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EXPERIMENTAL INTRATHORACIC SURGERY.

(*Preliminary Report*)

BY

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Prior to the introduction of difference pressure methods by Sauerbruch, in 1904, the danger of lung collapse in the presence of open thoracotomy proved an effectual bar to the development of intrathoracic surgery. Although an artificial respiratory apparatus for the prevention of lung collapse had for many years been used in physiological experiments, the negative pressure chamber of Sauerbruch was the first apparatus constructed with the view of maintaining normal pressure differential in intrathoracic work upon the human. With the introduction of the now famous Breslau cabinet a certain means was established of preventing pneumothorax. In his publication of 1904, Sauerbruch described in detail his negative differential chamber and recounted his results in a series of animal experiments, pointing out at the same time the possibility of preventing lung collapse by reversing the mechanism of the chamber, that is, by the employment of positive differential pressure. At that time, however, in the light of his experimental experience, Sauerbruch expressed strongly his opinion that the negative differential was the method of choice, believing that it more closely approximated the physiological equivalent. He enumerated the following objections to the use of positive pressure:—

- (1) The change in the respiratory rhythm.
- (2) The danger of producing interstitial emphysema.
- (3) The effects upon the circulation:

- (a) Pressure upon the lung capillaries through increased intra-alveolar tension with resulting embarrassment of the right heart.

- (b) Direct atmospheric pressure upon the great veins leading to a diminution in the diastolic suction, a slowing of the venous current, and a measurable increase in the intravenous pressure.
- (4) The difficulty of narcosis.
- (5) The loss of heat.
- (6) The danger of pleural infection owing to the large exchange of air.
- (7) The persistence of a tension pneumothorax.

Unconvinced by Sauerbruch's contentions with regard to the effects of positive pressure, and impressed with the limitations of the negative chamber owing to its cost, lack of portability, etc., Brauer, with Petersen, experimented at Heidelberg with a positive pressure apparatus, and was able to disprove Sauerbruch's main contention with regard to the circulatory disturbances said to be associated with the use of this method.

Although many modifications in the construction of apparatus, negative and positive, have been described, both principles remain,—the latest development tending toward a combination of the two. Even at this short distance of time it is interesting to note that the primary objections to the use of positive pressure, urged especially by Sauerbruch, have largely disappeared owing to the extensive experimental work which has been done both in Europe and on this continent with the use of the positive pressure mask.

Seidel, in an exhaustive study upon animals, has furnished decided proof of the physiological equality of the two methods. He concludes:

(1) "That it is impossible to speak of injurious effects following the plus pressure method in open pneumothorax, as it stands only a trifle behind, if at all, the minus pressure method in physiological exactness.

(2) That plus pressure consists in the respiration of compressed air with a pressure simply sufficient to prevent lung collapse. It is not true that the air is blown into the lungs, except during the first one or two respirations, after which the respiratory act takes place normally.

(3) That the relative pressure on the veins of the thorax and trunk is equal in both methods.

(4) That with plus pressure there is a slightly increased pressure in the body veins, but it is not due to pressure on the alveolar capillaries. It appears to result rather from the effect of the pressure on the whole contents of the thorax, and expresses itself in a diminished capacity of the circulation and not in any stasis between the two sides of the heart." (Quoted from Flint.)

When the discussion on the comparative physiological merits of the

two methods was at its height, it was pointed out by Wendel that the difference in the atmospheric pressure between Breslau and Marburg exactly corresponded to the normal difference between intrathoracic and intrapulmonic pressure, which in man, according to Friedrich, is 7 mm. of mercury. Thus, if Sauerbruch and Brauer were operating simultaneously under normal barometric conditions and with the use of the two methods, the pressure effects would be precisely the same. The Breslau cabinet would register the Marburg atmospheric pressure while the patient's head was under Breslau atmospheric pressure, and Brauer in operating would raise the mask pressure to the reading of the Breslau barometer and open the thorax under Marburg pressure.

A still simpler illustration might be cited in the effect of our own mountain elevator, where in a descent of approximately 250 feet, a pressure difference of 7 mm. of mercury is borne without noticeable respiratory or circulatory disturbance.

Thus, we may accept as proved that the opening of the chest in a rarified atmosphere, or the maintenance of lung inflation through the use of a pressure mask, have within normal pressure limits identically the same effect upon the circulatory apparatus and pulmonary viscera.

Before the advent of these modern methods of preventing lung collapse, pneumothorax could be prevented or avoided either by (a) existing inflammatory adhesions between the parietal and visceral pleural layers; (b) the artificial induction of adhesions through intrapleural instillations of chemical irritants; (c) the suture of the pleural layers about the field of operation; or by (d) plugging the thoracic opening by the withdrawal of a portion of the lung. The limitations of intrathoracic work with the aid of such protection are self-evident. Under such conditions extensive exploration of the pleural cavity is out of the question, and the risk of final collapse or grave respiratory or cardiac embarrassment through traction upon the lung is not thereby obviated. In addition to the work of Sauerbruch, Brauer, Petersen and Friedrich, a mass of instructive experimental intrathoracic surgery has been carried out on this continent by Robinson, Green, W. Meyer, Janeway, Flint and others.

Although pneumonectomy was the operation first practised in connexion with the experimental use of Sauerbruch's negative pressure chamber, the results have, until quite recently, been unsatisfactory owing to the following causes:

(1) Primary infection of the pleura through the operation wound or divided bronchus.

(2) Pneumothorax and secondary infection owing to faulty closure of the bronchus.

(3) Tension pneumothorax and transudate following the use of positive pressure.

As exemplifying these conditions the results of Sauerbruch and Robinson, and Haecker, in 38 experiments with positive pressure, in which extirpation of the left lung was carried out after simple ligation of the bronchi and vessels en masse, are most striking. Seven deaths were the result of primary infection; nine died from failure of the bronchial closure; and eighteen from tension pneumothorax leading to the formation of transudate. Thus, only four animals recovered. Out of a total of 92 pneumonectomies in dogs under positive pressure, 79 have proved fatal, or 86 per cent.

Opposed to these results are those recounted by Friedrich, Sauerbruch, Meyer and others, who successfully performed numerous complete pneumonectomies with the aid of negative pressure.

Various methods were developed in the attempt to close permanently the divided bronchi, including simple ligation and cauterization of the stump, curetting of the bronchial mucous membrane before ligation, re-inforcement of the stump with lung tissue, etc. To Meyer, however, is due the credit of having devised the method illustrated in the following sketch. In Meyer's hands this method of bronchial closure, combined with the use of negative pressure, has yielded the most successful experimental series,—16 out of 17 dogs having recovered. (Fig. 1).

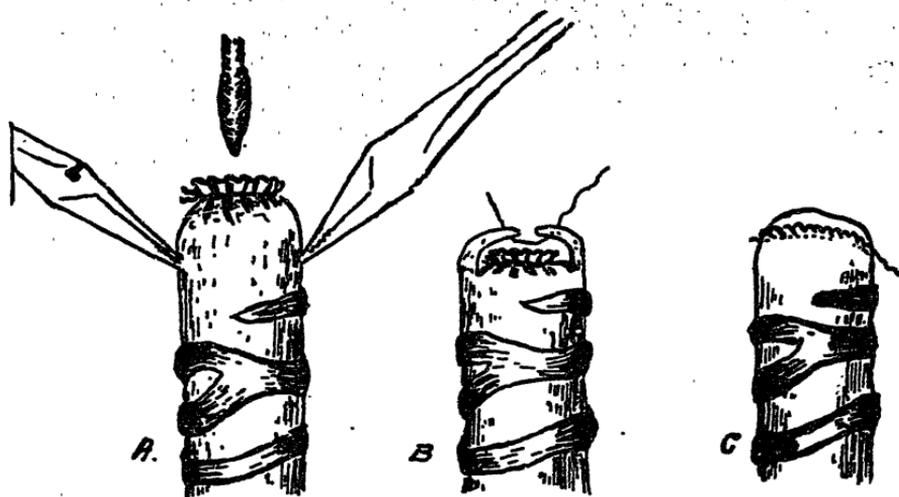


Fig. 1.

FIG. 1.—Diagrammatic representation of method of bronchial closure. (a) Ligation of bronchus after crushing. (b) Depression of stump within lumen of bronchus, with continuous suture of edges of crater. (c) External aspect of bronchial stump.

In order to gain an entrance into the subject, and with the object of determining the relative parts played in the obliteration of an eviscerated pleural cavity by the various anatomical elements forming its boundaries, we undertook a series of experiments, the results of which we would beg leave to lay before you.

Proceeding upon the known fact that unilateral thoracotomy might be undertaken in rabbits without great risk of sacrificing the animals, and pending the construction of a positive pressure apparatus, we carried out a series of 31 experiments.

A strictly aseptic technique was, of course, constantly aimed at, and under ether anæsthesia total pneumonectomy, either right or left, was performed in each case. After preparation of the skin, the operation consisted in the employment of a straight incision in the long axis of the rib, the separation of the muscular layers in the direction of their fibres, resection of the middle two-thirds of the fifth or sixth rib overlying the root of the lung, and the successive ligation and excision of the lung lobes in situ. Closure was effected by suture of the intercostal muscular stumps and continuous suture of the muscular layers. Finally, before closure of the skin with Michel's clamps, aspiration of the eviscerated cavity was carried out in a majority of the cases, as we were early impressed with the necessity of dealing in some way with the closed pneumothorax.

