in advance, based on the win, draw, or lose plan; he got \$250,000. This man has neither been interested in the saving of life nor the effort to prevent unhappiness of any kind. He has simply added to the sum total of unhappiness, for which he receives this enormous fee.

Following down the list our readers will find that various attorneys got anywhere from \$35,000 to \$75,000. Of course, other people profited in this matter because they were more or less interested in the trial and outcome of the case. And, incidentally, it may be noted that a Mrs. Mattie Johnson, who was someone's confidential aide, got not only a limousine but a house (\$35,000), a small item, and an endowment for a spiritualist church. The rest of the money was spent in various other ways; and yet no life has been saved.

It is commonly noted that lawyers who undertake cases of such magnitude are business men. They get their money in advance, or they are assured of it through the court. It is very rarely that, in the trial of a case where a lawyer presents his bill in court against a corporation or for a corporation, the trial judge does not allow him his full amount. How does the doctor stand under such circumstances? He sometimes goes to the probate court to present a bill of forty or fifty dollars and to testify that the patient was in his office a certain number of times and that his charges were reasonable and just; not infrequently the court ignores the bill entirely, or cuts it out, or reduces it. If a man presents a reasonable bill in which the saving of life is the foundation for his fee, and he presents the bill in the usual way, charging what he thinks his services are worth, does he get it? Very rarely. Undoubtedly there is an

occasional doctor who brings in a bill against an estate for a large sum of money, but the chances are that the judge will reduce the bill, irrespective of the time, the responsibility, or the service rendered by the doctor. The surgeon really has a better opportunity than the man of medicine. He can perform an operation for the saving of life or for the purpose of relieving suffering. His patient may live or die, and a charge of five or ten thousand dollars, or, in some instances, twenty-five thousand dollars, has been made and paid. But if the medical man presents his bill for five thousand dollars in a case where the life of the individual has been saved, the chances are ninety-nine to one that his bill will be fought or put aside, or payment deferred with the hope that his bill may be reduced as a possible inducement for settlement.

We doctors are all wrong in our methods except in occasional instances, such as have been cited. With strangers we should have a definite understanding, preferably in writing, that for the care of the patient the fee would be what was mutually agreed upon or determined, and in a case of recovery, where life was at stake, the fee should be large enough to compensate the doctor for his skill, his responsibility, and his suggestions which result in recovery. For instance, where a man has contracted an indebtedness, in other words he owes the doctor three or four, or five, hundred dollars for services rendered, and the collection of the amount due is turned over to an attorney, the attorney seems to think that one should have an agreement, either one made in the presence of witnesses or a written agreement, in order that the bill may be collectable.

The average doctor, medical or surgical, is not endowed with the proper commercialism. He looks upon the patient as a person he is to try to help. He takes him into a hospital simply on the statement of the members of the family that this man (or woman) is sick and in need of help; he gives him the best attention in his power, but the family become disheartened and come in and without ceremony (usually without paying their bill) take the patient away, or take him to someone else for some reason or other. In such a case the second doctor should know the circumstances by inference, and should plan his methods accordingly. He should tell the family that if he is to have this patient under his care it will be necessary for them to give him a written agreement that they will make

weekly or monthly payments, or whatever the occasion demands, after he has learned from them, by inquiry, what settlement, if any, they have made with the first doctor in attendance on the case. If it is a surgical operation, some understanding should be reached, again in writing, for the payment of the surgeon's bill. We wonder who will start the new method.

A certificate of death is often a certificate of debt—with it vanishes all earthly hope of collecting what's due.

"The thing for every wise doctor to do," said Mark Twain, "is to keep 'em alive, so that they can work for you."

NEWS ITEMS

Dr. George W. Frasier has moved from Duluth to Libby.

Dr. O. S. Werner has moved from South Haven to St. Hilaire.

Dr. O. W. Katz has moved from Tolstoy, S. D., to Aberdeen, S. D.

Dr. Stanley E. Kerrick, of Minneapolis, has moved to Los Angeles, Calif.

The corner-stone of the new Methodist Hospital at Wadena was laid last month.

The Minneapolis Board of Education has refused to accept health certificates from Chiropractors.

Dr. A. A. Meyer was re-elected mayor of Melrose last month by a vote of 3 to 1 over his opponent.

Dr. J. E. Mannion, of Kimball, S. D., was married last month to Miss Francis E. O'Neil, of Detroit, Mich.

The Sioux Valley Medical Association will hold its winter meeting in Sioux City, Iowa, on January 22, 23, and 24.

A nurses' registration bureau has been organized at Bismarck, N. D., with a registrar to look after the business of the bureau.

Dr. Jacob Hvoslef, of Minneapolis, who has been spending the summer on Rainy Lake, will practice during the winter in International Falls.

The new building of the Minot (N. D.) Hospital, to cost over \$200,000 and to have a capacity of 150 beds, will probably be ready for occupancy next month.

Dr. W. W. Nutting, of Tuttle, N. D., has leased a residence building which he is converting into a small hospital, and will make first-class in all its appointments.

Dr. G. H. Coffin has moved from Drake, N. D., to Seattle, Wash., with offices in the Yale Building in that city. Dr. Rasmussen, of Minneapolis, succeeds Dr. Coffin at Drake.

Miss Margaret Carrington, of St. Paul, a graduate of the School of Nursing of Rochester (Minn.), has been appointed a member of the staff of the new Yale School of Nursing.

The Veterans Bureau Hospital No. 68, formerly the Asbury Hospital of Minneapolis, has been changed from a general hospital for war veterans to a Tuberculosis Hospital for war veterans.

The directors of the Northwestern Hospital of Minneapolis have announced that they will undertake to raise \$500,000 to enlarge their present plant by the addition of a new building.

Dr. M. G. Milan has resigned as medical director of the Oakland Park Tuberculosis Sanitarium at Thief River Falls. He will join the clinic of Drs. Bratrud and Maland, of Warren.

At the recent Minnesota State Sanitary Conference, held in St. Paul, a vote of thanks was given Dr. C. L. Scofield, of Benson, for his long public-health service to the State of Minnesota.

At the annual meeting of the Southwestern Minnesota Medical Association, held last month at Worthington, Dr. G. G. Balcom, of Lake Wilson, was elected president for the current year.

Two Minnesota men, Dr. Henry F. Helmholtz, of Rochester, and Dr. A. J. Chesley, of the State Board of Health, have been elected directors of the American Child Health Association.

Dr. James A. Quinn, of St. Paul, for many years chief surgeon of the Great Northern Railway, was made honorary president of the G. N. Railway Surgical Association formed in St. Paul last month.

Dr. Frank H. Knickerbocker, of Staples, died last month at the age of 66. Dr. Knickerbocker graduated from the Detroit Medical College in the class of '79, and soon came to Minnesota to enter general practice.

The names of 45 members of the graduating class of the Medical School of the University

of Minnesota who will receive their bachelor of medicine degrees in December, have been given out. There are three women in the class.

The new Asbury Nurses Home of Minneapolis, built at an outlay of over \$300,000, was dedicated with elaborate services last month. Part of the building is to be used for a hospital, and this part can care for 120 patients, and is now open.

Dr. Bruce W. Jarvis, who has been associated with Dr. W. A. Jones, of Minneapolis, for the past six years, has accepted work as a medical missionary in China under the auspices of the Methodist Episcopal Church. He will leave for Peking at an early date.

At the annual meeting of the Washington County Medical Society, held in Stillwater last month, the following officers were elected: President, Dr. F. G. Landeen; vice-president, Dr. J. W. Stuhr; secretary-treasurer, Dr. R. J. Josewski; delegate, Dr. A. E. Brown.

As this issue goes to press it is reported that Dr. George W. Kirmse, of Minneapolis, was drowned while duck-hunting at Lake Amelia on Sunday last. Dr. Kirmse was a graduate of the St. Louis University School of Medicine, class of '07, and was forty years old.

The Twin City physicians who attended and took part in the recent third annual Clinic of Mitchell, S. D., speak enthusiastically of the meeting. The program was well balanced and the local men presented cases of great interest. The outsiders were splendidly entertained.

Dr. Botho Felden has become a member of the Nicollet Clinic, of Minneapolis, as dermatologist. Dr. Felden served three years in the dermatological clinic of Professor Max Joseph, of Berlin, and for two years was in the clinic of Professor Arndt at the Charité Hospital.

The Steele-Traill County (N. D.) Medical Association held its annual meeting at Mayville, N. D., last week, when the following officers were elected for the current year: President, Dr. T. P. Martin, Mayville; vice-president, Dr. T. J. Glasscock, Finley; secretary-treasurer, Dr. Syver Vinje, Hillsboro; delegate, Dr. Glasscock.

The new building of St. Vincent's Hospital at Billings, Mont., was formally opened to the public last month. The building cost \$750,000 and has a capacity of 150 patients. It is modern in every respect, and will be conducted along lines adopted by the best hospitals in the country.

Miss Ila M. Caldwell, instructor in the health department of the Gilbert (Minn.) schools, has been awarded a \$500 scholarship at the University of Michigan for the excellent work she has done at Gilbert. The scholarship was awarded by the American Child Health Association.

There are now 219 students doing graduate work in medicine in the Medical School of the University of Minnesota. Of these, 163 are at Rochester and 56 at the University. This is wholly in addition to the men who come in for special courses to do what is familiarly called "postgraduate work."

A New Jersey physician the other day made a brief address before a county tuberculosis association, announcing a new and admirable slogan, which he apparently copyrighted. He generously gives medical journals permission to publish this copyrighted slogan provided "full credit for address and slogan" be given the author. We decline to publish.

Dr. Samuel C. McCormick, of Duluth, died on November 17, at the age of 86. Dr. McCormick was probably the oldest practicing physician in the state. He graduated from Jefferson Medical College with the class of '62, and at once received an appointment in the surgical service of the U. S. Army and served through the Civil War. He came to Minnesota in 1870, and located in Duluth.

Dr. H. M. Bracken, formerly secretary and executive officer of the Minnesota State Board of Health, and later in Veterans Bureau Service in Minneapolis and Atlanta, has been appointed Consultant on Public Health Administration with the American Social Health Hygiene Association, which is an organization under the National Health Council. He will be located in New York. Dr. Bracken goes to his new work at a large increase in salary.

The surgeons of the Great Northern Railway formed an association last month to be known as the Great Northern Railway Surgeons Association. The following officers were elected: President, Dr. Portus Backus, Libby, Mont.; vice-presidents,—Dr. N. Simpson, Winnipeg, Dr. J. N. Cunningham, Spokane, and Dr. R. C. Webb, Minneapolis; secretary-treasurer, Dr. H. E. Hullsiek, St. Paul. The next meeting of the Association will be held in Spokane in June, 1924.

The statement made the other day in an Associated Press dispatch that there are between 10,000 and 15,000 men in this country practicing medicine under fake diplomas, is unfortunate in its great exaggeration. Probably not one-tenth of that number can be found with fake diplomas purporting to be from regular colleges; and it is further probable that not ten such diplomas can be found in Minnesota, the two Dakotas, and Montana. A group of physicians in St. Louis have been issuing a few of such diplomas or more high school certificates to enable men to enter medical schools.

MEETING OF THE NORTH CENTRAL BRANCH OF THE AMERICAN UROLOGICAL ASSOCIATION

The first meeting of the North Central Branch of the American Urological Association will be held in Minneapolis and St. Paul on December 17th and 18th. Clinics will be held at the City Hospital by Dr. Owre and associates on the morning of the 17th. Drs. Wright, Thomas, Wetall, and associates will hold a clinic at the University Hospital.

The scientific program, which will consist of case reports and short discussions will be held in one of the amphitheatres at the Medical School.

After dinner on Monday evening the business session will be held at which time the organization of the society will be completed.

On Tuesday an operative and diagnostic clinic will be held at the Anker Hospital, St. Paul. Tuesday afternoon a scientific program will be conducted.

This society consists of urologists living in Minnesota, North Dakota, South Dakota, Ohio, Wisconsin, Iowa, Illinois, Indiana, Michigan, and Western Canada. The total membership is about 162.

Physician and Surgeon Wanted

In good town and large territory. The right man can do from six to ten thousand a year. For particulars address E. V. Peterson, Gary, S. D.

Microscope Wanted

A University Medical School Student wants to buy a good second-hand microscope. Address 407, care of this office. Give description and price.

Minneapolis Office for Rent

Above a drug-store in a splendid location for a physician in a suburban district. Phone Colfax 0906 or address E. Oredson, 3757 Chicago Avenue, Minneapolis.

Part Time Position Wanted

A technician who can do routine laboratory work and x-ray and bacteriological work, desires a posi-

tion in the Twin Cities for work for three days in the week. Address 399, care of this office.

Wanted

Assistant interested in internal medicine and x-ray in group in city of five thousand population, North Dakota. Liberal salary from start, with partnership proposition at the end of first year for the right man. Address 404, care of this office.

For Sale

One Scanlon-Morris operating-table with nickel top, price \$300.00. One National Sterilizer, medium size, price \$75.00. Both practically new. For further information call Highland 6609, or call at 1402 Fremont Ave. No., Minneapolis.

Practice and Drug Stock for Sale

I offer for sale my practice and drug-store, fixtures, drug sundries, and private stock of drugs. Town of 400; no other doctor. A good opportunity for a doctor or druggist or both. If interested write C. E. Sargent, M.D., Isabel, South Dakota.

Practice for Sale

A \$4,200 practice in Southeastern Minnesota in town of 500 population. Good collections, territory, roads, etc. Location with equipment, \$650. Will sell part or all of equipment if desired. Reason for selling, other interests. Address 403, care of this office.

Location Wanted

A recent Minnesota graduate with two years experience in country practice, wishes a location in a Minnesota town with hospital convenience. Prefer partnership with an older physician. Can speak Scandinavian fluently. Address 401, care of this office.

Position Wanted

Woman, aged 38, desires position with physician or a group. Has had five years experience in physicians' office as bookkeeper, stenographer, x-ray technician and general office assistant, also some laboratory work. Has had fifteen years business experience. Address 406, care of this office.

Position Wanted

By a woman who can do x-ray, radiographic, and laboratory work; can give anesthetics; and is a registered nurse. Has had experience in one of the largest hospitals and in one of the principal clinics of the Northwest. Best of references. Will go outside of the Twin Cities. Address 399, care of this office.

An X-Ray and Clinical Laboratory Technician Wanted

One who can make blood counts reliably and expeditiously and can make routine blood chemistry examinations and also do x-ray work. We prefer a University graduate with the degree of B. Sc., and, if a girl, with the proper office or laboratory temperament.

We will give profitable and permanent employment to the person prepared and willing to do this work in a fine Northern Minnesota town. Address 400, care of this office.

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GOITER*

BY WARREN A. DENNIS, M.D., F.A.C.S.

