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THE TREATMENT OF SPINAL DEFORMITIES BY EXERCISE
AND POSTURE.

BY

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There is perhaps no method of treatment at the disposal of the physician and surgeon that has suffered so much at the hands of friends and foes alike, as the application of exercise, and it has been left, by the great bulk of our profession, to gather the dust of neglect, rather, I think, from a sort of mental laziness than from a disbelief in its efficacy.

A tablespoonful of cod liver oil, a shoulder brace, or even a plaster jacket, is so much more definite and easily applied and is so much more tangible than half an hour's graduated exercise that, however ready and willing we may be to admit its value in suitable cases, the next crooked back that enters our office is apt to be put off with some such makeshift. When exercise is prescribed, it is often done in such an indefinite and haphazard way that the results cannot be followed. It is as if a patient were turned loose in a well-stocked drug store and told to help himself to the tonic bottles.

But what the reputation of exercise as a means of treatment has suffered from indifference or opposition, is as nothing to what it has suffered from its alleged friends. There is a strong conviction in the minds of the laity that by exercise most extraordinary results may be obtained, and, working upon this belief, machines have been invented and systems have been started promising the cure of everything from anæmia to zymosis, from the reduction of undue obesity to the adding of a cubit to the stature. And the disappointment resulting from the

failure to fulfil extravagant claims, together with the warrings and jealousies of rival promoters of these systems, has brought the whole question into disrepute.

Lest I should fall into one or the other error. I would like to define clearly just what are the conditions in which, and the extent to which, one can count on getting improvement from the direct application of exercise to deformities or irregularities of development in the region of the spine.

In speaking of deformities I would like to be understood as excluding such conditions as tuberculosis of the bone or Pott's disease, and most cases of ricketts, being of the same mind as Ecclesiastes the preacher, when he says: "Who can make that straight which He (the Lord) hath made crooked." And I would include such conditions as fatigue scoliosis, round shoulders, uneven shoulders and flat chest, which are usually the result of such human agencies as are more directly under our control.

If you will consider with me for a moment some of the causes that give rise to these deformities, it will help to make clearer the theory on which my work is based. And then by showing a few typical movements we will be able to illustrate the method of applying the exercise to the particular case as it presents itself for treatment.

To pass over the question of heredity, which plays a not unimportant part in making children susceptible to weakness or curvature of the spine, an examination of the day's work of the average boy or girl from the ages of six to sixteen, will reveal powerful influences steadily at work during the period of active growth, to cramp the lungs and to fix vicious attitudes and habits, and to give a permanent distortion to the figure while yet it is in a condition to be most easily moulded for future good or evil.

During school hours the seat and the desk at which the child spends most of his time may be so high, or so low, or so badly proportioned as to keep him in perpetual discomfort, and the muscles of the back soon tire under the strain, letting his chin drop forward, rounding the back and shoulders and compressing the chest. The position when writing, more especially with the slanting script, is responsible for many skewed backs, in fact, lateral curvature has been called by one authority "the writing position become fixed."

The rapidity with which fatigue comes on in the standing position, and the way in which the weight habitually settles down on the support of one leg thus tilting the pelvis and shoulders and curving the spine, shows the risk of attempting to keep children long in any one position.

Fixity of any kind is the worst possible condition for growth, and the

constant dragging of a weight however small will overcome the strongest muscles. A surgeon, recently returned from South Africa, tells me that the regular soldiers all have a characteristic lowering of the right shoulder directly traceable to carrying a 10 pound rifle. Curvature has been traced even to the habitual posture assumed during sleep. (See note 1).

With so many active causes at work, there is little wonder that we find a great number of children suffering from physical faults which usually involve a varying amount of curvature of the spine.

As we would expect, from their less active life, it is much more common among girls than boys, the proportion being about as five to one. But in an examination of 122 high school boys, I have found it present in 32 cases, and among college students I have found 87 cases in 446 examinations of men belonging to the most athletic class. The progress of curvature to permanent bony deformity follows a definite course which may be arrested at any stage.

In nearly all cases we have round shoulders, flat chest and protruding abdomen, a figure that Roth has aptly named the "Gorilla type." As the body weight is carried, when resting, on one leg, usually the right, that hip appears more prominent and the right shoulder low. This can at first be corrected by the patient, but in time it becomes more and more difficult, until this irregularity of the shoulders may be said to be permanent. The progress of the deformity may stop here; and I have seen men of fine muscular development, distinguished as athletes, showing this condition stamped on them from their school days.

Although this may be the extent of the deformity it goes on in most cases till we find a well-marked C-shaped curve, usually with the convexity to the left. The right shoulder may appear even higher than the left in spite of this curve, owing to a general deviation of the trunk to the left.

Following this condition we find some part of this curve becoming more pronounced and localised. A compensatory curve then develops in the opposite direction from the original deviation in the lumbar region, or, if the primary curve be found in the lumbar region, the compensatory curve will then appear in the dorsal. A third curve may appear, either high up in the cervical or breaking the continuity of a C. curve. In most of these cases the right shoulder tends to slope downward and forward, so that the first symptom to attract attention may be that the clothes tend to slip down off this shoulder.

The progress of a case may be varied at any point of its course and we may have all varieties and combinations presenting themselves for examination. So clearly does this condition depend upon the tiring of

the muscles, weakening of the ligaments and long continued vicious posture, that I have named it the "Scoliosis of Fatigue," in distinction to the scoliosis due to ricketts, pleurisy, infantile paralysis, uneven extremities or pelvic asymmetry.

This scoliosis of fatigue is so overwhelmingly the most frequent form that it is really the rule in practice, and curvatures due to the other causes just mentioned are comparatively rare exceptions. It is in these fatigue cases that we must look to exercise for its best results. In fact I cannot see how any other treatment can be rationally advocated. The plaster jacket has now been completely discarded and the pernicious shoulder braces that used to be found in every household are fast going into that obscurity from which they should never have emerged.

In treating a case of round shoulders we must first expand the lungs by deep breathing and so round out the flattened chest. Next the muscles of the upper back and neck must be fitted to carry out their function of holding the head in proper position; and lastly, the abdominals must be brought into vigorous action, while the correct standing posture must be thoroughly drilled into the patient that it at last becomes habitual.

Time would fail me to demonstrate all the movements that may be employed for these purposes, but I will give one or two typical exercises analysing their effects:

1. Patient standing, raise arms forward and upward, breathing in, rise on tip toes, lower arms outward and downward to sides slowly breathing out.

2. Patient prone on padded table or couch, feet strapped down, hands at sides, extend the neck trunk and arms.

These are known as straight exercises, bringing into action both sides of the body equally, and directed at group after group of muscles on both sides with the same force.

When the two sides are unequally developed the weaker side will get the most work and such exercises are quite safe even in cases of lateral curvature, just as a general tonic is of some use in all cases of debility from whatsoever cause it may be. But, just as in the use of drugs, we may get a little nearer the trouble by prescribing accurately for the exact condition, so we may also get our results more quickly and surely by striking directly at certain groups of muscles, localising the exercise to the exact region we wish to affect.

In cases where the right shoulder is low we could use the following movements:

1. Patient standing. Raise right arm above the head, left on the hip; forward head and rise.

2. Patient on table prone, feet strapped down. Extend neck and trunk, with the right hand placed on back of head and left on the hip.

When we come to a case of curvature, the problem becomes more complicated and each patient must be a special study.

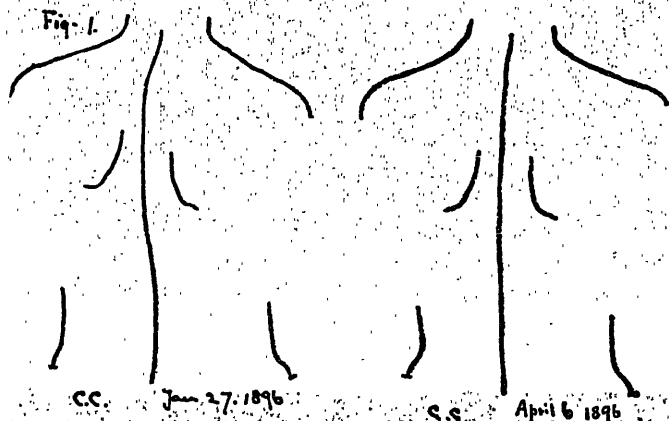
Before prescribing exercises to any particular case a diagnosis of the condition must be made after a careful examination of the back, exposing it down to the gluteal cleft. The spinous processes should be marked, the levels of the shoulders and points of the scapulæ should be noted, the amount and levels of deviation and rotation observed, and while stripped, the flexibility should be tested by bending forward and to the sides. The habitual posture should also be found. The patient should be put in the best possible position and made to take this pose by herself.

This best possible position should be the key-note of future work. It is to be remembered that the greatest amount of movement is obtained in the cervical region where we may get good results by the action of the trapezius, rhomboids and erector spinæ mass, and in the lumbar region, where the erector spinæ, quadratus lumborum and psoas muscles can be called upon to assist us.

In the mid-dorsal region, the presence of the ribs limits the voluntary movements, and we have to resort to stretching of the ligaments by mechanical force for the best results.

To illustrate the method of working out a prescription I will give a brief summary of one or two cases from my records:—

C. C., æt. 13, consulted me on Jan. 27th, 1896. On examination I found the right scapula low, left dorsal curve and a slight right lumbar



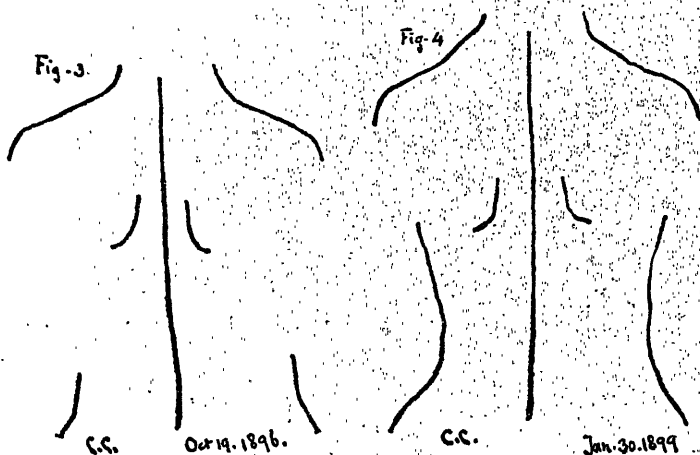
compensatory curve, trunk inclined over to the left, round shoulders, flat chest, protruding abdomen and general relaxation of the ligaments.

(Fig. 1). (See note 2). Her general health was not very good and two sisters had been treated for spinal curvature.

The indications here would be to work the erector spinæ, the extensors of the neck, to expand the chest, develop the abdominal muscles and raise the right shoulder; but in addition to this the curves must be reversed by such an exercise as this (1) Trunk extension, left foot fixed, right arm raised, left arm out.

Here the left erector spinæ and deeper muscles in the lumbar region act, while the raising of the right arm untwists the rotation and straightens the curve in the dorsal region. In this exercise, (2) Body supine, raise right leg, surgeon resisting, the psoas is put strongly into action and the bodies of the lumbar vertebræ are pulled around the articular facets, their axes thus reversing the rotation.

I have already illustrated the kind of movement used in raising the shoulder, but here the neck must be extended unevenly putting more



work on the right side. As would be done in this movement, (3) Extend neck, right arm up, left arm down.

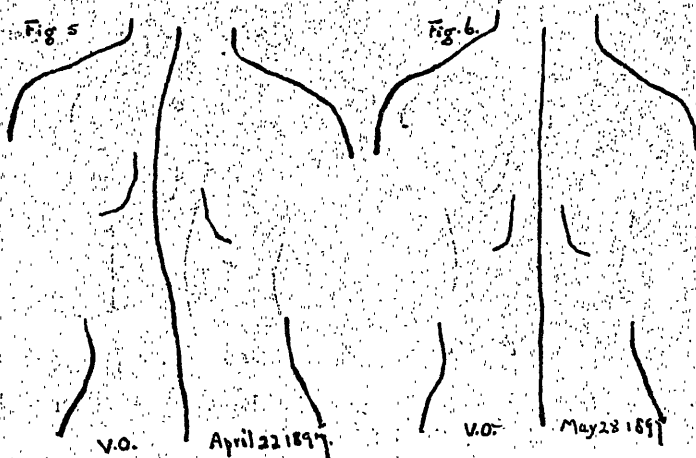
After daily treatment, lasting a little over two months, in which about fifteen movements were given, each repeated from twenty to thirty times, the second tracing was obtained (Fig. 2). She then reported twice a week for two months taking a modified daily prescription at home on off days. She then left the city for the summer and in the following October the third tracing was taken (Fig. 3), showing that the improvement was so far permanent, and on Jan. 30th, 1899, or over three years later, the fourth and last tracing (Fig. 4) shows that the corrected position has been maintained. It will be noticed that the patient has developed from the child of 13 to the young woman of 16.

One of the disadvantages that this work has to encounter is the difficulty of keeping cases under observation for a sufficient length of time to demonstrate the permanency of the improvement or cure.

I do not wish to tire you with undue repetition but would like to quote one more example from my case book.

V. O., *et.* 21, came to see me April 22, 1897. At the age of 8 years she fell down stairs and was confined to bed for three months after it. She states that ever since that she has been subject to pains in back at point of right scapula, burning or boring in character, and much worse after sitting still for any length of time. Has been unable to attend school or do any work on account of pain and fatigue after exertion.

Examination.—Ill-nourished and anæmic, flat chest and prominent abdomen, projecting chin and round shoulders, right scapula an inch and a half lower than the left (Fig. 5). S-shaped curve showing rotation



in both lumbar and dorsal regions disappearing on flexion. Flexibility good; iliac crests even in height. Patient winces on pressure over the point of left scapula and left lumbar region.

I note, under date of May 28th, she has been at work daily for one month, spine almost straight (Fig. 6), right shoulder still lower than left, improvement very marked. Occasional pains, not constant in location or duration, probably hysterical, general condition much improved. To continue daily work at home for one month and report.

June 30th. Improvement fairly well retained, pains still occasionally felt but not constant in location. She can attend ordinary work without discomfort.

In this young woman there was an undoubted tendency to hysteria,

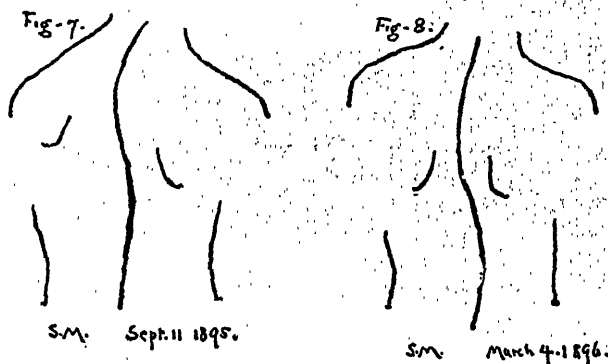
and this we find in many such cases, the exercise always having a most salutary influence on them.

In paralytic cases where there is a short osseous curve localized and fixed, the best thing we can do is often to develop a good compensatory curve and so give a general appearance of symmetry to the outline of the back.

S. M., æt. 9, consulted me September, 1895. At the age of three years he had left hemiplegia, lasting six months and gradually passing away to all appearances. About two years ago noticed while walking that left shoulder protruded.

Examination showed left lateral curvature high up in the dorsal region, no compensatory curve present (Fig. 7), marked dorsal rotation, flexibility greatly diminished and gorilla type of figure.

After two months' work the second tracing was taken, showing the



development of a compensatory curve in the lumbar region and the lowering and replacing of the left scapula.

The improvement continued till the 4th of March, 1896, when a third tracing (Fig. 8) was obtained, showing a further lowering and replacing of the scapula at the expense of an increase of the lumbar curve. This was the extent of improvement that could be obtained.

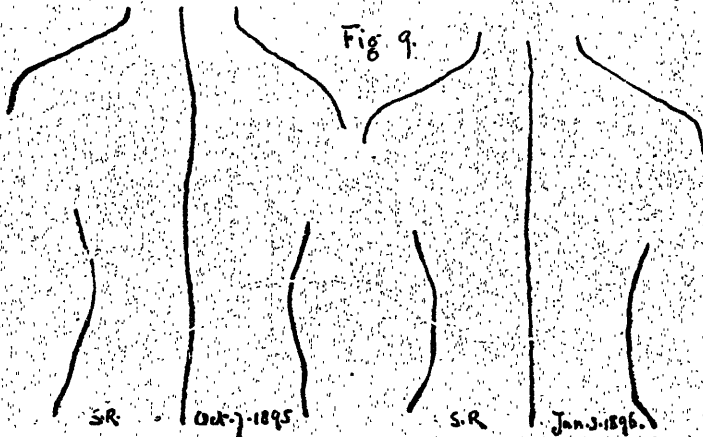
In the few cases where the curve is due to the uneven length of the lower extremities the shorter limb must be raised till the iliac crests are on the same level and then the muscular development can be properly attended to.

One of the most important points in the treatment of all these cases is the development of the thorax, and it is remarkable how much improvement can be obtained in this direction by appropriate movements. Among others I have found an application of Sylvester's method of artificial respiration very good. It stretches the thoracic walls and

develops the intercostals. Some cases show a remarkable increase in chest capacity:—

S. R., æt. 18, came to see me complaining of pains in back, round shoulders and lateral curvature. There was a strong family history of tuberculosis. On Oct. 7th, her lung capacity tested by the spirometer showed eighty cubic inches, the average capacity for a young woman of 18 being over one hundred and fifty.

On Nov. 26th, less than two months, it was one hundred and ten, and



on Jan. 3rd, it was one hundred and twenty-five, the pain was gone and the curvature corrected and her general health much improved (Fig. 9).

Here was an increase in capacity of forty-five inches after three months' work.

While such a result is unusual, still, out of thirty cases that I have looked over I find an average gain of twenty-one inches, and among these there are several who have increased from thirty to thirty-five in less than three months' daily treatment.

There is nearly always a general weakness of the ligaments present, and this shows in a tendency to flat foot, so that wherever the exercise permits, the movements should be accompanied by rising on the toes.

NOTE I.—Bed Posture as an Etiological Factor in Spinal Curvature. By George W. Fitz. *Transactions of the Orthopædic Association, 1898.*

NOTE II.—For description of the instrument by which these tracings were made, see MONTREAL MEDICAL JOURNAL, February, 1898.

PYLORIC STENOSIS WITH HYPERTROPHY.*

BY

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The patient whose condition affords the subject of these notes was under the care of Dr. J. C. Cameron, and to Dr. Cameron I am indebted for the privilege of observing the case and of making this report. Cases of this kind are of such rarity that the presentation of one more becomes almost a duty, not so much on account of this quality perhaps, but rather because of the fact that there seems to be at least an opportunity for relief, temporary it may be, to the symptoms associated with such condition. The text-books contain but little on this subject, yet one finds through the literature several articles and scattered case reports dealing with similar conditions, although often variously described.

In the spring of 1900, H. T. S. *æt* 59 years, found himself in failing health. Although never a rugged-looking man, he had led an active life and was regarded by his friends as having a "wiry" constitution. Early in April he went to New York with the hope that a change of scene and air might be helpful. While there he became rather worse and it was thought that he took influenza. From the history, if this can be relied upon, this attack partook rather of the rheumatic or articular type, as he was troubled with pains through his limbs and joints, yet without marked joint affections. There was great difficulty in solving the question of his nourishment. Foods of various kinds in a variety of forms were provided, and yet it seemed impossible to get anything that was satisfactory. The patient became intensely nervous, introspective, unable to sleep, and extremely sensitive upon all points pertaining to his condition.

When first seen in June, 1900, he was greatly emaciated, weighing about 98 pounds. He complained chiefly of the distress in his stomach, of weakness, of insomnia, and of being constantly disturbed by the street noises, although his house was situated in a comparatively quiet part of the city.