The following figures give briefly and from various points of view the results of our experiments: 31 experiments; 19 recoveries and 12 deaths; recovery percentage 61.2. Of the deaths one occurred before operation from anæsthesia; four were due to hæmorrhage, two to infection, and five to the direct or indirect effects of tension pneumothorax, that is, either to respiratory or cardiac embarrassment. Of the four deaths from hæmorrhage, two occurred in the first stage of the operation from laceration of the lung tissue, which in the rabbit is extremely friable and can be handled only with padded forceps. Indeed, the liability of tearing is so great that it is necessary to ligate the lobes in situ without attempting to deliver the lung. The remaining two deaths were the result of hæmorrhage after closure,—in one instance, from the torn mediastinal attachment of the lower lobe, and in the other, from the divided intercostal artery in the posterior angle of the thoracotomy wound. Of the two cases of infection, the first occurred in a rabbit with severe snuffles; fibrino-purulent exudate was found in both pleuræ and in the pericardium, death occurring five days after operation. Multiple necroses of the liver were also present. The second case occurred in a poorly nourished rabbit three days after operation, the post mortem revealing a bilateral serous pleuritic effusion and

serous pericarditis, marked chronic interstitial nephritis, and in the abdomen a large agglomeration made up of coils of small bowel and caseous material.

With regard to the effects of aspiration, it should be noted that of the five deaths from pneumothorax none had been aspirated. Of the nineteen animals which recovered, twelve were aspirated and seven not. While these figures do not by any means yield conclusive evidence of the favourable effects of aspiration, it is undoubtedly the case that the animals aspirated recovered much more rapidly than those left with a closed pneumothorax. While unaspirated animals, as a rule, made no attempt to stir until some hours after operation, the aspirated animals were generally able to stand within fifteen minutes after the completion of the operation, and in a number of cases were noted to eat ravenously within an hour, no doubt the chief incentive being the thirst induced by the anæsthetic.

These figures compare favourably with those of Robinson, who operated under similar conditions without the aid of differential pressure. Of seventeen rabbits operated upon by Robinson, ten recovered, or 58 per cent.

Again, if we divide our series into two groups, we find that in the first sixteen experiments there were eight deaths,—a recovery of 50 per cent.; and in the last fifteen experiments, four deaths,—a recovery of 74 per cent. This improvement in the percentage of recoveries may be attributed to the following: (a) Improvement in the general technique, no deaths having occurred from hæmorrhage due to laceration of the lung; (b) Reduction in the duration of the operation and the anæsthetic, from one hour (Case I.) to an average time of fifteen minutes, —the shortest time having been nine and a half minutes; (c) The more frequent employment of aspiration.

We must, however, ascribe a certain percentage of the later recoveries to the fact that the left thorax was eviscerated in nine of the cases, —a two-lobe operation taking less time and being attended with less hazard than a three-lobe pneumonectomy.

Of these favourable influences we would lay special stress upon the employment of aspiration, as a means of overcoming the danger of tension pneumothorax.

Finally, in extenuation of the death rate in the first sixteen operations, it should be stated that the figures include all animals used, whereas previous reports have allowed for the fatalities in the establishment of the technique.

From our later experience in performing pneumonectomies upon dogs, we are inclined to think that the danger of the formation of a trans-

update in the presence of a closed pneumothorax is less in the rabbit than in the dog. Why this should be may possibly be explained by the fact that the normal differential in the rabbit is little more than one-half that in the dog. On the other hand, the mediastinum of the rabbit, in the presence of open thoracotomy and unsupported by differential pressure, oscillates with respiratory movements to a very much less extent than that of the dog, although it apparently yields itself most readily to the obliteration of the eviscerated cavity after operation. In this connexion, a further consideration is the fact that fatalities from tension pneumothorax occurred in our series of rabbits generally within a few hours after operation, whereas in the dog deaths from tension pneumothorax, associated with transudation, occur usually between the third and fifth days. (Robinson).

At the beginning of the year, Dr. Samuel Robinson, of Boston, was good enough to have constructed for one of us a revised model of his positive pressure apparatus. This portable apparatus consists, as you will see, of a pressure air pump run by a $\frac{1}{4}$ h.p. motor (Fig. II) and

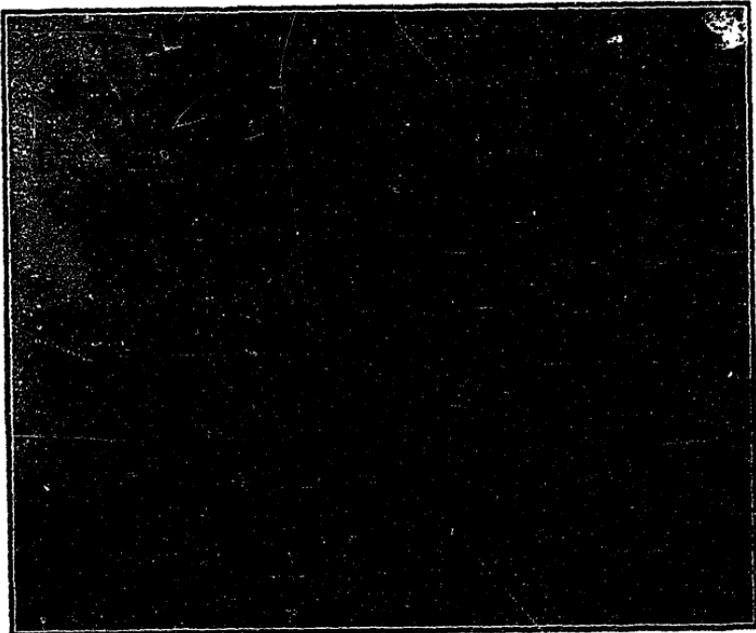


FIG. 2.—Pressure Air Pump and Motor, with tubing leading to control apparatus.

an arrangement of conduits for conveying the air supply to an air-tight muzzle or face mask, combined with an ether segment for the automatic

administration of the anæsthetic (Fig. III). The air outlet is controlled

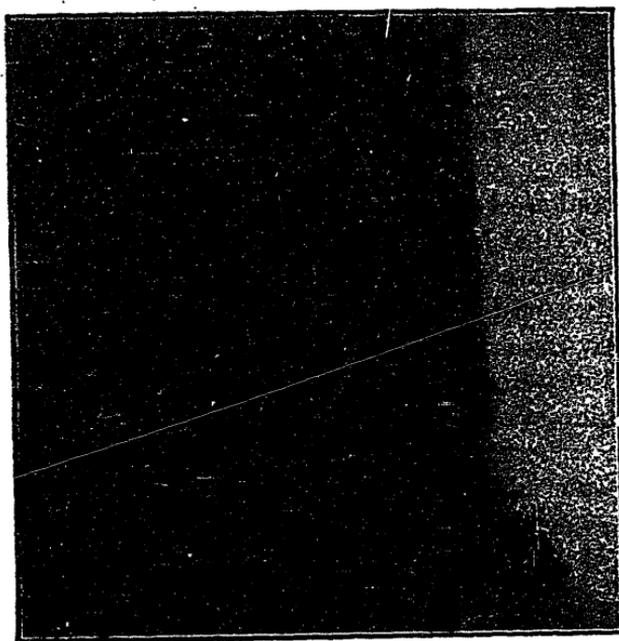


FIG. 3.—Apparatus for controlling air pressure and anæsthesia. (a) Connection with fan. (b) Valve to ether segment. (c) Manometer. (d) Face mask. (e) Ether lock for replenishing ether supply without stopping fan. (f) Water jacket and thermometer.

by a set-screw, the original resistance water bottle having been discarded as unsatisfactory. The air pressure within the mask is registered by a mercurial manometer. By a simple arrangement of valves the degree of anæsthesia may be regulated to a nicety, and in experimental work at least no assistant is necessary for the administration of the anæsthetic. The original etherizing segment has been advantageously modified by adding a water jacket to the Wolff bottle containing the ether. By this means too great a reduction in the temperature of the ether from rapid evaporation is avoided. This not only ensures a more even narcosis, but also prevents too great a depression of the body temperature.

This form of apparatus meets three important requirements: cheapness, simplicity, and portability; and for experimental purposes, at least, is entirely efficient. The pump is capable of supplying approximately 400 cubic feet of air an hour. The primary requisite in any apparatus of this kind is the capability of the pump to supply a large amount of air to the mask so that the escape may be free. This provides for the necessary air exchange. The construction of a mask for the

Lueman (Fig. IV) which would resist leakage and at the same time not

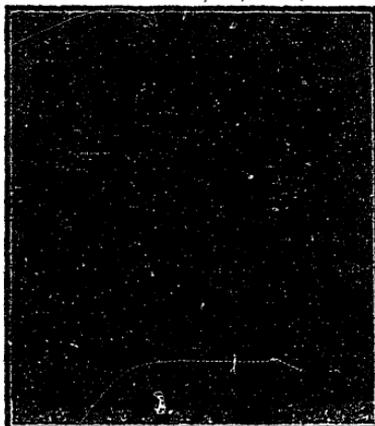


FIG. 4.—Mask for the human. (a) Air inlet. (b) Outlet controlled by set-screw.

press unduly upon any part of the face, entailed numerous failures before the present product was evolved.

With the use of this apparatus, either with or without the ether segment, we have carried out a number of thoracotomies upon dogs, the results of which we hope to report fully in a later paper.

Our object in undertaking a series of pneumonectomies in dogs with the aid of positive differential, in the face of the unfavourable results previously recorded, was threefold: (1) To acquire a knowledge of the proper application, limitations and effects of the plus differential; (2) to devise, if possible, some simple and effective means of overcoming tension pneumothorax; and (3) to acquire a suitable technique for bronchial closure.