SAINT PAUL, MINNESOTA

Editor's Note.—This paper was submitted for publication before the writer's death, and the proofs were read by Dr. Dennis' associates in the Miller Clinic.

In spite of the intensive study that has been given to the subject of goiter in the past two decades many of the important questions connected with it remain unsolved. Even of the physiology of the thyroid gland not a great deal is known. Marine says that its only definitely determined function is that of controlling the utilization of oxygen in the tissues, and that this control is dependent upon the presence of organic iodine. Inorganic iodine in the circulation is picked out by the cells of the acini of the gland and elaborated into a more active form in the colloid or thyroglobulin found in the acini. That iodine is an essential element in the normal functioning of the thyroid gland has been long recognized. Kimball is authority for the statement that the Greeks treated goiter by the administration of the ash of burned sea sponges, but without knowing that this substance was rich in iodides. Iodine was first knowingly administered in the treatment of goiter by Coindet, in 1820; and Baumann, in 1895, discovered that iodine is a normal constituent of the thyroid gland, while in 1916 Kimball succeeded in isolating thyroxin, the active iodine-carrying molecule.

Some light has been thrown on the physiology

of the thyroid by Marine, and Marine and Lenhart, and Marine and Kimball in numerous publications in the past fifteen years. These observers have shown that the normal thyroid gland contains the highest percentage of iodine, averaging two-tenths of 1 per cent, and that when the iodine storage falls below one-tenth of 1 per cent active hypertrophy and hyperplasia of the gland commence.

From this it follows that a gland which is in a condition of hypertrophy or hyperplasia is shown by that fact to be deficient in iodine, and out of this information has developed our knowledge of goiter prevention. In times of unusual physiologic activity, such as adolescence and pregnancy, there is an increased demand upon the thyroid as the regulator of oxygen utilization by the tissues. This involves an additional supply of iodine and in the absence of that element glandular hyperplasia occurs and goiter develops.

In the schools of Akron, Ohio, during the years 1917, 1918, and 1919, experiments in the prevention of goiter were carried out on 9,967 different girls. This city lies in the Great Lakes Basin which is an area of endemic goiter. Two grams of sodium iodide were administered in two decigram doses for ten consecutive school days each spring and fall. The results were fairly startling. Of those with normal thyroids only two-tenths of 1 per cent showed an increase in the size of the gland, while in another group

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of the same size, but not taking the treatment, 72.4 per cent showed hypertrophy. The results were only slightly less striking among those having enlarged glands at the beginning of the treatment.

The results of these experiments appear to demonstrate conclusively that endemic goiter is not, as some had contended, a question of infection, but purely one of iodine supply. Similar results have been obtained in the treatment of the goiter of pregnancy, so that in these fields, at least, the prevention of goiter would appear to depend simply upon the application to the situation of established measures.

Even in the hyperplasia of exophthalmic goiter it has been shown by Plummer that the administration of iodine is capable in many instances of producing definite improvement in the condition, thus enabling cases too toxic to accept the risk of surgical relief later to undergo operation in safety.

However, that the syndrome of Graves' disease is due to some additional factor or factors besides the simple deficiency in iodine is shown by the fact that the disease is not cured by the administration of this drug alone. And in the case of the hyperthyroidism resulting from so-called toxic or degenerating adenoma of the thyroid gland iodine not only does no good but may actually do serious harm. It was Kocher who first sounded the warning, because of this danger, against giving iodine to persons having adenomatous goiters.

When one turns to the pathology of goiter it is found that the situation is also far from clear. If inflammation and malignant neoplasms are excluded from consideration, and these are relatively infrequent, then there remain for consideration, hypertrophy and hyperplasia, differing degrees of the same process, colloid goiter, and adenomatous goiter. A goiter is placed in a given class because of its predominating pathology, but areas can usually be found which, considered alone, would cause it to be placed in a different class. For example, colloid is found in most goiters: in the colloid goiter it dominates the picture. Adenomatous tissue, fetal or adult, dominates the picture in adenomatous goiter, but areas of hyperplasia and colloid may be found. In like manner, in exophthalmic goiter the dominating feature is hyperplasia with increase in cell height and tendency to papillary proliferation, but more or less colloid is usually present and areas of adenoma may be as well. For

these reasons Crile has expressed the belief that all goiter pathology represents simply different stages or degrees of the same general process, it being understood of course that various other pathologic changes may be found here as elsewhere, such as degenerations, calcification, cyst formation, and the like. Hertzler has even gone so far as to say that there is no type of thyroid pathology, outside of malignancy, that he has not found in the thyroid gland of a normal individual, but he states further that a thyrotoxicosis without changes in the thyroid gland has never been observed. Whatever other factors, and there probably are others, may be concerned in the production of hyperthyroidism, this fact may be considered as established.

As already shown, endemic goiter, so called, appears to be due solely to a deficiency in iodine, and is relieved by an adequate supply. It appears at times of exceptional physiologic demands and is recognized without difficulty, since it is usually symmetrical in form, smooth and regular, and, except for the presence of the mass, presents no signs or symptoms.

Colloid goiter may attain great size, and while inclined to symmetry, may be seen when quite asymmetrical. As a rule the surface is smooth, but with the development of interstitial fibrous tissue nodules may appear which make its differentiation from inactive adenoma, for the writer at least, impossible. It is devoid of symptoms except those resulting from size and pressure. The x-ray is a valuable adjunct in the diagnosis of goiter since it shows clearly the course and contour of the trachea, and not infrequently discloses intrathoracic prolongations or masses that might otherwise remain undiagnosed and cause embarrassment when unexpectedly disclosed at operation. They have even entirely escaped the observation of the surgeon, thus requiring secondary operations for the relief of the pressure symptoms caused by them.

The adenomatous goiter is typically nodular in outline and therefore likely to produce local pressure symptoms, such as hoarseness or cough, which may be out of proportion to the size of the mass. Cysts may be encountered, due either to a coalescence of acini distended with colloid, or to hemorrhage, or to degeneration of adenomas. On removal the adenomatous goiter often presents the appearance of being saturated with fluid. This type of goiter is prone, after having been present perhaps for years, to produce a condition of thyrotoxicosis, due, I am inclined

to think, to a combination of hyperthyroidism and of a toxemia resulting from adenomatous degeneration. This added factor seems to me probable for two reasons, first, that the adenomatous goiter rarely or never causes the exophthalmos, which is commonly, though not invariably, present in the true Graves' syndrome; and, second, because the toxic adenomatous goiter is so much more likely to show evidences of organic cardiac and renal damage.

The term "exophthalmic goiter" is not a good one for the reason that exophthalmos and the accompanying eye signs are lacking in a very considerable percentage of otherwise typical cases. "Hyperthyroidism," as suggested by C. H. Mayo, would, therefore, seem a preferable term for this type of case, and in like manner "thyrotoxicosis" would appear to be the suitable term to cover the toxic adenoma group, at least unless it shall later be shown, as Crile believes, that these also are due solely to hyperthyroidism, and not to hyperthyroidism plus toxemia.

The text-books give the cardinal symptoms of "exophthalmic goiter" as enlargement of the thyroid, exophthalmos, tachycardia, and tremor; in addition to these might be mentioned muscular weakness, heat intolerance, moist skin, and various others, depending upon the degree and stage of the condition. If one gave, instead, the symptoms of hyperthyroidism, then in a considerable percentage of cases exophthalmos must be omitted, and in not a few appreciable enlargement of the thyroid as well. We have had a number of cases in which one would hesitate, even after repeated painstaking examinations, to assert that the thyroid was appreciably enlarged, and yet which, in other respects clinically, and as proven therapeutically, were typical cases of hyperthyroidism. It is in cases of this character, lacking both exophthalmos and definite enlargement of the gland, that reliable metabolism determination are of great assistance. For example, a young woman of twenty-five having been perfectly well was seized with nausea and vomiting, and diarrhea, which persisted for a month up to the time when she was first seen. At that time she had a temperature of 99° to 101°, a pulse from 110 to 140, a moist skin, and a fine tremor, and she had lost twenty pounds in weight. Tuberculosis and pregnancy having been eliminated, the possibility of hyperthyroidism was considered in spite of the bizarre onset and the absence of both exophthalmos and thyroid enlargement. Her basal metabolic rate

was 53.2 per cent above normal. Following bilateral resection of the gland she commenced at once to improve and has since gained thirty pounds in weight and returned to her work. In cases such as this, one would hesitate to make the diagnosis and advise radical treatment without the confirmatory evidence of the high metabolic rate.

Perhaps it may be in order at this point to devote a few words to the place of basal metabolism determination in the management of goiter; but it must be understood that hyperthyroidism is not the only condition, although the chief one, in which the metabolism is elevated. As might be expected it is elevated in fevers and in pregnancy, and in two of my cases the latter condition offered very nice problems as to the best line of treatment. It may not be so generally known that in severe anemias and leukemia, and in cardiac decompensation the metabolic rate may be much increased. (Christie); Crile, p. 147. The possibility of the last-named cause must ever be kept in mind when a diagnosis of hyperthyroidism is under consideration, and the decision reached only after all the other clinical signs as well have been carefully weighed.

The well-marked case of hyperthyroidism or thyrotoxicosis can usually be diagnosed without the determination of the metabolic rate; it is in the border-line case that its aid is of greatest value in making the diagnosis. I have seen no statement as to the figure at which active treatment should be advised. From 10 per cent above to 10 per cent below normal is usually considered as within normal limits, and we have adopted the rule of regarding any reading between 10 and 20 per cent above normal simply as an indication for further observation. Moreover, a finding of 20 to 30 per cent above normal should be verified by having the test repeated, since it is a fairly common observation that the first estimation, on account of the nervousness or apprehension of the patient, may give a reading considerably in excess of the true one.

The metabolic rate is also unquestionably of value as a factor in determining the progress of the case and the measure of improvement obtained from rest alone, ligation, radiation, or whatever other therapeutic measure may have been instituted. It must not be forgotten, however, as has been pointed out by Crile and others, that the metabolic rate alone must not be regarded as the measure of operability. A favorable metabolic reading may exist with a myo-

cardial degeneration, damaged kidneys, or other organic lesions, which would make a given case a grave operative risk. It must, therefore, be borne in mind that in the institution of therapeutic measures the whole clinical picture must be passed in review, and not any single sign or finding.

The treatment of goiter depends of course upon its type; that of endemic goiter, prophylactic and curative, has already been indicated, the administration of iodine.

Simple colloid goiter should receive treatment when, because of its size or location, it produces disagreeable pressure symptoms or patent deformity of the part; furthermore, in view of the practically negligible mortality following operation in this type of case, I should have no serious quarrel with those who maintain that a woman with a colloid goiter is entitled to be rid of it for cosmetic reasons alone. Surgery, so far as I am aware, offers the only treatment entitled to consideration in this class of cases.

The question of the proper treatment of a goiter which is responsible for a hyperthyroidism or a thyrotoxicosis is not so simple a matter. Haggard says that malignant disease of the thyroid commences in adenomatous tissue, and, further, that 20 per cent of untreated adenomatous goiters eventually become toxic, and for these reasons he believes that all glands of this character persisting beyond the age of twenty-five should be subjected to operation. This is a simple doctrine and may well be true, but the question of proper treatment for an established hyperthyroidism or thyrotoxicosis is not so simple a matter.

Whatever subsequent measures may be taken the first indication is absolute rest, and some of the mildest cases will eventually obtain a symptomatic, even if only temporary, cure from this alone.

A few years ago Porter, of Ft. Wayne, recommended the use of injections of boiling water into the substance of the thyroid, and while benefit was sometimes obtained thereby the method is not now generally employed, and we have not used it at all.

Except for surgical treatment the chief attention has been given to the use of the *x*-ray. The effects of the treatment have been studied very carefully by a committee of the staff of the Massachusetts General Hospital. It should be employed only with the best equipment and measured dosage, and with a knowledge that

injury to the parathyroids can occur, as can also myxedema from too extensive destruction of thyroid tissue. A number of cases have occurred. Dr. Edward P. Richardson reports that some cases have undoubtedly been cured and others improved, but that the chances are more than even that surgery will later be required to perfect the cure. It would perhaps better be regarded as a measure preparatory to the real cure by surgical resection, and, therefore, on somewhat the same plane as preliminary ligation, from which also cure occasionally results, or, perhaps better still, as a preliminary to ligation in cases too toxic to justify the risk of even this simple procedure. In our own experience we have hesitated, for the reasons stated, to employ it to the extent necessary to warrant the expectation of a cure from this means alone.

As regards the value of preliminary ligation there could seem to be no question in the mind of anyone who has employed other measures for weeks in serious cases with results that were but fractional at best, and then has seen the remarkable improvement following the ligation of one or more poles. Nevertheless, two of our best surgeons, Finney, of Baltimore, and Maguire, of Richmond, say they do not think it necessary and no longer employ it. Unless the *x*-ray can be substituted for it I am unable to understand how it can safely be dispensed with in the critical cases. Whether the effect is due to the cutting down of the blood supply, which is doubtful, or to the interruption of the nerve supply, entering with the superior artery, from the sympathetic trunk, certain it is that the metabolism regularly falls and the operative risk is greatly reduced.

It must, however, be followed by resection of the gland if a permanent result is to be assured. Lobectomies are no longer done because of the asymmetry of the neck, even though no subsequent hypertrophy takes place. Bilateral resection is the operation of choice, and my mistakes have been in the direction of removing too little gland rather than too much; one of the cases included in the list under present consideration had had a resection elsewhere three years before. Her metabolism averaged plus 28 per cent before our operation, and afterward plus 6 per cent. In two of my earlier cases I have been obliged to reoperate for the same reason. In one the gland was not one-third the normal size, yet the ultimate result closely approximated a complete cure. As has been fre-

quently pointed out, exophthalmos and some heart irritability are likely to remain after all other symptoms have disappeared.

When the patient's condition has become such as to warrant the undertaking of resection, the question of how much shall be done at a sitting may well be answered by the rule followed by Lahey to interrupt the work and return the patient to her room at any stage when her condition is such as to cause anxiety, and to complete it only when she has returned to her previous condition. The only death in this series resulted from allowing the desire to complete the work at the first sitting to interfere with the application of this sound advice.

It is perhaps illogical to undertake the cure of a disease by the removal of a part only of the organ which is its seat, in view of the fact that the tissue removed is no more pathologic than the fractional part which is of necessity left behind. However, the condition is certainly one of over-function, perhaps of perverted function, as well, and one or both are met by the removal of the source of the excess product. The results are certainly gratifying, and it is my conviction that at the present time, whether considered from the standpoints of economy, safety,

or final results, skilled surgical treatment must be accorded the chief part.