The temperature was 98° F., the pulse 54, and respirations 16. The tongue was coated, the bowels constipated, the skin dry and rough. He had never vomited during his illness. There were no symptoms of organic disease of the nervous system. He expectorated but little and

* Read before the Montreal Medico-Chirurgical Society, Oct. 4th, 1901.

affirmed that he had no cough. The examination of the lungs at first revealed no changes regarded as indicating diseased conditions beyond those of slight emphysema. The abdomen was flat with the bony parts in the boundaries standing plainly out. The walls were rigid and palpation was difficult. The rigidity was most marked over the right upper quadrant, into which it was impossible to make any impression. But a trace of free hydrochloric acid was found in the gastric contents, 28 cc. of which were removed after a test breakfast. There was no lactic acid. On withdrawing the stomach tube, some yellowish phlegm was found adhering to it. This was found to contain tubercle bacilli in scant numbers, and search for them in the sputum subsequently expectorated yielded corroborative evidence of their presence. Upon what had hitherto appeared to be a case of much obscurity, some light was thus cast, yet the course of the case did not justify the view that one was dealing with a case of chronic pulmonary tuberculosis in a lung somewhat emphysematous, although moist sounds were distinctly heard in the lower lobe of the left lung in September. He spat a little blood in October. The patient was never febrile until the end was at hand. Indeed his temperature was usually subnormal. The pulse was always slow, rarely going beyond 54 per minute. Positive physical signs did not develop in the chest during the remaining months of the patient's life.

The early part of the summer was spent in the city and in July he went into the mountains with some improvement, gaining several pounds in weight. He was able to walk about and seemed altogether less nervous. He returned to the city in the last of August with a distressing diarrhoea, which greatly debilitated him. After gaining again during September, he began to fail towards the end of October and, despite every effort to sustain him, he continued to lose flesh and strength, complaining of the distress in his stomach and of weakness. He never ate without protest repeatedly saying, even after partaking of but an ounce of the blandest fluid, "My stomach is so full." "I am so distressed;" yet he never vomited. Often towards the end of his illness he became intensely irritable and excitable. He died on the first of March after a few hours of slight fever and increased respiratory rate.

Throughout, the diagnosis was difficult and nothing seemed more definite than that of a chronic pulmonary tuberculosis based upon the sputum examination. Yet, as has been already noted, strong corroborative evidence, in physical signs was wanting. This diagnosis did not serve to explain the symptoms referred to the gastric region. Cancer of the stomach was considered as well as ulcer of the stomach,

yet there was no convincing evidence that either of these conditions existed.

Fortunately, an autopsy was secured. Even on inspection of the abdomen one could now observe for the first time signs of abnormal conditions lying within, for there appeared, passing downward and to the right in the upper quadrant, a distinct mass, which felt hard and cylindrical. On opening the abdomen the stomach was found lying obliquely across the upper quadrant; the pyloric end was abnormally low, passing well down towards the lower quadrant, this approaching the obliquity often found in early infantile life. The organ was greatly altered in shape and reduced in size. There was no evidence of peritonitis either recent or chronic. There were no abnormal glandular enlargements; the liver and spleen were practically normal. The kidneys showed some evidence of fibrosis with here and there a cyst upon the surface. Over both pulmonary apices, and especially over the left, strong pleuritic adhesions were found. The pulmonary tissue was markedly œdematous. The brain and other organs were not examined.

As the chief interest in this case is found in the condition of the stomach this may be described more in detail. We have already said that it was greatly altered in shape and reduced in size. The cardiac end of the stomach was flaccid and pouch-like, and bore upon its posterior surface, near the œsophagus, a small diverticulum, which when distended stood out about 3 cm. from the stomach wall and measured 2 cm. at its base. The lesser curvature, in proportion to the size of the stomach, was longer than usual, while the greater curvature was thrown into an irregular line by being drawn towards the lesser curvature at a point 7.5 cm. from the œsophageal orifice. Then these lines ran almost parallel towards the pylorus at a distance of from 3 to 4 cm., thus marking the upper and lower boundaries of a dense-walled cylindrical tube, about 9 cm. long, which terminated in a yet denser conical structure, 2.5 cm. long by 2 cm. broad at its widest part, the hypertrophied pylorus. The capacity of stomach including diverticulum, tested by filling with water, was only three and one-quarter ($3\frac{1}{4}$) ounces.

The duodenum near the stomach was irregular in shape and the walls thickened at parts, and showed on section an increase in the muscular tissue. The lumen was of varying dimensions, to some three or four inches from the pylorus. (See photograph.)

On opening the stomach along the greater curvature there was some slight thickening of the wall at the cardiac end; but when the cylindrical tube, already partially described, was entered, the wall was much thicker and cut with increased resistance, while the thickness at the

pyloric ring was from four to five times the normal, varying from 1.5 to 1.75 cm. including the mucous membrane. As shown in the photograph of the interior, the mucous membrane over the cardiac end of the stomach presented a normal appearance. The orifice of the diverticulum above noted was plainly seen and readily admitted the index finger. Numerous regular folds of mucous membrane traversed the contracted portion of the stomach, while at the entrance to the pylorus they became irregular and deeper. The pyloric orifice would not admit a glass rod 5 mm. in diameter. The termination of the pylorus in the duodenum, viewed from the duodenal side, resembled not a little the cervix uteri in the vagina. While the thickened wall rendered the passage very small, the folds of mucous membrane occluded it almost completely. Nowhere throughout the interior of the stomach was there any evidence of ulceration, cicatrization or irregular infiltration, the mucous membrane moved freely on the submucosa and muscular coats.

Microscopic examination was made by Dr. A. G. Nichols, to whom I am greatly indebted for such services. Sections were made through the pyloric ring at a point about 5 cm. above this, and also near the fundus of the organ. The section through the pylorus showed some hypertrophy of the glandular elements of the mucosa. The submucosa was loosely areolar in texture and possibly thicker than usual, bearing numerous blood vessels. The mucosa presented otherwise a normal appearance. There was no evidence whatever of aberrant glandular growth. The most striking feature was the great thickening of the inner muscular coat, which consisted of large bundles of muscle cells held together by stronger bands of fibrous tissue. Under the high power the nuclei seemed to be larger than normal, and there seemed to be both hypertrophy and hyperplasia. The outer muscular coat was thickened, but to a less extent than the inner, while the serosa was normal. The second section, taken above the pyloric ring, showed a moderate degree of thickening of the inner muscular coat. Otherwise it was normal. The third section showed no abnormal changes.

The etiology of such a change about the pylorus remains unsettled. Tigler, writing in 1893, strongly objected to the view that these cases were congenital, supporting his objection by stating that the cases presented by Maier, who was a strong advocate of this classification, were not to be reckoned in such a category, and that all the cases reported both by him and Andral as well as by Lebert belonged to the middle years of life. He further stated that according to his knowledge there was no record of any genuine case of stenosing pyloric hypertrophy in the literature. However, as an appendix to his article, Tigler reviews reports of two cases found in the English literature, and adds by way

of comment that in all probability the majority of cases of pyloric stenosis with hypertrophy represented a congenital stenosis with secondary hypertrophy. John Thompson, speaking of this condition in early infantile life, urges that the essential lesion is not a muscular but a nervous one, and that stimuli within the stomach can scarcely be considered as acting to induce the spasm, but rather that there is a delayed or imperfect development. He regards the muscular hypertrophy as due to some sort of over action.

In those cases occurring in adult life, Tigler claims that the mucosa and submucosa are the parts first to receive the stimulation, and in them changes are wrought, as well extensive as permanent. Secondary to this comes the muscular hypertrophy, and then stenosis. There is in all such cases a dilated stomach. In many there may be a stenosis, slight and congenital, or stenosis may arise from other causes and yet the results may be the same. Irritation of the mucous membrane and any condition or situation, etc., determining blood to the submucosa and muscles are factors not to be underestimated.

In reviewing the history of the patient in connection with other cases it would appear that there is some foundation for the belief that for years, it may have been throughout life, there existed an anomalous condition at the pylorus. The diverticulum at the cardiac end certainly is among the anomalies, and such departures from the normal are seldom found singly. One might urge in favour of this view, again, that such a change arising in the course of a few months or even years would be marked by even more violent gastric disturbances, as pain and vomiting. The absence of gastric dilatation is very surprising, in the presence of so high a degree of stenosis.

There remains but to mention the surgical aspect, not so much perhaps of this case, but of those in which the changes are more closely confined to the pylorus. There are reports of cases successfully treated by divulsion and by pyloric resection and there can be no doubt that much remains to be done in these cases, not in the matter of etiology so much as in diagnosis and treatment.

To Dr. Patrick I am indebted for the photographs which illustrate this report.

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- See these for other references in German and English literature.



INNER ASPECT.



POSTERIOR VIEW.



Duodenum

TRACING OF STOMACH FILLED WITH WATER. EXACT SIZE.

NOTES ON THE USE OF TUBERCULIN AS AN AID TO SURGICAL DIAGNOSIS.*

BY

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Lecturer on Surgery and Clinical Surgery, McGill University ; Surgeon to the
Montreal General Hospital.

These notes, with copies of some charts showing typical reactions for temperature which follows the injection of tuberculin, were made in my wards at the Montreal General Hospital during the past six months. It occurred to me that a short paper on the subject might be of interest to the members of the society. I am indebted to my House-Surgeon, Dr. Henry, for the care and extra labour involved in watching the cases and making the notes.

My object in instituting the series was an effort to answer the following queries:—

(1) In what class of surgical cases, due to tuberculous infection, does the use of tuberculin give us most aid as a diagnostic agent ?

(2) Is its use followed by any untoward symptoms either local or constitutional ?

(3) How long after its injection should we expect the rise in temperature which shows the typical reaction ?

(4) Is the reaction constant when tuberculosis is present ?

In surgical cases one is so often called upon to decide whether a given tumour is of tubercular, syphilitic, or neoplastic origin, and the diagnosis is often so difficult to arrive at, that any method which tends to aid in its differentiation is deserving of our careful consideration. I therefore crave your indulgence for a few minutes while I refer to some of the clinical notes (with charts), before giving the conclusions at which I have arrived from my short study of the subject.

The tuberculin supplied by Dr. Trudeau of Saranac was used in all cases. The experiments would have been of more value had I been able to have two kinds of tuberculin, in order to try one where the other failed.

Case I. A. McI., aged 20 years, injury to right knee in October, 1900, with no acute arthritic symptoms until three weeks later, when knee became swollen and painful; symptoms

* Read before the Montreal Medico-Chirurgical Society, October 18, 1901.

becoming severer until December, 1900, when he became unable to work. Remote history of tuberculosis pulmonalis.

Status Præsens. Right knee — Synovial sac distended; boggy feel; no heat or redness; fluctuation present; pain on pressure over inner tuberosity of tibia; knee cannot be fully flexed nor extended; no pain on striking bones together. Marked atrophy of muscles of thigh and calf; typical fusiform swelling.

Tuberculin, mg. $2\frac{1}{2}$ administered April 3rd, at 11 a.m. Temperature rose rapidly to $102\ 2\text{-}5^{\circ}$ F. at 6 p.m., and fell after midnight. *Reaction* in seven hours. (Chart No. I.)

Local reaction — Slight redness and swelling with a little tenderness but no actual pain. Patient refused surgical treatment.

(Case Report No. 348, 1901.)

Case II. F. N., boy, aged 17. Three years ago had glands about left sternomastoid removed. Said to have been tubercular. Family history negative.

Status Præsens. Beneath angle of left mandible is a large hard lump, the size of a small hen's egg, movable, painful and tender; skin not adherent over it; slight redness; sense of pseudo-fluctuation; and below one or two smaller palpable glands. Growth began two months ago and has been gradual and constant. No other lymphatic enlargement.

Tuberculin, mg. $2\frac{1}{2}$ administered at 9.35 a.m., April 10th, and temperature rose to $100\ 4\text{-}5^{\circ}$ at midnight. *Reaction* in $13\frac{1}{2}$ hours. Chart No. II.

Locally—Slight redness and swelling only.

Pathological Report—"Tuberculous adenitis." Gland encapsulated, caseation in the centre.

(Case Report No. 371, 1901.)

Case III. J. McG., male, aged 26. Swelling of glands on right side of neck for over eleven years, partly disappearing under local treatment (iodine). Four years ago, abscess formation, cheesy discharge, sinus healing rapidly. For past four years marked tumour; great increase in size for past two months.

Status Præsens. Tumour occupies space from ear, angle of jaw, down almost to clavicle; hard, lobulated, painless, and only slightly tender; no sign of acute inflammation. Below it cervical glands all palpably enlarged; supraclavicular glands small, mass overlaps the jaw bone; skin is not adherent; and mass can be moved slightly laterally but not vertically. Small scars at lower border at site of sinus mentioned above. Separate mass in submaxillary region, freely movable; no fluctuation.

Tuberculin, mg. $2\frac{1}{2}$, given at 4 p.m., April 15th, and at 4 p.m.

next day, temperature was 103°; began to rise from 8 a.m., April 16th. *Reaction* in 16 hours. Chart No. III.

Locally—Slight redness and swelling. *Generally*—Malaise, feverish and headache on morning of 16th of April.

Pathological Report—"Tuberculous adenitis".

Case Report No. 387, 1901.

Case IV. Male, A. H., aged 17. Hip joint disease since infancy; abscesses at different times since then; last one in 1898, presenting in the thigh.

Status Præsens—Shortening of left leg in thigh section, trochanter $2\frac{1}{2}$ inches above Nélaton's line; numerous scars from sites of operations for opening of abscesses over anterior and external surfaces of thighs. Muscular wasting.

Tuberculin, mg. $2\frac{1}{2}$, given at 9 a.m., April 15th, and at 4 p.m. April 16th, temperature was 102°. *Reaction* 31 hours later. Chart No. IV.

Operated upon April 17th; abscess opened; creamy, cheesy pus evacuated; no dead bone found. Pus was sterile but scrapings from abscess cavity showed a few tubercle bacilli.

Locally—Redness and swelling.

Case Report No. 378, 1901.

No reaction followed the use of tuberculin in the following cases:—

(1) In three cases of enlargement of the testicle, painless and slow growing, where no history of syphilitic infection could be obtained. All these cases afterwards yielded to antisymphilitic remedies, and I think it is fair to conclude that they were of specific origin. No effects whatever, so far as we could observe, followed the use of tuberculin in these cases.

(2) Two injections at different times, the last considerably larger than the first, were given a young girl who was transferred from Dr. Finley's ward (No. 457, '01) with a diagnosis of tuberculous peritonitis associated with marked ascites. She improved so much that, with Dr. Finley's concurrence, she was sent out of the hospital, but subsequently had to return and was operated on by Dr. Shepherd (No. 794, '01), when, I understand, a typical condition of tuberculous peritonitis was found.

The same result happened in a case of my own, a young lad upon whom I operated subsequently and who had the whole peritoneal cavity studded with tubercles. He made a good recovery though slow.

(3) A case of tuberculous arthritis of the elbow joint, which we afterwards excised, gave no reaction, as did also a case of tuberculous

adenitis; but in neither of these did I think that the test had been a fair one, as they were tried much later in the year and with some of the same old serum, which had probably deteriorated, as it was kept in the ward only and with no special care.

In all the cases of the above series which were operated upon, the pathological reports verified the clinical diagnosis, and in all, care was taken to give the serum only after the temperature had been carefully observed for several days, in order to exclude as far as possible accidental variations. After giving the serum, the temperature was taken every two hours, and this should be kept up for 36 hours at least, as the reaction is sometimes delayed.

Our observations led us to give the following answers to the questions which we had set out to solve:—

(1) That tuberculin is valuable as a diagnostic aid in suspected lesions of glands, synovial sacs and bones. In tuberculous peritonitis, in the two cases tried, it gave no reaction.

(2) Its use was followed by no particular untoward symptoms, either local or constitutional.

(3) That the reaction as shown by rapid increase in temperature varies in time, appears early in acute cases where lesions are large, and should be looked for even as late as 36 hours.

(4) The reaction does not appear to be constant even when tuberculosis is undoubtedly present, but contra, in no case did we get any reaction when tuberculosis, so far as we could determine otherwise, was not present.

TRAUMATIC VENTRAL HERNIA.

BY

J. ALEX. HUTCHISON, M.D.,

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On November 24th, 1899, A. F., 16 years of age, was admitted to the Montreal General Hospital, suffering from the effects of an injury to the abdomen, the result of being struck by the pole of a wagon.

Examination. The patient was a well nourished lad of good muscular development. He complained of pain in the abdomen. Pulse and temperature normal; no signs of collapse or other evidence of serious injury.

On inspection of the abdomen there was seen a small superficial abrasion close to and above the anterior superior spine of the ilium.

In the recumbent posture during tranquil respiratory action the abdomen appeared normal; on deep inspiration a small cone-shaped prominence appeared slightly above and internal to "McBurney's point".

The tumour was tympanitic and easily reduced, the little finger readily passing into a definite opening in the muscles.

There was some general tenderness in the right iliac region. After an observation of three days, during which time no symptoms developed, under ether anæsthesia I made a longitudinal incision through the skin and subcutaneous tissues, four inches in length and having its centre opposite the apparent rupture in the muscles.

It was then seen that the rupture involved all the muscles and the peritoneum. The tear in the muscles was somewhat semilunar in shape, involving the external and internal abdominal oblique and transversalis, about three and a half inches long, with a marked retraction of the cut lower border of the internal oblique, through which the small intestine was seen. The laceration in the peritoneum followed, in a general way, the direction of the tear in the muscles, and was about two and a half inches in length. There is no evidence of injury to the abdominal viscera. The wound was closed in layers in the usual manner, catgut for the deep parts and silkworm gut for the skin. Recovery was uneventful.

After a careful search through the literature bearing on injuries of

* Read at the meeting of the Canadian Medical Association, Winnipeg, August 28, 1901.

this nature I have failed to find a record of a similar case. Pick says laceration of the parietal peritoneum without injury to the viscera is comparatively rare, Da Costa, that the peritoneum may be ruptured even when there is no visceral injury or muscular contusion. In Pick's Surgery, page 891, there is an illustration very similar to mine, the text explaining that the hernia was through the belly of the rectus. No reference is made to the condition of the peritoneum.

The following points, in the case related, are of interest:—

The absence of any evidence of injury to the skin over the hernia.

The extensive laceration of the thickest and strongest parts of the oblique muscles.

Laceration of the underlying peritoneum without injury to the viscera.

No collapse immediately following the accident or subsequent development of localized peritonitis.

The absence of extravasation of blood to any extent in the space formed by the retraction of the torn edges.

The importance of carefully examining the injured parts by operation, without which, in all probability a very large hernia would have in time developed.

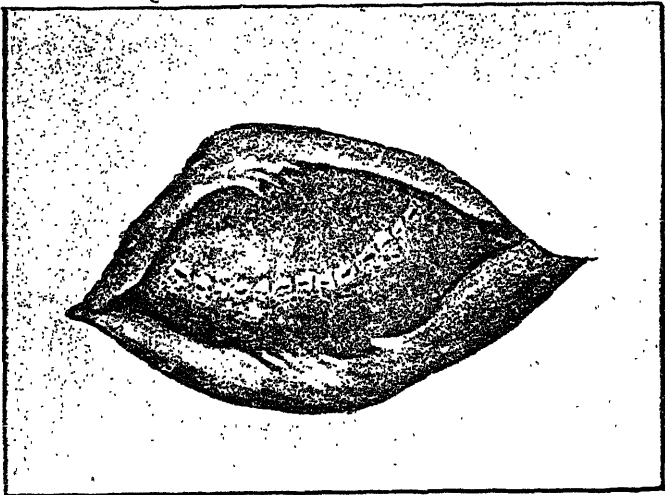
REFERENCES.

Surgery (T. Pickering Pick), page 799.

Modern Surgery (Da Costa), page 761.

ILLUSTRATIONS.

By Dr. R. Tait McKenzie from a sketch taken at the operation by one of my class, Dr. Lorne Robertson.