As already stated, the apparatus devised by Robinson has in this later series of experiments proved entirely efficient as a means of preventing lung collapse in the presence of wide thoracotomy. With the use of positive pressure, providing the animal be completely narcotized, the normal cardiac and respiratory rhythm may be observed to proceed without disturbance for an indefinite period, and under these conditions owing to the slight movement at the root of the lungs, ligation of the bronchial vessels and the finer manipulations, such as depression and inclusion of the stump by suture, may be carried out with absolute ease. It is only when the animal is lightly narcotized that violent respiratory disturbances follow the opening of the thorax. Under such a condition of incomplete narcosis, the disturbance observed takes the form of exaggerated expiratory movements, at which time, owing to

the heightened intrapulmonic pressure; the normal differential may fall to 4 mm. of mercury or less without lung collapse, in spite of the fact that the presence of a wide breach in the thoracic wall deprives the pulmonary viscera of its normal expiratory fulcrum. It is at such a stage of the anæsthetic, also, that one meets with the violent oscillations of the mediastinum noted by many experimenters. With deepened anæsthesia these exaggerated expiratory efforts subside and normal movements are restored, such movements being, however, undoubtedly reduced in amplitude in the presence of positive pressure. In the event of the occurrence of cardiac disturbance, either from the effects of the ether or following partial collapse of the exposed lung, rhythmical inflation promptly restores the circulatory balance. As a matter of fact in our later experiments, especially since the addition of a water-jacket to the ether bottle whereby vapourization of the anæsthetic is rendered more uniform, no symptoms have arisen during the performance of complete pneumonectomies referable either to the circulatory or respiratory organs which called for interruption or attention of any kind.

With regard to the limitations of the positive differential, it would appear that a case had been made out against its use where, subsequent to operation such as pneumonectomy, one has to deal with a large cavity exposed to atmospheric pressure. The experiences in this connexion, referred to in the earlier part of this paper, would seem to establish negative differential as the method of choice. Before the appearance of Sauerbruch and Robinson's paper, in which this subject is fully dealt with, we had employed aspiration in our work upon rabbits as a means of overcoming the generally fatal effects of a total closed pneumothorax, and from the results recently published by Flint, of New Haven, we are encouraged to believe that a similar procedure is capable of averting fatalities in pneumonectomized dogs. By means of a simple device, such as that shown in the photograph submitted, (Fig. V), we hope in the future to obtain results parallel to those reported by Meyer. In illustration of this latter contrivance I might briefly summarize the following experiment:

No. 39. March 25, 1910—Fox terrier dog. Left thoracotomy through the fifth interspace. Rib spreader used. Successful excision of lower and upper lobes by Meyer's method. Closure with pericostal stitch with aspirating cannula in the posterior angle of the wound. Before tying the last suture, the cavity was aspirated until a negative tension of 10 mm. of mercury was registered by the manometer on the aspirating apparatus. The cannula was then withdrawn and the last suture tied.

At the close of the operation the respirations were between 30 and 40. The animal made a rapid recovery. Three days later the dog was running about, taking food well, and was apparently convalescent. On April 5, ten days after operation, after jumping on and off a table and chair, the dog was suddenly seized with twitching movements involving the jaws and muscles of both right extremities. The dog was found dead the following morning.

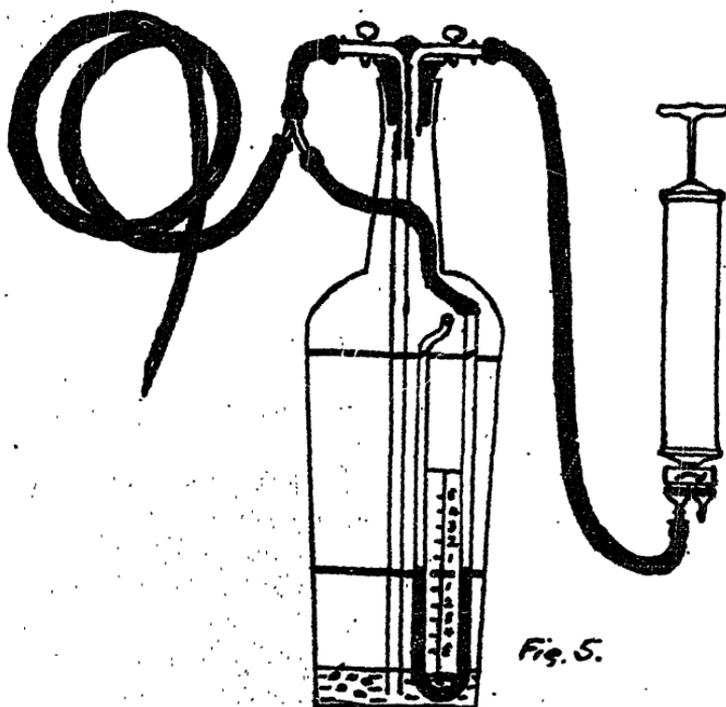


Fig. 5.—Aspirator with manometer attachment for relief of tension pneumothorax.

Post Mortem.—Left thorax—Suture line perfect. Small cavity corresponding to wedge of lower lobe, lined with normal glistening membrane. At line of rib closure firm adhesions between the chest wall and pericardium anteriorly and the mediastinum posteriorly. Above this bar a slit-like cavity underlying the costal cartilages from the second to the ninth, and the second, third and fourth ribs, was found. The lining membrane of this cavity was covered with a plastic blood-stained exudate. There was no recent hæmorrhage and no evidence of infection. Death was thought to be due to cerebral embolism. Apart from an intestinal flux, the condition of the animal had remained absolutely satisfactory from the time of the operation until the sudden exit.

The trachea in this case was connected with the air pump and a pressure of 30 mm. of mercury applied, overdistinging the right lung, but without leakage occurring from the bronchial stumps.

While it is true that almost complete obliteration of an eviscerated pleural cavity may be obtained by closure under exaggerated pressure (18 to 20 mm. of mercury), such a procedure not only imposes a serious strain upon the bronchial stump and the mediastinum, but may precipitate critical symptoms both respiratory and circulatory, owing to the disturbance of the normal respiratory rhythm and the sudden displacement of the heart. Further experimentation may prove that within certain limits hyper-pressure may be safely used in this connexion, but it would appear that uniform results can be obtained only where, in closing an eviscerated cavity, one leaves behind a pressure difference approximating as closely as possible the physiological. This negative differential should necessarily be without violent effect upon either the mediastinum, heart or great vessels; that is, a minus pressure of from seven to ten mm. of mercury. Under such conditions obliteration of the cavity takes place chiefly through the gradual displacement of the mediastinum and its contents toward the operated side, and to a less extent through a rise in the diaphragm, and in young animals the falling in of the thoracic wall.

On the other hand, a total closed pneumothorax invariably proves fatal. In the presence of such the mediastinum oscillates with each inspiration towards the sound side. Owing to the absence of lung tissue absorption of the enclosed air is practically nil. Eventually the accumulation in this cavity of clear, limpid transudate which rapidly increases in volume, adding more and more to the embarrassment of the heart and sound lung, proves fatal through its mechanical pressure effects. A study of the effects of closed pneumothorax upon the mediastinum has, in a measure, accounted for the unsatisfactory results of extensive thoraco-plastic operations undertaken for the obliteration of large pleural cavities. In such cases the integuments coming to rest upon the mediastinum, and unsupported by the bony thorax, leave the former without protection against the effects of atmospheric pressure during inspiration. In consequence, the ribless chest wall moves with the mediastinum towards the sound lung, and in so doing largely negatives the effects of the inspiratory act upon the sound organs, preventing lung expansion and leading eventually to death.

Very great progress has been made in the technique of bronchial closure, and from our limited experience we are led to conclude that the method of Meyer is the best method so far devised. This method

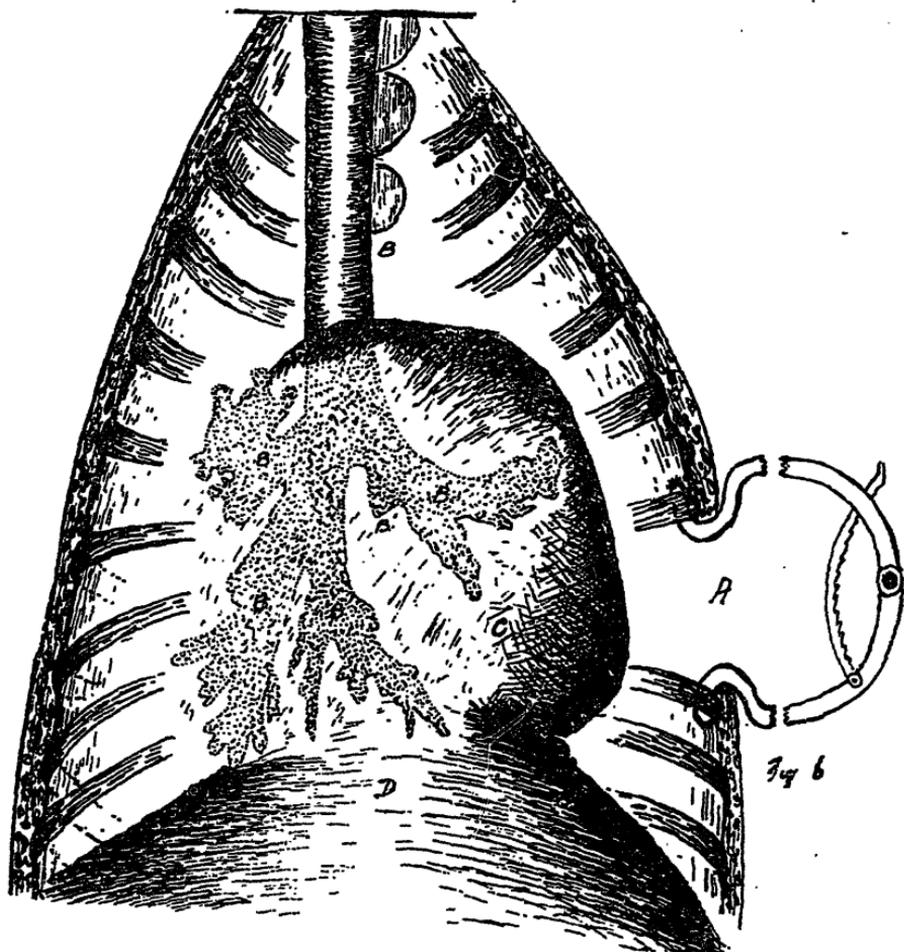


FIG. 6.—Drawing from skiagram of thorax and thoracic viscera of a dog, showing (a) Approach to mediastinum through linear incision and use of rib spreader instead of rib resection. (b) Trachea and bronchial tree injected with alloy, showing remarkable "tidal" capacity of the primary air passages in the dog; at B' is stump of bronchus to lower lobe, which has been excised. (c) Pericardium. (d) Dome of diaphragm.