The paper here presented, while not a statistical study, is based chiefly upon a series of 47 personal consecutive operative cases, comprising those done in a little over two years, during which time we have had improved facilities for pathologic studies and metabolic determinations. Of the 47 cases, 22 were of the colloid variety, some of them with cystic degeneration and resulting deformity. Seventeen were adenomas, most of which presented toxic symptoms as evidenced by the metabolic rate and the effects upon the heart and the nervous system. The remaining 8 were frank cases of hyperthyroidism, nearly all of a severe type with metabolism ranging from 50 to 90 per cent above normal.

Among the toxic adenomas, for reasons to be given later, the clinical diagnosis was not invariably confirmed by the pathologic; and, as between colloid goiter with much fibrous tissue and adenoma, my diagnoses leave something to be desired.

There was one death in the series, a case of hyperthyroidism with a metabolism of plus 82 per cent.

CEREBRAL GLIOMA, WITH EARLY PRESSURE MANIFESTATIONS UPON THE OPTIC CHIASM*

BY G. ARTHUR LARSON, M.D.

FARGO, NORTH DAKOTA

With a clinical picture of double choked disc, Röntgen evidence of destruction of the clinoid processes with enlargement of the sella turcica, and subjective symptoms of intracranial pressure, a tumor in the region of the pituitary body is the natural inference. Yet there are much additional data desired in the matter of arrival at a satisfactory differential diagnosis. Recent progress in endocrinology, neurologic surgery, and the study of the visual fields has been of the greatest assistance in the study of these cases.

Of the important etiologic factors in this condition pituitary disease is outstanding, often having a characteristic temporal slant in the visual field. Bitemporal hemianopsia has been

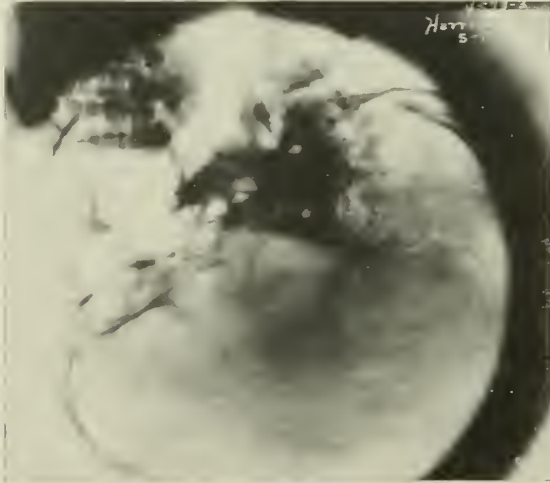
shown by Hill, in a series of 40 cases, to be due to a number of neurologic disorders. Those emphasized by him are hypopituitarism with or without convulsions, pituitary headache, pituitary disturbances, due to infection, hyperpituitarism, cerebral syphilis, hydrocephalus, and tumors. With reference to tumors not primary in the pituitary body which cause pressure on the optic chiasm, the following is an illustrative case:

Patient referred by Dr. W. F. Baillie for ophthalmologic examination on May 17, 1922. Miss H. H., aged 20, single, white, one of four children; family history, unimportant. Chief complaint: Intermittent headache radiating from vertex to occiput, which she described as a severe pressure pain, diplopia, slight dimness of vision, dizziness, and a nasal discharge for six months.

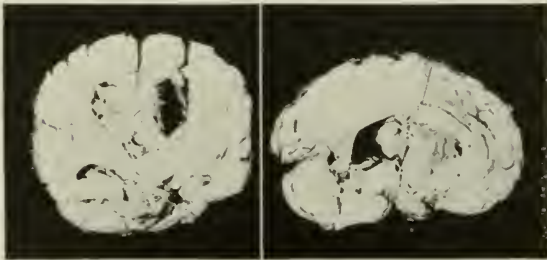
Past history: Normal birth, weight five pounds, breast-fed. At the age of three she had bronchitis;

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typhoid fever at the age of ten with good recovery and no complications. Menses began at age of 14, which were always regular, but attended with headache two or three days preceding the flow. At fifteen she began to grow very rapidly and attained a height of five feet eleven inches and a half. At this time she enjoyed good health and participated actively in high-school athletics. In 1918 she had measles and influenza, after which she complained of lassitude and fatigue. During 1919 her condition improved, having gained nineteen pounds. She continued in good health until the spring of 1921, when she began to have periodic attacks of headache



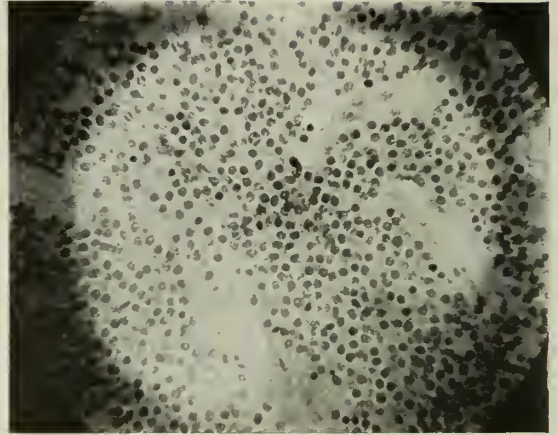
1. Röntgenogram showing a shadow in the region of sella turcica with destruction of clinoid processes.



2. Coronal section of specimen at level of the infundibulum, showing the lateral ventricles occupied by the tumor. Dark area shows the place where the tissue was removed for microscopic diagnosis.

3. Sagittal section, showing the extent of the involvement.

associated with nausea and vomiting lasting two or three days. Tonsillectomy was done by Dr. Baillie in July, 1921. Following the operation she gained in weight and had no further trouble until December, 1921. At this time there was a recurrence of her headaches with more severity and she was often in bed for several days. In April, 1922, she began to complain of dizziness particularly while stooping forward; her headache became more intense, and the vomiting was of the projectile type. It was at this time that she appeared for examination.



4. Microphotograph of tumor. (See pathologist's report.)

The onset was insidious, her symptoms having increased in magnitude until they had become alarming to her and her family only four weeks prior to examination, although it is evident from her past history that the initial symptoms of her present complaint appeared about one year before. On casual observation she gave the impression of a patient appearing with a very minor complaint. Her sensorium was clear, and she did not seem to attach any great importance to her complaint.

Examination showed the following:

O D plus .50 cyl. ax 90, vision 8/10 plus.

O S. plus .50 cyl. ax 90, vision 8/10 plus.

Esophoria 12 degrees; hyperphoria, 1 degree.

Right visual field showed a temporal slant, and both fields showed enlarged blind spots and contracted color fields. Examination under cycloplegia showed latent hyperopia of 1.25 diopters. Ophthalmoscopic examination showed double choked disc of four diopters. Röntgenologic examination by Dr. T. Rothnem showed slight cloudiness of the left maxillary and frontal sinuses and enlargement of sella turcica with destruction of clinoid processes. Leucocyte count was 15,700; blood pressure, 90/60; hemoglobin, 80; Wood Wassermann, negative. Urinary findings were negative except for a few red blood cells. The only evidence of cranial nerve paresis was the heterophoria mentioned above and diplopia. General neurologic examination showed only a positive Romberg.

The patient was admitted to the hospital for observation where she remained a week. No change was noted during this time. Pulse, temperature, and respiration were normal. Surgery was discussed, but not urged in view of opposition from the family. She was permitted to return to her home with instructions to return in a few days for further study of the progress of the case. Unfortunately, no opportunity was had for additional examination until October 15, which was over four and one-half months later. Meanwhile she had passed through various clinics elsewhere and was found to be at that time under the care of a chiropractor. Her condition having grown steadily

worse during the preceding three months, she was found in a state bordering on coma, completely blind, and presented the following clinical findings:

Pupils were dilated and failed to react to light. There was a spontaneous, slow horizontal nystagmus. Because of profound stupor neurologic examination was rendered difficult. However, it was apparent that there was paresis of all the extrinsic ocular muscles. Double choked disc of four or five diopters was present as before, also there was considerable pallor suggesting atrophic changes. Facial paralysis was present on the right side. Rigidity of neck was pronounced. She possessed sufficient hearing and psychic response to recognize the voices of those about her. Aphasia was complete. There was bladder and rectal incontinence. There was a positive Babinski and ankle clonus on the right. Tendon reflexes were somewhat exaggerated in the left lower extremity. The abdominal reflex was present on the left. Thermal, tactile, and deep sensibility could not be satisfactorily elicited. Hemiplegia of the right side was present. There were a positive Babinski and ankle clonus on movement on the left. She was able to take liquids, although swallowing was incomplete and labored. Death occurred on October 30.

An autopsy was done eighteen hours after death by the writer and Dr. J. H. Rindlaub. On removing the calvarium several papillary elevations of the dura and brain were found on each side near the anterior portion of the superior longitudinal sinus. The dura was firmly adherent at those points to the pia-arachnoid. Engorgement of the blood vessels was evident. Portions of brain substance remained adherent to the floor of the middle fossa on raising the hemispheres from the base of the skull. The sella turcica was much enlarged, the greater part of which was occupied by a cystic portion of the mammillary bodies immediately posterior to the infundibulum. The pituitary body was small and extremely flattened in the base of the sella through pressure from the cyst.

The brain was hardened in formalin and sectioned the following day. A large pinkish tumor occupying and distending both lateral ventricles tremendously was found which measured 7cm. x 8.5cm. x 5cm. It appeared definitely circumscribed, contained large cystic cavities in its substance, and was very vascular.

Surrounding the tumor at various points was a secondary hydrocephalus. It was this fluid which had distended the third ventricle and compressed the mammillary bodies on its floor into the sella turcica. This cyst brought direct pressure on the optic chiasm. The septum lucidum was apparently completely destroyed, for the tumor was centrally located, and its greatest anteroposterior diameter passed through this region. Histologic examination of paraffin sections of the tumor by Dr. E. T. Bell, of the University of Minnesota, was reported as follows: "It is a glioma of rather typical structure. You will notice that it is more cellular than the ordinary gliomas, but does not differ otherwise in any essential respect."

COMMENT

The clinical course of this case proved that any benefit to be gained from surgery in this case would have been of short duration. Spinal puncture was deemed inadvisable in view of possible pressure cone and respiratory paralysis. Later it has been stated by Dandy, in discussing the diagnosis of intracranial growths, that spinal puncture is often dangerous and gives little knowledge. Puncture of the ventricles would have been of some diagnostic value.

The symptomatology is often misleading in glioma. It grows by destroying the invaded tissue. Hence general pressure signs are not found early. This case was at first strongly suggestive of pituitary tumor. Throckmorton's report of two cases of cerebral glioma showed that one simulated lethargic encephalitis, and the other paresis. Doubtless, a wide range of symptomatology is possible depending upon the location. It should be remembered, too, that this case had a left pansinusitis. This is particularly significant in the light of recent studies of the etiology of optic neuritis. Woods and Dunn, in an analysis of eighty-six cases of optic neuropathies, have shown the following etiology: syphilis, 40 per cent; sinus disease, 12.7 per cent; brain tumors, 11.6 per cent; multiple sclerosis, 5.8 per cent; toxic amblyopia group, 11.6 per cent; scattering, 3.5 per cent; undetermined 14 per cent. The papillo-edema in this case was considered mechanical rather than inflammatory for it was double and the x-ray showed intracranial pathology.

According to DaCosta, no region of the body is so liable to tumors as the brain. Hale White estimates them at one in every fifty-nine autopsies. Infection, heredity, alcoholism, developmental errors, and sex are factors. Tumors are more common in males probably because of the greater liability to injury. The majority of the cases of brain tumor occur between the ages of twenty-five and fifty, glioma and tuberculous growths being most common in the young.

CONCLUSIONS

1. Every patient having visual disturbances associated with systemic symptoms should have a thorough ophthalmologic and Röntgenologic examination including a study of the visual fields.
2. Cerebral glioma presents no characteristic clinical picture.

3. Of neoplasms producing pressure upon the optic chiasm glioma should be considered in the differential diagnosis.

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ORCHITIS DUE TO BACILLUS TYPHOSUS INFECTION: A CASE REPORT*

By G. A. DURNIN, M.D.

BOTTINEAU, NORTH DAKOTA

Patient: A robust man, aged 35, came under my care December 28, 1920.

Previous history: Has had no serious illness, except at the age of 12 years, when he had what was thought to be pneumonia. He was in bed for three or four weeks, but was not attended by a physician. Recovery was evidently complete.

Present illness: Began October 25, 1920, when he sustained an injury to the left testicle, while climbing over a wire fence. Immediate pain and subsequent swelling were very great.

Patient thought the swelling would soon subside and did not consult a physician until November 28, one month later. Pain had been relieved soon after the injury, except for a dragging sensation due to the weight of the greatly swollen organ. At this time the patient thought he had contracted a cold, had slight chills, and had been exposed to inclement weather. The other testicle became inflamed.

His physician examined the organ and aspirated some fluid from the tunica vaginalis of the injured testicle. Treatment for a month subsequent had not much effect on the condition.

December 28, 1920, two months after the injury, the writer examined the patient. Both testicles were greatly swollen, with a moderate amount of fluid in the tunica vaginalis of each, and great swelling of the body and epididymus.

The injured testicle presented hard nodular areas with two distinct areas of softening. The urine showed pus cells and some bacteria, but no tubercle bacilli were found. A Widal test was negative. Leucocytes were not increased. Temperature, slightly elevated.

Thinking the process was tubercular and desiring to be as conservative as possible, the patient was put absolutely at rest in bed. The testicles were well supported, and a very free diet instituted, together with sunlight and vaccine treatment. Temperature at once became normal, and all pain and tenderness disappeared.

January 12: Incision was made over the softened areas of the injured organ with careful curettage, and sterilization by iodine and alcohol, after which the wounds were closed. Pus from the abscess gave no growth. Healing was not complete, a sinus persisting.

February 6: Incision of abscess of the other testicle was made in the same way. Culture of this pus revealed a typhoid bacillus. Later it was also found in the urine.

The patient at this time was attending to his usual work, having been three weeks in bed. There was no pain or tenderness, but the organs were still swollen to at least three times their normal size, with sinuses discharging slight amount of pus.

Further treatment in the light of the etiology was by typhoid vaccines.

Slowly over months the condition improved, the swelling gradually subsiding and the sinuses healing, leaving very firm large nodules to mark the sites of previous abscesses. Some excess of fluid still remains in one tunica. Function is maintained and general strength and health of the patient is unimpaired. At present the Widal test is negative, and no bacteria found in the urine.

Points of interest:

1. Typhoid abscess of the testicle is not common, but does occur in the course of typhoid fever.

*Presented at the thirty-sixth annual meeting of the North Dakota State Medical Association at Grand Forks, N. D., May 31 and June 1, 1923.

2. This patient had been using drinking water previous to his injury from a well which later was known to be the source of a local epidemic of typhoid fever.