A FATAL CASE OF HÆMO-COLIC INTUSSUSCEPTION.

BY

E. REAVLEY, M.D., Silverton, Colorado.

W. R., male, aged six months, weighing 13 pounds, and well nourished, had never been ill except with constipation for four months just before the present illness.

On *July 23, 1901*, he was taken ill early in the morning, and at 8 a.m. vomited and screamed with pain. At 9 a.m. he passed bloody mucus by stool. As the parents lived nine miles out of town, I did not see the case until 1.30 p.m., when the vomiting was occurring every fifteen or twenty minutes, and stools containing bloody mucus were being passed at about the same intervals. Pulse, 132; temperature, 98° F. A tumour was felt in the line of the colon and in the rectum.

After giving chloroform, the patient was inverted and the intussusception was quickly reduced by a hydrostatic pressure of thirty inches and external manipulation of the bowel. The parents were then warned of the possibility of return of the condition and of the necessity for immediate operation on the slightest symptoms of recurrence.

On *July 30th*, I was again called to the child and told that he had been as well as usual until 8.30 that morning when the former symptoms had returned in an aggravated form. A tumour was now felt at the anus; it was firm and tense, and bled at the slightest touch. Under chloroform, hydrostatic pressure failed to entirely reduce it, and the parents agreed to take the baby to town and permit of immediate operation. However, on their arrival, a confrère was called in and he succeeded in frightening the parents so much regarding the operation that they refused to have it undertaken.

July 31st. The tumour protrudes through the anus at times; vomiting is almost constant and all food is vomited as soon as taken. The pulse varies, 132 and upwards; temperature 98°. Condition rapidly ingravescent. At 11 p.m. the patient's father called and said that the baby "was failing rapidly and would not live until morning." He consented to the formation of a faecal fistula, should it prove necessary, but refused to allow a resection. On calling, I found the baby extremely pale, perspiring, lips livid, eyes sunken and surrounded by dark

circles. The vomit was greenish and coffee-grounds in colour; pulse 140 to 143, very weak.

On *August 1st*, at 1.45 a.m., I opened the abdomen under great difficulty from defective light, etc. The appendix vermiformis was normal in size and position, the cæcum very much distended, tense, firm, and two inches in diameter. Reduction was abandoned as it would have involved immediate resection of irreparably damaged gut. The ileum was seized a few inches from the colon, withdrawn, a faecal fistula formed, and the infant hurried to bed. Vomiting ceased almost immediately. During the forenoon water was given at frequent intervals and the baby was permitted to nurse in the afternoon. Pulse 132, improved.

August 2nd. Improving, no vomiting, nurses eagerly. Takes beef juice well, strength much increased.

August 3rd. Eczema of the skin near the fistula has appeared, as it has been impossible to completely prevent escape of faeces. The principal efforts were now directed to cure the eczema, in order that the operation might be completed, but it proved rebellious to treatment, becoming almost well one day to relapse the next.

August 5th. The condition varies very little. Septic absorption from the disintegrating intussusception was prevented by flushing the colon.

August 10th. The condition is becoming marked. Larger fragments of intestine are brought away when irrigating the colon. Eczema is improving.

August 14th. Yesterday patient vomited several times. To-day the appetite is better; pulse, 132.

August 18th. Patient improved steadily until to-day, when there are symptoms of catarrh of the stomach with frequent vomiting. Pulse, 140. Eczema still present.

August 21st. Instruments sterilized to complete operation, but the condition became so alarming in the early afternoon that it was necessary to abandon it.

August 23rd. The baby became gradually weaker and died of asthenia to-day. Early reduction by operation either on the 23rd or 30th of July would undoubtedly have saved its life.

Should it ever be my misfortune to have another case where reduction was impossible or inadmissible from necrotic condition of gut, and where the patient's condition would not permit of immediate resection of intestine, I would open the colon, reduce as much of the ileum as its condition would permit, then suture the ileum to the abdominal wall and open it also. Then at any convenient time the ileum could

be cut away and Maunsell's operation be performed through the faecal fistula in the colon.

The only object in reporting such a case is the duty of publishing failures as well as successful cases. In the somewhat limited literature at my command faecal fistulas show a mortality of about 84 per cent., though the direct cause of death is not stated, so the reports are almost valueless. I feel that had I made a fistula in the colon and then in the ileum, and one or three days later performed Maunsell's operation, I firmly believe that the baby would have recovered, for increase in invagination could have been prevented by passing a soft rubber catheter into the ileum, and by administration of very small doses of opium to prevent excessive peristalsis.

DERMATITIS HERPETIFORMIS.

BY

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According to Duhring, herpes gestationis, the name by which this dermatosis was formerly labelled, should be classed as a dermatitis herpetiformis. These cases are sufficiently rare to be placed on record.

On July 2, 1901, Mrs. D., æt. 39 years, consulted me about a severe dermatosis covering almost the entire body. Patient is a strong, fleshy, well-developed individual of a neurotic temperament. She was born in the United States and has been in the habit of drinking beer. She has had nine pregnancies, each pregnancy being accompanied with the eruption. In the intervals she is free from any cutaneous disease. The eruption is distributed over the upper and lower extremities and on the abdomen. The initial lesions consist of papules and vesicles. These are arranged in circles. Patient complains of intense pruritus. Over the genital regions the papules and vesicles have coalesced, giving rise to an appearance resembling eczema intertrigo, which is extremely irritable.

Patient complained of puritus vulvæ, for which I ordered an ointment consisting of Ichthyol, mxxv; Zinci carb., 5i; Zinci oxidi, 5i; Ungt. simplicis, ad 5i, which she said relieved her.

There is no history of cutaneous disease in the family. I did not have an opportunity of examining the urine or the blood for eosinophilia.

The treatment adopted in this case was as follows:—Patient was six months advanced in pregnancy. Owing to her condition I did not order liquor arsenicalis but instead gave her an alkaline bitter tonic and the following lotion. Liq. carbonic detergens, 5i Lotio Calamine ad 5 vi. Sig. To be applied night and morning. This relieved her very much. I had intended having a photograph of the dermatosis taken but a few days afterwards, when she again presented herself at my clinic, the eruption was so improved and modified by the treatment that it had lost its typical character.

Four years ago I remember seeing a similar case at the Woman's Hospital under the late lamented Dr. Kennedy.

SPUTUM EXAMINATION IN PULMONARY TUBERCULOSIS AND ITS PROGNOSTIC VALUE.

BY

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Macroscopical Examination.

Pulmonary tuberculosis has no characteristic form of sputum. As cutaneous syphilis among diseases of the skin, so is pulmonary tuberculosis, as regards its sputum, among diseases of the lung. Both are great imitators. But while the former never perfectly imitates another disease, the latter, owing to complicating organisms, may assume all the characteristics of a second affection.

In quantity the sputum may vary from nothing to 800 cc., and even 1000 cc. in 24 hours.

The colour is usually gray, or greenish gray to yellow, but grass green, yellow, red, brown and black, with intervening shades, have been observed. The more unusual colours have frequently been traced to secondary organisms.

Biermer,² in his classic work on the sputum, makes four great divisions—all of which occur in pulmonary tuberculosis:

1. Mucous sputum is the first of these. Pure and watery mucous has its origin more frequently in the upper respiratory tract, but occurs not seldom in pulmonary tuberculosis.

2. His second division of muco-pustular is further subdivided into

(a) Muco-pustular—homogeneous—a form which was said to occur after the use, in the early days, of Koch's tuberculin.

(b) Pustulo-mucous—non-homogeneous, nummular or coin-like sputum. This form is held by many to be characteristic of cavitation, though of little value in diagnosis.

3. Pure bloody sputum is Biermer's third division, and

4. Bloody sputum his fourth. This again is subdivided into

(a) Pure bloody sputum in hæmoptyses, which is never acid unless swallowed and vomited, when it is no longer red.

(b) Blood tinged.

(c) Mixed with blood internally, as

(1) Mucó-hæmorrhagic;

(2) Sero-hæmorrhagic, e.g., in hæmorrhagic diathesis;

(3) Pustulo-hæmorrhagic.

The consistency of tuberculous sputum varies from watery to sputum so tenacious that the cup may be inverted and no sputum spilled.

In the early stages the sputum has little or no odor, but in certain complications, and occasionally in the later stages, a most marked and at times fearfully offensive odor is present.

The reaction of the sputum is for the most part neutral or alkaline.

Morton³ and Bayle⁴ have each described a form of sputum in tuberculosis, in which numerous calcareous fragments occur. "The size of the fragment varies from a small pea to a large cherry. As a rule a single one is ejected; sometimes large numbers are coughed up in the course of the disease. They are formed in the lung by the calcification of caseous masses, and it is said also in obstructed bronchi. They may come from the bronchial glands by ulceration into the bronchi, and there is a case on record of suffocation in a child from this cause." (Osler).⁵

It may be well to say a few words at this time regarding the prognosis from the macroscopical examination.

A sudden disappearance of sputum where before it had been abundant, especially in the morning, should always put us on our guard. Miliary tuberculosis is occasionally ushered in in this manner. I have recently seen a case where a sudden attack of heart failure caused a cessation of expectoration for one or two days without apparent injury. The absence of sputum is, as is well known, no better sign of the absence of pulmonary tuberculosis than is the absence of cough. All of us have met with cases of acute infiltration, where for one or more months no sputum was available for examination. Traube⁶ has called attention to two types of sputum in acute pneumonic phthisis. The sputum in the early stages of the disease is decidedly bloody—pneumonic—in fact, the disease is most frequently and rationally diagnosed pneumonia. However, in a week or ten days no crisis occurs, and the sputum may take on a greenish tinge, and, I may add, tubercle bacilli be found as early as the eleventh day.⁷

An abundant mucoid, more or less frothy sputum at times marks the onset of miliary tuberculosis upon a chronic or less acute form of the disease.

In fibroid tuberculosis of the lungs there may be little or no expectoration, and no bacilli may be found for long periods. When tuberculosis follows chronic bronchitis the expectoration is usually at first of clear viscid glairy mucus. With the advent of softening the sputum becomes muco-purulent and yellow or greenish in colour.

The character of the sputum is no absolute criterion of the presence or absence of the tubercle bacillus. Tubercle bacilli may occur in watery mucoid sputum as well as in the usual muco-pustular variety.

Microscopical Examination.

Turning now to the finer examination of the specimen, I should advise that the first step be the staining for tubercle bacilli, by far the most important part of the examination. So important is it, I may add, that many can see nothing more to do.

The sputum, which has been collected in a cup or large-necked bottle, should be poured out into a large Petri's dish, or, better, on a large glass plate, where it can later be examined for elastic fibres. Search should now be made for the rice bodies, "corpora oryzoidea," certain opaque, more or less rounded, crumbling masses from cavities, very rich in tubercle bacilli. Similarly appearing bodies come from tonsillar crypts, trachea, bronchi, pharynx, etc., and from food. Failing to find these, bits of pus should be chosen.

Tubercle bacilli may occur by millions in one part of a specimen and be absent from another. To avoid error, some^s have advocated rendering the sputum homogeneous. The specimen is shaken with two or three times its volume of water, sodium hydrate, etc., until the whole is homogeneous. It may now be examined, set aside in a conical glass to sediment, or, if analysis must be known at once, placed in a centrifuge. A fixing reagent (fluid) must be used with specimens treated in this manner, and while many more elaborate methods are employed, egg albumen answers every requirement. Some have held that treatment with alkalis impairs the staining properties of the tubercle bacillus, but Weyl⁹ has shown that while these chemicals extracted a substance from the tubercle bacillus the cell membrane was left, which gave the specific staining reactions. Others affirm, and with some ground, that decolorization is more rapid.

Amann^s recommends that bits of sputum taken from different parts of the specimen be rendered homogeneous by rubbing them between two glass slides or cover slips. This seems to me to be by far the most practical method for specimens where the number of tubercle bacilli would fall within Gaffky's schema⁶¹ (to be mentioned later):

If no tubercle bacilli can be found by ordinary methods, "homogenization" and sedimentation or centrifugation may be employed.

Javelle water¹⁰ has recently been employed to replace potassium and sodium hydrate as a solvent of sputum. It is claimed that, diluted two or three times, it quickly "cuts" the sputum, and in from fifteen to thirty minutes it is ready for centrifugation or sedimentation. The sediment—2-3 cc.—is treated with 5-6 drops of normal sodium or potassium solution, which combines with the free chlorine to form sodium chloride. Heat is not necessary. Dilute with distilled water and

centrifugate. No fixing reagent need be used. The cellular elements are well seen.

Digestion¹¹ with pancreatin has recently been much employed. After shaking the specimen with water containing sufficient sodium carbonate to render the whole solution alkaline, a little powdered pancreatin³ is added, and the specimen put in the thermostat for 6-24 hours. When completed, the specimen is diluted with water, well shaken, and centrifugated. Brieger¹² suggests that in doubtful specimens the sputum for 24 hours be boiled in half per cent. solution of sodium hydrate and then sedimented. If no tubercle bacilli are found by this method in children and in weak adults, the fæces and vomitus should be examined by sedimentation. It is also well to tell the patient that only sputum that has been coughed up should be sent for examination.

To make certain, the sputum of a suspected case should be thoroughly examined on three or four, some say six or seven, successive days.

The final test is, as we all know, the injection of the guinea pig, and the detection of tubercle bacilli in the lesions produced.

Some have claimed¹³ that under favourable conditions tubercle bacilli may increase in specimens of sputum. That this may take place in the thermostat cannot be denied, but from the difficulty experienced in getting cultures of the tubercle bacillus to grow under the most favourable conditions—conditions not exactly reproduced in sputum—such a growth would seem to me unlikely. That such an increase ever takes place at temperatures in this latitude I cannot hold.

After the specimen is placed on the cover glass or slide, some care must be exercised in drying, as too high a heat may injure the staining qualities of the tubercle bacillus.

To fix, the cover slip is passed vertically through the flame of a Bunsen burner three times. If a spirit lamp be used this may be done a trifle more slowly, and the same applies to a slide. The oil immersion lenses are all corrected for cover slips, and so, theoretically, it appears better to employ the slips, but practically a slide will give results good enough for any but the microscopist, whose goal is not diagnosis but technique.

Staining of the Tubercle Bacillus.

The so-called staining properties of the tubercle bacillus depend upon its resistance to decolorization. It stains well in most of the basic anilin dyes, though the violet dyes and fuchsin give the best results. Fuchsin is better adapted for diagnostic purposes. It is a brilliant red, makes the bacteria appear broader, retains its red appearance by lamp light, is better for photographic purposes, and less sensitive and more reliable than the violet dyes.

The reaction of the staining fluid may be either acid or alkaline. Koch's original staining fluid was, as you will recall, an alkaline solution of methylene blue, with vesuvin as a counter stain. However, the best results have been obtained by the addition to the staining fluid of anilin or carbolic acid—substances slightly alkaline or almost neutral in reaction. The manner in which these substances act is a mooted point.¹⁴ By different observers they are said to increase the solubility of the stain,¹⁵ to act as a mordant or corrosive.¹⁶ By the first, the tubercle bacillus is more deeply stained on account of the concentration; by the second hypothesis the stain is enabled to penetrate more deeply into the substance of the bacillus.

The time required for staining varies with the degree of heat employed; the greater the heat, to a certain point, the more rapid the staining. The cover slip may be floated on the staining fluid, which is heated in a dish, or, better, immersed in the fluid, as in some staining reagents the composition of the fluid on the surface differs from that of the stain in general. If a slide be used, the whole end should be kept covered with the staining fluid, to prevent the specimen breaking during the heating. A small flame should be used and the fluid brought just to a boil, or, better, until bubbles are seen to collect about the thicker parts of the smear. This heat should be kept up for 1-5 minutes, or until crystals of fuchsin are seen to appear on the surface of the fluid. As many hold that not one-half of the tubercle bacilli in a preparation are stained when it is examined, the great value of sufficiently overstaining is readily seen. Its importance is further seen when we realize that by each successive step the tubercle bacilli are more or less decolorized.

Recently several new stains for the tubercle bacillus have been proposed. Dorset's¹⁷ stain has been acknowledged by its author to be of little or no value in differentiating between smegma and tubercle bacilli. Dr. Dorset, I believe, found only one specimen of dye that acted as described by him. Hodenpyl has tried the stain and found it of no value.

Decolorization.

The so-called "specific" staining properties of the tubercle bacillus depends chiefly upon its ability to resist decolorization. The word "specific" is misleading, as bacilli of smegma and leprosy, have a certain degree of the same "specificity" but are less able to resist acid and alcohol.

Alkalies, other dyes, salts and alcohol, as well as acids, organic and inorganic, can decolorize specimens. Of the three most commonly used; inorganic acids, nitric, which has no specific action, is the safest. But care must be used to obtain only chemically pure acid, as nitrous acid

decolorizes tubercle bacilli quickly. Sulphuric acid however, undergoes no change when in watery solutions, and one can be more sure of its strength after standing. Concentrated acid acts no better, but more quickly than moderately dilute, 1 to 2-4. Acid alcohol (Ebner's decalcifying fluid) is very good, and recently Rosenberger¹⁸ has advised the use of sweet spirits of nitre, an alcoholic solution of ethyl nitrite, as a decolorizing agent for the ordinary carbol-fuchsin stain. After staining 5-10 minutes in this, the specimen is decolorized $\frac{1}{2}$ minute in the spirits of nitrous ether, and counterstained. Smegma bacilli as well as the fatty granular particles decolorize in this. The author claims it does not injure tissue as sulphuric acid does at times; it is easy to prepare; keeps indefinitely; acts more quickly and surely than ordinary decolorizers, and gives a clearer and better defined field. By its use much thicker preparations can be used, and so more sputum examined at one time, an advantage of no little importance where the tubercle bacilli are few. It has been tried in the laboratory and gave satisfaction in this respect. I should add that a counterstain may be added to the decolorizing fluid.

Hauser¹⁹ and Lafforgue²⁰ advocate that a very thin preparation be stained for 30 seconds after steady vapour is given off, care being taken not to allow the specimen to boil or to dry. The specimen is then decolorized in 10 per cent. citric, tartaric, or acetic acid for about $\frac{1}{2}$ minute, until it assumes a light rose tint. Wash very rapidly with alcohol and water, and counterstain with methylene blue. Hauser says one can combine acid with alcohol and employ but a few seconds.

The thinner the smear the more quickly is the specimen decolorized. By changing the part of the decolorizing fluid in contact with the specimen the action is hastened. Gabbett's²¹ mixture of methylene blue in 25 per cent. sulphuric acid has, I believe, from its general use, given the most satisfaction in ordinary work. Many, however, still prefer to decolorize by nitric acid until the specimen shows no traces of fuchsin. It is then washed in water, when possibly some colour returns, and it may be necessary to decolorize further. The specimen is then washed with alcohol, next with water, and then treated with the counterstain. I have found this method to be the best in specimens for diagnosis, and for urine. The fewer the tubercle bacilli the more carefully must the decolorization be made. A few tubercle bacilli may be placed on the slide and stained and decolorized at the same time, as a control.

I have already mentioned several methods of counterstaining, among them the one most frequently used, Gabbett's²¹ method, which decolorizes and counterstains at the same time. B. Frankel,²² and von Ermengem²³ have both methods on this principle, and Rosenberger¹⁸ has added it as a modification to his method of decolorizing by sweet spirits of nitre.

With these we cannot control the steps as well as with the separate method. A good counterstain must be strongly contrasting to that used for tubercle bacilli; it must have affinity for the ground matter to drive out the first stain and be able to recolor; it must stain the secondary organisms; it must not decolorize the tubercle bacillus too powerfully. Vesuvin has proved a good counterstain for violet-coloured tubercle bacilli, and methylene blue or malachite green for red.

Gibbes²⁴ method of polychromatic staining has proved of small value. Its author claimed for it results similar to those obtained in the blood by Ehrlich with his triple stain.