FIG. 7.—No. 13, rabbit. Operated upon Nov. 19, right pneumonectomy; aspirated. Killed January 6. Skiagram shows rib defect, 5th right. Heart shadow in upper right thorax. Remaining thoracic areas completely occupied with lung tissue with exception of small organised exudate at E. Frozen sections confirm skiagram.



FIG. 8.—No. 14, rabbit. Operated upon November 26, right pneumonectomy; not aspirated. Killed January 7. Trachea filled with Onion's alloy.* Skiagram shows rib defect at 5th right. Truncate right bronchi. Organised exudate in lower right thorax. Deflection of left bronchial tree to same side. Heart shadow in normal position.

*Onion's alloy: Bismuth, 5 parts; lead, 3 parts; tin, 2 parts. melted and cooled to 212°F. and 1 part mercury added. This amalgam melts at 170°F. and sets between 140° and 150°F.

consists, after ligation of the vessels, in the clearing of the bronchus for a space of 2 cm., the application of an intestinal clamp proximally, crushing of the tube, its ligation with chromacized gut or silk, and amputation of the lung; finally, the depression of the stump and its inclusion within the lumen of the bronchus by a continuous suture, (Fig. I).

Tiegel has pointed out the danger of a high closure of the bronchus owing to reflex stimulation of branches of the pneumogastric in the neighbourhood of the lung root. We have carried out successfully two experiments in which, after dissection and retraction of the left vagus, amputation of the whole lung was effected through the primary bronchial division. This procedure, of course, entails a certain amount of traction upon the mediastinum and opposite bronchus; so much, indeed, that after closure the stump retracts out of sight beneath the pericardium. No reflex disturbances were encountered in these two experiments, and although the animals eventually succumbed some days after operation (ten and four days respectively) from infection of the pleura, the bronchial closures effectually withstood pressures of 20 to 30 mm. of mercury without evidence of leakage.

In our further work we hope to investigate the question of loss of heat. Temperature observations after operation have invariably been subnormal. To what extent this loss of heat may be attributed to the large exchange of air in the pleural cavity during operation, is still a matter for investigation. Quite possibly the fault will be found to lie with the method of administering the anæsthetic.

We hope, upon a future occasion, to have an opportunity of presenting experimental results dealing not only with the question of the obliteration of cavities after the removal of lung tissue, but also the interesting questions of lung exploration, lung suture, the establishment of an anastomosis between the œsophagus and abdominal viscera, and the extirpation of the thymus gland.

Before closing we should like to express our thanks to Dr. Archibald for his frequent assistance at experiments; to Dr. Wolbach for his interest in connexion with the post mortem work and the preparation of specimens; to Dr. Wilkins for the excellent X-ray plates from which the prints here reproduced have been made; and to Dr. Tees for photographs of apparatus.

A NEW FORCEPS FOR THE REMOVAL OF THE ANTERIOR LENS CAPSULE.

BY

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The operation for the removal of senile cataract affords more opportunities for the exercise of individuality or of special technique than perhaps any other in ophthalmic surgery. The point of incision, the size of the corneal wound, the presence or absence of a conjunctival flap, and the advisability of performing an iridectomy are a few features the significance of which receive various interpretations by different authorities.

To limit my remarks to the treatment of the anterior lens capsule, three principal methods may be said to be employed; these, however, will receive some slight change or modification by numerous operators as, in the opinion of each, more desirable results are obtained. These methods are:



1. Puncturing the anterior capsule with a cystotome with the subsequent enucleation of the lens cortex through the aperture thus formed. This method is frequently combined with the employment of various types of syringes to irrigate the anterior chamber.

2. Enucleating the lens in its capsule without puncturing the membrane, a method largely practised by members of the Indian Medical Service.

3. Extraction of the lens cortex from its enveloping capsule after a segment of the membrane has been removed by capsule forceps, a procedure the importance of which I had the privilege of bringing before your attention at the meeting of this section last year at Ottawa.*

A combination of the first and last mentioned methods, in the form of a peripheral capsulotomy with the cystotome, and the withdrawal or removal of the segment of capsule with forceps, may be attended with good results.

It is not my intention to criticize these methods, but to confine myself to the description of an instrument which I have designed for

Read before the Section of Ophthalmology, Canadian Medical Association, Winnipeg, 1909.

*"Ophthalmology," October, 1909, p. 20.

the removal of the anterior lens capsule to which I made a partial reference in my contribution of last year, when advocating the employment of capsule forceps in the extraction of the senile form of cataract. These forceps were made for me by Messrs. Hardy and Company, Chicago, from measurements and sketches, and to them my thanks are due for the care in which they carried out my directions in detail.

The instrument may be described as "L" shaped, the handle or part corresponding to the vertical portion of the letter being about 8 cms. long. To each arm of the handle is welded a curved extension blade of 8 mms. at an angle of 120° . At a point in the centre of one handle is a buffer pin which fits into a small aperture in the arm of the handle directly opposite. A shoulder on this pin prevents too strong a pressure upon the delicate extension blades, exact apposition being assured at the same time.

The extension blades, or the part of the instrument used within the anterior chamber, are curved concavely below, the degree of concavity having been obtained from measurements taken of the human lens. This curvature permits a uniform pressure over the whole of the lens surface, and consequently upon the suspensory ligament, a feature less likely to produce dislocation than when the whole force of a puncture from a cystotome is exerted at one point.

At the toe and heel of these blades two sets of tiny interlocking teeth have been set directed down and in, which allow the operator to obtain a secure hold of the underlying capsule. A careful measurement of the pupillary areas from microscopic sections of 53 eyes which I have prepared and mounted shows that the approximate diameter of the average pupil is 6.66 mms. By deducting 1.66 mms. from this for the space occupied by the teeth before and behind, one has an intervening space of 5 mms. for the size of the average segment of capsule, the removal of which will assure a clear pupillary area.

One particular case in point supports the use of the forceps. I performed a senile extraction in a woman whose vision had always been poor, but which had recently been reduced to hand movements. No details of the fundus could be determined, but projection of light and tension were normal. I removed a large piece of capsule at the time of the operation and floated it off into distilled water for purposes of demonstration. After the lens was extracted no irrigation was necessary and the wound healed without complication in the usual time. Six weeks later, when doing a post-operative retinoscopy, I was surprised to find that I had operated on a myope of $-8.00D$. Although normal vision was not restored, the impairment being due to choroidal

changes attending her myopia, she was still able to do as well as she had been able to do for some years before symptoms of cataract first made their appearance, and she could make her way about the city and do ordinary reading without assistance. The fact that one could obtain such improvement in vision in a case where one would be naturally anxious regarding the escape of a somewhat fluid vitreous was a matter of no little satisfaction.

I would not presume to deny that there are instances where the treatment of the lens capsule may be followed to better advantage than by the use of such capsule forceps; two conditions, at least, demand a more conservative procedure. In using capsule forceps one is more or less dependent upon a reasonable degree of control and of good behaviour on the part of the patient. Uncontrolled movement of the eyeball with forceps of any design within the anterior chamber may lead to a dislocation of the lens and to an escape of vitreous, with other disastrous complications, before the instrument can be withdrawn. Again, in cases of hypermature cataract where a more or less fluid lens cortex is associated with a degenerate or friable zonular ligament, a more cautious treatment of the lens capsule by a single gentle incision with the cystotome, anticipating a subsequent discission, may avoid a rupture of the ligament and a dislocation of the lens into the vitreous cavity. These are conditions which are only fair to mention before passing judgment upon the instrument. Exceptional cases in ophthalmological, as in other branches of surgery, demand special treatment and technique if the best results are to be obtained. Capsule forceps are not designed for the exceptional cases, but for the majority of senile cataracts which are primarily uncomplicated, and where the surgeon has a reasonable degree of confidence in the control and good behaviour of his patient.

This particular pattern of forceps must not yet be accepted or judged on account of its present favourable record; the instrument is so far on trial. A longer and more varied experience, however, in the course of time may place it as one of some humble importance in our ophthalmological armamentarium. To Dr. Casey Wood, of Chicago, as well as to my colleagues, Drs. Stirling and Byers, my sincere thanks are due for many opportunities of introducing my forceps into their routine operative work.

LIVING CASE—A NEW OPERATION FOR THE TREATMENT OF ANTERIOR METATARSALGIA INCLUDING MORTON'S DISEASE.

By A. MACKENZIE FORBES, M.D., Montreal.

The patient, which I now present, reported at my clinic at the Montreal General Hospital a year ago. He was suffering from anterior metatarsalgia. For ten months I tried all forms of non-operative treatment known to me in the hope that I would be able to relieve his symptoms. During this period many of you saw him, and on many occasions I have demonstrated the existence of two cardinal symptoms of this affection in this patient, viz., pain on lateral pressure on the metatarso-phalangeal joints and again, tenderness under the heads of the metatarsal bones.