3. The patient did not present any symptoms at any time of a "typhoid fever" course.

4. The predisposing influence of traumatism.

5. Living typhoid bacteria were probably borne by the blood stream of a patient who showed no symptoms of the disease.

I would like to make an observation upon an allied condition. Three years ago I had a case in which I believed the blood stream carried intermittently colon bacilli, and it was thought that the bacilli were excreted by the kidney. I mentioned this to a number of surgeons, but found no one who would corroborate my idea. I think it is not uncommon for colon bacilli to circulate in the blood and to be thrown out by the kidney. I shall be glad to have any of you corroborate this.

CEREBRAL PNEUMOGRAPHY AS AN AID IN THE EARLY DIAGNOSIS OF HYDROCEPHALUS*

BY OSWALD S. WYATT, M.D.

MINNEAPOLIS, MINNESOTA

The clinical diagnosis of hydrocephalus can be made by any one of us; but before going into detail of the specific aid in diagnosis which I wish to present, may I enumerate the clinical manifestations of hydrocephalus merely to freshen your minds upon this subject?

A large head is the constant feature of these cases, and presents itself in all types of hydrocephalus. The size of the head is a rough estimate of the size of the lateral ventricles of the brain. The head at birth may be only slightly enlarged, or, as happens in many cases, the slight enlargement of the head may not attract the attention of the attending physician. In spite of the fact that the head may not be appreciably enlarged the lateral ventricles may be considerably dilated. A noticeable enlargement of the head means considerable dilatation of the lateral ventricles. Thus the size of the head is only a rough index of the cranial contents. The union of the cranial bones after the first few years of life allows for very slight changes in the size of the head, even though there may be considerable change within the cranium. Hence at the time of birth, a very careful examination should always be made of the cranial fontanels and sutures.

Early in this disease the mental condition of these children is no index of the amount of brain tissue present. The intelligence may be nearly normal, and yet a large amount of brain

substance destroyed. However, intelligence progresses only to a limited degree.

The downward displacement of the eyes is the result of prolonged pressure on the orbital roof, caused by a dilated third ventricle. The usual symmetrical disturbances of extra-ocular movements is the result of an enlarged third ventricle pressing directly upon the third, fourth, and sixth cranial nerves.

Convulsions are not present in the greater percentage of cases. However, occasionally, Jacksonian and even generalized convulsions may be observed.

Spastic arms and legs, eventually becoming paralyzed, will often be noticed.

Blindness is a common symptom, this again being due to a dilated third ventricle pressing upon the optic nerves.

The reflexes, both superficial and deep, vary depending upon the degree of spasticity.

Primary optic atrophy is found more often than papilledema or choked disc.

An understanding of the anatomy of the ventricles of the brain is a necessary prerequisite to the following presentation, and I wish to describe it in as few words as possible:

The cerebral hemispheres each contains a lateral ventricle which is connected with the third ventricle by the foramen of Monro. The third ventricle is the cavity of the midbrain, and lies between the cerebral hemispheres and the cerebellum and pons. The outlet of the third ventricle is called the iter or aqueduct of

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Sylvius. It passes through the tentorium cerebelli emptying into the fourth ventricle, which is the cavity of the hind-brain lying directly beneath the cerebellum and on top of the pons. The fourth ventricle drains into the cisterna magna by two lateral routes known as the foramina of Luschka, and a medial route called the foramen of Magendie.

Cerebrospinal fluid is a product of the choroid plexus of the ventricles. This fluid passes from the lateral ventricles, through the foramen of Monro to the third ventricle, thence through the aqueduct of Sylvius to the fourth ventricle. The fourth ventricle is drained by three openings, the medial opening known as the foramen of Magendie, and the lateral openings known as the foramina of Luschka. The fluid then passes into the *cisterna magna* and then through several large cisternæ into the subarachnoid space of the cerebral hemispheres and spinal cord. Almost the entire absorption of cerebrospinal fluid takes place in the subarachnoid space overlying the cerebral hemispheres. Thus we see that there is a cerebrospinal fluid vascular system just as definite as the blood vascular system.

With the above picture in mind it is easy to perceive that if an obstruction occurs anywhere in the cerebrospinal fluid vascular system it may occur at any one of the small channels, namely, the foramen of Monro, the aqueduct of Sylvius, or the foramina of Magendie or Luschka. As a matter of fact an obstruction at the foramen of Monro is extremely rare. The most common points of obstruction are the aqueduct of Sylvius and the foramina of Magendie and Luschka. It is the common types of obstruction that this paper will discuss.

Cerebral pneumography or the injection of air into the lateral ventricles of the brain was first introduced by Dandy, of Baltimore, in 1918.

This diagnostic procedure is of aid in the following conditions: (1) in determining the type of hydrocephalus; (2) localization of intracranial tumors; (3) localization of spinal cord tumors.

This paper will deal only with the uses which we have made of the procedure in cases of hydrocephalus. At a later date will be presented the work that has been done along this line in the localization of cerebral and spinal-cord tumors.

There are two general types of hydrocephalus: (1) external hydrocephalus and (2) internal hydrocephalus.

Internal hydrocephalus may be subdivided

into two classes: (1) obstructive internal hydrocephalus, and (2) communicating internal hydrocephalus.

The so-called idiopathic hydrocephalus, the causes of which have been so admirably presented by Dandy, of Baltimore, is no longer recognized since cerebral pneumography has been brought into the diagnostic field.

The technic of ventricular injection is the same for any case of hydrocephalus which presents itself, whether it be external or internal. The child is given gas anesthesia, and after the head is prepared a spinal puncture needle with a two-way cock is injected through the fontanel into the lateral ventricle. If the sutures or fontanels are closed, then a trephine opening must be made and the lateral ventricle punctured through this opening in the skull. The plunger is then withdrawn and 15 to 25 c.c. of cerebrospinal fluid is withdrawn into a Luer syringe, and an equal amount of air is injected. This process is repeated until no more fluid can be obtained with the head in this position. Then the head is rotated so that the anterior horns of the ventricles will drain, and this fluid is likewise removed. The same is done for the posterior horns of the ventricles. One must be very careful during this procedure to make sure that he does not produce a greater intracranial pressure than that which he found. In other words, he must keep a delicate balance between the amount of cerebrospinal fluid withdrawn and the amount of air injected.

In our cases we have experienced no untoward results, and have replaced as much as 1,500 c.c. of cerebrospinal fluid with air at one sitting.

As soon as this step has been carried out the patient is removed to the x-ray table and flat, stereoscopic, and oblique pictures are taken.

The interpretation of the plates differentiates between external and internal hydrocephalus. If one is dealing with a case of external hydrocephalus then surgical intervention is not warranted. If, on the other hand, one is dealing with a case of internal hydrocephalus, then the type of internal hydrocephalus must be determined.

It is now an accepted fact that cerebrospinal fluid is produced in the ventricles of the brain. Dandy and his co-workers proved that nearly all the absorption of cerebrospinal fluid takes place in the subarachnoid space of the cerebral hemispheres. If, therefore, the cerebrospinal

fluid cannot reach the subarachnoid space, due to an obstruction either in the ventricular system or elsewhere along the cerebrospinal fluid vascular system, internal hydrocephalus results. If the obstruction lies in the ventricular system the obstructive type of internal hydrocephalus is produced. If it lies in the cisternæ, in the main branches of the cisternæ, or in the subarachnoid space over the cerebral hemisphere, the communicating type of internal hydrocephalus is produced. In all cases of congenital hydrocephalus 50 per cent of the lesions lie in the aqueduct of Sylvius, which connects the third with the fourth ventricle. The ventriculogram then presents this picture: dilatation of the third ventricle and both lateral ventricles. The operative procedure in this type of case is as follows: The patient is placed on the table, with special frame, face down and prepared for a bilateral cerebellar decompression. The decompression procedure is carried out in the usual manner. The vermis of the cerebellum is then raised by a spatula, and a fine catheter is introduced into the foramen of Magendie, passed through the fourth ventricle and into the aqueduct of Sylvius until the obstruction is met. A small sound is then passed up to the obstruction and forced through it into the third ventricle; fluid at once escapes, and communication between the third and fourth ventricles has been established. Larger sounds are then passed through the opening until it will admit a small catheter, which is left in position for two or three weeks. It is hoped that the epithelium of the aqueduct will regenerate, form a new canal, and thus establish circulation of cerebrospinal fluid.

The other type of obstructive hydrocephalus with which we have to deal is that in which the foramina of Luschka and Magendie are occluded. The above mentioned foramina drain the cerebrospinal fluid from the fourth ventricle into the cisterna magna. Therefore when we have this condition existing we get ventriculograms which present dilatation of the lateral ventricles, third ventricle, aqueduct of Sylvius, and fourth ventricle. This definitely locates the point of obstruction. The majority of such cases, in fact nearly all of them in infancy, are the result of an old intra-uterine inflammatory condition producing adhesions and exudate, which caused the obstruction. Hence before we can operate we must determine how much of the subarachnoid space over the cerebral

hemispheres is still patent and able to carry on its function of absorption as a part of the cerebrospinal fluid vascular system. This can be demonstrated in one of the following ways:

1. Inject 1 c.c. of neutral phenolsulphonephthalein into the spinal canal; if over 30 per cent of it is absorbed in two hours, a cure can be expected if the cause is removed.

2. Inject air into the spinal canal by the usual method: take *x*-ray plates, and if you are able to visualize the cerebral sulci over the greater part of both hemispheres, then a cure can be expected, and operation is justified.

The operative procedure is the same as for reconstruction of the aqueduct of Sylvius. In one of the cases which we operated on very dense scar was encountered. The fourth ventricle was markedly dilated, the walls being very thin. The fourth ventricle was punctured, and an opening of considerable size was made, thus forming a new foramen of Magendie and establishing circulation of cerebrospinal fluid between the fourth ventricle and the cisterna magna. It is hoped that this newly formed foramen will remain patent and thus prevent further development of the hydrocephalus.

Communicating hydrocephalus can be diagnosed in one of three ways:

1. Injection of neutral phenolsulphonephthalein into the lateral ventricle, and, if it appears in the spinal fluid in thirty minutes, then you know that you are not dealing with an obstructive hydrocephalus.

2. Inject phenolsulphonephthalein into the spinal canal, and if less than 30 per cent is absorbed in two hours you are dealing with a communicating hydrocephalus of rather severe grade.

3. The best method is by the injection of air into the spinal canal and pneumographic *x*-ray plates. If the cerebral sulci cannot be outlined over the cerebral hemispheres, the case is one of communicating hydrocephalus, and offers no relief from surgical interference.

External hydrocephalus likewise contraindicates surgical intervention.

In regard to the localization of brain tumors by means of ventriculography: It can be stated that when possible it should be done in every case where there is a reasonable doubt as to the exact location of the tumor. It will often-times more definitely localize a tumor, particularly one in a silent area of the brain. The work of this nature done by Dr. J. Frank Corbett and

myself in regard to brain tumors we hope to present at some future date.

In this work the neurological surgery has always been done by Dr. Corbett and myself. The technic of the operative procedure is that used by Dr. Dandy, of Baltimore. It is to Dr. Dandy and his co-workers we are all indebted for the splendid research work that has been done in this field of neurological surgery and its application to human surgery.

CONCLUSIONS

1. Cerebral pneumography or ventriculography is a most valuable aid in the diagnosis of intracranial conditions.

2. It definitely differentiates hydrocephalus into two types: (a) external hydrocephalus, and (b) internal hydrocephalus.

3. It further differentiates internal hydrocephalus into two classes: (a) obstructive internal hydrocephalus, and (b) communicating internal hydrocephalus.

4. It definitely localizes the lesions in obstructive hydrocephalus.

5. It is our guide to surgical intervention in this type of case.

6. Cerebral pneumography is a great step forward in neurological surgery.

THE DOCTOR AND HIS BUDGET*

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MONTICELLO, MINNESOTA

Money brings honor, friends, conquest, and realms.—Milton—Paradise Regained.

Money alone sets all the world in motion.—Publilius Syrus—Maxim.

Foul cankering rust the hidden treasure frets,
But gold that's put to use, more gold begets.—Shakespeare—Venus and Adonis.

Live with a thrifty, not a needy, fate,
Small shots paid often waste a vast estate.—Herrick—Hesperides.

It has long been a well-known fact, familiar to every stock salesman, that medical men are easier to sell any kind of stock than members of all the other professions, and, while this is a sad commentary, still it does not cause any particular difficulty to reasonably explain the psychology that operates in the mind of the doctor when he is offered an opportunity to part with his money in return for promises of speedy and fancy riches; thus it may be submitted as a general rule that medical men neither during their University curriculum nor later in their highly individualistic practice, are given an opportunity to learn of the existence of financial rules or commercial practices relative to investments except through the school of hard knocks, and in every such instance the doctor pays dearly. Secondly, it is not to be wondered at that the very work of a practicing physician,

earnestly engrossed in his humanitarian field, should act and regularly does act as an hindrance in keeping his mind upon business affairs and how his money should be wisely invested.

On the other hand, it is equally certain that most doctors early meet with the experience that large incomes from purely medical work only fall to the lot of a small minority; in fact, some years ago it was generally stated that the average income of all medical practitioners in America was about one thousand dollars a year,—a rather surprisingly low figure. Personally, I doubt that the last decade has improved very much upon this figure, when it is remembered how the ethical doctors' arena has been encroached upon by a multiplicity of heterogeneous practitioners, *exempli gratia*: Christian Science healers, naturopaths, and chiropractors, all of whom make use of printer's ink freely and without restraint, entirely in keeping with the ordinary quacks. Further reductions in the individual doctor's income are also suffered by the competition with numerous osteopaths and many group formations of medical men, organized on the lines of the original department store clinics at various places.

Under these circumstances and bearing in mind life insurance statistics to the effect that physicians as a class show a slight excess over the normally expected mortality between the ages of fifteen and seventy, it very naturally be-

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comes a desire upon the part of every physician to enlarge his earnings, and to many the shortcut to this goal is believed to be staked out by the route of investing in stocks offered for sale by traveling salesmen or through the mails. Without taking time for necessary investigation nor having satisfactory knowledge of the honesty and competency of the officers of the company, any investment of money in the purchase of stocks of this kind must of necessity prove foolish, and ultimately be written off as a total loss of principal.

The existence of state securities commissions ("blue sky" law commissions) offers no guaranty whatever and never will, because these commissions are invariably filled by political appointees that know but very little about the financial laws, and, on the other hand, it is perfectly safe to conclude that any man competent to make a financial analysis never would accept any such appointment or any such state job, because he could make more money by managing his own business. In the last analysis it must be agreed that it rests with every single individual to invest his money as he pleases, and if by so doing he goes contrary to well-established rules or does not possess the rare faculty of exercising good judgment, no state securities commission can make him learn these rules, but the painful experience that he is sure to suffer, will invariably serve as the most forceful instructor, and in time make him proceed with less haste and more care when he again thinks of investing his money, thereby entrusting to other people to make money for him out of his own money.