To recapitulate briefly: be sure to overstain. As soon as the stain is washed off, remember that each step affects more or less the colouring of the tubercle bacillus. So decolorize and counterstain with great care.

To dry the preparation after counterstaining, blotting paper may be used, but a new piece should be employed for each specimen, and care taken that it is as clean as possible. Personally, I prefer to allow the preparation to dry in the sun. Heating for this purpose I have found to injure the stain.

The Tubercle Bacillus.

"The tubercle bacillus," writes Fischel,²⁵ "is not an end form, but one form of the cycle of a rod-shaped bacterium." It is without doubt due to this fact, confirmed by many observers, that the following names have been suggested for the tubercle bacillus: *Sclerothrix Kochii*,²⁶ *Mycobacterium tuberculosis*,²⁷ *Tuberculomyces*.²⁸ But according to the rules of scientific nomenclature this name cannot be changed, and as it is binomial, the only loophole is closed.

The tubercle bacillus most usually occurs as a rod-shaped organism 1.5-3.5 microns long, and about 0.2 microns in breadth. It has been seen 11 microns long. The shorter the bacillus the more apt is it to be straight. It is usually bent, sometimes curved, crescentic, or even like a spirillum or spirochæta. It occurs at times in chains, and branching forms have been recorded by a number of observers.²⁹ One observer³⁰ has recently reported two cases where branched forms have occurred in the sputum, which he further characterized as filamentous, budded, or beaded. In one case he obtained the same forms from guinea pigs after inoculation. Pleomorphic forms have also been found in tissue. Hoenpfl holds with Metschnikoff that the tubercle bacillus is a cladothrix.

The beaded forms have caused much discussion. Koch, in his early papers, held the clear refracting spaces to be spores, and many have followed his lead. They occur 1 to 8 in a bacillus, and are separated in stained specimens by round or rod-shaped granules deeply stained in a lightly-stained capsule. The clear spaces are now held to be vacuoles

due to plasmolysis. Every observer has noted "nucleated" tubercle bacilli, *i.e.*, bacilli containing more deeply stained rounded masses. These resist decolorization more strongly than the remainder of the bacillus, and at times resemble short chains of cocci. This is the explanation of the affirmation made by some that tubercle bacilli may become cocci.³¹ That these, too, are not spores, is upheld by the fact that they have not been shown to resist drying and disinfection, to any greater degree than the bacillus, nor have they ever been shown to germinate.

The club or knob-shaped swellings at the end of the tubercle bacillus in some specimens are asserted by Coppen Jones²⁸ to be spores. This observer would place the tubercle bacillus very near the actinomyces, which reproduces itself in this manner. But it is much more likely that this form, with the two preceding, are all types of degeneration.

The morphology of the type of tubercle bacillus of Arloing and Courmont⁶⁴ that is capable of agglutinating, has not, as far as I can learn, been studied.

Arrangement and Grouping of the Tubercle Bacillus.

The arrangement of the tubercle bacillus in any specimen cannot be told from what is found in a single slide. They occur often in clumps, often diffusely scattered throughout the specimen. At times they occur in groups of two, three, or four, with their long axes more or less parallel. Occasionally they are found to be intracellular, in leucocytes or alveolar cells. Very occasionally they occur in enormous masses, such as are found in smears from cultures.

Fischel's²⁵ conclusions in his paper on the morphology of the tubercle bacillus are in part as follows:

(1) "The tubercle bacillus recognized by Koch as the cause of tuberculosis is a parasitic form of a rod-forming micro-organism occurring originally as a saprophyte. That, in the examination of tuberculosis cultures, stained and unstained rod-like organisms only are found for the most part, is due to the preparation. Bacilli, leaving each other at an angle, often observed in stained preparations, may be an indication of the original branched forms.

(2) "The form of this organism cannot yet be surely determined. It is no bacillus in the morphological sense, no cladothrix, but in its saprophytic form evidently belongs to a higher pleomorphic fungus. The similarity to the actinomyces, present in fact in the macroscopic form, as well as the fact that the forms observed in cultures of tubercle bacilli were found also in cultures of actinomyces, bespeaks a somewhat near relationship between these two organisms.

(3) "The parasitic forms of growth vary after the substrata in the

sense that the so-called bacilli appear sometimes longer, sometimes shorter, sometimes narrower, sometimes broader.

(4) "The bacilli of fowl tuberculosis stand in such genetic relationship to mammalian tuberculosis that they appear as modifications of one and the same organism, due to the nourishment. The bacilli of military tuberculosis, bovine and fowl tuberculosis, can, according to this, already be somewhat differentiated. The bacillus of fowl tuberculosis has lost in general, through the pabulum on which it has been grown, the peculiarity which transfers it to mammals, to produce the same general tuberculosis. However, it can again attain this peculiarity under certain conditions not exactly known at the present time.

(5) "The cause of tuberculosis is a pleomorphic and variable micro-organism."

Smegma, syphilis, and leprosy bacilli all stain in carbolfuchsin and resist acid to some extent. Smegma bacilli are decolorized by acid and alcohol. Leprosy bacilli²² stain much more quickly than tubercle bacilli and retain the stain less persistently. Cowie²³ has recently shown that most of the laboratory and domestic animals possess smegma bacilli, and he holds that smegma bacilli are not of one but of several species.

Stiles and Hassell²⁴ have recently called attention to the fact that in Cincinnati a number of hogs have been found infected with the lung fluke, *Paragonimus Westermanii*. They were identical with those found by Mauser in man. The bearing of this upon cases of pulmonary disease beginning with hæmoptysis is readily seen. The sputum in these cases, raised between the hæmoptyses, is very similar to that of pneumonia, and is of a dirty red or brown color, due to the presence of the eggs. These are the only constant and specific characteristic of the disease and are usually very numerous.

The acid resisting bacillus of timothy hay²⁵ has been found to occur frequently in butter and milk. Rabinowitsch thinks many of the "tubercle bacilli" found in butter are this organism. It is immotile, generally occurs singly, often slightly curved, but may be found with parallel arrangement. At times long imbranched threads are found; at others, short pieces. They are thicker than tubercle bacilli and may have a swelling, club-shaped, on one end. They contain no spores, but one part of the bacillus is often more deeply stained than the rest. A weak watery solution of methylene blue stains the whole bacillus, while the tubercle bacillus is stained only at one part. While it resists sulphuric acid, it decolorizes in nitric acid and alcohol.

Klein,²⁶ in 1899, reported a bacillus of pseudo-tuberculosis which occurred in water and milk. It was pathogenic to animals, which, however, could be immunized. He states that it may occur in man.

Kempner,³⁷ and his wife report a pseudo-tubercle bacillus in sputum, and on post-mortem examination, in a case of pulmonary gangrene.

Eppinger³⁶ has reported a cladothrix (*C. asterioides*, he called it) which produced in the lungs a disease similar in its lesions to tuberculosis. On inoculation into guinea pigs and rabbits the similarity to tuberculosis was also maintained.

Plexner,³⁹ in 1897, found an organism which reproduced in the lung all the macroscopic changes found in tuberculosis. No tubercle bacilli were present, but a streptothrix pseudo-tuberculosis was isolated as the cause.

Rixford and Gilchrist⁴⁰ reported a case in 1896, of protozoan infection, in which, though no tubercle bacilli were found in the sputum, the patient was thought to have died of general tuberculosis. Enormous quantities of protozoa were found on section in the contents of the pulmonary cavities.

Renon,⁴¹ in his monograph on aspergillomycosis, has shown that *aspergillus fumigatus* may cause all the symptoms and physical signs of pulmonary tuberculosis. The sputum in these cases, which are rare, is at first frothy, but soon becomes greenish and purulent, often streaked with blood. Such a case, with marked lesion at one apex, would almost certainly be diagnosed pulmonary tuberculosis without an examination of the sputum, a thing which has happened. The fact that it may occur with tuberculosis of the lungs but emphasizes the point that the examination of the sputum should not be considered completed as soon as tubercle bacilli are found.

The sputum of actinomycosis may be simple mucous or purulent, and if so, may contain the sulphur yellow granules. It may be at times rusty like that of pneumonia, or the patient may say that at one time a large quantity of offensive yellow material was expectorated. The physical signs and symptoms may closely resemble those of pulmonary tuberculosis, but the radiating arrangement of the mycelium is distinctive.

The Cellular Elements.

These compose the great mass of the sputum and should be examined in the fresh specimen. If two cover slips or slides are rubbed together, one may be stained for tubercle bacilli, the other examined fresh after a little more sputum is added. Gabritschewsky⁴² of Moscow has, following Schmidt's⁶⁴ method of hardening sputum and then sectioning and staining, found giant cells in three out of four cases of pulmonary tuberculosis. The cells consist of four or five varieties. It will suffice to name these, pavement epithelium, alveolar, ciliated, glandular, cylindrical, pus, red blood, and giant cells. These cells may also be noted in the stained specimens. From the cellular elements of the sputum we

can draw a few self-evident conclusions in regard to its origin. The cell nuclei are said to assume comet-like forms in acute softening.⁴³

Secondary Organisms.

That these complicating microorganisms are not always present in pulmonary sputum has been proved by a number of observers.⁴⁴ Some of the best authorities hold that even no secondary organism is needed for cavitation. But, bacteria are always in the mouth, and it is very rare that secondary organisms are not found in the specimens. The secondary bacteria include, among others, cocci, staphylococci, streptococci, diplococci, torulae, tetrads, sarcinae, zoogloea, bacilli singly, in chains, and in zoogloea masses. I have seen irregularly staining bacilli that closely resembled diphtheria. Influenza bacilli and Fränkel's diplococcus are found at times, as well as *B. pyocyaneus*, and the dozen or more forms described by Dr. Miller⁴⁵ of Berlin as inhabitants of the buccal cavity. I may add that months after an epidemic influenza bacilli may be found in chronic cases with cavitation, and may start up the disease afresh at this late date. The diagnosis of this condition by the culture method, though recommended by many, is uncertain. Tubercle bacilli must be present in the specimen to diagnose a mixed infection. Numerous secondary organisms, says Spengler,⁴⁶ occurring in a chronic or sub-acute case, with fever and night sweats, and badly stained tubercle bacilli, indicate a prognosis less unfavourable than if the tubercle bacilli were short or entirely absent.

Elastic Tissue.

Having poured out the sputum on a large glass plate 9 x 9 inches, a second plate 6 x 6 inches is placed on it. The specimen is then examined for opaque bits, and a little practice helps much in avoiding pieces of food. When a suspicious particle is found, the upper glass plate is slipped sufficiently to one side to enable the suspected bit to be "cut out" with a needle and transferred to a slide for examination. If none are found, digest or boil with 5-10 per cent. sodium hydrate or dilute with $\frac{3}{4}$ volume water and sediment 24 hours or centrifugate.

Some years ago, before the discovery of a diagnostic stain for the tubercle bacillus, this was the most important part of the sputum examination. It is now dropping more and more into the background. Dettweiler's maxim, "Where elastic tissue is, there are also tubercle bacilli. Indeed, the greater the number of fibres, the more numerous the tubercle bacilli," is still held in part, but its converse cannot be affirmed, as many cases contain tubercle bacilli and no elastic fibres.

Elastic fibres are the surest sign of extensive destruction of pulmonary, bronchial, or tracheal tissue. The bronchial elastic tissue, accord-

ing to Osler,⁵ forms an elongated network, or two or three long narrow fibres are found close together. By others they are said to be more fragmentary and less apt to be curled. A somewhat similar form is said to come from the arteries, and occasionally a "distinct sheeting is found, as if it had come from the intima of a good-sized artery" (Osler).⁵ The fibres from the alveoli are often branched, and show the outline of the air-cells. In healing processes the elastic fibres first become scarce and finally disappear. Their constant presence shows advancing disease. They are absent in acute processes until the walls of the bronchi are broken down. Ninety per cent. of all cases in which elastic tissue occurs are said to be tuberculosis.

Various crystals⁴⁷ may be found in tuberculous sputum, and among them may be mentioned Charcot-Leyden crystals—so abundant in asthma—cholesterin crystals, hamatoidin crystals, fatty crystals.

Fibrinous coagula,⁴⁸ striking, tree-like bodies, may occur in phthisis as well as in fibrinous bronchitis. Casts of the bronchi also occur.

Prognosis from the Sputum.

In any examination of the sputum the question of chief importance is the presence, and, with many reservations, the absence of tubercle bacilli. At the very beginning it is well to impress upon our minds that the number, form, arrangement and staining of the tubercle bacillus give no perfectly sure data for prognosis.

How often do we hear on all sides that a patient is improving because he has fewer bacilli in his sputum. When we recall that only a fraction of the number of bacilli in any preparation appear stained when it is examined; that old foci may give off very few, and young foci no bacilli at all, however actively they are forming; that the occlusion of a bronchus may shut off the focus entirely for a time; when we consider these things we see how little can be drawn from the number of bacilli present in any preparation. And again, as cultures up to 10-14 days are said by Marmorek⁴⁹ not to hold the stain, we see a further chance of error. A negative examination, it has been urged, is of little value unless extended over at least 4-6 successive days. Repeated negative examinations of the sputum are important in differentiating bronchiectatic dilatation⁵⁰ from cavitation, and in perforative empyema. Tuberculous foci, however, may be present in these cases. I saw last spring, in Dr. Osler's service at the Johns Hopkins Hospital, a negro, aged 32, who was admitted as a case of pneumonia. The number of his leucocytes per cu. mm. never reached 12,000. About the tenth day, no crisis having occurred, his expectoration was examined for tubercle bacilli, with a negative result. However, they were found on the twelfth day and the diagnosis changed to tubercular pneumonia. The dulness over the left

lower lobe persisted, and about the fifty-fifth day of the disease, if I remember correctly, the empyema discharged through an intercostal space. Tubercle bacilli had in the meantime disappeared from the sputum, and the last time I saw the patient in the surgical ward he was doing very well. Such cases should again warn us against concluding that if tubercle bacilli are found, the diagnosis is completed.

Ferran⁵¹ of Barcelona has recently described a test to be employed when no tubercle bacilli are discovered. Three or four cc. of sputum are sterilized, 10 cc. sheep's serum added, and the whole placed in the thermostat for 3-6 hours. At this time the odor of spermin may be detected. It is said to be formed in cavities by a saprophytic form of tubercle bacilli.

The point frequently arises whether a single typical tubercle bacillus is sufficient for diagnosis. While it is no longer necessary to depend entirely upon sputum examination for a confirmation of our diagnosis, I should hardly think it necessary to give tuberculin to a suspected case whose sputum, on very careful examination, showed one perfectly typical bacillus, and this in spite of Straus⁵² work. The chief danger here lies for the tyro, who is far less apt to overlook bacilli than to mistake detritus, etc., for them. B. Fränkel⁵³ showed many years ago that from the number of bacilli in the sputum we could draw no conclusions in regards the number in the tissues. Enormous quantities of tubercle bacilli may be given off from an encapsulated cavity in an arrested case. Another case, who suddenly has high fever, night sweats, etc., may show almost no bacilli, or, if a bronchus be blocked, entire absence of bacilli, and yet go quickly "zu Grunde." In the usual course of chronic phthisis the number of bacilli would increase if the process of destruction spreads, and decrease if there is healing, but with many exceptions, notably the one just mentioned. A sudden increase in tubercle bacilli, which before were absent, especially if they are very numerous and diffuse, while the cellular elements in great part show signs of disintegration, bespeaks a very ominous prognosis and is usually accompanied with increased subjective and objective signs. A continuous expectoration of very many bacilli shows, according to Brieger,¹² the presence of a cavity. He further holds that many and very few bacilli at intervals indicate a cavity that opens from time to time. This is very interesting in connection with the clinical observation that signs of cavity may be present one day and absent a few days later.

The absence of tubercle bacilli in the sputum is the *conditio sine qua non* of healed tuberculosis, for as Dettweiler⁵⁴ says, of what value would be the long-held maxim that the tubercle bacillus is the cause of tuberculosis, and where the tubercle bacillus is, there is tuberculosis; of

what value otherwise, he says, would this be. The continued presence of bacilli in the sputum does not necessarily mean that the disease is in active progress. Dr. Fowler⁷⁵ reported a case in 1895 where bacilli had been found on every examination for fourteen years. During that period the patient was actively at work, and was, at the time of the report, better than he was in 1882. Dr. Trudeau has had a somewhat similar experience, tubercle bacilli being found for ten years, the greater part of which the patient spent in active work.

In regard to the number of bacilli, I would like to urge more uniformity in recording our examinations. "Many," "few," "numerous," are loose terms. But you will reply that they are used in recording "loose" observations, as the examination of sputum must more or less always be. Stroschein⁸ of Göbersdorf, Amann⁸ of Davos, and Nuttall¹² of Cambridge have devised methods to overcome the uneven distribution of the tubercle bacilli, a point which everyone has recognized. The results thus obtained are not in my opinion of sufficient value to make any of these processes worth while. Gaffky⁷⁷ has prepared a table which, with a few modifications, I have used for some months and found very helpful. In it he indicates the number of bacilli by Roman numerals, as follows:—

- I Only 1-4 bacilli in whole preparation.
- II Only 1 bacillus on average in many fields.
- III Only 1 bacillus on average in each field.
- IV 2-3 bacilli on average in each field.
- V 4-6 bacilli on average in each field.
- VI 7-12 bacilli on average in each field.
- VII Fairly numerous on average in each field.
- VIII Numerous on average in many fields.
- IX Very numerous on average in many fields.
- X Enormous masses on average in many fields.

The modifications I have adopted consist in replacing "fairly numerous" by "13-25"; "numerous" by "about 50"; "very numerous" by "about 100." In using this table, Gaffky recommends that a Zeiss homogeneous oil immersion 1-12, and a No. 2 ocular at a definite tube length, be employed.

Spengler¹¹ of Davos, in a recent article, gives a scheme which he has found of service in recording sputum examinations:—

- T.B. he uses for tubercle bacilli.
- S.B. for secondary bacteria.
- R.B. accompanying bacteria.
- M.B. mixed bacteria.

- 0-1 very few bacilli (in singly occurring, T.B.1 is used).
 1-2 fairly numerous.
 T.B.2 numerous (about 12 to the field).
 T.B.3 in great masses.
 3- in enormous masses.

As a further refinement he employs "2-3₂₅" to indicate very numerous and 25 to the field. For daily use he recommends "present" under 12, and "numerous" over 12 to the field.

Gaffky's scheme has the advantage of being almost universally used abroad, where in many places the patients, after the bi-weekly sputum examination, inquire of a friend what number he got, and I may add that the error of "the greater the number the worse the prognosis" is rife among them.

That the form of the bacillus has more bearing than their number upon the prognosis is pretty widely accepted. The chief difficulty lies in the fact that it is very rare to find, after the examination of several slips, that the bacilli have all one form. However, from our knowledge of other bacteria, and from the tubercle bacilli in pure cultures, we may safely conclude that short bacilli indicate rapid growth, and long bacilli slow proliferation. Short bacilli occur, it is said, in young cultures and in chronic cases. Most frequently both forms occur together. A tubercle bacillus of low virulence recently reported by Theobald Smith⁵⁸ is said to have been "quite slender, with its chromatic substance more or less transversely segmented." I have previously mentioned that the beaded forms of the tubercle bacillus indicated a degeneration of the organism. Many of the tubercle bacilli found in the sputum are undoubtedly dead, but how to determine this point is unsolved.

The arrangement of the bacilli has been carefully noted by many observers. The occurrence in clumps, and the parallel arrangement of many, or even two bacilli, is said to evidence a favourable state of development and lively growth. Groups of short bacilli are held by some to betoken a bad prognosis.

Very deep staining is in general, according to Spengler, a sign of especial virulence.

In conclusion, I should like to add that the exceptions to what I have said on prognosis are so numerous and so weighty that we may apply with especial emphasis to this branch of medicine the words of Hippocrates, "Experience is fallacious and judgment difficult."

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RETROSPECT OF CURRENT LITERATURE.

Surgery.