Over two months ago I decided that nothing short of operative procedures would give him relief, and as I have considered the operation devised by Morton to be mutilating and as not being based on my conception of the pathology of this affection, I performed a new and original operation which I had planned a year previously and demonstrated to both members of this Society and to those of the Boston Orthopædic Club. This operation is planned on the supposition that the secondary symptom of this affection, viz., spasm of the extensor, causing hyper-extension of the affected toe acts to depress the head of the metatarsal bone and thus increases the pain and pain-giving deformity. The procedure, then, is to detach this tendon from the hyper-extended toe and to transplant it to the head of the metatarsal bone in the expectation of being able to convert what was a power for evil into a power for good.

This operation was performed on the patient before you two months ago, and I now present the patient to you in order to demonstrate that he is free now from both pain on lateral pressure on the anterior arch and tenderness under the head of the affected metatarsal,—that he is, in fact, cured.

A CASE OF AMŒBIC DYSENTERY WITH ABSCESS OF THE LIVER, ORIGINATING IN MONTREAL.

BY

F. G. FINLEY, M.D., and S. K. WOLBACH, M.D., Montreal.

Sporadic cases of amœbic dysentery are occasionally observed in northern latitudes. Patterson (*American Journal Medical Science*, August, 1909) has recently reviewed the distribution of the disease in

North America. Amongst the cases referred to, one originated in Winnipeg, and is reported by Ball, of New York. Quite a number of instances have been reported in New York and Philadelphia, whilst isolated cases have occurred in Michigan, Maine, New Hampshire, and Minnesota. In many of these cases the individuals affected had never been in the South, or indeed far from the locality from which the cases were reported. Dock's case in Michigan had not been out of that locality for years.

The chief clinical interest in the following case lies in its having originated in Montreal. With the exception of the Winnipeg case, it is the first endemic case reported as having its origin in Canada.

E. T., a French Canadian, male, was admitted to the Montreal General Hospital on December 28, 1909, for pain and swelling in the abdomen. The illness began two months ago with abdominal pain of a colicky character; there were three or four loose movements daily with blood in the stools. Two weeks ago the abdomen began to enlarge. He had two or three chills and had lost 15 lbs. in weight. He was born and had always lived in this city, his wife stating that he has never been further away than Ottawa.

Examination reveals a sickly looking man, with pale face, and hollow cheeks and temples. The palate and conjunctivæ are somewhat anæmic, the blood count showing 4,750,00 red corpuscles, and 19,400 white corpuscles which were chiefly polymorphonuclears, hæmaglobin 95 per cent. (Sahli).

The temperature rose to 102 on the day of admission (being normal subsequently). The skin is dry and soft, the subcutaneous fat scanty and the muscles small. The pulse 114, easily compressed, of good volume and beating in pairs. The heart is normal. There is dulness at the right base of the lung from the angle of the scapula down, with absence of breath sounds and of resonance and fremitus. A Grocco sign is present at the left base. The tongue is slightly coated. The abdomen is moderately distended with dilated veins especially above. There is a dome-like elevation in the epigastrium more on the right than the left side. The liver is much enlarged forming a large solid mass below the ribs, reaching 10 cm. below the costal border in the nipple line, and measuring 23 cm. from the upper to the lower limit of dulness. The edge cannot be felt owing to the resistance of the abdominal wall. The surface is somewhat tender.

December 30.—(Edema is present over the whole abdomen, down to Poupart's ligament, and more on the left than the right side. The veins on the right lateral region of the abdomen have become enlarged. The rapid enlargement of the liver with chills and fever, together

with emaciation and œdema of the abdominal wall suggested a liver abscess, and Dr. Armstrong advised an operation with an attempt to drain the abscess. A large abscess cavity was readily found and evacuated, but no amœbæ were found in the pus.

Following the operation the pulse was small and rapid and the patient gradually sank and died on the following day.

Autopsy 1909—229.—By Drs. S. B. WOLBACH and W. W. G. MACHLACHLAN.

E. T., age 34. One hour post-mortem. The subject has fair muscular and bony development, but is poorly nourished, length 165 cm. There is lividity of dependent parts, no œdema. The pupils are equal, 5 mm. in diameter. In the right nipple line immediately below the costal margin is a verticle abdominal incision, 6 cm. long. The wound contains a drainage tube from which a thick brownish puriform liquid can be expressed.

Peritoneal Cavity.—The anterior abdominal wall is adherent to a large solid mass in the upper half of the abdomen. The lower border of the adhesions runs diagonally downwards from the left upper quadrant to the right lower quadrant, crossing the mid line just above the umbilicus and extending almost to the crest of the ilium.

On separating the adhesions, which are of firm fibrinous material, the underlying mass is found to be the liver which is greatly enlarged. Its lower border almost reaches the level of the iliac crest. Lying between the diaphragm and liver is a large amount of greenish yellow gelatinous puriform material and more of this material pours out from the under surface of the diaphragm when the lower chest wall over the liver is pressed upon.

The omentum is thin, short and is adherent to the anterior abdominal wall immediately below the liver, by yellowish fibrinous material. The cæcum is covered with a layer three to four millimeters thick of yellowish white elastic fibrinous material which completely conceals the appendix. On removing the exudate the appendix is found lying on the outer posterior wall of the cæcum, it is directed upwards and has a mesentery. After removal of the exudate the appendix is normal in appearance. The pelvis contains a thin deposit of yellowish white fibrinous material, other peritoneal surfaces are normal. A few mesenteric lymph nodes are large and calcified, the largest is 2 cm. in diameter, other mesenteric lymph nodes are normal. The prevertebral lymph nodes are slightly enlarged but otherwise are negative. The diaphragm reaches to the third interspace on the right side, fifth rib on the left.

Pleural Cavities.—The right side contains a small amount of reddish

yellow liquid and a thin layer of fibrinous material between the diaphragm and base of lung. The left lung is adherent at the base and posterior border by a few easily torn fibrous bands; there is no free liquid.

Pericardial Cavity.—Negative.

Heart.—Lungs and bronchial glands are negative.

Liver.—Weight 4,530 grms. The upper surface reaches to the third costal inter-space on the right side, the lower margin reaches almost to the crest of the ilium. The surfaces of the liver lying opposed to the diaphragm are covered with a thick layer of greenish yellow, gelatinous puriform material. Towards the dome this material changes to a dirty brownish color.

The surface of the liver is irregular, owing to a great number of projecting rounded eminences which vary in size from 2 to 6 centimeters. The small nodules are firm, the intermediate ones are soft and the largest are fluctuating masses. The nodules are present on all surfaces of the liver, some of the largest ones have concave summits. The appearance of the liver varies in different parts. In the lower half of the anterior and inferior surfaces the colour is mottled yellow and red. The red areas present the markings of liver tissue, the yellow areas are opaque, firm and plastic.

The upper half of the liver is similarly mottled, but contains more fluctuating masses. On section the solid nodules are yellow, the cavities are filled with greenish gelatinous material, and the intervening liver tissue is red and mottled with yellow areas and irregular streaks. The liver contains thirty spherical or ovoid cavities, all containing greenish gelatinous puriform material, the largest are 6 centimeters in diameter. Some of these have a definite thick whitish margin simulating a capsule, all have grayish white friable tags of tissue hanging from the inner surface. These tags are continuous with the yellowish border of the abscesses. In many places the yellowish firm borders of the abscesses are continuous with similar tracts of tissue extending throughout the liver substance. In large areas of yellowish liver substance there are usually occasional soft friable areas.

A large, firm, reddish adherent clot is seen in one of the branches of the portal vein, its extent was not determined in order to preserve the specimen.

Examination of scrapings from the cavity walls showed many amœbæ which became actively motile on warming the slides. These amœbæ correspond in size with *amoeba histolytica*.

Spleen.—Weight 140 grms. The capsule is thickened where adherent to the diaphragm. On section the colour is normal. The Malpighian bodies are visible, trabeculæ prominent, consistency normal.

Pancreas, Adrenals, and Aorta are normal.

Organs of the Neck.—A few glands lying along the carotid vessels are large, but appear normal on section.

Gastro-intestinal Tract.—The œsophagus, stomach and small intestine are normal. The mucosa of the cæcum and the first ten centimeters of the ascending colon is deep red in colour, and there are many large and small ulcerations (twenty counted). Many of these ulcerations are oval in outline and the long diameter usually lies transversely to the long axis of the colon.

The smallest ulcers are not larger than one millimeter in diameter, and are situated on the summits of elevations of the mucosa 3 to 5 mm. in diameter.

The largest ulcers are 2.5 cm. in diameter. The large ulcers have distinctly undermined edges and are filled with a dirty grayish soft membrane which is easily removed. The edges are elevated and deep red in colour, in places suggesting hæmorrhage into the mucosa.

The majority of the ulcers do not appear to go deeper than the sub-mucosa, though a few of the larger ones seem to extend into the muscularis. Scrapings from the ulcers show many motile amœbæ similar to those from the liver. The transverse and ascending colon, sigmoid flexure, rectum and anus are normal.

Bladder and Genitalia.—Normal.

Head.—Examination not permitted.

Anatomical Diagnosis.—Amœbic ulcerations in ascending colon and cæcum; multiple amœbic abscesses of liver; localized fibrinous peritonitis; acute pleuritis with effusion (left); sub-diaphragmatic abscess; calcified mesenteric lymph nodes; chronic fibrous pleuritis (right); chronic fibrous peri-splenitis; laparotomy; thrombosis of portal vein.

Microscopic Examination.—*Heart.*—Negative.

Lungs, (left).—Moderately injected. The alveoli are partially collapsed and the respiratory epithelium is swollen and generally nucleated. In many places the alveolar walls contain a demonstrable layer of connective tissue between the capillaries and epithelium.

Spleen.—Moderately infected. The follicles are normal in size; many contain eosine staining hyaline reticulums. Beneath the capsule is a thin layer of newly formed capillaries and connective tissue.