Granted that this picture of the financial conditions of most doctors be fairly true and accurate, it has occurred to me that we could, with advantage, very well devote a little time in common to a discussion of our budget, and to that end, therefore, I beg leave to submit the following guidemarks: First and irrespective of the size of the individual budget, I feel we can agree upon the desirability of having our own home; if a suitable home cannot be bought outright, it can nearly always be financed upon the partial payment plan and when finally fully paid for will always prove a very good investment, besides doing away with rental checks that never enrich anyone save the landlord.

My second demand upon the doctor's budget has reference to buying life insurance protection for his family. The duty incumbent upon every

doctor to do so at the earliest time possible is not discharged by getting a policy for three to five thousand dollars. Personally, I feel very keenly the necessity for advocating this program, because during my more than fifteen years of life insurance work I have amply convinced myself that doctors do not, as a rule, secure for themselves enough of this protection. Nothing short of twenty-five thousand dollars in various policies will suffice to make certain that one's family will continue to live reasonably well, should the bread-winner, the doctor, suffer an untimely death. And when I speak of life insurance policies, may I also be permitted to offer some real advice. It is not enough to obtain life insurance policies to the amount of twenty-five thousand dollars or more, if this sum is directed payable in one lump sum in case of death. If the doctor is not any too well versed in financial matters, it is certain that his wife, as a widow, will know less about investing this great sum of money so that the future of herself and children shall not be disturbed by financial losses. To make certain that the proceeds of his life insurance policies will fulfill their mission, it should be insisted that every policy be paid out on the installment plan, with a stipulated amount per month or year; an arrangement for having all of one's life insurance payable either monthly or yearly should be requested in writing of the respective companies while the insured is alive, and by so doing the doctor has appointed the best trustee in the world for handling the proceeds of his life insurance policies, and, what is still better, these same insurance companies will do this work without any additional charge,—something quite contrary to what would be the experience if the same amount of money was turned over to a commercial trust company for administration and distribution.

Another point about life insurance policies may also be valuable enough to warrant a few words. Under the Federal inheritance tax law, life insurance to the amount of forty thousand dollars is exempt if directed payable to one's wife or children, while no such exemption would be available if the same amount was directed payable to one's estate. Bearing this fact in mind, it becomes a wise procedure also to see to it that a name given beneficiary—wife or children—be inserted into the policies in question while the insured is alive.

And now having spoken this much about some

features of a life insurance policy, generally not known or paid much attention to, I ask your kind indulgence while making a few general remarks. Certainly the doctor who does not think well of life insurance and does not embrace the first given opportunity to secure the same to the extent that he can carry, must be a rare manifestation; and in all my many years of mingling with the profession in various states, I have never met any such colleague. It is not so much a question of carrying insurance at all with the doctor as it is of getting away from the old habit of being underinsured, and when President Wilson gave utterance for his eloquent tribute to life insurance by saying: "If a man does not provide for his children; if he does not provide for all those dependent upon him; and if he has not that vision of conditions to come and that care for the days that have not yet dawned, which we sum up in the whole idea of thrift and saving, then he has not opened his eyes to any adequate conception of human life. We are in this world to provide, not for ourselves alone, but for others, and that is the basis of economy." I repeat, when President Wilson summed up the beneficent work of life insurance in such forceful language, he certainly did not hit many doctors, if any at all.

While it may be interposed with good logic that most doctors, if they will but follow my recommendation so far given, will not have anything left over for a long time for outright investments, nevertheless I know full well that many medical men have such steady and ample incomes from a good paying practice that it becomes an actual necessity for them to give serious thoughts to how this money can be invested most profitably, and for the benefit of this class, therefore, I shall proceed with my third recommendation, which can be formulated briefly as follows: Always consider the safety of the principal to be of paramount importance, while the actual, but regular, interest yield does not require more than perfunctory attention. If medical men will remember this rule, it follows necessarily that we can eliminate all discussion about investing money in silver and gold mines organized a short time ago, or investments in stocks of oil companies, plantations, and patented devices. All of these enterprises when organized recently or barely a few years old fail to offer any assurance about one's capital remaining safe and intact. Under these circumstances there are but few avenues open for

medical men seeking safe investments, and these avenues lead to the purchase of either government bonds, municipal bonds and well-secured corporation bonds, or else first mortgages on real estate preferably farm lands of absolute value. In either event it may be contended that the principal is safe, and while personally I give my preference to government or municipal bonds because of their ready convertibility into cash should occasions arise, still I know very well that many men do persist in favoring conservatively chosen mortgages on carefully inspected farm lands.

Finally, and in order to give sufficient latitude to the individual fancies about safe investments, I deem it necessary also to say a few words about some well-established commercial enterprises and their stocks, both common and preferred. To begin with, let me mention our immense transportation system, our railroads. Some of the larger railroad companies have continued to earn for their stockholders a fair return upon the money invested, while a greater number of railroad companies have had to pass up for years any dividend upon their common stock. To invest judiciously and safely in railroad shares requires considerable familiarity with the stock market, and as doctors will hardly ever have time enough to follow the movements of the market for any length of time the best advice I can give my colleagues is to the effect never to invest in any railroad shares, or in shares of any kind, without consulting with a reliable investment banking house whose business it is to keep in touch with the market and give advice that can be relied upon.

What I have said about railroad shares can be applied with equal force to shares in steel companies, tobacco companies, flour mills, rubber companies, automobile companies, oil companies, etc.; in short, to all commercial and industrial enterprises of which the public is being constantly kept advised in our daily papers, because trading in these shares is a regular daily occurrence, and the stock exchanges of our large cities have therefore listed such shares. In all of these cases it can be set down as a rule that the dividends declared by these old-established concerns are quite moderate, especially during the last few years, when every corporation of any magnitude has been groaning under the heavy taxes that have been levied upon the commerce of our nation ever since we entered the World War in 1917; and, inasmuch as it

will take years before our Federal and state indebtedness can have been reduced sufficiently to warrant real easement in taxes, it does not seem probable that the dividend returns upon any of these shares will show any increase for some years to come. Many of the same companies above mentioned or referred to have outstanding not only common stock but also preferred stock, which carries a stipulated interest rate of either 7 or 8 per cent and, in some instances, is cumulative or participating in earnings above the fixed rate upon an equal basis with the common stock. There is not much good to be said about the usual preferred stock and the various frills added to it to make it attractive to the public, because, while preferred stock outstanding in reality represents borrowed money, still it is obtained under an agreement much more loosely drawn than is the case if the same amount of money be borrowed under a bond issue agreement. If the concern prospers and has sufficient steady income to earn a profit on the business, then the holders of preferred shares will receive their stipulated interest, but when the business fails to operate profitably these same shareholders will receive nothing. Under these circumstances I know of

but one kind of preferred stock that would be worth buying, and that is the kind that is supported by some collateral security of unquestionable value; naturally an issue of that kind is so rare as to be almost unheard of and for obvious reasons that I need not enlarge upon the same.

I desire, however, to emphasize once more, irrespective of whether the doctor invests in farm mortgages, bonds, or stocks, that the higher the interest rate promised the more the investment becomes surrounded with speculative hazards, while, on the other hand, truly gilt-edged securities never appear in the public marts of trade with alluring interest yield as the main attraction. If medical men would but remember this fact and be governed in their investments by it, it would be possible to remove the now generally prevailing unfavorable opinion about our gullibility in all financial matters, and when that day shall have come we shall be permitted to see the soundness of and to realize the truth of what was meant by Lord Eldon when he summed up his praise and thankfulness for the safety of his capital by giving utterance to his enjoyment in "the elegant simplicity of the three per cents."

FRACTURES OF THE SHAFT OF THE FEMUR IN CHILDREN*

BY KELLOGG SPEED, B.Sc., M.D., F.A.C.S.

CHICAGO, ILLINOIS

It is my purpose to show you some fractured femurs in children and demonstrate a line of treatment we are adopting after considerable study. Perhaps you can apply the same method to adults—at least we do, and perhaps you can.

We use a very small frame of which I have a model here. The frame fastens on the bed by bolts. There are just three pieces of wood with cross-bars, and all the weights that make the extension are hung at the head of the bed. The foot of the bed is elevated; and, after a Thomas splint is applied to the leg with the leg in traction, the main pull on the splint comes from over the head of the bed. Thus by continuous traction we hope to get reduction in most shaft fractures. I talk to you only about shaft fractures because this treatment is not applicable to



Photograph of the model frame applied to a doll's bed. All the weights used for extension are placed at the head of the bed. The weights at the upper end of the splint applied near the ring are very light and simply steady the leg.

*Presented at the annual meeting of the Soo Surgical Association.

neck or intertrochanteric fractures. The model you see here is reproduced exactly in the real frame applied to beds, and the transportability of the apparatus makes it possible to take the patient around in the hospital anywhere we wish because this frame is attached just to the bed—it nowhere comes in contact with the floor; and all the weights being at the head of the bed there is no danger of jarring or knocking them off when people move down the center of the ward.

The method employed is very old, of course. It is merely one of traction, and the traction is *continuous traction*. The method is really an American method, and perhaps some of you can recall Hodgen's work done at the time of the Civil War in 1861-65. Hodgen lived in St. Louis, and developed his method of traction with an anterior iron splint fastened to the ceiling or wall with spring traction. He had several students who adopted his methods, but in spite of his teachings and the very excellent results he afterwards obtained, and in spite of his efforts to hammer this type of treatment into people, Eastern surgeons refused to take it up, and it practically died out of use. But during the Balkan war, on account of gunshot fractures, it was revived, and the so-called Balkan frame was brought out and heralded as a new method. It was not a new method; it is old and distinctly an American method. So we in the West have the honor of originating this type of treatment. Of course, during the great war this method was improved on and brought up to its present standard. In this hospital in shaft fractures of the femur in children (shaft fractures comprise 90 per cent of femur fractures in children) we use this method. First of all, we are satisfied with the results, and, secondly, because operative procedure in both children and adults, even under the best circumstances, is rather questionable. Some of you will dispute that perhaps, but I can recall distinctly failure of attempts at operation on fractured femurs which might not have so terminated had the broken bones been treated by other methods.

What advantage has this over plaster-of-Paris cast methods? It has a distinct advantage over a body cast applied without the patient on a Hawley table. As a rule, after a body cast is applied even with traction and counter-traction, one will fail to get complete reduction in 95 per cent of cases (no fracture-table used). If you do get reduction, the shrinkage of the plaster

after drying will permit some recurrence of the deformity. The muscles of the thigh inside the plaster cast are constantly pulling and contracting and are never completely paralyzed. I believe that fully, (I have tried it), and the end-results are as I tell you. If manual traction fails to give reduction, why not put the patient on the Hawley table and pull him out, get as much traction as is required, then put a body cast on? That has certain advantages and would give you a definite proportion of good results, but the same thing holds—that you can seldom put on a cast so it will hold even on a fracture-table. Once in a while you get one in which there is a good result, but ordinarily the cast shrinks and permits retraction of fragments. You are liable to get a gangrenous foot if the cast is put on too tightly, and you cannot leave the patient lying on a Hawley table for six or seven weeks with sufficient traction applied to effect reduction.

How do we accomplish our results? We cannot get quite a satisfactory reduction with a cast, we cannot get prolonged pull, but we can get it by continuous traction. That may be done by Buck's extension, which is very unsatisfactory and inefficient; or we can hang the leg up and secure the advantage of suspension traction, because in that method the pull is from both directions, and the traction is continuous night and day. It never lets up. Eventually it pulls the fragments into position, the muscles are bound to give a little, and the sheath-like action of the muscles and fascia will tend to straighten out the fragments. You can get full length of the limb that way. During treatment the patient can move his ankle and knee—very different from treatment in a cast. He can be massaged, he can have electrical treatment, so that when he comes out of the splint in a few weeks he is then able to think of walking, whereas if in a cast four to eighteen weeks, depending on the patient and his age, he is not able to walk until three or four months later.

In the use of this method there are certain mechanical advantages that apply in railway and industrial surgery. You do not always get a perfect anatomical reduction by this means, disregarding the type of fracture, but we try to get it, and there are two or three elementary principles about obtaining reduction that are worth remembering:

1. As soon as fracture occurs, put it up in suspension traction. No ether is necessary; no

so-called "reduction" is needed. Do not wait two or three days and let extravasation of blood and leucocytes fill up the space between bone fragments; put them up right away while the accident is fresh, before hematoma has formed and caused a large extravasation. Put them up right away, whether they are compound or simple, open or closed, it does not make any difference.

2. The traction must be watched and kept on continually, and should raise the buttock on the injured side off the bed slightly. You will see that the buttock of this patient is just slightly off the bed on that side. That is the second most important point.

3. The amount of weight varies with the weight of the patient. You may see why we have slight traction at the upper end of the splint. I can pull even harder or can relieve it if it becomes too great. If one waits too long the shortening of muscles and the extravasation will block reduction. In two weeks a child of this age will have a firm callus that you cannot pull out, and if he has acquired a shortening or overlapping or overriding, and you wish to get a nearly perfect result or end-to-end result, the only way to get it is to operate. In our work on these children in the last two years we have operated on only about 1 per cent of the cases. We are pretty well pleased with the results acquired by other means, and by this means particularly. Operative procedures, while they are a shortcut perhaps to an end-to-end apposition, have their dangers, and the mortality is very much higher. I am not speaking without some basis for what I say because on my service I get 100 fractured femurs a year, which means that practically every third day I get a new one, and some are pretty bad cases. We have worked on this subject in an attempt to get it in shape where the whole thing is standardized and simplified and the results are happy. We have lost but two cases, and they were operated on a year ago while I was in Europe. Somebody else took my work and insisted on plating them, and we lost two cases. So the mortality is low, and the results are satisfactory. The shortened period of disability is a point of tremendous value, and we are pretty well pleased with the whole line of treatment.

You can see the method that is used. Buck's extension is put on the thigh and tightened slightly to the splint. The leg is put in that splint. The ring does not have to press against

the pelvis; it does not have to be tight. The splints and frames are made right in the hospital, so there is no expense. These Thomas splints are made in the hospital. They are cheap, they are efficient, and this ring does not need to fit tight against the pelvis—that is not necessary at all.