UNDER THE CHARGE OF GEORGE E. ARMSTRONG.

Frequency of Recurrence of Sarcoma.

JOHN A. WYETH. "Frequency of Recurrence of Sarcoma." *Annals of Surgery*, Sept., 1901.

The surgeon of large experience cannot fail to be impressed with the extremely malignant character of sarcoma as shown by the frequent recurrence of this neoplasm, either locally or remotely. This is true whether the tumour is removed by dissection without amputation, or when an amputation is made more or less remote from the growth. The writer states that in his own practice, he can now recall but two cases which in strict propriety can be claimed as cured. He has a number of patients still surviving, one in the fourth year after a hip-joint amputation with no sign of recurrence; but he can hardly count this man as cured, for he has under his observation, also, a man whose shoulder-joint he amputated five years ago for an osteo-sarcoma of the upper end of the humerus, but which five months ago recurred in the stump. While engaged in collecting the cases in which amputation at the hip-joint had been performed by his method, the writer was impressed with the frequency of the recurrence of sarcomata in the lungs or other viscera, and occasionally in the stump, even when the disease was seemingly entirely confined to the bone and well removed from the line of incision in forming the flaps. Out of the 267 cases of amputation at the hip by this method there were 131 done on account of sarcoma, 14 of these, or 10.6 per cent., ended fatally, wholly or in part as a result of the operation. Of the 117 cases which survived operation, more or less satisfactory histories were obtained of eighty-three. Fifty-two of these, or over 63 per cent., ended fatally by recurrence. If, however, a careful analysis of the cases in which the disease returned is made, it is evident that this estimate of the ratio of recurrence is far too low, for in many of the cases classed in the non-recurring list so short a period of time had elapsed

since the operation, that judging by the statistics in the recurring tables, the large majority of these will without doubt ultimately be added to the list of fatalities. Of the fifty-one recurring cases, twenty-seven returned between one month and twelve months after amputation, while in five out of the twenty-nine cases reported as not having recurred when last heard from, only three, four, six, eight, and twelve months respectively had elapsed since the operation. The following summary gives the location of the recurring neoplasm: Lung, 23; lung and brain, 1; lung and pleura, 1; lung and abdomen, 1; pleura, 2; abdominal viscera, 3; liver, 1; abdomen and chest, 1; stump, 10; stump and mesenteric glands, 1; stump and general metastasis, 1; stump and iliac fossa, 1; lymphatic just above Poupart's ligament, 1; sacro-iliac synchondrosis, 1; location not given, 4; apoplexy, 1; total, 53.

As a ray of hope for these cases, the author cites four cases of extensive sarcoma successfully treated by infecting the amputation wound with pyogenic organisms, and he believes that the only case in which he has even done amputation through the shoulder joint for sarcoma in which the patient survived longer than a year, the man's life was prolonged by the streptococcus infection; and that the only one of his five hip-joint amputations for sarcoma which survived over a year, and which still survives three years after the operation, was permitted to become thoroughly infected with pyogenic organisms by leaving a large portion of the wound open and packing it with loose gauze. He has no doubt that streptococcus toxæmia, either erysipelatous or pyogenic, has an inhibitory influence upon sarcomata; and since, almost without exception, in cases not subjected to this infection, recurrence is the rule, it should be practiced whether or not the case is operable; and when an extirpation or complete removal in the part involved by amputation has been made, infection should be induced, and repeated at intervals not longer than six months for at least six years after the operation.

Injuries to the Diaphragm by Puncture.

CARL SCHLATTER. "Two Cases of Injury to the Diaphragm by Puncture, successfully Treated by Suturing. Transdiaphragmatic Suture of the Liver and Kidney. *American Medicine*, Aug. 31, 1901; and *Münch. med. Woch.*

The diagnosis of injury to the diaphragm is a very easy matter in cases in which the wound can be seen or felt, or when prolapse of the intestine occurs; but in other cases, it is, at best, extremely difficult, and almost impossible without enlarging the outer wound. Symptoms due to conditions accompanying injury to the diaphragm, such as diaphragmatic hernia, vomiting, percutory and auscultatory phenomena, are the exception. Statistics show that when not operated upon, 87.8 per cent.

of the cases died, mostly from the incarceration of the prolapsed intestine; but of the operative cases only 12 per cent. died, and these within a few hours after operation. These figures show the value of immediate operative treatment, and the operator should, in suspicious cases, introduce the well-disinfected finger into the wound and explore the diaphragm, even when to do so an enlargement of the outer wound is necessary.

Wounds of the Venous Sinuses of the Brain.

HENRY R. WILARTON. "Wounds of the Venous Sinuses of the Brain: An Analysis of Seventy Cases. *Annals of Surgery, July, 1901.*"

Wounds of the venous sinuses of the brain should be classed as dangerous injuries, being followed by a high mortality, from external or intercranial hæmorrhage or septic infection. They are especially liable to infection, resulting in septic thrombosis and pyæmia, therefore the greatest care should be taken to render them aseptic and preserve them in that condition. The most satisfactory and generally available method of treatment consists in controlling the bleeding by aseptic gauze packing. Ligation of the venous sinuses presents definite dangers in itself, is only available in certain wounds, where a free exposure of the injured sinus is possible, and cannot be employed with advantage in ordinary accidental wounds of the sinuses. The application of a lateral ligature to a wound of a sinus is less difficult and dangerous than ligation of the sinus, but is only applicable to small wounds. Suture of the sinus wounds is a valuable procedure in a certain class of cases, namely, small wounds which can be freely exposed. Forceps pressure is also a ready method of controlling hæmorrhage from wounds of the sinuses, but possesses no distinct advantages over some of the other methods, and its employment is accompanied by certain dangers.

Ophthalmology.

UNDER THE CHARGE OF F. BULLER.

Operative Treatment of Corneal Astigmatism.

A. BRENER. "Operative Treatment of Corneal Astigmatism."
Lancet, June 1, 1901.

Brener, with the cautery at a dull red heat, burns the cornea to about half of its depth. The burn is made in the limbus and is punctiform, or there may be more than one of these little wounds. The wound or wounds are situated in the meridian of least refraction, and the result is a marked increase in the refraction of this meridian and a diminution in the meridian at right angles to it.

This treatment is hence limited to cases of hypermetropia and mixed astigmatism. Brener quotes several cases showing very good results.

Connection between Nasal and Ocular Lesions.

DERRICK T. VAIL. "Optic Neuritis from Intranasal Disease." *Amer. Journ. of Ophthalm.*, May, 1901.

R. SATTLER. "Ocular Expressions of Intranasal Lesions." *Jour. of Amer. Med. Assoc.*, May 18, 1901.

Vail states that acute sinusitis frequently causes acute retrobulbar neuritis, and shows how any dilatation of the sphenoidal sinus by compression, or a purulent inflammation of this sinus by infection, can readily affect the optic nerve, ophthalmic vein, the third, fourth, fifth, and sixth nerves, and the lymphatics of the orbit. He mentions three types of optic neuritis of nasal origin:—

(1) Acute fulminating retrobulbar neuritis due to mechanical compression of the optic nerve and of the ophthalmic divisions of the fifth nerve by the distended walls of the sphenoidal sinus. The symptoms are sudden amaurosis and severe cyclonic neuralgic pain.

(2) Acute retrobulbar perineuritis and leptomeningitis, due to infection by the lymph channels by the nose. There is no pain and less amaurosis than in No. 1, but the fundus presents the same picture.

(3) Retrobulbar optic neuritis secondary to optic venous thrombosis. This is the most common type of the three.

In the first the striking features are the rapid onset and course, the severe pain involving almost all branches of the fifth nerve's first divi-

sion, the rapid loss of vision in a few hours or days with rapid recovery of fair vision in most cases, some atrophy of the nerve ensuing, however, and lastly, the absence in many cases of positive evidence within the nose that the trouble is of nasal origin. The treatment which Vail follows out is to remove all or part of the middle turbinated bones and to endeavour to get into the sphenoidal cavity.

Sattler mentions two groups of nasal lesions, the first consisting of chronic lesions of the middle meatus of the nose, the most anterior cells of the ethmoidal labyrinth, bulla ethmoidalis, the region of the unciniate process, hiatus semilunaris and infundibulum. The morbid change in the nose in these cases although causing such persistent and marked eye phenomena, is often barely indicated by any nasal symptoms and is only discovered when looked for.

The ocular symptoms are persistent injection of the conjunctival vessels, with some œdema of the retrotarsal folds. This injection is generally limited to the ocular conjunctiva. There is no abnormal secretion but much functional distress of the eyes and some slight retraction of the upper eyelid, due to disordered sympathetic innervation.

There may be persistent nagging neuralgia and continued effort at close work produces prolonged suffering, which is most pronounced early in the day but wears off towards evening. The pain is referred to points along the inner wall of the orbit, the eyeball and the eyebrow, which can be easily discovered by palpation. Exposure to bright light, sudden changes of temperature, dusty air, in fact anything which may irritate the nasal mucous membrane externally, as well as irritants of internal origin resulting from excessive mental fatigue, worry, etc., are exciting causes of this persistent suffering referred to the eyes and frontal regions.

The second group includes cases of focal suppuration in the nose— inferior meatus, inferior turbinate—adjacent cells of ethmoid, or often of the maxillary sinus. The ocular lesions are those of the tear sac and duct, often very obstinate, and attended sometimes by caries. The treatment here is radical extirpation of the lachrymal sac and attention to the nasal lesion.

Ophthalmia Neonatorum.

DR. GROENOUW. "Ophthalmia of the New-Born in its Clinical and Bacteriological Aspect." *Archiv. f. Ophthalmologie, Band LII, Heft I.*

FRITZ SCHANZ. "Etiology of Ophthalmia Neonatorum." *Zeitach. f. Augenheilkunde, June, 1901.*

Both of these writers dwell upon the fact that ophthalmia neonatorum is by no means always due to the gonococcus of Neisser.

Groenouw gives an analysis of one hundred cases. Various germs may cause the simple conjunctival catarrh as well as the pronounced blenorrhœa. These germs are gonococci, streptococci, pneumococci, bacillus coli communis and perhaps also the yellow staphylococci. The severe cases were generally due to the gonococcus, but this organism may also cause only a simple catarrh.

In treatment Groenouw did not find protargol superior in its effects to nitrate of silver.

Schanz, in ninety-two cases found the gonococcus in sixty-three; Widmark in one hundred and three cases found the gonococcus in sixty-four; Klopstein in fifty-one cases of severe blenorrhœa found this organism thirty times; and finally, Groenouw in his hundred found the gonococcus in only forty-one cases.

Corneal Erosions.

VON REUSS. "Corneal Erosions." *Centralblatt f. Augenheilkunde*, Marz, April, 1901.

Reuss mentions those cases of slight erosion of the cornea which, among other causes, are so frequently produced by the scratch of a finger nail. They generally rapidly heal but a few days later on awaking in the morning the patient is seized with marked pain in the eye, which pain disappears after an hour or two only to recur the next morning. Fluorescin reveals no break in the epithelium; and Reuss attributes it to loosening of the epithelium from the substantia propria. The condition may last for weeks or months. At the outstart Von Reuss applies a compress bandage, instilling cocaine for the pain and keeping boracic acid ointment applied beneath the edges of the lids. The bandage is kept on for two weeks and the cure is permanent.

Where a relapsing case is to be treated the epithelium is removed over the site of the erosion so that new epithelium may form, and a compress bandage with boric ointment is used as in the first form of treatment. Fluorescin failing to stain points to the lesion being beneath the epithelium.

Postpartum Metastatic Panophthalmitis.

W. L. PYLE. "Postpartum Metastatic Panophthalmitis." *Amer. Medicine*, May 11, 1901.

Pyle's article is of the nature of a review of our present knowledge of this disease, with notes of a case of his own.

The time of onset is five to fifteen days after parturition. The monocular cases are twice as frequent as the binocular, and the prognosis in the former as regards life is much more favourable than in the latter. In all cases the vision is lost. Although puerperal septi-

emia is almost invariably present, yet the ocular disease may follow an apparently normal labour.

The failure of vision may be the first symptom noted but this is rapidly followed by iridocyclitis and general panophthalmitis, which may run a severe, painful course, or occasionally an indolent painless one.

The septic emboli from the genitalia enter the blood and lodge in either the retinal or choroidal vessels. One eye is affected a few days after the other in binocular cases. If suppuration destroys the contents of the eyeball and they are evacuated, phthisis bulbi results, and the eye remains quiescent and harmless in the orbit. But if the intraocular membranes are not entirely destroyed and the sclera not extensively ruptured, atrophy of the eyeball results and, on account of the tension of the intraocular membranes by contraction of the exudate, recurrent attacks of inflammation occur and even sympathetic inflammation may be set up. Such a globe must be promptly removed.

The treatment of the eye in the acute stage is to apply heat to relieve pain, and later, open the eyeball, evacuate the contents, irrigate with antiseptics, and treat as an abscess cavity elsewhere.

Exenteration in Panophthalmitis.

LAPERSONNE (LILLE). *Archiv. de Ophthalmologia*, Vol. I, No. I, Jan., 1901.

Lapersonne incises the cornea with a Graefe knife, then enlarges the wound above and below, not however excising any of the cornea. After the pus and lens are evacuated, he inserts a large cautery at white heat into the ocular cavity, passing it all round the circumference. He repeats this thoroughly, then irrigates the globe cavity with sublimate solution, dusts iodoform over the opening, and applies a bandage. Healing soon follows, and in four weeks an artificial eye is inserted.

J. W. Stirling.

Canadian Medical Literature.

UNDER THE CHARGE OF KENNETH CAMERON.

[The editors will be glad to receive any reprints, monographs, etc., by Canadian writers, on medical or allied subjects (including Canadian work published in other countries) for notice in the department of the JOURNAL. Such reprints should preferably be addressed to Dr. Kenneth Cameron, 903 Dorchester street, Montreal.]

The Canadian Practitioner and Review.

January, 1901.

1. The Treatment of Tuberculosis in Sanatoria. P. H. BRYCE.
2. The Preventive and Curative Treatment of Pulmonary Tuberculosis. GEORGE H. HODGE.

February, 1901.

3. Some Points in the Surgery of the Kidney. JAMES F. W. ROSS.
4. Hydatid Cyst of the Tail of the Pancreas. GEORGE A. PETERS.
5. A Case of Dystocia from Uterus Bicornis with Contracted Pelvis. K. C. McILWRAITH.

March, 1901.

6. The Relation of Ovarian Disease to Insanity, and its Treatment. A. T. HOBBS.
7. Asheville, North Carolina, as a Health Resort for Pulmonary Tuberculosis. J. PRICE-BROWN.
8. Cancer of the Uterus. C. WAGNER.
9. Report of an Operation for Jacksonian Epilepsy. H. M. THOMAS.

April, 1901.

10. A Case of Tic. R. D. RUDOLF.
11. Tendon Transplanting in Paralytic Deformities. CLARENCE L. STARR.
12. A Comparison of Antiseptics. E. RALPH HOOPER.
13. Clinical Experience with Chlorotone and Mercuriol. C. E. DARCHÉ.

May, 1901.

14. A Case of Primary Abdominal Pregnancy. J. E. PICKARD.
15. History of a Case of Small-Pox. J. GODFREY.
16. Diphtheria vs. Acute Follicular Tonsillitis. JOHN GUNN.

June, 1901.

17. Notes on Eclampsia. K. C. McILWRAITH.
18. Medical Aspect of Cancer of the Breast. W. OSLER.

19. New Observations on the Treatment of Anæmia and Chlorosis.

F. SONTAG.

1, 2, 1. BRYCE, after citing statistics of the prevalence of pulmonary tuberculosis and the stage of the disease at the time of diagnosis and treatment, goes into detail of the management of patients at sanatoria, especially the municipal sanatoria that are now being established in Ontario. HODGE deals with the etiology, diagnosis and treatment of the disease. PRICE-BROWN describes the work done and the results obtained at the well-known sanatoria at Asheville, N.C.

3. ROSS, in this interesting paper, covers briefly the field of renal surgery.

4. PETERS relates the following case:—The patient, a man of 20, a native of Argentine Republic, had for two or three years suffered from attacks of pain, obscurely located in the stomach and bowels. A rounded tumor, which had been observed for several months, as large as a coconut, could be felt below the ribs on the left side, with its centre about midway between the nipple and sternal lines. The mass was tense and elastic, but no fluctuation could be felt. Having, by careful differentiation, decided that the cyst was connected with the tail of the pancreas, Peters determined to open it from behind, according to the advice and practice of Catheart and Caird, of Edinburgh. An incision, about three inches long, was made from the margin of the erector spinæ forward, about parallel to the twelfth rib, and curving slightly upwards around its end in the direction of the margin of the costal cartilages. The lumbar fascia was divided, the colon displaced forwards with the peritoneum, and the kidney surrounded by its fat was found lying in its normal position and obviously quite healthy. On pressing the finger, upwards, forwards, and inwards, the cyst could be reached, and was tapped by a long hypodermic needle. With the needle as a guide, the cyst was incised, with some difficulty owing to its depth from the surface and the toughness and resistance of its walls. Three or four ounces of sero-purulent fluid escaped. A microscopic examination of the contents showed numerous brood-cysts, with their attached embryos in varying degrees of disintegration, as well as multitudes of the characteristic hooklets. The patient recovered, with, however, a sinus which discharged a small amount of fluid. Hydatids of the pancreas are extremely rare, though not unknown. In a series of 986 cases of hydatids in man collected by Neisser, none were found in the pancreas. Graham, of Sydney, Australia, says that the hydatid is sometimes found in the pancreas.

5. McILWRAITH describes a case of confinement which presented several unusual points of interest. The head was presenting but was

not fixed in the brim, back to the right, breech in the extreme left hypochondriac region. At the place where one should normally have felt only the arch of the back was a large mass extending up to the right hypochondriac region, where one would expect to find the fundus uteri. The mass was especially prominent during uterine contraction, of doughy consistency, not resonant on percussion, and over it the uterine souffle was heard with especial clearness. The patient after being in labour for thirty hours became exhausted and was delivered by version. On the introduction of the hand into the uterus a septum was found extending about one-third of the distance down the interior of the uterus. The placenta was adherent in the right cornu, which corresponded to the mass already mentioned, and the breech of the child had evidently been in the left cornu.

6. HOBBS writes upon the treatment of the pelvic lesions in the female insane.

8. WAGNER, in a short paper, speaks of some of the early and important changes in the mucous membrane in adeno-carcinoma of the uterus.

10. RUDOLF reports a typical case of tic, and from the fact that the movements were unaccompanied by any psychical phenomena, and, further, were not of a co-ordinate nature, it was evident that the case was one of simple tic. The case was unusual in the fact that it had commenced so late in life, at the age of fifty-six. Under the use of arsenic, taken in full medicinal doses, the patient had considerably improved.

11. STARR reports four cases in detail to illustrate the methods employed in the transplantation of tendons in paralytic deformities.

15. This case is interesting from an obstetrical standpoint. The patient had variola at the end of pregnancy. Labour took place eighteen days after she took to her bed, and sixteen days after the eruption had appeared. Under such circumstances small-pox is supposed to be very dangerous to both mother and fetus, but here the mother made a good recovery, and a healthy child was born without any symptoms of small-pox. The temperature was never more than 100, although the small-pox was to a certain extent confluent.

The Maritime Medical News.

January, 1901.

1. Treatment of Fractures. H. S. PEEKE.
2. Adenoid Vegetations of the Naso-Pharynx. W. G. PUTNAM.

February, 1901.

3. Review of One Hundred and Fifty Cases of Skin Disease. G. G. MELVIN.
4. Typhoid Fever. W. S. MUIR.

March, 1901.

5. Troubles of the Cornea. J. ROBERTSON McINTOSH.
6. Abdominal Hysterectomy for Fibroid Uterus. A. LAPHORN SMITH.
7. Diphtheria. WILLIAM D. FINN.

April, 1901.