Liver.—The abscess wall consists of necrotic cells, detritus, polymorphonuclear leucocytes and contain amœbæ, many of which contain red blood corpuscles. There are occasional clumps of micrococci. The liver tissue surrounding the larger abscesses is completely necrotic, remote portions show necrosis with preservation of the liver columns and sinusoids. The only viable tissue is that of the portal canals and

occasional narrow zones of liver cells. There are many amœbæ and occasional clumps of cocci, the latter surrounded by masses of polymorphonuclear leucocytes. Numerous veins in the portal canal are thrombosed, and, in the thrombi, there are occasional amœbæ. In portions of the liver remote from abscesses there is very marked central necrosis. The middle half of the lobules are stained pink, the nuclei are swollen or small and densely stained. The outer zone stains normally. In general, the areas of necrosis contain neither amœbæ nor bacteria. The capsule of the liver is covered in places with organizing fibrinous exudate, in which no amœbæ can be found.

Small Intestine.—Negative.

Cæcum.—There is marked injection of the submucosa and mucosa. There are many swollen areas in the mucosa due to separation of the fibres by granular detritus, and leucocytes. These areas contain numerous amœbæ. A few amœbæ show pseudopodia, many contain red blood cells and chains of micrococci, and rarely an amœba is found with the peculiar radiate striations at the periphery described by Councilman and Lafleur. The ulcers have elevated overhanging edges, due to solution of the submucosa, and there are necrotic tracts leading for considerable distance beyond the ulcer into the submucosa. Some of these tracts contain great numbers of amœbæ.

The muscularis is invaded by necrotic tracts in places, and a few amœbæ are found in lymphatics and blood vessels beneath the peritoneum.

There are many polymorphonuclear leucocytes and small amounts of fibrin in the tissue surrounding the ulcers and necrotic tracts. The ulcers contain many bacilli and micrococci.

Pancreas, Kidneys, Adrenals and Thyroid are negative.

Epicrisis.—The pathological findings are those of a typical case of amœbic ulceration of the cæcum with multiple abscesses of the liver and localized fibrinous peritonitis.

The infection of the liver is complicated by a bacterial infection as shown by the puriform infiltration in places, and the demonstration of colonies of streptococci in the section, findings which are conclusive in view of the short time which elapsed between death and preservation of the tissues.

Nothing new can be contributed to the pathology from this case, and unimportant histological details have been purposely omitted in the above abstract from the protocol.

The demonstration of the radiate peripheral markings in a few amœbæ is of interest. As far as we know this is the first instance noted since the famed publication of Councilman and Lafleur. No explanation of the origin of this marking can be offered.

THE
Montreal Medical Journal.

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

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CANADIAN MEDICAL ASSOCIATION.

By the time this number of the JOURNAL reaches its readers the 43rd Annual Meeting of the Canadian Medical Association will have begun in Toronto. The meeting will last until June 4th, and from the information which we have received from the Secretary it will probably be one of the most successful in the history of the Association. The Provisional programme has already been issued, and if it is lived up to, a body of material will be presented to the profession which is worthy of the highest consideration. Dr. Adam Wright, the President-elect, has worked unsparingly and he has had a generous support from the members of the Committee in Toronto. The Convocation Hall of the University of Toronto is most suitable for the purpose of the meeting, and the Queen's Hotel where the headquarters will be situated has a reputation for serving its patrons well.

The first general session will be held on the afternoon of the first day, when the President will be installed and the other opening ceremonies will take place. The first formal business will be to receive the report of the Milk Commission from the Chairman, Dr. Charles J. Hastings, of Toronto; and the remainder of the afternoon will be occupied by the addresses of Dr. Evans, of Chicago, and Dr. North, of New York. In the evening Dr. Herringham, of London, will deliver the address in medicine and this will be followed by a discussion on Dominion Registration which will be introduced by Dr. Roddick.

The address in surgery will be given by Dr. J. B. Murphy, of

Chicago, and the address in obstetrics by Dr. Henry C. Coe, of New York.

Two Symposia have been arranged, to which the various sections will contribute; one on exophthalmic goitre, the medical aspect of which will be treated by Prof. McPhedran, of Toronto; the surgical by Prof. F. J. Shepherd, of Montreal; and the pathological by a physician from New York; and another on psycho-neuroses, of which Drs. J. J. Putnam, of Boston, August Hoch, of New York, W. Hattie, of Halifax, and Ernest Jones, of Toronto, will each present various aspects. Medical education will be dealt with by Prof. J. C. Connell, of Queen's University, Kingston.

There will be sections in medicine, surgery, obstetrics, and gynecology, pathology, pediatrics, and diseases of the eye, ear, nose and throat. These will be held each afternoon. Extensive programmes have been prepared for each, some seventy papers in all being already promised. The Sections in medicine, surgery, obstetrics and pathology will each hold three morning sessions, commencing at 9.15 on Wednesday, June 1st. The Section of the eye, ear, throat and nose, and the Section on pediatrics, will each hold one session only, on Thursday, June 2nd.

On the afternoon of Thursday, 2nd June, there will be an excursion by the steamer Turbinia to Port Dalhousie; thence by electric railway to Niagara Falls. Refreshments will be served on the boat, and dinner at the Clifton House. The return journey to Toronto will be made in the evening. There will also be an excursion by special train to Guelph, as guests of the Guelph Medical Society, to visit the Ontario Government institutions, and other points of interest, leaving Toronto at 11 a.m. on Saturday. The annual meeting of the Canadian Medical Protective Association will be held on Friday afternoon at 5.30 p.m., when its president, Dr. R. W. Powell, Ottawa, will submit his annual report.

THE RECENT EPIDEMIC OF TYPHOID FEVER IN MONTREAL.—"THE LANCET," APRIL 23, 1910.

No official accounts of the epidemic of typhoid fever which commenced in Montreal and its suburbs in September of last year, and which virtually came to an end with January of this year, have been published. Nor is it likely that any correct figures showing the extent of the outbreak or the mortality-rate will be available, as owing to a variety of reasons a very large number of cases were not reported. Dr. J. E. Laberge, medical officer of health of the city of Montreal,* recently read a paper on the organization of the health department, in which he de-

* Dr. J. E. Laberge is Medical Officer of the Department of Contagious Diseases.—Ed. M.M.J.

explored the laxity of medical practitioners in failing to report cases of different infectious and contagious diseases. He stated confidently that less than half of the infectious and contagious diseases occurring in the city were reported to the Health Department, and alluded to the fact that in one district alone in the period from Oct. 15th to Jan. 1st last the officers of the Health Department had discovered 625 cases of typhoid fever, of which only 35 had been reported. Not only in the epidemic of typhoid fever just passed, but in former outbreaks of the disease, it has been very difficult to estimate the number of typhoid cases in Montreal and its suburbs, because the law in regard to the reporting of typhoid patients has been practically ignored by medical men, and the provincial and local boards of health have acquiesced in their disregard.

The report of the Health Department on typhoid fever for the year 1909 gives the number of cases reported in the city itself and districts under its jurisdiction as 1892. In September there were reported 66 cases, and in October 279 cases, in November 213 cases, and in December 704 cases. Figures obtained from the Health Department denoting the number of cases reported from January 3rd to 15th are 339. Consequently the number of cases officially reported from September 1st, the commencement of the epidemic, to January 15th is 1,601. Although the epidemic began to wane in the middle of January, and after that time died out somewhat suddenly, there was a large number of cases both reported and unreported from that time up to the middle of February, when the disease as an epidemic was to all intents and purposes over. From the middle of January to the end of the epidemic there were probably at least 200 more cases reported, which would bring up the total of reported cases to 1,800. As it seems to be universally allowed that there were quite as many cases unreported as reported, a moderate estimate of the number of cases which occurred in the course of the epidemic will be 3,600. The disease was most prevalent in the outskirts of Montreal. For instance, in December, in 17 wards of what may be termed Montreal proper there were 231 cases reported, while in five suburban wards there were reported in the same period 467 cases. From January 3rd to 15th in Montreal there were reported 117 cases, while in six suburban wards 222 cases were reported. If population be considered, then the ratio of cases occurring in the suburbs to those in the city was nearly 4 to 1.

The difficulties in the way of arriving at an accurate presentation of the mortality-rate of the whole epidemic are insurmountable. The deaths from typhoid fever in Montreal for 1909 were, according to figures procured from the Health Department, 212. Taking the number of cases reported for 1909 as 1,892, this will give a death-rate of more

than 11 per cent. But if the number of reported cases be doubled, as it is believed that they should be, the death-rate will be brought down to under 6 per cent., which is by far the more likely figure. The Health Department in the statistics as to typhoid fever given from January 3rd to 15th supply the number of cases and deaths. The cases reported were 339 and the deaths 41, a death-rate of between 11 and 12 per cent. The hospitals of Montreal, however, in January published the following tables. The figures cover the period from September 1st to December 31st:—

Hospital.	Total cases admitted.	Deaths.
General	147	9
Royal Victoria	237	9
Western	74	6
Homœopathic	80	3
Notre Dame	114	15
Hotel Dieu	134	8
	786	50

This gives a death-rate of between 6 and 7 per cent.

In the first week of the epidemic the type of the disease was mild, but at the end of October it became far more virulent. In the Emergency Hospital, which was opened in the early part of January, 112 cases of typhoid fever were treated with 7 deaths, 2 deaths from perforation, and 1 recovery from the same, giving a death-rate of 6.25 per cent. The high death-rate at Notre Dame Hospital is attributed partly to the fact that at that institution several cases were taken which were almost hopeless from the first.