By crossbands here holding up leg we can make pressure and elevate or depress the fragments or portions of the bone. We can bend the splint if the fracture is near the condyles—we can bend the splint to get the pull around the corner slightly, and then traction is made directly on the lower fragment of the femur. The weights are attached to the splint, and you can tell what traction should be made by feeling here (indicating). If that is steady you know you have a good pull. You can also feel the adductors and muscles in the thigh, and if these are tense you know you have a continuous pull. The foot of the bed is always elevated. The patient slides back and his weight pulls him back, the pull on the splint pulls his leg in the opposite direction, and, altogether, you get this traction constantly. As a rule, in four weeks children get a happy union. We have not had a non-union or delayed union in the last two years except in operated cases. In four weeks you will get more or less of a union, which can be tested by rotating the shaft and by examining the callus and seeing if the trochanter moves with the rotation. And when it does and we are satisfied, we take the leg down from the frame, but leave the splint on for one week. The patient simply lies in bed in the splint, the limb is massaged, the knee is moved, and the leg is moved, as it is all the time during the confinement. Then in the sixth week we apply a retention apparatus and let him get up and walk.

4. In some cases, such as open fractures with lacerated wounds extending to the bone or not, depending on the case, you cannot apply adhesive tape, glue, etc., to the leg and put it in this traction and make it work. For those cases one can use the caliper, or, more cheaply and efficiently, a nail driven through the femur, or in cases of enormous laceration which precludes using the nail in the femur it can be driven through the os calcis. You will see in this child's heel a small hole. The patient has been up for four or five weeks with traction on a nail in the heel. This, then, is another method of securing traction in such cases. We do not like to use heel nails in children, for the traction is severe,

and it may pull through the soft bone, but in an adult you do not need to worry about that.

The application of skeletal traction, so called, by means of a nail through the condyles, is effective. It will not slip, it will not turn out of place, it will not loosen as does a caliper, and the patient cannot pull it out. So it is safe and cheap and efficient, and you can apply your traction on the femur by fastening wires on the end of the nail. That is very advantageous for fractures low down on the femur that refuse to pull up in position.

CASE.—This child entered the hospital with a laceration extending from the ankle clear up into the buttock, the whole back of the thigh was laid open. We could look into the popliteal space and could see all the structures of the back of the leg. What would we do? Would we amputate? Primary amputations are indicated where blood vessels or nerves are completely destroyed. But as a rule we try to save every leg, and so we made the effort in this case. And not being able to apply the traction on the skin in any way, having an extensive wound here that might infect the small wound, we decided not to take chances. So we put the nail through the heel.

The patient was up on traction the same as the other children with extension applied on that nail. With that disagreeable fracture and laceration I could not put on much pull, so she has about a half inch shortening. But at least she has so far retained the leg. The wound which is still granulating is being strapped and epidermization is rapid beneath the adhesive tape. She has a leg, she has union, she has a pretty fair result, and, as you see, now goes about in this ambulatory iron splint.

When a child has union and is able to become ambulatory in five weeks, when an adult has union and becomes ambulatory in eight, nine or ten weeks, we feel that the result is good. We use a protection before we allow these patients to walk unaided, a caliper like this. We use a modified Thomas splint with the lower ends free and placed in a small groove in the anterior end of the heel, and made to fit each child. The splint is put on, and canvas straps hold it in position. There is less likelihood of secondary shortening or change in the axis obtained by the traction if this walking caliper is used. We believe that is important. Too many fractured femurs are walked on before the callus is sufficiently firm. During the day the patient has to hold the knee stiff, he cannot bend the knee, but at night when safe in bed the caliper is taken off, the leg is massaged and the knee bent, and very quickly these patients get sufficient motion. That is not a heavy splint. In the case shown it has just been on one or two days, and already the patient can walk very satisfactorily, and we know he is not going to spoil what we had as a result when we stretched him out. You can see that this child has no apparent shortening. He is an average result following an open fracture. This splint protects and aids them, and is applied to adults as well as to children. It can be used even in cases of fracture of the neck of the femur.

ABDOMINAL SURGERY*

By RAYMOND Wm. McNEALY, M.D.

CHICAGO, ILLINOIS

POST-OPERATIVE CASE—CARCINOMA OF ASCENDING COLON

History: Patient, E. C., aged 45, entered Cook County Hospital September 29, 1921, complaining of pain in the abdomen, gastric disturbances, and loss of sixty to seventy pounds in weight. The onset of the present condition dates back about three and a half months, when he first developed nausea and vomiting attacks shortly after breakfast. These vomiting spells were followed by a sense of relief. About 9 o'clock each morning he was in the habit of

taking a second breakfast of coffee and rolls, which was also vomited in most instances. As a rule, the noon meal of coffee and sandwiches was retained. Emesis often followed the evening meal. This first period of vomiting of his meals lasted for about two weeks and then disappeared only to reappear at irregular intervals up to admission. The pain has been of a dull, aching character with no apparent remissions, and no relation to bowel movements or food taking. For the last few weeks the patient has been able to palpate a mass in the right lower quadrant which seems to be getting larger. He states that the mass is more apparent when he stands.

*Presented at the annual meeting of the Soo Surgical Association.

Physical examination:

Nervous system, no headaches, dizziness, or other disturbances.

Cardiovascular system: Negative.

Gastro-intestinal: Patient usually has a watery stool soon after arising, but in afternoon the stool is usually formed. Has never had blood or pus in stools to his knowledge, although Weber-Boas test showed occult blood present. Patient has not been constipated and has had no colic. No jaundice. The abdomen is pendulous and tympanitic. Tenderness in right lower quadrant prevents satisfactory palpation of mass in this region.

Genito-urinary: Denies gonorrhoea; had chancre fifteen years ago. Temperature, 99.6°; pulse, 86; respirations, 24 on admission.

Laboratory findings:

White cells, 21,500; red cells, 3,200,000.

Differential count: Polymorphonuclear neutrophils 70 per cent.

Ewald test meal: Free HCl, 20; total acidity, 57; no retention shown by motor meal.

X-ray pictures: You can see how very plain this filling defect shows in the ascending colon about where we were able to palpate the tumor.

Discussion: At operation on October 6, the findings presented were those of a degenerating carcinoma of the ascending colon. There are many interesting features connected with carcinoma of the large intestine, but I shall discuss only a few points which appeal to me at this time. The various modes of onset make these cases tremendously interesting from a diagnostic standpoint. Probably the most common picture which is presented at this hospital is the case that comes in as an acute intestinal obstruction: diffuse pain over the abdomen; vomiting, at first stomach contents, later bile-stained, and still later feculent; meteorism and distension, muscular rigidity, and obstipation. Diagnosis is only possible after exploratory laparotomy. Another onset is the so-called latent type. In these patients there is a history of indefinite gastric disturbances extending over periods varying from a few weeks to months. The patient is usually admitted under the diagnosis of chronic appendicitis or ulcer of the duodenum. Less commonly, the patient presents himself for examination because of a gradually increasing swelling or tumor mass. Onsets with blood in the stools as the dominant feature occur more commonly when the lesion is in the descending colon or sigmoid. Loss of weight and strength with marked second-

ary anemia may precede the development of other symptoms in some cases, although they usually come later.

Now let us consider the treatment in these cases. If the case is seen during an acute attack of intestinal obstruction, one must be content with a cecostomy or colostomy until the crisis is over, when radical procedures may be attempted. Too often the operator in clinic is led to attempt the more radical procedure with a resultant high mortality. In the absence of acute obstruction one has many methods at his disposal.

Before we speak of the technic of these operative measures, let us consider some of the pathological data bearing on our treatment of cancer of the large bowel. Statistics from various post-mortem clinics have shown that carcinoma of the large bowel is slow to show metastases. About 33 1/3 per cent of those coming to post-mortem show no metastases. This in terms of the surgeon means that one of every three cases can be cured if the primary tumor can be removed without the patient succumbing from some complication incident to the operation, as shock, hemorrhage, peritonitis, embolism, or exhaustion. Time is too limited to permit my discussing the merits of the one-step, two-step, or three-step operation for cancer of the large bowel. I shall describe the operation as we did it in this case.

Operation.—A right rectus incision with the umbilicus at its middle served to expose the tumor mass involving the ascending colon about three inches above the cecum. In order to decide upon the scope of our operation we must be familiar with the lymph vessels and glands in the region affected. The work of Clogg, Polya, Mayo, and Jamieson and Dobson has been of inestimable service to operators doing these cases. It has been shown that the lymphatics of the large bowel have a fairly well known distribution, especially on the right side, where it is supplied by the superior mesenteric artery. The lymph channels and glands are richly disposed along the right colic and the ileocolic branches of the superior mesenteric artery. There is an especially rich lymphatic supply at the ileocecal junction necessitating removal of some four to six inches of the terminal ileum with its mesentery. In the ascending colon the mesentery is not so rich in lymphatics, so that here we expect metastases to be slower in reaching the deeper and less accessible glands near

the pancreas. The region of the hepatic flexure which is supplied by the right colic artery is likewise rich in lymphatics as is the ileocecal region.

With the above facts known, we designed our attack to encompass the major portion of the lymphatic channels and glands likely to be involved. We resected about six inches of the ileum, the cecum, the ascending colon, the hepatic flexure, and about three inches of the transverse colon. We removed the mesocolon well up to the origin of the superior mesenteric artery, for it has been shown that a few lymph channels from the region of the cecum do not pass directly into the lymph glands in the ileocecal region, but pass to the secondary glands in the region of the origin of the superior mesenteric artery.

We mobilized the colon by an incision along its outer border. With the parts to be resected freely mobilized, the rest of the intestines were carefully protected by wet lap pads. We next clamped the ileum in two places and cut between the clamps. The proximal end was inverted by double row of catgut sutures. The transverse colon about three inches distal to the hepatic flexure was treated in a similar manner, closing and inverting the distal cut end. The mesentery, having been doubly ligated, was resected along with the gut.

The next step consisted of a lateral isoperistaltic anastomosis between the ileum and the proximal stump of the colon along the anterior tenia. The parietal peritoneum was attached to the remaining mesentery by interrupted sutures covering over the area denuded by the resection.

Waugh, an English surgeon, who has had a liberal experience in intestinal work, warns us of the dangers of wound infection where the colon is handled during operative work. He emphasizes the fact that it is not necessary to open the gut, but merely manipulating it may give rise to infection due to the permeability of its walls to its rich bacterial flora. We had a mild colon bacillus infection of the superficial tissues in this case, but it has responded very readily to hypochlorite solution irrigations.

Post-operative condition.—This is the sixteenth post-operative day, and patient's temperature and pulse are both normal and have been so for several days. The first six or eight days the patient had a rather liquid diarrhoea. This could be expected because the large bowel had not yet

accustomed itself to the new fluid contents of the ileum.

On November 6, the patient has been up and about for several days. A rapid gain in weight and strength has occurred. The bowels are normal and the stools formed. X-ray examination shows bismuth passing freely through anastomosis.

OPERATIVE CASE—OBSTRUCTIVE JAUNDICE

History: J. C., male, aged 44, single, laborer.

Present complaint: Patient entered the hospital complaining of jaundice, pain in the abdomen, clay-colored stools, loss of weight and strength, and a feeling of general nervousness. The onset was sudden three months ago with a colicky pain in the upper abdomen, which lasted for three days and was not associated with nausea or vomiting. The jaundice made its appearance about a week later, and, persisting with increasing depth of color, the skin is now almost olive colored. Pain in the epigastrium and right hypochondrium has been present most of the time since the onset. It is dull and constant in character and has not been colicky nor severe except at the onset. The pain has no relation to food taking, but seems to be relieved by a bowel movement or expulsion of flatus. Clay-colored stools have been constantly present since the onset. The patient states that stools seem whiter for past few weeks. The loss of weight has amounted to at least 20 pounds in the last 3 months.

Past history: The patient had an attack of acute catarrhal jaundice in 1904, which lasted six weeks. During the last three or four years he has had occasional attacks of pain in the right lumbar region which was referred to the right shoulder blade. He has never been jaundiced before.

Physical examination: The patient is deeply jaundiced. A palpable tumor mass can be felt in the right hypochondrium extending toward the umbilicus. It has a round smooth edge and is slightly tender on pressure. It moved with respiration. The edge of the liver can be made out quite easily extending three fingers below the costal margin. Abdomen is not rigid and no particular tenderness is present.

Laboratory findings: Urine shows presence of large quantity of bile. Stools are clay-colored, nearly white, containing coarse undigested food material. Stools contained no blood nor bile.

Gastric analysis: Ewald test meal; free HCl, 20; total acidity, 50; no bacilli; no blood; motor meal showed no retention.

Blood examination: Red cell count 4,000,000; white cell count, 13,000; Hb., 75 per cent; Wassermann, negative.

X-ray examination: Bismuth meal showed no findings of interest.

The most interesting feature in the history and examination of this patient is the presence of the very deep jaundice. The diagnostic problem presented is one we commonly meet and we must be on the alert that we do not overlook the aids which surround us in these cases. In the first place one should use the immense store of knowledge which has resulted from the study of carefully kept clinical and post-mortem records. No teacher has yet usurped the place of experience. As one brilliant clinician very aptly said: "You should learn the value of the law of averages in making a diagnosis."

We shall bear these lessons in mind in the case here presented. Jaundice may be said to be of two types etiologically: obstructive, which comprises 70 per cent of the cases; and non-obstructive. Statistics have shown about 50 per cent of obstructive jaundice to be due to occlusion of the bile-passages by gall-stones; about 15 per cent result from occlusion of the ducts by carcinoma of the ampulla of Vater, head of the pancreas, or the bile-ducts themselves; from 6 to 8 per cent are due to other diseases of the gall-bladder or ducts.

Thus far it is apparent that our experience in these cases favors the diagnosis of obstructive jaundice due either to gall-stones or to carcinoma occluding the gall-ducts. Courvoisier has formulated a law of averages which has proven itself true in practically 85 per cent of cases. For practical purposes, the law may be stated in this way: Where jaundice is present and increasing in depth of color, one should immediately examine the gall-bladder region. If the gall-bladder is palpable, other factors being favorable, one should feel that the obstruction is probably due to a cancer occluding the gall-passages. Where the gall-bladder is not palpable, gall-stones or disease of the gall-bladder should be thought of. Where malignancy is suspected one may be interested in knowing that about 50 per cent of the cases are due to cancer of the head of the pancreas and about 50 per cent due to cancer of the gall-bladder, ampulla of Vater, and gall-ducts.

Summary: The patient, male, aged 45, jaundiced, with clay-colored stools; palpably enlarged gall-bladder; all of which should lead us to diagnose malignant occlusion of the bile passages.

We shall now explore this patient's abdomen.

Operation: I am making an S-shaped incision, beginning to the right of the ensiform cartilage; coming down the right rectus about one inch from its outer border, we now swing off toward the linea semilunaris. The nerves of the rectus muscle should be preserved if possible. We now open the peritoneum and inspect the contents of the upper abdomen. We see at once this enormously distended gall-bladder pressing into view. Now we shall pack off the intestines and we shall pass this large moist pad down into Morrison's pouch, to the right of the gall-bladder, in the region of the right kidney.