8. Gastrostomy. N. E. MACKAY.
9. A Visit to the Laurentian Sanatorium. GEO. L. SINCLAIR.

May, 1901.

10. Cellulitis of the Hand and Arm. W. HUNTLEY MACDONALD.
11. Abstract of a Paper on Tuberculosis. STEWART SKINNER.
12. Therapeutics in Small Doses—JAMES H. GRAY.

1. PREEKE discusses the modern treatment of fractures and more especially the mode of treatment by removable splints, assisted by massage, and active and passive movements. The advantages of this method are the ease with which the patient is made comfortable by arresting muscular spasm and so relieving pain, the effecting of rapid absorption of the effused blood, the prevention of stiffness by obviating the formation of adhesions, the prevention of muscle wasting and the preservation of the normal nutrition of the limb by aiding the circulation of the blood, and the shortening of the time under which the patient is prevented from resuming the ordinary use of the limb.

2. PUTNAM describes the adenoid growths of the naso-pharynx, and the usual operative procedure for their removal.

3. MELVIN reviews one hundred and fifty cases of skin diseases occurring in his practice, and draws from them some general conclusions as to percentages and methods of treatment.

4. MUIR contributes an interesting paper upon the present knowledge of typhoid fever and its management.

5. McINTOSH considers the various diseases affecting the cornea, and the methods of their treatment.

8. MACKAY relates the history of a woman, aged 39, upon whom he had performed gastrostomy for malignant stricture of the cardiac end of the œsophagus. Treatment had been by the use of tubes and bougies, which had done far more harm than good by irritating the growth, and he performed the operation simply to take the patient out of her misery and make death easier. He is of the opinion that gastrostomy when performed sufficiently early, and in accordance with approved methods, will be found to be one of the most useful and beneficent operations the surgeon is called upon to perform.

10. MACDONALD gives some notes on the pathology and treatment of cellulitis involving the hand and arm.

12. GRAY enumerates a number of drugs that have very valuable effects in very small doses. This is true of the alkaloids which may be given in very small and frequently repeated doses.

Canada Medical Record.

February, 1901.

1. Progress of Gynæcology. A. LAPTHORN SMITH.

March, 1901.

2. Note on a Hitherto Unnoticed Condition of the Omentum in Cancer of the Ovaries. A. LAPTHORN SMITH.

April, 1901.

3. Insanity in Women by the Gynæcological and Obstetrical Point of View. A. LAPTHORN SMITH.

May, 1901.

4. Odds and Ends in Ordinary Practice. A. D. STEVENS

5. Valedictory Address to the Graduating Class at the Annual Convocation of the Medical Faculty of the University of Bishop's College, April 16th, 1901. JAMES V. ANGLIN.

June, 1901.

6. Case of Uterine Polypus causing Severe Contractions Resembling Labour Pains Lasting Several Years. A. LAPTHORN SMITH.

2. In cases of cancer of the ovary, SMITH has observed with greater frequency than is represented by authors, the presence of nodules springing up widely separated from each other and apparently independent of each other, which develop further sometimes in the mesentery and sometimes in a group of retro-peritoneal glands. In these cases he has observed with striking frequency affections of the omentum, sometimes in the form of a thick callous mass pushing itself like a board between intestines and the abdominal wall; sometimes rolled together to a single mass in such a manner that it resembled some peculiar atypical tumour.

The Canada Lancet.

January, 1901.

1. An Historical Sketch of Canadian Medical Education. W. B. GEIKIE.

2. A Case of Tuberculous Meningitis with Recovery. P. L. SCOTT.

3. A Case of Asthma Associated with Prolapse of the Liver. H. B. ANDERSON.

February, 1901.

4. Aneurism of the Descending Portion of the Arch of the Aorta,—
Rupture. HAROLD C. PARSONS.

March, 1901.

5. Medical Ethics and what Pertains to a Physician's Reputation and
Success. HERBERT A. BRUCE.
6. A Case of Puerperal Fever Treated with Anti-Streptococcus Serum,
Recovery. A. H. GARRATT.
7. Remarks on Medical Aspects of the War in South Africa. J. T.
FOTHERINGHAM.
8. Cerebral Palsies of Children. MESSRS. LUSK and PARSONS.
9. A Case of Laminectomy. G. A. BINGHAM.

April, 1901.

10. Notes on Hydrochloric Superacidity, with reports of cases. GRAHAM
CHAMBERS.
11. Latent Appendicitis. J. A. GRANT, JR.
12. Radical Cure of Large Umbilical Hernia. W. J. HUNTER EMORY.

May, 1901.

13. Filariæ and Filariasis. J. H. ELLIOTT.
14. Dysmenorrhœa. D. GILBERT GORDON.
15. A Case of Multiple Neuritis Succeeding Typhoid Fever with Per-
manent Paralysis. MESSRS PARSONS and LUSK.
16. The Prevention of Tuberculosis. J. E. ELLIOTT.
17. A Case of Ainhum. H. B. ANDERSON.

June, 1901.

18. A Case of Deformed Legs. G. A. BINGHAM.

2. FOTHERINGHAM reports a case of meningitis of probably tuber-
culous origin which ended in recovery. The patient was 3 years and 3
months old, the mode of onset was very gradual, with headaches, stu-
por, etc., slight convergent squint and inequality of the pupils, spasms
of the neck muscles and opisthotonos with pain on moving the head,
Kernig's sign, the characteristic hydrocephalic night cry, vomiting dur-
ing the onset but not very persistent, gradual and extreme emaciation,
temperature very varying, and which was for some weeks so low that
the child had to be kept warm by hot water bags, respirations slow and
irregular, marked muscular insufficiency especially in the limbs, with
inequality of distribution, very little, if any, twitching or continuous
movements of the arm or leg, but on two occasions the facial muscles
on one side were found contracted and twitching, as if general convul-
sions were impending. The treatment consisted in the ice bag to the
head and worm at nape of neck for weeks, with the internal administra-

tion of iodide of potassium, gr. 5-8, bromide of ammonium, gr. 4, and tincture of gelsemium, m. 3, every four hours, with an occasional dose of morphia, hypodermically, and phenactin.

3. ANDERSON relates the history of a man who was subject to attacks of spasmodic asthma associated with prolapse of the liver. That the asthma was occasioned by the prolapse there was little doubt, the patient having himself noticed that so long as the liver remained in place he was comfortable. The asthmatic attacks were always preceded and accompanied by severe gastric disturbance. The occurrence of hepatic prolapse is not very frequent, Graham having collected only 70 cases, reported in the last 30 years. It occurs far more frequently in women who have borne several children and have loose abdominal walls, but is very rare in men.

4. PARSONS relates the history of a man who had died suddenly without apparent reason. He had enjoyed comparatively good health and no serious condition had been suspected during life. Examination revealed a thoracic aneurism which had ruptured into the posterior mediastinum.

9. BINGHAM relates the history of a case of laminectomy of the sixth and seventh cervical vertebræ. When the laminae had been removed it was seen that the fifth was dislocated forward and to the left and was exercising distinct pressure upon the cord. The lamina was therefore removed and the wound closed. The patient slowly but surely improved both as regards motor and sensory functions, until two months after operation, when he had fair control over the sphincters, the upper extremities were functionally about perfect, and he was beginning to use the legs to a limited extent.

10. CHAMBERS finds that excess of hydrochloric acid is a common result in analyses of gastric secretion. It may be present in hyperchlorhydria, hypersthenic gastritis, hypersecretion, ulcer, carcinoma, gastroptosis, atony, as well as some of the neuroses not mentioned in this list. It is evident that this sign alone is of little value in differentiating the above diseases. The causative agents may be local irritation from too rapid eating and the eating excessively of foods which are known to markedly stimulate the secretion of hydrochloric acid, or from excessive mental or moral disturbances. The principle symptom of hydrochloric hyperacidity is pain half an hour to three hours after eating, relieved by eating, or by an antacid. The treatment consists of suitable diet, a mixed diet being more rational than an exclusively meat diet. The medicinal treatment is by gastric sedatives and antacids. Strychnine and hydrastine are the drugs to be depended upon in cases of atony. Olive oil may be used in cases of spasm and obstruction of the pylorus. Bitters, acids, pepsine, and irritating cathartics are contra-indicated.

11. GRANT points out that in some cases of appendicitis there is a latency of the absolute conditions present; a grave condition, impossible of diagnosis, as well as an absolute latent appendicitis which may be diagnosed only after operation. He related the histories of six cases in which very extensive disease was discovered at operation, in which the clinical histories did not offer any indications of the very serious state of affairs that were found.

15. A case is reported by BAINES of typhoid followed by paralysis, with pain, etc., that suggested multiple neuritis. If this was so, the case is worthy of note, in that multiple neuritis complicating typhoid fever, according to Osler and other authors, is generally recovered from, but in this the paralysis and atrophy of the muscles have been permanent.

17. ANDERSON describes the specimen, the little toe of a negro, a case of ainhum, sent to him from Jamaica.

18. BINGHAM describes a case of extreme deformity of the legs. The patient was a lad of 14, being perfectly normal from his head to his knees; the right leg is rudimentary, but one bone being present and forming the prominence at the knee and external malleolus. There is a dislocation of the leg outwards at the knee, so that the whole surface of the inner condyle of the femur can be plainly felt beneath the skin. The leg cannot be extended beyond a right angle, but can be freely flexed. The foot is rolled inwards at the ankle so that it lies on the inner side of the lower extremity of the leg, with the sole looking upwards. There were only four metatarsal bones and four toes. Amputation was performed through the knee-joint and an excellent stump obtained. The bones of the left leg were twisted inwards, the internal malleolus was lower than the external. The metatarsal bones were turned inwards with a concavity on the inner side of the foot. The bones were chiselled and broken down and placed in a fairly good position. The result has been very satisfactory.

La Revue Medicale.

2, 9, 23 janvier 1901.

Coqs-à-Pânc médicaux.

16 janvier 1901.

1. Notes Cliniques. C. A. WILSON-PRÉVOST.

30 janvier 1901.

Sur les Affections Syphilitiques de la Langue.

6 février 1901.

2. Constipation chez l'Enfant. W. J. DEROME.

13, 20 février 1901.

3. Du Diagnostic du Chancre Mou et du Chancre Syphilitique. Importance des Signes Optiques. HENRI LASNIER.

27 février 1901.

4. Quelques Cas de Rétroversion de la Matrice chez des Femmes Enceintes Guéris par la Ventrofixation. A. LAPHORN SMITH.

6 mars 1901.

5. Etude de la Torsion Pédiculaire des Kystes Ovariens. GEORGES AUBRY.

13, 27 mars 1901.

Glânes Canadiennes.

20 mars 1901.

6. Les Polypes de l'Utérus. Clinique de M. le prof. TILLAUX.

3 avril 1901.

7. L'Anesthésie par la Voie Lombaire. Certaines Particularités. M. T. BRENNAN.

10 avril 1901.

8. Traitement de l'Uréthrite Aiguë par les Injections de Peroxyde d'Hydrogène. Z. RHEAUME.

24 avril 1901.

9. Du Peritonisme. Clinique de M. le prof. RENDU.

1 mai 1901.

10. Varicocèle. HENRI LASNIER.

8 mai 1901.

11. Epithélioma de l'Œsophagus. Clinique de M. le prof. RENDU.

15 mai 1901.

12. Ostéomyélite du Tibia. Clinique de M. le prof. TILLAUX.

22 mai 1901.

13. Tuberculose Péritonéale de l'Enfance. Clinique de M. le prof. MARFAN.

29 mai 1901.

14. Syphilis Spinale. Clinique de M. le prof. RENDU.

5 juin 1901.

15. Urétricèle Calculeuse. Clinique de M. le prof. TILLAUX.

12 juin 1901.

16. Prostatite Aiguë. EUGÈNE PAQUET.

19 juin 1901.

17. Cancer de l'Estomac. Clinique de M. le prof. RENDU.

26 juin 1901.

Tables des Matières.

Reviews and Notices of Books.

INTRODUCTION TO THE STUDY OF MEDICINE. By G. H. ROGER, Professor Extraordinary in the Faculty of Medicine of Paris, Member of the Biological Society, etc. Authorized Translation by M. S. GABRIEL, M.D., with additions by the author. New York, D. Appleton & Company, 1901.

This book is a reproduction of a course of lectures delivered by Professor Roger in 1897-'98 at the request of the Faculty of Medicine of the University of Paris, and which were intended to give the student entering on the study of medicine a general idea of the subject, serving as an introduction and indicating his logical method of study. The author in the preface states that he has endeavoured to show what is the object of medicine and by what means it may be studied. After having explained how and why an individual becomes sick, he has considered the morbid causes which constantly tend to modify the unstable state of health. These causes give rise to manifestations through the lesions and reactions they determine, some of which can be detected only after death while others are appreciable during life. We are thus led to study the mode of reaction of the organism—namely, pathological physiology—to describe the pathological changes constituting pathological anatomy, and to look for functional changes, the description of which forms an important chapter, semeiology.

The first chapter discusses the objects of medical science and the divisions made for the systematic study of it. It gives a very clear view to the beginner of what his path must be to arrive at an intelligent understanding of the science. Then follow four chapters on the mechanical, chemical, physical and animate agents which disturb the condition of health equilibrium and constitute disease. The next two chapters treat of the etiology and pathogenesis of infectious diseases. Nervous reactions, disturbances of nutrition, heredity, inflammation, septicæmia and pyæmia, sclerosis, tumours, cellular degenerations, functional synergies and morbid sympathies, evolution of diseases; all form the subjects of chapters. The volume also contains chapters on examination of the sick, the clinical application of scientific principles, prognosis, diagnosis and therapeutics.

While the work is well written and contains much of interest to the graduate of medicine and advanced student, it is doubtful whether it would be of use as an introduction to a study of the subject. It might

be recommended to the student who has thoroughly mastered his primary subjects, and be helpful in enabling him to understand relations between the subjects of his final years, which he is too apt to miss. We cannot help thinking that to the majority of matriculants the subjects here presented would be entirely beyond their grasp. Thus the author illustrates, to select an example, the protective action of the liver against the introduction of staphylococcus aureus, by enumerating the duration of life following the injection of a virulent culture by four different channels, the carotid and femoral arteries, and the peripheral and portal veins. To understand the argument requires a knowledge of anatomy, and this is not a single instance, but one of many. We do not wish to condemn the work, however, for to the final student and graduate it gives a comprehensive view of the whole science and art of medicine with a proper estimation of the correlations of their various parts. We can recommend it to all such, as most pleasurable and profitable reading.

STUDIES IN THE PSYCHOLOGY OF SEX. The Evolution of Modesty: The Phenomena of Sexual Periodicity: Auto-Erotism.—By HAVELOCK ELLIS. Philadelphia, New York, Chicago, F. A. Davis Company, 1901.

This work, as its title indicates, is written entirely from the psychological point of view, and has therefore only a limited interest to those whose tastes lie in such problems. The author brings together a mass of what one cannot call facts, but opinions of various writers from Hippocrates down to the present time, and draws his conclusions therefrom. Were one to adopt the same method with regard to the study of the physiology of any organ, for instance, what a remarkable result would be obtained, especially if the theories of the earlier writers were given equal weight with those of the present day. To the busy practitioner there is little of interest in the work, for even were he to occasionally meet with individuals whose actions he could perhaps the better understand from the perusal of the book, there is nothing to help him in his treatment of them, this latter consideration being entirely ignored.

MASTERS OF MEDICINE. Hermann Ludwig von Helmholtz.—By JOHN GRAY MCKENDRICK, M.D., F.R.S.S.L. and E., Professor of Physiology in the University of Glasgow, etc. London, T. Fisher Unwin.

Of the great minds which have illumined the scientific world in the past century, perhaps none has shown a brighter lustre than the subject of this biography, who, although educated as a physician and for a time in actual service as an army surgeon, could not do otherwise than obey the behests of his giant intellect and devote his life to purely scientific

pursuits, which culminated in the invention of the ophthalmoscope, the ophthalmometer and the extraordinary advance in the physics and physiology of the organs of vision, as revealed in his magnificent work on "Physiological Optics." But these represent but a small amount of his life work, embracing as it did the whole field of physiology and histology, the electricity of animal life and physics generally from a medical standpoint and many other collateral studies. There are few of the present day who know how much Von Helmholtz has really done for medical science, but no real lover of his profession could spend more profitably or enjoyably a few hours than in tracing the life of this remarkable man from the early dawn of a master mind to the ripe maturity of vigorous old age, unclouded to the last through a record of work which would make the greatest efforts of ordinary mortals look tame and insignificant. It would indeed be difficult to find a more interesting and instructive biography than that of Hermann von Helmholtz.

OPERATIVE SURGERY.—By JOSEPH D. BRYANT, M.D., Professor of the principles and Practice of Surgery, Operative and Clinical Surgery, In University and Bellevue Hospital Medical College. etc., etc. Vol. II. New York, D. Appleton & Company. 1901.

The first volume appeared some months ago, and was favourably reviewed. The present volume maintains about the same standard of excellence. It contains a great deal, some of which might possibly be omitted in this new century. Are we to continue to insist in the 20th on all the old discarded methods of past centuries?

This second volume is very full of matter tersely put without padding, and sometimes of matter that appears to the reviewer to be imperfectly digested. It is a valuable book of reference; it contains all that such a book should contain, and more. It does not seem to contain to a sufficient degree the results of the very large surgical experience of the author. On the other hand, in its pages may be found almost all that has been thought and done by everybody. It is therefore unusually valuable as a reference book. The illustrations are very numerous. The print and paper are good.

G. E. A.

ANNUAL AND ANALYTICAL CYCLOPEDIA OF PRACTICAL MEDICINE.—By CHARLES E. DE M. SAJOUS, and one hundred associate editors. Vol. VI. Philadelphia, New York and Chicago, F. A. Davis Company. 1901.

This volume is the last of the first series of the present work. The editor claims and with justice that the promise made at the beginning has been fulfilled. These six volumes contains a wonderful amount of matter, for the most part of a high order. The articles are well writ-

ten, the literature of each subject widely reviewed and placed before the reader in a concise abbreviated form, and yet in language quickly and easily understood. The editors and publishers may be congratulated on the successful accomplishment of their undertaking.

The most notable articles in the sixth volume are those on rheumatism, by Dr. Levison, of Copenhagen; "Diseases of the Stomach," by Professor D. D. Stewart, of Philadelphia; "Surgery of the Stomach and Intestines," by Prof. W. W. Keen and Dr. M. B. Tinker, of Philadelphia; "Surgery of the Spine," by Prof. R. H. Sayre, of New York; "Syphilis," by Prof. G. F. Lydston, of Chicago; "Surgery of the Urinary System," by Prof. J. W. White and Dr. A. C. Wood, of Philadelphia; "Wounds and Injuries of the Chest," by Prof. L. A. Stimson and Dr. E. L. Keyes, Jr., of New York; and "Yellow Fever," by Surgeon-General Wyman, of Washington. At the end of the volume is a full index which will be found to facilitate reference.

MODERN SURGERY, GENERAL AND OPERATIVE.—By JOHN CHALMERS DACOSTA, M.D., Professor of Clinical Surgery, Jefferson Medical College, Philadelphia, Surgeon to the Philadelphia Hospital and the St. Joseph's Hospital, Philadelphia. Third Edition, Revised and Enlarged. Philadelphia and London, W. B. Saunders Company. 1900. Canadian Agents, J. A. Carveth & Co., Toronto. Price, \$5.00.

The appearance of this third edition two years after the second is proof of the demand for the book and the determination of the author to keep it abreast of the times. Previous volumes have received favourable notice, and the present is worthy of the same favourable comment. It is one of the best one-volume surgeries of the day. It is well illustrated and eminently adapted to needs of students and practitioners.

DISEASES OF THE STOMACH AND THEIR SURGICAL TREATMENT.—By A. W. MAYO ROBSON, F.R.C.S. and Member of Council and Hunterian Professor, Royal College of Surgeons of England, etc., and M. G. A. MOYNIHAN, M.S., Lond., F.R.S.C., Assistant Surgeon, Leeds General Infirmary. London, Baillière, Tindall and Cox. Price, 15s.