Outbreaks of typhoid fever occur with comparative frequency in Montreal and its suburbs, a winter never passing in which there are not a very considerable number of cases of the disease. As in former outbreaks of typhoid in Montreal, there have been in the one just over numerous cases of para-typhoid and of intestinal disturbances with high fever which have led some at first to deny the existence of typhoid fever on a large scale. The lax methods in vogue in Montreal as to reporting cases of infectious and contagious disease tend to retard remedial measures.

POSTPONEMENT.

It is with much regret we are obliged to announce that the ceremonies which were designed in connexion with the opening of the new Medical buildings of McGill University, have been indefinitely postponed on account of the death of His Majesty King Edward VII. At the

moment of the lamentable event the arrangements for this important affair were well forward. Letters had been sent out to all graduates in Medicine whose addresses were known, inviting them to a re-union in Montréal on June 6th and 7th. It had long been felt that it would be of mutual advantage to the University and to the Alumni if a re-union were held at the time of the next convocation. His Excellency the Governor-General, the Visitor of the University, had consented to be present, and a programme extending over two days had been arranged. Class re-unions were also organized by all but thirteen of the forty-five in which the Alumni are included. After due consideration by the Faculty and by the University the conclusion was reached that the celebration should be deferred until a future occasion. We feel sure that all graduates will concur in this decision, and that they will hold themselves in readiness to assemble when next they may be called upon. Any regret which may be felt over this postponement will, we feel sure, be lost sight of in the general regret at the circumstances which made it necessary.

At the last meeting of the American Gynæcological Society, held at Washington, May 3rd to 5th, Dr. J. Chalmers Cameron, of Montreal, was elected an Honorary Fellow of the Society. We are informed that the proposal was most cordially received. Dr. Cameron and Dr. William Gardner are the only two Honorary Fellows of this Society in Canada. This mark of appreciation of Dr. Cameron's high services to the teaching and practice of obstetrics comes at an opportune moment, namely, the 25th year of his occupancy of the chair of obstetrics in McGill University. The only other occupant of the chair who in duration of time at all comes near to Dr. Cameron is Dr. McCallum, who held the position for fifteen years. Dr. Cameron has been a valued and frequent contributor to this JOURNAL, and we desire to offer to him our congratulations upon the recognition which he has received in the larger world

An International Hygiene Exhibition has been arranged in Dresden from May to October next year. A handsome volume of 60 pages has been issued describing the arrangements in complete detail. The programme gives in broad outlines the substance and arrangement of the Hygiene Exhibition. For the classification of the matter in the twelve main groups, scientific principles are adopted as the standard. Within these groups, practical hygiene and legislation are treated; also social reforms, as far as they fall within the range of hygiene. Only the diseases particularly prevalent among all civilized nations receive special

treatment under separate headings. Many departments which in the exhibition itself will occupy a large space are designated only by single key-words, but they will receive room corresponding to their importance. The presidents of the various groups are chosen from the ranks of German scientists, but prominent men of all nations will be represented among the honorary presidents and members of the committees. Material guarantees for the undertaking have been secured. The Royal State Government voted large supplies; the city offered the free use of a spacious exhibition building, besides a liberal contribution, and in a short time the citizens subscribed or pledged over a million marks for the security fund. Canadians visiting Europe next year would do well to bear this Exhibition in mind.

EXPLANATION:—In the issue of this JOURNAL for May an item of "News" became misplaced and appeared at page 363 when it should have been inserted between pages XX and XXIII.—[Ed. M.M.J.]

Reviews and Notices of Books.

"DISEASES OF CHILDREN." Edited by ABRAHAM JACOBI, M.D. Modern Clinical Medicine series. Published by D. Appleton & Co., New York and London.

This book is an authorized translation from "Die Deutsche Klinik," in the general editorial supervision of Julius L. Salinger, M.D., and consists of a series of monographs arranged to form a more or less systematic treatise on pediatrics.

The contributors are 23 in number, and in the list of names are all the great German and Austrian authorities. The first article on diseases of the new born in the first days of life is contributed by Prof. Keller, of Berlin, and is in itself one of the most interesting and thoroughly scientific articles on this subject with which the reviewer is familiar.

Prof. Czerny, of Breslau, contributes an article on infant feeding that is somewhat remarkable. After the first few days of life when infants take very few meals spontaneously, he recommends that five or six breast feedings are sufficient, thus leaving an interval of from three to five hours between feedings. He thinks that restlessness in the young infant indicates a disturbance in nutrition, which calls for a prolongation rather than a shortening of the period between the feedings. He thinks that after six months children develop better when not fed exclusively from the breast. The first meal given to the child is a meat broth thickened with fine grits until it has obtained a "pappy" con-

sistence. Later a meal of cow's milk thickened with some cereal is given.

The following sentence is worth quoting: "It is advisable not to endeavour to increase the weight of the child during the weaning period, and if this should occur, to limit the amount of food as the danger of hyper-nutrition is particularly great during this time, although serious consequences may not present themselves until some weeks have elapsed." He insists that a child should never be wakened from sleep to be fed.

As a principle he maintains that a child which must be nourished artificially should receive the smallest quantity of food that is necessary for a proper development of the body, and that if there is a sufficient increase in the body weight the amount of food must not be increased as the child advances in age. He does not place great reliance upon the calories in the food supply to an infant, stating that it is not by any means the only or essential factor in the estimation of food value.

Monti discusses the most common infections of the oral mucous membrane in children, and Escherich the acute digestive disturbances of infancy, but the articles are not up to the standard set by some of the other writers. Space does not permit of a detailed consideration of the various interesting articles which make up the work, but mention should be made particularly of Zappert's rickets, and Holhsinger's on convulsions in children. The latter constitutes one of the most interesting and able articles in the series.

Among other subjects discussed are the Meningitis of Infancy; Spinal and Cerebral Palsies; Chorea; Pneumonia; and the Infectious Diseases which bring the book to a close.

Heubner, of Berlin, writes in a peculiarly interesting way of scarlet fever. He says that theoretically the employment of serum in the therapy of scarlet fever does not promise very much at present, and is only justifiable in those desperate cases in which all other previous measures have proven ineffectual. He speaks rather favourably of the employment of ichthyol-lanolin salve as recommended by Seibert, of New York. He states that he never seen a case of scarlatina gravissima recover.

Throughout the work the editor, Dr. Jacobi, has in foot notes added much from his rich experience, that enhances the value of the treatise. The work is to be recommended not only for its intrinsic worth but also because it enables one to obtain a very comprehensive understanding of German pediatrics. The editor and translator have accomplished their duties in a most satisfactory manner that leaves little to be desired, while the publishers have produced a book which is quite up to their usual standard.

THE PRINCIPLES OF PHARMACY. By HENRY V. ARNY, Ph.G., Ph.D.,
Dean and Professor of Pharmacy in the Cleveland School of Pharmacy,
Western Reserve University, Cleveland, Ohio. 246 original
illustrations; pages, 1175. W. B. Saunders Company, Philadelphia,
1909.

Professor Arny has written an admirable textbook for students of pharmacy, though, perhaps, too extensive for medical students. The work is divided into seven parts. Of these the third and fourth, treating of the inorganic and organic chemicals used in pharmacy, are worthy of note, each being preceded by a short introductory chapter on the principles underlying the science of chemistry and the theory of the chemicals under discussion. These will no doubt prove of much value to the students. The other parts are written in excellent style and are complete in detail. On the whole we recommend the book very highly.

EPIDEMIC POLEOMYELITIS. Report of the Collective Investigation Committee on the New York Epidemic of 1907; Nervous and Mental Disease, Monograph Series No. 6. The Journal of Nervous and Mental Disease Publishing Co., New York. \$2.00.

This report is a most interesting and important contribution to the steadily increasing literature on this important subject. The Committee was appointed by the New York Neurological Association in October, 1907. They obtained at once the active support of a committee appointed by the section on pediatrics of the New York Academy of Medicine, and of the Dr. Flexner, of the Rockefeller Institute. The Department of Health of New York City also gave willing assistance. Subcommittees were formed to study the various aspects of the question. It is estimated that at least 2,500 cases of acute poleomyelitis occurred in New York during the summer of 1907; records of 752 cases were obtained. The report takes up the epidemiology of the disease, the conditions preceding the onset, and the symptomatology. It is worth noting that paralysis completely cleared up in 5.3 per cent., and that there was "almost complete disappearance of paralysis in 1.8 per cent. so that a most satisfactory recovery took place in 7.1 per cent of all cases. On the other hand some form of paralysis remained in 86 per cent. In 7 per cent. the condition was not properly accounted for.

The experimental work by Flexner and Lewis adds another, and by no means the former's least valuable contribution, to our knowledge of the causation of the disease—for which the whole world will be indebted. He has shown the disease to be an infection, causing the disease in monkeys and transmitting it to other monkeys. He has culti-

vated the virus in ascitic bouillon and caused the disease in monkeys by the injection of his culture. He has further shown that the virus will penetrate a Berkefeld filter. He has demonstrated that it retains its virulence after having been frozen for a considerable time. He concludes that it is too small to be seen under the microscope, and compares it to the unknown virus of rabies. It is not too much to hope that in the near future we may know more of this terrible disease, how or by what it is transmitted, and then how to eradicate it. The chapter on the pathology by I. Strauss confirms the work already done by Wickman, Hurbitz, Scheel, and others. Unfortunately there is as yet nothing new to be added to our knowledge of treatment.

THE SEXUAL LIFE OF WOMAN IN ITS PHYSIOLOGICAL, PATHOLOGICAL, AND HYGIENIC ASPECTS. By E. HEINRICH KISH, M.D., Professor in the University of Prague. Translated by M. EDEN PAUL, M.D.. New York. Rebman Company; pages 686; price \$5.00.