The gall-bladder shows as a large, thin-walled, bluish-gray structure extending more than a hand's breadth below the liver margin. This gauze below the gall-bladder will protect the viscera from soiling.

I now palpate the liver to determine whether it has any nodules suggestive of metastatic cancer. The surface is smooth. I now palpate the head of the pancreas, where I find a small, hard mass about the size of an English walnut. This mass is in the region of the ampulla. It does not feel like a stone. There are no stones in the common-duct nor in the gall-bladder.

I am now inserting the fingers of my left hand into the foramen of Winslow that I may more easily palpate the common-duct and the pancreas. I palpate a few glands here in the region of the duodenum, one of which I shall remove, for I feel that we shall miss a great deal unless we secure this specimen.

Our problem now becomes one of creating a condition which will permit the bile to pass into the duodenum. Bile is being secreted by the liver and passes into the hepatic ducts, on through the common duct, and through the cystic duct into the gall-bladder. The question whether one should do a cholecystogastrostomy or a cholecystoduodenostomy seems of little importance according to the recent experimental work along this line. In most cases it is easier to perform a cholecystogastrostomy, and we shall do that in this case. Let us first evacuate the gall-bladder by means of this trocar. As you see, the contents is fluid, of a thick, mucous character, deeply bile stained. We now remove some of the peritoneum of the gall-bladder so that we may have

a collar of mucous membrane which will form a better tract into the stomach. We are now ready to make our anastomosis. I am using No. 1 catgut on a round curved needle. We use the same technic as in doing a gastro-enterostomy. After placing our first serosa suture we open the stomach and gall-bladder. We now insert our second row of sutures, bringing the mucosa of the stomach in contact with the mucosa of the gall-bladder. Our last suture is a continuation of the first. We now place several interrupted sutures to insure against leakage. Let us now observe the anastomosis by rotating the gall-bladder. All sponges and pads are removed and sponge count found correct.

Closure: The wound is closed in layers without drainage. Three silk-worm gut tension sutures inserted and tied over gauze pad.

Post-operative treatment: The patient is given nothing per mouth for three days. Normal salt solution is given per rectum at the rate of 6 oz. every three hours. Glucose solution is added after the first day.

Post-operative course: The patient's convalescence was uneventful. Bile was present in the stools on the second day. Jaundice cleared very rapidly. Itching disappeared immediately after operation. The appetite improved rapidly. The patient has gained in weight and strength.

November 8 bismuth meal picture and fluoroscopic examination revealed the following: Stomach emptied in normal time. When the patient was in the erect position no bismuth passed into the gall-bladder; when the patient was lying on his back no bismuth entered the gall-bladder, but on assuming the prone position bismuth was seen to enter the gall-bladder and distend it. When the patient stood erect or turned upon his back the bismuth passed out of the gall-bladder. The patient was discharged Nov. 12, much improved.

Microscopic examination of the gland removed at operation failed to show carcinoma. This, of course, is not at all conclusive, as previous cases have shown that too much reliance cannot be placed upon examination of enlarged glands in the region of carcinoma.

BOOK NOTICES

PRACTICAL INFANT FEEDING. 1 By Lewis Webbs Hill, M.D., Junior Assistant Physician to the Children's Hospital, Boston; Assistant in Pediatrics, Harvard Medical School. Octavo of 483 pages, illus-

trated. Philadelphia and London: W. B. Saunders Company, 1922.

This treatise on infant feeding differs very materially from other texts. The author covers many phases of the subject in a much more comprehensive manner than is generally done. An example is the chapter on the physiology and pathology of digestion.

Physiological and biochemical effects as related to food and food components are expressed in clear and simple language.

The chapter on metabolism is very good. There is quite a comprehensive reference to vitamins.

There is an excellent historical résumé on artificial feeding.

The chapter on cow's milk, its chemistry production, care, and preservation is very complete.

The author is an expert exponent of the percentage system of feeding and presents this method of milk modification in the most lucid possible manner. The amount of space given over to its elucidation is rather an indictment against the simplicity of this method.

The chapter on special preparations used in infant feeding is excellent, and makes a lot of diverse material readily accessible.

The chapter on artificial feeding is open to much criticism and discussion. It is extremely conservative and hardly reflects the newer teaching and clinical experience of present-day pediatricists.

Much can be criticized in the chapter on digestive disturbances in the bottle fed, but the few general suggestions for difficult feeding cases are excellent and contain valuable hints.

The chapter on chronic intestinal indigestion is most comprehensive and minutely details the treatment of this difficult and often baffling condition.

The chapter on rickets is good, and the one on spasmodicophilia the most complete so far discovered in any English text.

There is a separate chapter on the treatment of eczema. The directions for local treatment are good, but there is not enough emphasis laid on the connection between food allergy and its influence on the development of exudative phenomena.

The chapter on pyloric spasm and stenosis is good and presents all the newer methods of treatment.

This text contains much more recent information than many books of similar type, and the author must be complemented on the simple and direct style in which the subject matter is presented.

—F. W. SCHLUTZ, M.D.

CLINICAL LABORATORY METHODS. By Russell L. Hadens, M.A., M.D., Associate Professor of Medicine, University of Kansas School of Medicine, Cloth. Price \$3.75. Pp. 294, with 74 illustrations. St. Louis: C. V. Mosby Company, 1923.

The author summarizes in his preface the aim of this volume in these words: "To be presented to physicians and laboratory workers as a series of procedures which have been thoroughly tried out and found to give accurate results," and "all discussion of the interpretation of results has been intentionally avoided."

Too many books on clinical pathology and laboratory methods are already adorning shelves of medical libraries and book-sellers. It is difficult for one to recommend a suitable volume or two as reference and guide for a laboratory technician or a student in clinical pathology which meet practical requirements of the prospective owner without always reminding him of either the time-consuming theoretical discussion found in a larger publication or the limitation of brevity of a less voluminous hand-book.

Omission of scientific consideration and interpretation of results, selection of only a few accepted procedures for each examination, and avoidance of less practical or obsolete methods are the outstanding features of this book, which should make a special appeal to laboratory workers who, for the moment, at least, care little for detailed scientific discussion or interpretation, but who at once look for well-tried, nonimpeachable methods of examination.

Further, this book not only sets forth the majority of well-accepted routine procedures, but also includes many of the more recent and less practiced methods and tests which, nevertheless, find passing or permanent favor with more academically inclined internists and diagnosticians, and which, for that reason, must be mastered, especially by those who are affiliated with teaching hospitals or laboratories of progressive medical men and clinics.

This volume is recommended as a timely, practical aid to every progressive medical laboratorian and student of clinical pathology.

—KANO IKEDA, M.D.

THE SURGICAL CLINICS OF NORTH AMERICA. (Issued serially, one number every other month), vol. 2, No. 4. (Boston Number, April, 1923.) Paper, \$12.00 net; cloth, \$16.00 net. Philadelphia and London: W. B. Saunders Company.

This number contains presentations from our New York confrères. The subjects which are most thoroughly treated, by reason of the number of papers dealing with each, are surgical conditions of the gall-bladder and selected pathology of the bones, though the entire body is pretty well covered in a surgical way. The literature and plates are extremely attractive.

—DANIEL H. BESSESEN, M.D.

A PRACTICAL TREATISE ON THE CAUSES, SYMPTOMS AND TREATMENT OF SEXUAL IMPOTENCE AND OTHER SEXUAL DISORDERS IN MEN AND WOMEN. By William J. Robinson, Ph.D., M.D. Cloth bound, 502 pages. Postpaid, \$5.00. New York City: The Critic and Guide Co.

This is the eleventh edition of Dr. Robinson's book which first appeared ten years ago. The topics are arranged in twelve parts. The present edition, which contains 502 pages, is a complete outline of the sexual disorders in men and women.

The author covers the subject in his usual masterful manner, paying particular attention to the management and treatment of the various disorders. The text is elucidated with many interesting case-reports.

The latest developments in the treatment of sexual impotence have been added in an extra part to the book. Chapter 58 deals with the endocrine

glands and their treatment of sexual impotence and senility. Chapter 59 is devoted to the field of psychanalysis. Chapter 60 is consigned to vaso-ligation or testicular grafting; chapter 61 to vasco-ligation or the so-called "Steinach" operation. His book is a valuable addition to the physician's medical library.

—HENRY ODLAND, M.D.

CEREBROSPINAL FLUID IN HEALTH AND IN DISEASE. By Abraham Levinson, B.S., M.D., Associate in Pediatrics, Northwestern University Medical School. With a foreword by Ludvig Hektoen, M.D. Second edition. Cloth. Price, \$5. Pp. 267, with 69 illustrations. St. Louis: C. V. Mosby Company, 1923.

This second, thoroughly revised, enlarged edition should be favorably received by the profession. In it the history is traced, the anatomy, physiology, and the methods of obtaining the fluid are well presented. The physical, chemical, and physiochemical properties and methods of examination of normal and pathological fluids are clearly described and well illustrated.

A chapter is devoted to the findings and interpretation of the findings in the various diseases affecting the nervous system. Another chapter takes up the intraspinal treatment in the various forms of meningitis, poliomyelitis, neurosyphilis, tetanus, and chorea. The up-to-date bibliography with each chapter makes the book complete.

—J. W. DAULSTROM, M.D.

MEDICAL CLINICS OF NORTH AMERICA. (Issued Serially, one number every other month). Volume V, Numbers IV and V, per Clinic year. (July 1922 to May 1923). Paper, \$12.00 net; cloth \$16.00 net. Philadelphia and London: W. B. Saunders Company.

Medical Clinics of North America, January, 1923, Philadelphia Number. Clinics of Drs. McCrac, Anders, Riesman, Norris, Sailer, Pepper, and others contain interesting material, some of which is more complete than that shown to third and fourth year students. Of particular interest were the cases discussed by Drs. Chevalier, Jackson, Lukens, Moore and Funk. They illustrate the treatment of pulmonary abscess and bronchiectasis by bronchoscopic drainage and irrigation with very favorable results. Dr. Bothe's discussion of nine cases of staphylococcus aureus septicemia calls attention to manipulation as a big factor in expediting the dissemination of localized organisms in the blood stream. He reports slightly favorable effects from the use of two varieties of treatment; antiserum and one per cent mercurio-chrome solution given intravenously.

Medical Clinics of North America, March, 1923, Ann Arbor Number. A wide diversity of subjects, including the fields of neurology and pediatrics is found in this interesting number. Newburgh cites cases showing the value of high-fat diet in the treatment of diabetes mellitus with the avoidance of the incapacity which follows undernutrition.

Wilson and Hills discuss cases with rheumatic, tuberculous, and uremic pericarditis. They hold the view that in any of the later cases appear to be the direct result of the nephritic toxemia with sterile exudate. Other valuable clinical material is presented in neurology and pediatrics.

—C. A. MCKINLAY, M.D.

THE
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CHROMOSOMES, HORMOTONES, AND ENDOCRINES

This rather formidable heading is not to be covered in one or more paragraphs of an editorial, but it is used to call attention to the fact that Dr. Julius Bauer, of Vienna, has been in Minneapolis and has given clinics at the University and St. Mary's Hospitals, and also a lecture before the Pathological Society in the amphitheater of the Anatomy Building on "Constitutional Defects and Their Relation to the Endocrine Glands." He thinks that we are inclined to give too much credit, or at least pay too much attention, to the endocrine glands rather than the fundamentals back of them, and he describes and illustrates a number of defective constitutional states which are due to the failure of growth and development of the chromosomes. For our own benefit as well as for the benefit of some others, perhaps, we will say that a chromatin fiber is the joining line between cells, and it is the outgrowth of the original germinal cell during its enlargement, expansion, and the growth of a similar adjoining cell. Chromosomes divide in the nucleus of the cell, each segment maintaining an individual character. This, as our readers will remember, is known as *karyokinesis*, and it means, really, that the particular types are the bivalent, representing two chromosomes joined end to end, and the plurivalent chromosomes, the increased number of such fiber con-

nections and cells, as well as the reduction of the common chromosomes. The germinal cell is evidently the basis of all cell development and with the cell divided as it is into segments, each ultimately to represent a structure or organ in the body, it is not strange that a part of the chromosome may fail and the tissue which springs from this segment of the cell thereby suffer a greater or lesser defect.

Dr. Bauer, therefore, thinks that many of our constitutional diseases are fundamentally of that type, and only intensified by the action of the endocrine glands. It will be recalled, too, that the hormone is a chemical substance produced in a more or less distant organ, which, passing into the blood stream and reaching a functionally associated organ, is capable of exciting the latter to activity. Thus we have the triple effect of the development or non-development of the chromosomes, together with the either perfect or imperfect action of the ductless glands and the uncertainty of the substance or hormone which springs from them. This gives us a new angle from which to observe some of our so-called endocrine cases, and should make us consider not only the history of the individual but the ancestral history and attempt in that way to discover the presence of a constitutional defect or disease. The writer feels that this is a very complex study, and yet it presents items of interest and subjects for discussion which may be of service to us in determining constitutionally inferior conditions, on top of which is imposed the imperfect action of the endocrines.

For instance, in our cases of hypothyroidism we have the major forms which are represented by the cretins, or the myxedematous conditions; and among the minor forms there is an infiltration of brain cells, probably due to a lack of thyroid substance. In those cases we have dullness, loss of memory, apathy, slow metabolism, so-called "rheumatism," muscle and joint pains, stiffness, asthenia, and cardiovascular conditions exhibited mainly by cold hands and feet, slow circulation, dry skin, falling hair, brittle nails, and reduced perspiration. Then, among the women, we have pelvic heaviness with disorders of the endometrium, various menstrual disturbances, inactivity of the ovaries, not infrequently sterility, and, in the intestinal tract, a general stasis. In another type of cases, designated under the name of *hypopituitarism*, there is not infrequently associated impotency, asexualism, or sterility, and also very definite atrophy of the

gonads, or, if not an atrophy, a lack of development, and with it a diminution of hair in the axillæ and over the pubes and face. The outstanding feature in these cases is the appearance of femininism in the male. These people suffer from somnolence, apathy, and asthenia. Before they reach the age of puberty they have a small stature, the skeleton is stunted, the fingers are shortened, there is delayed union in the epiphyses, puberty is delayed or absent, and the secondary sex qualifications are lacking. They also show other stigmata of development. Sometimes these people are obese in certain parts of the body, and this is known as pituitary obesity, with a peculiar distribution of the fat over the trunk. The trunk is large and not uncommonly pendulous, while the legs and arms are small. These conditions, then, represent what are known as endocrine disorders, and yet behind it all is the same probability that there has been a deficiency in the chromosomes and an inactivity of the hormones.