In this book the modern surgery of the stomach is very closely and attractively described. The name of one of the authors is in itself a guarantee of high excellence in the character of the work. After a short description of the anatomy of the stomach as a refresher, and the announcement of a few new facts relating to the position of the stomach and its relations to neighbouring parts, congenital stenosis of the pylorus is described. In the succeeding chapters the authors take up injuries to the stomach, simple tumours and malignant disease, including cancer and sarcoma.

The chapters on malignant disease and on ulcer of the stomach possess great merit. The former deals with the most important question of early diagnosis. They divide ulcers into two classes, the acute occurring more frequently in women and the chronic found oftener in men. The complications and sequelæ of gastric ulcer are brought out prominently, their very considerable mortality emphasized and the indications for and results of surgical treatment in suitable cases compared with medical, and not altogether in favour of the latter.

The surgery of the stomach has made great strides lately, and it would seem that surgery may very materially aid in the treatment of those ulcers that resist dieting and rest. The authors recommend strongly the surgical treatment of gastrorrhagia when severe and persistent, and prove the correctness of their views by statistics. The book altogether is admirable and to be highly commended.

G. E. A.

PRACTICAL SURGERY FOR THE GENERAL PRACTITIONER.—By NICHOLAS SENN, M.D., Ph.D., LL.D., Professor of Surgery, Rush Medical College in affiliation with the University of Chicago, etc., etc. With 650 illustrations, many of them in colours. Philadelphia and London, W. B. Saunders and Company. 1901. Canadian Agents, J. A. Carveth & Co.; Toronto. Price, \$6.00.

This is certainly one of the most remarkable publications which has appeared under the above title for some time. A large book of 1133 pages, and yet as notable for its omissions as for its contents. Nothing can be more true than the author's statement in the preface that "this book is not intended to cover the whole field of surgery." A fairly careful search has failed to discover any chapter on gall-stone surgery, on the surgery of the kidney or ureters other than that necessitated by traumatism, on stone in the urinary bladder or on the surgical diseases of the female breast. And yet the book is professedly written for and in part dedicated to the general practitioner. Surely the general practitioner is as much interested in hepatic colic and in mammary abscess as in enterorrhaphy.

The contents of the book are nevertheless of a high order written by a surgeon of great experience, a successful teacher and one entitled to speak with authority. A most admirable chapter is that on anæsthetics. The author's statement that ether is safer than chloroform, and that ether should not be administered in a non-porous cone, probably no hospital surgeon will be found to dispute. Dr. Senn brings military surgery up to date, and gives the reader the benefit of his large experience in military surgery.

The chapter on the control of hæmorrhage is very full and complete and well illustrated. Great praise is also due to the chapters on the

various forms of peritonitis and appendicitis. The chapters on fractures and dislocations are well written, well illustrated and well founded. As remarked before, the contents are of a high order. *G. E. A.*

THE TREATMENT OF FRACTURES.—By CHARLES LOCKE SCUDDER, M.D., Physician to the Massachusetts General Hospital, Out-Patient Department, Assistant in Clinical and Operative Surgery in Harvard Medical School; and FREDERICK J. COTTON, M.D. With 585 illustrations. Philadelphia, W. B. Saunders. 1900. Canadian Agents, J. A. Carveth & Co., Toronto. Price, \$4.50.

Although professedly devoted to the treatment of fractures, space is frequently, when thought advisable, given to the discussion of questions of pathology. Two features quite noticeable are the strong recommendation of the employment of general anæsthesia in the examination and initial treatment of fractures, especially of those near or involving joints, and the numerous tracings of the Röntgen rays, which have been very generally used to illustrate the sites and the displacements of fractures.

The advisability of following the author in the use of the terms "closed" and "open" instead of the old and familiar terms "simple" and "compound" may perhaps be questioned.

The book may be considered naturally as an expression of the author's views, but also of those of the Boston school. It is altogether an admirable book and one worthy of the highest commendation. *G. E. A.*

CLINICAL PATHOLOGY OF THE BLOOD. A Treatise on the General Principles and Special Applications of Hæmatology.—By JAMES EWING, A.M., M.D., Professor of Pathology in Cornell University Medical College, New York City. Illustrated with thirty engravings and fourteen coloured plates drawn by the author. Lea Brothers and Co., Philadelphia and New York. 1901.

This is the second book specially devoted to a discussion of the blood changes occurring both in diseases of the blood and in other diseases which has appeared in America, and it forms a valuable addition to the physician's library, both as a text-book for laboratory methods and a reliable authority on the most recent views on a subject which is daily receiving more attention. As such it is especially welcome at the present time, and a careful perusal of it has convinced us that the author has made a thorough study of all the work hitherto accomplished, and, in the light of his own experience, is well qualified to express an authoritative opinion regarding the numerous debatable points which are always arising in connection with the earlier study of any department of medical science. While, however, the author quotes freely and fully from the work of others, he states his own views in a decisive manner

which will render the book especially valuable to students, who bear no good will to the writer who sets forth various views and then leaves his reader to make a choice between them.

The first two chapters are devoted to technics and the chemistry of the blood. The author considers that Oliver's hæmocytometer does not compare favourably with the Thoma-Zeiss, but of the Oliver hæmoglobinometer he speaks highly, regretting that its high price prevents its more general use. The Fleischl instrument, however, he regards as sufficiently accurate for clinical purposes. The hæmatocrit has not yet reached the state of perfection warranting its adoption as a means of determining the number of red cells. The directions for preparing blood slides are not those usually advised in text-books. The author prefers to spread the blood by drawing the polished edge of one slide over a second one resting on a firm surface and to fix the blood by passing it through the flame of a Bunsen burner. The commonly used alcohol and ether mixture is not mentioned. The chapter on the chemistry of the blood is not of much practical value to the clinician, owing to the elaborateness of the chemical tests.

In his classification of leucocytes, the author has adopted the one now most commonly seen in text-books of medicine, and much the most satisfactory from the clinical point of view, namely, lymphocytes, large mononuclears, polynuclear neutrophiles, and eosinophiles, and to these he adds myelocytes and mast cells as pathological forms. The chapters on pernicious anæmia and leukæmia are most instructive, and form a complete summary of our present knowledge of the blood conditions in these diseases. The author is very positive in the limitations which he sets for the blood condition in pernicious anæmia, holding that the diagnosis cannot rest on extreme reduction of red cells, but may rest upon the presence of: "numerous megaloblasts and megalocytes with increased hæmoglobin; 33 per cent. of megalocytes with increased hæmoglobin; an excess of megaloblasts over normoblasts; or a single gigantoblast or megaloblast in pathological mitosis; and that it may require the complete summation of clinical and morphological data, as well as observation on the course of the disease, or even the microscopical examination of the marrow." With regard to the anæmia infantum of von Jaksch, Ewing thinks that, while many of the cases so reported are improperly classified under this heading, there is sufficient ground on which to separate, at least for the present, certain peculiar forms of chronic anæmia in children from the other blood diseases. The various forms of Hodgkin's disease, including the splenic form (splenic anæmia) are described together under the heading of "pseudo-leukæmia."

The work also contains a very complete description of the condition of the blood in the infectious, constitutional and parasitic diseases, and

chapters on malaria and relapsing fever. The book is well illustrated with numerous engravings and fourteen coloured plates, the latter of which, although fairly well representing the colouring of the stains, would have been better if they had not been so highly amplified. We can recommend the work as a reliable presentation of the present knowledge of hæmatology and a valuable addition to our literature on the subject.

G. G. C.

NURSING ETHICS. FOR HOSPITAL AND PRIVATE USE.—By ISABEL HAMPTON ROBB. J. B. Savage, Cleveland. 1901.

The well-merited success which the author's previous works on nursing have met with ensures for the present volume a good reception from the training schools for nursing on this continent. Added to this is the need for just such a work, showing as it does the obligations her chosen profession imposes upon the professional nurse, such as that of secrecy regarding both the actual bodily ailments and domestic affairs of her patient, and giving her many useful hints with regard to her conduct towards those immediately placed under her charge, and those with whom she comes in contact in the daily exercise of her profession.

In the introductory chapter the author draws attention to the lack of any accepted code of ethics for nurses, a want which a few have supplied by evolving one for themselves from personal experience and observation. The book, however, is not intended to constitute a formal code but rather "to consider briefly the nature of ethical laws and try to determine in what ways they may be made to have a practical bearing upon a nurse's duties and actions." Apart from this main purpose the book contains excellent directions regarding the care of the nurse's body and clothes, the duties devolving on her in her several positions as probationer, junior and senior while in hospital, and the many matters, small in themselves, on which a word of advice or caution may perhaps save from awkward and annoying mistakes.

In the chapter discussing the graduate nurse, Mrs. Robb, in speaking of contagious diseases, is only right when she says, "If a nurse undertakes to do general nursing it is her bounden duty, no less than that of the physician, to take whatever case may come to her." There is an exception to this, of course, when she has selected a certain branch of nursing as her specialty.

We are delighted to recommend the book, not only to nurses themselves, but to the physicians who employ them, as an appreciation by the latter of the nurse's proper position would lead in many instances to a better understanding between those who are in reality fellow-workers.

SAUNDERS' QUESTION-COMPENDS. Essentials of Surgery.—By EDWARD MARTIN, A.M., M.D., Clinical Professor of Genito-Urinary Diseases in the University of Pennsylvania. Seventh Edition, Revised and Enlarged. Philadelphia, W. B. Saunders. 1900. Canadian Agents, J. A. Carveth & Co., Toronto. Price, \$1.00.

This number of Saunders' Compendes has been thoroughly revised. The principal new feature about this edition is a chapter dealing with the surgical treatment of appendicitis.

THE AMERICAN ILLUSTRATED MEDICAL DICTIONARY. For Practitioners and Students. A Complete Dictionary of the Terms used in Medicine, Surgery, Dentistry, Pharmacy, Chemistry and the kindred branches.—By W. A. NEWMAN DORLAND, A.M., M.D. Second Edition, Revised. Philadelphia and London, W. B. Saunders and Company. 1901. Canadian Agents, J. A. Carveth & Co., Toronto. Price, \$4.50.

It is just a year since the first edition of this dictionary was issued, and although it was a large one, it was soon exhausted. We commented favourably on it at the time. The second edition, in spite of the short time which has elapsed, contains nearly one hundred new terms that have appeared in medical literature during the year. From the rapid advance in almost all departments of medical science, necessitating the employment of new terms, the plan of frequently revising a work of this sort, although it must entail an enormous amount of labour, offers decided advantages to the student especially, and this dictionary should become a favourite in all medical schools. The flexible leather binding, clear type and thin paper make an ornamental book.

INTERNATIONAL CLINICS. A Quarterly of Clinical Lectures and Especially Prepared Articles on Medicine, Neurology, etc.—By Leading Members of the Medical Profession throughout the World. Edited by HENRY W. CATTELL, A.M., M.D., Philadelphia, with the assistance of ten Collaborators. Vol. IV. Tenth Series, 1901. Philadelphia, J. P. Lippincott Company. 1901.

The "International Clinics" still continues to possess the popularity it has had for the profession by never failing to present in each of its volumes something of interest to every practitioner, no matter what his individual tastes may be. The present number is much like its predecessors in having papers from many of the leading clinicians of Europe, among which we may mention Potain, of Paris, on the use of digitalis in heart disease, Renault and Guyon, of the same University, on genito-urinary diseases, and Roncali, of Rome, on the connection of blastomyces with malignant disease. Besides these, there are clinics by many of the

leading teachers of the United States on subjects of special interest at the present day.

Nearly one-third of the volume is taken up by a monograph on the etiology and morbid anatomy of various diseases by the editor, Henry W. Cattell. Here the author gives a list of diseases in alphabetical order, with the etiology and pathology condensed into a few lines. This is too much condensed to serve any purpose but that of a dictionary, and it seems altogether out of place here. As a sample of the incorrect information it would give to the student to whom it is more especially addressed, we clip the following under the heading of "Smallpox," Etiology—(a) Overcrowding. (b) Improper food. (c) Season, fall or winter." There is not a word to indicate that smallpox is an infectious disease, and one looks in vain for any disease under the heading of Variola. It is to be regretted that the editor had not seen fit, even at the expense of having issued a somewhat smaller volume than usual, to be satisfied with publishing the above mentioned clinical lectures, many of which are of a high order.

MANUAL OF THE DISEASES OF THE EYE FOR STUDENTS AND PRACTITIONERS. With 243 Original Illustrations including 12 coloured figures. By Charles H. May, M.D., New York, William Wood & Co., 1900.

This small work might be termed a "compend;" and the author in his preface states that he desires "not to say too much" in the book, and he certainly has succeeded. The material is wonderfully condensed, and in many cases much previous knowledge of the subject on the part of the reader would have to be taken for granted if he were to understand the text thoroughly.

A very free use of italics has been made to emphasize the salient facts, and this occurring in a book already greatly abbreviated gives rise to pages of little else than italics. Among the original illustrations may be mentioned one of a test lens case!

THE AMERICAN YEAR BOOK OF MEDICINE AND SURGERY FOR 1901. Arranged with critical editorial comments by eminent American Specialists.—Edited by GEORGE M. GOULD, A.M., M.D., Philadelphia. In two volumes. Vol. I., General Medicine. Vol. II., General Surgery. Philadelphia and London, W. B. Saunders & Co. Canadian Agents, J. A. Carveth & Co., Toronto. Price, \$3.00 per volume.

The issue of the year book for 1900 met with such general approval that the publishers decided to follow the same plan in the present number. Either volume can be had separately, the one on medicine

contains about 70 pages more than that on surgery. The collaborators have shown much good judgment in their selection of abstracts, and the editorial comments thereon are timely and helpful to the reader. The book maintains its high standard of previous years. Where there is such an immense amount of material from which it is sought to cull the best and most useful, and such comparatively small space in which to condense it, it is a most difficult matter to do even justice to all, but it seems that the difficulties have been here successfully overcome. It is not beyond the mark to say that of all the vast amount of work accomplished in medicine and surgery during the past year, the most important has here been collected.

SAUNDERS' MEDICAL HAND-ATLASES. Atlas and Epitome of Ophthalmoscopy and Ophthalmoscopic Diagnosis. By Prof. Dr. O. Haab, of Zurich. Authorized Translation from the Third Revised and Enlarged Edition. Edited by G. E. deSchweinitz, A.M., M.D. With 152 Coloured Lithographic Illustrations. Philadelphia and London, W. B. Saunders & Co., 1901. Canadian Agents, J. A. Carveth & Co., Toronto. Price, \$3.00.

The publication of this valuable atlas at a very reasonable price is a great boon, not only to the ophthalmologists but also to the general medical profession of America. The review of a work like this can only be laudatory. Since the days of Jaeger's Atlas, nothing has been published to compare with it.

The book opens with a short dissertation on the ophthalmoscope and the method of conducting an ophthalmoscopic examination. The coloured plates, of which there are one hundred and fifty-two, include not only pictures of the fundus oculi in various diseases but also illustrations of microscopical sections of normal and pathological conditions. The plates throughout are beautifully done and are accompanied by explanatory letter-press.

J. W. S.

THE JOHNS HOPKINS' HOSPITAL REPORTS, Vol. X, Nos. 1 and 2.

This fasciculus contains three papers, each of very considerable interest. The first is a contribution on the structure of the malarial parasites from the pen of the late J. W. Lazear who fell a victim to his devotion to science, having contracted yellow fever by submitting to the bite of an infected mosquito. The article relates the author's experience with various stains in demonstrating the minute structure of the organisms. It is illustrated by a beautifully executed plate.

The second article by Dr. Thomas R. Brown is on the bacteriology of cystitis, pyelitis, and pyelonephritis in women, and is based on careful study of 100 cases from Professor Howard Kelly's wards. In

every one of the hundred cases some bacterial agent was found in the urine; nevertheless, the author, though having no cases to report, admits that in rare instances we may have a true cystitis without any infection, as where the cause is some chemical irritant such as cantharides, or aniline.

In considerably more than half of the cases, acute and chronic, the bacillus coli communis was found in pure culture. In the remaining cases, with a few exceptions, the staphylococcus albus and aureus were found. Six cases of tuberculous cystitis were met with in the series. In four of these the cystitis was associated with pyelitis and pyelonephritis. The great frequency of colon bacillus infection is easily explained by the almost universal presence of the colon bacillus in the neighbourhood of the urethra, from which the catheter carries it to the bladder.

While thus supporting by his researches the almost universal belief in the bacterial origin of cystitis, the author contends for the importance of predisposing causes, such as trauma from the catheter, etc., congestion from pregnancy, parturition, relaxation of the vaginal outlet, pressure of tumours, retention of urine, besides all influences which lower the general condition of the patient.

Twenty cases of pyelitis and pyelonephritis were studied. Of these, six were tuberculous. When one bears in mind the great care and labour involved in collecting specimens of urine from each kidney, apart from the bacteriological examinations, some idea is had of the arduous nature of this most admirable piece of work.

A digested report of each of the hundred cases is appended. The bearing of these researches on questions of cause and treatment is obvious.

The third and last paper is on cases of infection with strongyloides intestinalis by Dr. Richard P. Strong, Asst. Surgeon, U.S. Army.

W. G.

A TEXT-BOOK OF GYNÆCOLOGY. Edited by Charles A. M. Reed, A.M., M.D. Gynæcologist and Clinical Lecturer on Surgical Diseases of Women at the Cincinnati Hospital. New York, D. Appleton & Co., 1901.

This admirable book is by various authors, selected by the editor for reputation acquired by them in connection with the subjects upon which they were asked to write. They are not all gynæcologists. We see the names of professors of pathology, therapeutics, diseases of the nervous system, dermatology, rectal surgery and general surgery. Nor are the authors all of the United States. Dr. Ballantyne of Edin-

burgh and Professor Murdock Cameron of Glasgow and W. Sapp Sinclair of Manchester, as well as our own respected colleague, Professor Wyatt Johnston of Montreal, are contributors.

We have examined the book with considerable care, and find that all the subjects ordinarily included within the scope of gynaecology have been ably dealt with, while diseases of the urinary tract and rectum have received their due meed of attention. It is probably invidious to single out one chapter for special mention but we cannot help thinking that the subject of menstruation and its disorders has been treated with admirable knowledge and judgment.

The work is copiously illustrated and for the most part admirably by R. J. Hopkins and this notwithstanding the fact that many of the figures are diagrammatic.

W. G.

A TEXT-BOOK OF HISTOLOGY INCLUDING MICROSCOPIC TECHNIQUE.

By A. A. Böhm, M.D. and M. von Davidoff, M.D., edited with extensive additions to both text and illustrations, by G. Carl Huber, M.D., Junior Professor of Anatomy and Director of the Histological Laboratory, University of Michigan. Authorized translation from the 2nd revised German edition, by Herbert H. Cushing, M.D., pages 501 with 351 illustrations. Philadelphia, W. B. Saunders & Co., 1900. Canadian Agents, J. A. Carveth & Co., Toronto.

Böhm and von Davidoff's Text-book of Histology rapidly became popular as the first German work upon this subject, and well deserves to be translated into English. It is a matter of great good fortune that the translation has been edited by Professor Huber. The result is we have now presented to us what upon study shows itself to be quite the fullest and most satisfactory text-book upon histology in our language, a work which is a distinct improvement upon its German prototype, for professor Huber's own histological researches are of the first order and the added illustrations could not be improved upon. We heartily congratulate all concerned in the production of this admirable work and feel sure that it will take rank as an authoritative text-book upon the subject.

J.G.A.

PHYSICAL DIAGNOSIS IN OBSTETRICS. By EDWARD A. AYERS, M.D., Professor of Obstetrics in the New York Polyclinic, Attending Physician to the Mothers' and Babies' Hospital, New York. Illustrated. E. B. Treat & Co., New York. Price, \$5.00.

The author in his preface states that the aim of this book is to represent on paper the clinical study of obstetrics as he is in the habit of pursuing it in hospital and dispensary work. A very elaborate ob-

sterical history chart is given in the opening chapter and it forms the general text for the whole book.

The work is exceedingly practical throughout, the style being clear and concise. The teaching is sound and free from bias or fads of any kind. The chapter on pelvimetry is specially good, while that on abdominal palpation leaves little to be desired. One notes that delivery of the parturient in the dorsal position is recommended, and that the use of the lateral position for this purpose is not even mentioned.

The illustrations are clear and the publisher's work eminently satisfactory. The book can be confidently recommended to all interested in the study and practice of obstetrics.

D. J. E.

OBSTETRIC AND GYNÆCOLOGIC NURSING. By E. P. DAVIS, A.M., M.D., Professor of Obstetrics in Jefferson Medical College and Philadelphia Polyclinic. Philadelphia and London, W. B. Saunders & Co. 1901. Canadian Agents, J. A. Carveth & Co., Toronto. Price, \$1.75.

This book has been prepared, as the author states in his preface, for the training schools of the Jefferson and Philadelphia hospitals. It is arranged in two sections, as the title indicates, the section on maternity nursing being the more lengthy. The style is clear, though the instruction in technical detail is somewhat elementary even for a book of its class. The author has enlarged to some extent upon the care of the infant in health and disease and this section of the book is particularly acceptable and full of valuable instruction.

The general arrangement of the contents and the publishers' work leave nothing to be desired. Not the least valuable part is the appendix, which contains a dietary and very full directions for the preparation of surgical supplies.

Society Proceedings.

MONTREAL MEDICO-CHIRURGICAL SOCIETY.

Stated Meeting, May 10, 1901.

DR. PERRIGO, PRESIDENT IN THE CHAIR.

DR. A. LAPHORN SMITH read the report of a case of *Pseudo-Myxomatous Perilonitis* which had come under his notice.

DR. E. W. ARCHIBALD exhibited a *Carcinoma of the Stomach* which had been removed by Dr. Garrow a few days previously. The tumour had evidently originated in an old ulcer and involved the whole thickness of the stomach. The main point of interest was its having developed from a very large old ulcer. Microscopically it was seen to be a scirrhous of very pronounced type, with enormous development of fibrous tissue and very few alveoli and neoplastic cells. The more common site of cancer of the stomach is generally stated by authors to be at the pylorus in from 60 to 70 per cent. of the cases; Dr. Archibald said there was evidence accumulating to show that by far the greater number develop in the smaller curvature not far from the pylorus. From the fact that the growth later involves the pyloric ring and that the statistics have been obtained from post-mortem examinations of the organ, the opinion had been formed that the pylorus was the more common site.

Dr. Archibald also showed an *Adeno-carcinoma of the Rectum* removed by Dr. Garrow. It was interesting from the outspoken papillomatous nature of the growth, especially towards the rectum, in which numerous papilliform projections were seen. Nearly all carcinomata of the intestinal tract tended to take on this papillomatous nature. Microscopically the adenomatous growth was seen to involve the mucosa nearly altogether, the submucosa very little, and the muscular layers hardly at all.

Dr. Archibald also referred to the microscopical appearances of an enlarged gland removed from the omentum in the case first shown. It did not show any invasion of the carcinoma. He referred to the difficulty of distinguishing between true neoplastic cells in such glands and the large pale cells of proliferating endothelium which are present in glands removed from the neighbourhood of carcinomatous growths and in typhoid fever. The occurrence of these glands in car-

cinoma had been explained by the supposition of a toxic action produced by the disturbance set up by the neoplasm.

DR. GARROW referred to the method of treatment employed in the case of carcinoma of the rectum. He had formed a colotomy wound some three weeks before the removal of the rectum and failed to detect any enlarged glands, while the growth itself was freely movable. On performing the operation, however, it was found that the growth had burst through on one side and invaded the true rectal tissue and the mesorectum. A few days later he had opened up the abdomen and dissected up the rectum and sigmoid flexure so as to get well above the growth. It was the first time he had had to do a combined abdominal and trans-sacral operation, and he felt that by this method he had made a thorough removal of all the diseased tissue.

The carcinoma of the stomach had occasioned no trouble in its removal owing to the non-involvement of other parts.

DR. ELDER asked Dr. Archibald whether he had stated in regard to the glands in the neighbourhood of cancer that it was difficult to tell whether they were infected with the disease or not. Some pathologists taught that all glands in the neighbourhood of a malignant growth should be removed, and others that only in certain cases was this necessary. If he understood Dr. Archibald aright a swollen gland in the neighbourhood of cancer might be cancerous.

DR. GARROW thought it made a difference as to the situation of the cancer. In cancer of the breast, experience had taught that it was the proper thing to clean out all the glands, and the same was true in regard to cancer of the tongue, but this did not hold true of every part of the body.

DR. ARCHIBALD, in reply, did not feel in a position to state anything very positively in regard to the morphology of these cells to which he had alluded, and explained the difficulty in determining whether or not they were cancerous. With regard to the advisability of removing glands in the neighbourhood of cancers, he was of the opinion that it was absolutely necessary to do so. He had at times been unable to find evidences of neoplastic invasion in cutting one half of a gland and obtained undoubted evidence of it on cutting the other half, and for that reason he advocated always removing them. On the other hand all swollen glands in the neighbourhood of malignant disease were not necessarily cancerous, as many showed, as before stated, only hypoplasia and proliferated endothelial cells, which he believed was brought about by a toxic effect from the cancer or by direct microbic invasion.

DR. JAMES STEWART presented a patient with a very marked degree

of *Tubes*. The most striking feature of the case was the condition of the right knee. Two years previously it had suddenly become swollen and at the present time, although the man could move the joint fairly well and there was absence of pain, it felt like a bag of bones. Pathologically the condition resembled very closely rheumatoid arthritis, but clinically there was a wide difference between the two. It is characterised principally by the suddenness of onset and the painlessness. Though this patient was unable to walk, it was often surprising how well such cases could get about even when the joints were greatly disorganised. In addition to the knee condition there was marked loss of sensation in the lower limbs, delayed sensation and almost complete absence of pain sensation in the soles of the feet.

DR. TELFER reported *Two Cases of Erysipelas Treated with Antistreptococcus Serum*.

DR. BIRKETT related the history of a case of *Foreign Body in the Bronchus* which will be published later.

DR. ELDER reported a case of *Cholecystitis resembling Appendicitis*.

Stated Meeting, May 24, 1901.

DR. PERRIGO, PRESIDENT IN THE CHAIR.

DR. T. P. SHAW read the report of cases of *Miliary Tuberculosis complicating Pregnancy*.

DR. B. D. GILLIES read a paper entitled *Notes on the Action of Herion*. See page 450 of the June number.

DR. A. D. BLACKADER read a paper on *Acute Dilatation of the Heart*. Published in the July number, page 533.

DR. G. P. GIRDWOOD showed an instrument which he had designed in order to enable one to study stereoscopic microphotographs.

Stated Meeting, June 7, 1901.

DR. PERRIGO, PRESIDENT IN THE CHAIR.

DR. GARROW showed a man on whom he had performed the operation of pylorotomy. The patient, aged 48 years had been under Dr. Martin's care in the Royal Victoria Hospital and had complained of indigestion and soreness of the stomach with loss of weight and strength. There had been evidence of a tumour and pyloric obstruction had been diagnosed. The specimens from the case had been exhibited at a previous meeting and the nature of the operation described. The man had made an uneventful recovery, having been fed by nutrient enemata for five days and after that gradually accustomed to taking all kinds of

food, and only once experienced any distress, when, after a meal of potatoes, he had an attack of diarrhoea.

Dr. Garrow also showed a case of *Tendon Transplantation* in a boy eight years of age, showing a very good result.

Dr. MARTIN, referring to the first case, said that an examination of the patient had shown a tumour in the stomach with marked dilatation of that organ as shown by the large quantity of fluid present in the morning. The stomach contents examined after a test meal showed the present of hydrochloric acid, absence of lactic acid and a total acidity within normal limits. The reason for this finding was probably that the malignant growth was more of the nature of a cirrhosis of the stomach wall than of carcinoma. Dr. Martin also referred to another case in which similar results had been obtained on making a test, but at operation an inoperable carcinoma had been revealed.

Dr. HILL showed a case for Dr. SHEPHERD. The patient had come to the Montreal General Hospital at the end of April complaining of pain and soreness with limitation of movement in his left shoulder. On examination it was found that the head of the humerus was beneath the coracoid process. The accident had occurred five weeks previous to entrance and the only treatment used had been the application of liniments. Dr. Shepherd attempted to reduce the dislocation under ether anaesthesia, and while manipulating the parts a large swelling occurred in front of the shoulder. On cutting down on this it was found that the vein had been ruptured and that the tuberosities had been separated from the head of the shaft. Whether the rupture had been caused by a spicule of bone penetrating the vein, or by adhesions of the vein to the capsule and consequent tearing, could not be determined. The bleeding points were tied and the wound healed after a good deal of oozing of serum.

Dr. ELDER had seen the accident at the time and thought that one of the lessons to be learned from it was the danger of attempting to reduce an old dislocation except in a proper place, such as a hospital, where an extensive operation could be performed with safety.

Dr. BAZIN showed for Dr. MACTAGGART a specimen of *Ruptured Heart*. It was taken from an old lady 70 years of age who for many years had suffered from a multilocular cyst of the ovary for which nothing had been done beyond tapping. Just before death she was sitting up in a chair and died without any special symptoms. On examining the heart a small slit was seen in the anterior wall of the left ventricle close to the apex. This was the usual site for rupture to take place and the rapidity of death depended upon the size of the opening which in this case had been small.

DR. W. H. HAMILTON related the history of a case of *Malaria* under his care in the Royal Victoria Hospital and exhibited under the microscope the malarial parasite, one specimen showing segmentation. An interesting feature of the case was that the type had altered while he was under observation from the quotidian to the tertian form of the fever.

DR. TELFER read a paper entitled *A Preliminary Note on the Duration of the Elimination of Iodine by the Kidneys and Parotid Glands.*

DR. N. S. SHAW read the history of a case which he entitled a *Case for Diagnosis.*

DR. TAIT MCKENZIE read a paper on *Treatment of Lateral Curvature of the Spine by Exercise.* See page 745.

DR. ARCHIBALD enquired whether in extreme cases of scoliosis pure exercise was of benefit, or whether it had to be supplemented by pressure applied to the deformity.

DR. CHURCH asked if there was an age limit over which these exercises would not be useful in such deformities.

DR. MCKENZIE, in reply, said that in extreme cases where there was angular deformity he did not think exercise would have any effect. Here, by suspension and pressure, very considerable improvement could be obtained by developing the erector spinae.

With regard to the age at which the individual could be benefited, the oldest case in which he had obtained improvement was a woman of 32, in whom merely teaching her the method of breathing and stretching the thoracic walls and ligaments in the dorsal region had been followed by very considerable improvement. As age increases the likelihood of improvement becomes less and less.

THE

Montreal Medical Journal.

A Monthly Record of the Progress of Medical and Surgical Science.

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VOL. XXX.

OCTOBER, 1901.

No. 10.

THE INJURY AND DEATH OF THE LATE PRESIDENT OF THE UNITED STATES.

The report of the illness of the President and of the conditions found at the autopsy has been published in full by several of the American medical journals. It is a creditable report, and is signed by all the physicians and surgeons who had been in attendance.

It shows that, thanks to the forethought and provisions made for the care of anyone injured on the grounds, by those in charge of the Buffalo exhibition, the President received prompt and efficient attention, that the physicians and surgeons worked together in harmony, and that everything was done for the distinguished patient that science could suggest.

The cause of death, however, cannot as yet be said to be fully determined. The wounds in the stomach were successfully closed, and there is no evidence that any leakage occurred after the closure. The suggestion that the bullets were poisoned has been disproved. There seems to be little or no evidence that there occurred a lesion to the sympathetic that could, with any degree of even probability, be assigned

as a cause of death. Much more can be said in favour of the suggestion that death resulted from the injury to the pancreas. Further evidence, either experimental or pathological, regarding the effects of injury to and disease of this viscus must be obtained before any positive statements can be accepted. One can hardly read the pathological report without wondering whether or not a drain inserted through the abdominal incision, or better yet, from behind through the loin just beside the injured kidney, would have altered the result. There is the positive evidence of the bacteriologist that the wounds and retro-peritoneal wound cavity were not infected. Drainage, therefore, could only have given a chance of escape to the serous exudate and pancreatic fluid if present.

One fact comes out very clearly, and that is that the medical attendants had to contend with a serious injury in a patient whose recuperative and reparative power was woefully low. An overworked man, with imperfect heart and kidneys, falls an easy prey to injury and disease.

NEW BOOKS, ETC., RECEIVED AND NOTED.

W. B. Saunders & Company, Philadelphia and London. 1901.

The Pathology and Treatment of Sexual Impotence. By Victor G. Vecki, M.D. Third edition, revised and enlarged, 12mo., 329 pages.

Nervous and Mental Diseases. By Archibald Church, M.D., and Frederick Peterson, M.D. Third edition, revised and enlarged, 8vo., 870 pages.

The American Illustrated Medical Dictionary. By W. A. Newman Dorland, A.M., M.D. Second edition, revised, large 8vo., 800 pages.

A Text-Book of the Practice of Medicine. By James M. Anders, M.D., Ph.D., LL.D. Fifth edition, thoroughly revised, 8vo., 1279 pages.

Modern Obstetrics. General and Operative. W. A. Newman Dorland, A.M., M.D. Second edition. 1901.

A Text-Book of Obstetrics. By Barton Cook Hirst, M.D. Third edition. 1901.

A Manual of the Practice of Medicine. By George Roe Lockwood, M.D. Second edition. 1901.

Human Physiology. By Joseph Howard Raymond, A.M., M.D. Second edition. 1901.

The Principles of Hygiene. By D. H. Bergey, A.M., M.D. 1901.

Dose-Book and Manual of Prescription-Writing. By E. Q. Thornton, M.D. Second edition. 1901.

A Laboratory Course in Bacteriology. By Frederick P. Gorham, A.M. 1901.

Saunders' Medical Hand-Atlases. Atlas and Epitome of Special Pathologic Histology. By Dozent Dr. Hermann Dürch, of Munich. Edited by Ludvig Hektoen, M.D. Vol. II. 1901.

Pathological Technique. By Frank P. Mallory, A.M., M.D., and James H. Wright, A.M., M.D. Second edition. 1901.

A Text-Book of Diseases of Women. By Charles B. Penrose, M.D., Ph.D. Fourth edition. 1901.

The Johns Hopkins Press, Baltimore. 1901.

The Johns Hopkins Hospital Reports. Vol. X., Nos. 1 & 2.

J. W. Arrowsmith, Bristol.

Bath Waters: A Rational Account of their Nature and Use. With Special Reference to Gout, Rheumatism and Rheumatoid Arthritis. By Preston King, M.D. (Cantab.). With an Historical Sketch by S. Baring Gould, M.A.

Bailliere, Tindall & Cox, London, Paris, Madrid. 1901.

Syphilis and other Venereal Diseases. By H. de Méric.

Published for the Society.

Proceedings of the New York Pathological Society for the Years 1899 and 1900.

John Bale, Sons & Danielsson, Ltd., London.

Renal Tension and its Treatment by Surgical Means. By Reginald Harrison, F.R.C.S.

Some Retrospects and Prospects in Surgery. By Reginald Harrison, F.R.C.S.

Bailliere, Tindall & Cox, London.

The Pocket Gray or Anatomist's Vade-Mecum. By the late Edward Cotterell, F.R.C.S. Fifth edition, revised and edited by M.B., M.S. (Lond.), F.R.C.S. 1901.

H. K. Lewis, London.

Gonorrhœal Arthritis. By L. Vernon Jones, M.D. 1901.

Elements of Practical Medicine. By Alfred H. Carter, M.D., M.Sc. Eighth edition. 1901.

P. Blakiston, Son & Company, Philadelphia.

Materia Medica, Pharmacy, Pharmacology and Therapeutics. By W. Hale White, M.D., F.R.C.P. Fifth American edition. Edited by Reynold W. Wilcox, M.A., M.D. 1901.

Rebman, Limited, London.

International Directory of Laryngologists and Otologists. Compiled by Richard Lake, F.R.C.S., Eng. Second edition. 1901.

Chicago Medical Book Company, Chicago.

The Peritoneum. By Byron Robinson, B.S., M.D. Part I. Histology and Physiology.

Pamphlets and Reprints.

On Tenonitis and Tenonothecitis Prolifera Calcarea. By Carl Beck, M.D. New York Med. Jour., April 27, 1901.

Ueber die Fractur des Processus coronoideus ulnæ. Von Dr. Carl Beck. J. B. Hirschfeld in Leipzig.

Ueber Sarkombehandlung mittels der Roentgenstrahlen. Dr. Carl Beck. Munch. Med. Wochen., No. 32, 1901.

Ueber deform geheilte Frakturen und ihre Behandlung. Von Dr. Carl Beck. Munch. Med. Wochen., No. 17, 1901.

The Primary Treatment of Infected Wounds with Tincture of Iodine. By Carl Beck, M.D. William Wood & Co., New York.

Ueber die Darstellung von Gallensteinen mittelst der Röntgenstrahlen, nebst Bemerkungen ueber die Erbllichkeit der Prädisposition zur Gallenstein-krankheit. Von Dr. Carl Beck, Berliner klin. Wochenschr., No. 19, 1901.

Metatarsal Fracture. By Carl Beck, M.D. American Medicine, April, 1901.

Osseous Cysts of the Tibia. By Carl Beck, M.D. Amer. Hour. of Med. Scien., June, 1901.

Fracture of the Carpal End of the Radius, with Fissure or Fracture of the Lower End of the Ulna and other Associated Injuries. By Carl Beck, M.D. Annals of Surgery, Aug., 1901.

Beitrag zur Diagnostik und Therapie der Struma. Von Dr. Carl Beck. Forts. auf dem Gebiete der Röntgenstrahlen. Band IV.

Congenital Malformations of the Upper Extremity. By Carl Beck, M.D. N.Y. Med. Jour., June 29, 1901.

Report of the Committee on Heredity, The Society for the Study of Inebriety. H. K. Lewis, April, 1901.

Syphilis as a Non-Venereal Disease. L. Duncan Bulkley, A.M., M.D. Jour. Amer. Med. Association, April 6, 1901.

Progressive Pernicious Anæmia. By Alfred Stengel, M.D. The Med. News, Oct. 20, 1900.

Some Notes on the Treatment of Rheumatism. By Alfred Stengel, M.D. The Med. News, Dec. 22, 1900.

A Review of the History of Cardiac Pathology. Modern Conceptions of Myocardial Disease. By Alfred Stengel, M.D. University Med. Mag., Oct., Nov., 1900.

Aneurism of the Arch of the Aorta with Rupture into the Superior Vena Cava. By Alfred Stengel, M.D. Amer. Jour. of Med. Sci., Nov., 1900.

The Throat and Nose in Scarlet Fever. By W. Cheatham, M.D. Louisville Jour. of Med. and Sur. Mar., 1900.

Porro-Cæsarean Hysterectomy. By Amand Routh, M.D., B.S., F.R.C.P. Adlard & Son, 1900.

The Medical Treatment during the Adolescent Period. By Edwin Rosenthal, M.D. Med. Fortnightly.

Affections of the Eye and its Appendages in Bright's Disease. By W. Cheatham, M.D. Amer. Prac. and News, March 15, 1901.

Cyclic Albuminuria. By G. A. Sutherland, M.D. Med. Publishing Co., London, 1900.

A Scientific Basis for Medicine. By E. C. Hebbard, M.D. The Med. Times, March, 1901.

Two Hundred and Thirty-Seven Consecutive Abdominal Sections. By C. G. Davis, M.D.