DIETARY UNCERTAINTIES

What has become of the man who never worried about his diet, and how many doctors are there in practice who are constantly worrying about the diet of their patients? Whole books are written on the subject of diet, and the endeavor is to find a diet list that will fit any known disorder. But are they quite sure about the individual to whom they apply it? Of course, there are a large number of people who ignore diet from every point of view. They just eat what they want to and let nature take its course. But when our patients get sick we are apt to turn to a suitable diet, sometimes without regard to whether the patient needs a "diet" or feeding. It is amazing, sometimes, what one individual can eat. The man who works in the lumber camp can eat nearly a pailful of food in one sitting; where he stores it and how he takes care of it is often a matter of curiosity to the ordinary man of the street, who in the course of a day, perhaps, walks as far as four blocks, while the man in the woods works hard all day long out of doors, and uses up his tissues about as fast as food can supply them. On the other hand there are numerous cases of underfed people who really, in spite of their seeming stature and development and size, are undernourished. It becomes a very serious question to select the type of individual who ought to be put on a diet. Of course, basal metabolism

helps us out, that is, it ought to do so by all the rules of the metabolist; but once in a while even this test is not satisfactory because we forget for the time that this patient is of a peculiar type and his basal metabolism is due largely to the state of his mind. Yet without basal metabolism where would we be in our theories of foods and organic conditions? The best evidence of this is probably in the functions of the thyroid gland. However, we may carry this idea of dieting too far. Men and women over eighty have been known to consume enormous quantities of meat, while most doctors and most insurance companies will insist that the meat intake should be reduced because the patient needs less of it as he grows older. There are a few exceptions to this. Sometimes the patient needs what his appetite craves, and his life does not seem to be in danger except where he becomes gluttonous and indifferent to whatever foods he may take.

We have the history of the man of ninety-three whose favorite boast was that he had never missed a meal in his life. This man lived through more dietetic crazes, alarms, and fads than a man could name without reading up for a month, but he never missed a meal. Either he paid scant attention to advice or he changed his bill of fare to meet half a dozen contradictory theories, and, either way, he came to hale and hearty old age with a good appetite. The secret of his eupeptic career lay, we venture to guess, in the fact that he was born that way.

Any one familiar with the history of dietetics could make a list of pretty nearly everything men eat and prove by authority that most of it is food that is bad for the digestion. There was a time when a certain Dr. Graham came very near to convincing the world that brown bread might be regarded as a food and medicine sufficient for all purposes. There was once a serious theory that the prevalence of rickets in Ireland was due to the excessive use of potatoes in that unhappy isle! And it is not very long since that tomatoes were considered poisonous. Rice, which for twenty or twenty-five years was regarded as the blandest and most inoffensive of foods, has since been accused of being the next best thing to poison if it is polished. What is a poor fellow to do,—stick to his diet list or forget some of his troubles and eat a square meal! Our digestions are very dependent on our mental attitudes and we can eat many foods if we want to or are obliged to. Many a patient

who has abhorred milk has been fed on it and in some instances has learned to like it better than anything else, while before he feared it because he always thought it would give him indigestion and constipation. One notices the difference when one is happy and jolly or diverted; then one eats well, one's digestion is better, and the theory of dietetics goes lumbering back to its lair.

ROMANCE AND MEDICAL STUDENTS

A recent abstract from the London *Lancet* dilates upon the activity of the medical schools which have recently been opened and also the increase in hospital extension. Evidently the same thing is going on in England as in the United States, namely, an effort to increase the number of beds under all available circumstances. It has been found in England especially that there are seven times as many students as before the war. Westminster Hospital expects to re-open next March as the best-equipped hospital in the world. At the Charing Cross Hospital, which many of our readers will remember, Dr. Wm. Hunter spoke on the above-mentioned topic ("Romance in Medicine"), and he stated that the amount of knowledge which the medical student has to acquire is stupendous—ten times greater in relation to every subject of the student's studies than twenty years ago; that the student survives largely because of the romance of these studies, the variety of the forces and weapons of defense marshalled by science against disease, and the still more wonderful variety of forces and weapons which the human body itself marshalls in its own defence. There are probably many other romances connected with the study of medicine in which medical students are likewise engaged. They cannot study medicine all the time; they cannot devote themselves exclusively to anatomy; and they become more or less, as they think, romantic because they are seeking pleasures and happiness outside, in order to relieve the strain of the work in the hospitals and schools. This is quite right.

Then, too, this paper spoke of the centenary of the founder of the London *Lancet*, a man by the name of Thomas Wakley, who was twenty-eight years of age at the time and who had practiced near Regent Street. It seems he had had a grievance, and for some reason or other he was attacked, his house was sacked, and his furniture smashed—no wonder he thought he had a grievance! He was absolved from all of the accusa-

tions against him, and, although forced to go to law, he won his case; but he did not receive help, either from the Royal College of Surgeons or any other source. Three years later the first number of the *Lancet* appeared, and this belligerent editor produced a spirited journal. Wakley saw that the medical work and the world of medicine, especially in London at that time, stood in great need of reform, and the *Lancet* attacked everything that was in any way inimical to the regular practice of medicine. He must have been very ardent in his abuse or his efforts at reform, because he was obliged to report in ten actions at law, six of which were for libel, and the total damages awarded against his paper amounted to 155 pounds, about 750 dollars. The editor's costs were promptly paid by public subscriptions, the public evidently recognizing that this fierce antagonist had right on his side. Reforms began to take place in every hospital in London, and Wakley entered parliament and was a fighting man for a new medical act calling for better teaching, larger experience, and generally better doctors. All his efforts were crowned with success, in fact he achieved a bigger success than he set out to win because he brought the influence of public opinion to bear on medicine and as a result started a development of that health conscience which is to-day our greatest bulwark against disease.

This shows what a medical journal may do. Sometimes its outspokenness and its criticism of wrong medical procedures result in some good.

NEWS ITEMS

The County nurse of Itasca County traveled over 10,000 miles during the past year.

Dr. Walter Courtney, of Brainerd, was married last week to Miss Bertha Upham, of New York.

Dr. S. H. Anderson, who has practiced for a number of years at Wells, has become associated with Dr. A. E. Johnson, of Red Wing.

Dr. Daniel B. Mark, of Minneapolis, was married last month to Miss Margaret Ryan, also of Minneapolis.

The Virginia (Minn.) City Council, upon the request of Dr. H. T. Ground, the City Health Officer, appropriated \$100 for Christmas Seals.

The Northwestern Central Division of the American Urological Association will meet at the

University of Minnesota next week, Dec. 17 and 18.

Dr. H. B. Beeson, specialist in eye, ear, nose, and throat work, has joined the firm of Drs. Healy, Law, Woutat, Hetherington, and Moore, of Grand Forks, N. D.

Dr. W. T. Stone, who a year or so ago retired from practice at Park Rapids to take up ranch work, could not resist the urge of medicine, and has taken up practice at Nevis.

An admirable program of the next meeting of the Sioux Valley Medical Association is in the course of preparation. The meeting is to be at Sioux City, Iowa, January 22, 23, and 24, 1924.

Dr. H. S. French, of Grove City, has purchased the practice of Dr. H. J. Hanson, of New London. Dr. Hanson has moved to Minneapolis, and has offices at Nicollet Ave. and 54th Street.

Drs. Taliaferro Clark and John McMullen, of the United States Health Service in charge of trachoma prevention, recently spoke in Duluth before the Professional Men's Club on this subject.

Dr. Harry P. Ritchie, of St. Paul, was elected secretary of the Western Surgical Association at its annual meeting held at Colorado Springs last week. Dr. Ritchie succeeds the late Dr. Warren A. Dennis.

The death rate for 1922 in the registration area of the United States was given out last week. It was 11.8 per 1,000 population. It was highest (14.7) in Maine and Vermont, and lowest (8.1) in Idaho.

Dr. John M. Eagan, of Minneapolis, died last month at the age of 42. Dr. Eagan was a graduate of the Medical School of the University of Minnesota, class of '07, and had practiced in Minneapolis since his graduation.

The Ramsey County Medical Society held its annual meeting last month, when the following officers were elected: President, Dr. Carl L. Larsen; vice-president, Dr. E. M. Hammes; secretary and treasurer, Dr. C. C. Chatterton.

Dr. Carroll F. Crain, of Redfield, S. D., has joined the Aberdeen (S. D.) Clinic, succeeding Dr. E. D. Baskett, head of the Department of Medicine. Dr. Crain is a graduate of Jefferson, class of '20. Dr. Baskett will go south to practice.

Is it the irony of fate? Connecticut used to

say when charged with making wooden nutmegs, We sell them in the West. When Missouri was charged, *only the other day*, with making wooden doctors, she replied, We have sold them all to Connecticut.

Dr. F. C. Rodda, associate professor of the Department of Pediatrics, Medical School of the University of Minnesota, has been appointed head of the Department until June 30 or until a permanent head is named. He succeeds Dr. Clemens Pirquet.

The report of the accidental death of Dr. George W. Kirmse, of Minneapolis, noticed in our last issue, proved to be true. Dr. Kirmse and a nephew, Owen Ennis, a medical student in the University of Minnesota, were drowned while duck-hunting.

At the December meeting of the Huron (S. D.) Medical Society, held on December 6, papers were presented as follows: "Acid Auto-intoxication," by Dr. J. F. Paddleford; "Pneumonia," by Dr. M. E. Cogswell; "Chasing Headaches," by Dr. E. B. Taylor.

The Rice County Medical Society met in Northfield last month. The following officers were elected for the current year: President, Dr. F. M. Babcock, Northfield; vice-president, Dr. F. J. Lexa, Lonsdale; secretary-treasurer, Dr. C. M. Robilliard, Faribault.

Dr. Norman L. Kean, who practiced in Northwood, N. D., for a number of years, died last week in Minneapolis at the age of 77. Dr. Kean was a prominent in medicine and in politics while in North Dakota. He afterwards practiced in Wisconsin, Iowa, and Minnesota.

The Yellowstone Valley Medical Society of Montana held its annual meeting at Billings, when the following officers, all of Billings, were elected: President, Dr. W. J. Perry; vice-president, Dr. J. D. Barrett; secretary, Dr. W. F. Freedman; treasurer, Dr. J. H. Graham.

Dr. David M. Graham, a former pioneer physician of Duluth, died last month at the age of 80. Dr. Graham graduated from the Jefferson Medical College in 1868 and later from the Hahnemann Medical College of Philadelphia. He began practice in Duluth in 1889 and practiced there several years.

Dr. Charles A. Ballard, of Harlowton, Mont., died last month at the age of 52. Dr. Ballard was born in St. Paul, and was a graduate of the Medical School of the University of Minne-

sota, class of '06. Dr. Ballard conducted a hospital at Harlowton, and of late was engaged in experimenting on a cure for the drug habit.

Dr. Ralph St. John Perry, of Minneapolis, has a German medical book printed in Frankfort-on-Main in 1540. He says a friend of his recently read before a medical society a paper on "The Medical Uses of Gold"; and he asserts that all the facts in his friend's paper are found in this 400-year-old volume.

The special correspondence course in "Hygiene of Maternity and Infancy" offered by the University of Minnesota in co-operation with the State Board of Health has been taken by over three thousand persons within the last year, and registrations are made at the rate of four hundred a month. No charge is made for the course, which covers fifteen weeks.

The fourth annual Clinic Week of the Ramsey County Medical Society will take place on January 15-18 (Tuesday, Wednesday, Thursday, and Friday). The forenoon of each day will be devoted to clinics in the St. Paul hospitals, with special attention to dry clinics; and the afternoons will be devoted to symposiums. Several out-of-town speakers have already accepted invitation to give talks.

The Soo Surgical Association held its sixteenth annual meeting in Minneapolis on the 11th and 12th instant, the attendance was the best in the history of the Association. The following were elected officers for 1924: President, Dr. F. Gregory Connell, Oshkosh, Wis.; vice-president, Dr. George G. Eitel, Minneapolis; secretary and treasurer, Dr. John H. Rishmiller, Minneapolis, re-elected. The next meeting will be held in Chicago.

JANUARY CLINIC DAY OF THE MINNEAPOLIS

SURGICAL SOCIETY, JANUARY 10, 1924

Northwestern Hospital—9:00 A. M., to 12 M.

Operative Clinics: Dr. Mann, Dr. Law, Dr. Bulkley, Dr. Poppe, Dr. Yoerg, and Dr. Nordland, followed by a pathological conference.

Dinner at Minneapolis Athletic Club 6:30 P. M.

Hennepin County Medical Society Rooms—8:00 P. M.

"Surgery of the Gall-Bladder," by Dr. E. S. Judd, Rochester, Minnesota.

All medical men are invited to attend the dinner and all parts of the program.

Physician and Surgeon Wanted

In good town and large territory. The right man can do from six to ten thousand a year. For particulars address E. V. Peterson, Gary, S. D.

Position as Office Nurse Wanted

A graduate nurse with some office experience desires a position as office nurse; will accept a moderate salary. Address 412, care of this office.

Minneapolis Office for Rent

Above a drug-store in a splendid location for a physician in a suburban district. Phone Colfax 0906 or address E. Oredson, 3757 Chicago Avenue, Minneapolis.

Trial Case and Fitting Frames for Exchange

Complete trial case, fitting frames, and everything needed for fitting glasses, outfit worth \$100. Will exchange for Aloe Lighting cabinet or Therapeutic lamp in good order. Address Dr. A. H. Bullock, Cushing, Iowa.

Wanted

Assistant interested in internal medicine and x-ray in group in city of five thousand population, North Dakota. Liberal salary from start, with partnership proposition at the end of first year for the right man. Address 404, care of this office.

Position Wanted

An expert x-ray technician, with a slight knowledge of routine laboratory work, desires a position, in the Twin Cities or the country, at a moderate salary. Will assist in office work or do any kind of work she can handle. Address 411, care of this office.

Position Wanted

Woman, aged 38, desires position with physician or a group. Has had five years experience in physicians' office as bookkeeper, stenographer, x-ray technician and general office assistant, also some laboratory work. Has had fifteen years business experience. Address 406, care of this office.

Hospital Position Wanted

A graduate nurse of large experience in hospital work and management, also experienced in giving anesthetics and capable of making preliminary calls in obstetrical cases, desires a responsible position with a hospital or clinic. Highest of references. Address 408, care of this office.

Small Minnesota Hospital for Sale

A small up-to-date hospital with surgeon's living quarters and offices on first floor and with hospital equipment, consisting of 8 hospital beds, operating-table, stand, sterilizer, chairs, and other appliances, on the second floor. This hospital is located in a small town surrounded by good dairy farms and a well-known summer resort only 57 miles from Minneapolis on the Soo Line. Property can be bought at a great sacrifice and on satisfactory terms. Competition easy. Telephone Geneva 6203 or write 607 La Salle Building, Minneapolis.

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