This book really does treat with scientific calmness of that part of woman's life which makes up so much of it. Either negatively or positively the sexual element in the female is of so much importance that for practical purposes all others may be neglected. Not only is it the dominating influence upon her own life, but it also determines the happiness or misery of the male who, in a monogamous society and by some fortuitous circumstance, finds his existence indissolubly bound up with hers. In communities like the United States, where one marriage in twelve is terminated by divorce, and in other more primitive communities where a greater promiscuity of living is practised, the aberrations in the sexual life of the woman are not so inconvenient as they are in a country like Canada where a strict monogamy is observed, and the tie of marriage is rarely broken save by death. But this book does not deal with the vagaries in the sexual life of women: it establishes rather the normal, and emphasizes the antithesis which exists between the male and the female of the race to which we belong. It also conveys the impression, that in sexual matters the members of that race have little "preeminence over the beast." It is not exactly a book which is favourable to those elaborate illusions which society has created for itself; and it is all the more iconoclastic, since it is as free from obscenity and lasciviousness as such a book may be. We are accustomed to think of ourselves as "the paragon of animals," "of noble shape, God-like, erect, and tall, with native honour clad in native majesty." This book rather enforces the conclusion of Hamlet that we are merely "beasts—the chief of beasts." It makes painful reading. The obscure learning which the author dis-

plays is quite remarkable, and his medical knowledge is equally great. Nothing has escaped him, not even that rare case which Egerton Y. Davis reported from Caughnawaga in the *New York Medical News*, in 1886, a case, it may be added, which came within a little of bringing fame to this JOURNAL, when it was offered to its then editor, the late Dr. George Ross, and was declined for publication by him. This book is the most elaborate study we have seen of the sexual life of woman, and we have no hesitation in commending it—plain and coarse as it is—to all who have any curiosity about that incomprehensible subject.

Medical News.

MONTREAL DISPENSARY.

The annual meeting of the Montreal Dispensary was held May 10th. The honorary secretary, Dr. H. B. Carmichael, presented the report, from which it appeared that during the past year 23,733 applications for treatment were made, compared with 21,085 in 1909. These patients were classified as to their religions as follows:—Roman Catholics, 13,305; Protestants, 8,247; other creeds (mostly Jewish) 2,181; and according to the different departments in which they were treated as follows: General department, both medical and surgical, 8,578; disease of eye and ear, 2,047; diseases of women, 1,801; nose and throat, 1,015; skin, 3,079; children, 3,059; tuberculosis, 2,127; nervous diseases, 262; dentistry, 104.

The following officers were elected: President, Mr. G. F. C. Smith; first vice-president, H. S. Kerry. second vice-president, John Patterson; hon. treasurer, Norman F. Nash; hon. secretary, Dr. H. B. Carmichael.

Committee of management: George Esplin, Chas. J. Phillips, I. H. Stearns, A. Piddington, Wm. Drysdale, Dr. J. M. Jack, Dr. H. D. Hamilton, Dr. R. A. Kerry, Dr. Geo. A. Brown.

POST GRADUATE COURSE, 1910.

The Medical Faculty of McGill announces that an extended course of study for Graduate Students will be given during the coming Summer. Beginning on Thursday, June 9th the course will be continued for a period of six weeks, during the first half of which the work will be conducted in the Royal Victoria and during the second half in the Montreal General Hospital.

In the Royal Victoria Hospital the following courses have been arranged for the first three weeks:—

Medicine: Ward rounds twice weekly throughout the entire period by

Dr. John McCrae; Dr. McCrae will also give one demonstration in the Alexandra Hospital for Infectious Diseases; two classes weekly throughout the entire period in Methods of Physical Diagnosis, by Dr. H. B. Cushing; one demonstration weekly on Clinical Laboratory Methods, by Dr. J. C. Meakins.

Surgery: An operative Clinic twice weekly throughout the entire period, by Dr. James Bell; Ward rounds twice weekly and one Out-Patient Clinic weekly, by Dr. E. W. Archibald; Ward rounds twice weekly and one Out-Patient Clinic weekly, by Dr. C. B. Keenan.

Operations on the Cadaver: A course of practical instruction in operations on the cadaver, six periods during the second week, by Dr. A. E. Garrow.

Obstetrics: A course of two demonstrations weekly in clinical obstetrics in the Montreal Maternity Hospital during the first and third weeks, by Dr. D. J. Evans.

Gynaecology: One theatre clinic weekly throughout the entire period, by Dr. Wm. Gardner; one Clinic weekly on Minor Gynaecological Operations, by Dr. W. W. Chipman; one Out-Patient Clinic weekly, including demonstrations in the use of the Cystoscope in the Female, by Dr. J. R. Goodall.

Oto-Laryngology: Two practical demonstrations weekly during the first and third weeks, in Intubation, and Simple Mastoid Operations, by Dr. H. S. Birkett; one Clinic weekly throughout the entire period on Treatment of Diseases of the Nose, Ear and Throat, with practical instruction in the use of the Laryngoscope, Rhinoscope, and Auriscope, by Dr. W. H. Jamieson.

Ophthalmology: One Clinic weekly throughout the entire period on External Diseases of the Eye, by Dr. W. G. M. Byers; one demonstration weekly throughout the entire period on the routine examination of the Eye, by Dr. F. T. Tooke.

Diseases of Children: One Clinic weekly throughout the entire period, by Dr. F. M. Fry.

Orthopedics: One Clinic weekly throughout the entire period, by Dr. W. G. Turner.

Neurology: One Clinic weekly throughout the entire period, by Dr. C. K. Russel.

Morbid Anatomy: One demonstration weekly on Post Mortem Work, by Dr. Gruner.

For the second period of three weeks the following courses have been arranged at the Montreal General Hospital, each of these courses extending throughout the entire period:—

Medicine: Ward rounds, twice weekly, by Dr. H. A. Lafleur; two classes weekly in the Methods of Physical Diagnosis, by Dr. C. A. Peters; one demonstration weekly in Clinical Laboratory Methods, by Dr. A. G. Nicholls; one Out-Patient Clinic weekly, by Dr. C. P. Howard.

Surgery: Operative Clinic, twice weekly, by Dr. J. M. Elder; Ward rounds, twice weekly, by Dr. K. Cameron; two Out-Patient Clinics weekly, by Dr. E. M. von Eberts.

Operative Surgery: Dr. von Eberts will also devote one period weekly to practical instruction in Operative Surgery, with special reference to the technique of abdominal operations.

Obstetrics: Two demonstrations weekly in Clinical Obstetrics in the wards of the Montreal Maternity Hospital, by Dr. H. M. Little.

Gynæcology: One Operative Clinic weekly, by Dr. F. A. L. Lockhart; one Out-Patient Clinic weekly, by Dr. D. Patrick.

Ophthalmology: One Out-Patient Clinic weekly, by Dr. Geo. Mathewson; one Out-Patient Clinic weekly, by Dr. Hanford McKee.

Laryngology: One Out-Patient weekly, by Dr. H. D. Hamilton.

Orthopædics: One Out-Patient Clinic weekly, by Dr. Mackenzie Forbes.

Diseases of Children: One Out-Patient Clinic weekly, by Dr. C. P. Howard.

Neurology: One Out-Patient Clinic weekly, by Dr. A. A. Robertson.

Dermatology: One Out-Patient Clinic weekly, by Dr. G. G. Campbell.

Genito-Urinary Diseases: One Out-Patient Clinic weekly, by Dr. R. P. Campbell; Dr. Campbell will also give one demonstration weekly on the use of the Cystoscope.

Morbid Anatomy: Two demonstrations weekly, on Post-Mortem work, by Dr. S. B. Wolbach.

The post graduate course is open to graduates of medical schools in good standing.

Intending candidates must first register with the Registrar of the Medical Faculty.

The fee for the course, including registration, is \$50.00, payable in advance at the office of the Bursar of the University.

Receipts for fees paid must in all cases be shown to the Superintendent on the occasion of the first demonstration in either hospital.

Applications will be received and further information furnished by J. W. Scane, M.D., Registrar Medical Faculty, McGill University, Montreal.

Retrospect of Current Literature,

MEDICINE.

UNDER THE CHARGE OF DRs. FINLEY, LAFLEUR, HAMILTON, AND HOWARD.

WESLEY MILLS, M.A., M.D., Professor of Physiology in McGill University. "Some Considerations Bearing on the Surgeon, the Patient, the Student, and the Nurse, based largely on the personal experiences of the writer." Read before the Montreal Medico-Chirurgical Society, January 21st, 1910. *British Medical Journal*.

I propose to do this evening what I think is entirely new in this society, to present a paper based on the writer's own experiences as a patient. In doing so I am aware that I am taking some risks, but I know most of the members of the society well, and I believe I shall be accorded the same kind consideration as has always been shown me during the twenty-five years that I have been enrolled among its members. It is not altogether pleasant to have to confess to such a record of physical weakness as I must lay before you; but these experiences, with all the pain and misery associated with them, have taught me so much and produced such deep convictions with a practical bearing that, did I not speak, I would feel almost guilty of being untrue to myself and to my past as you know me.

I could fill a volume with views based on new conceptions of physiology and another similar one leaning on psychology. Indeed, that I can claim your attention for only a short time on one evening is the chief difficulty under which I labour; for I fear that, in merely touching on subjects that to be adequately understood would require deliberate attention and illustration, I may fail altogether in making my meaning clear. But so many are now anxious to get the ear of the society, and this is so healthy a state of things that however deeply I may feel the practical importance of some of my views, I must not claim from you more than a little extra time and patience.

Life to be healthy should, in a human being, be made up of reflection and action. The medical man is apt to neglect the former by reason of the numerous calls made upon him; but he himself, and his profession and the public, suffer from this. Action should be based on knowledge. What was once good practice is so no longer because of the increase of knowledge. But the so-called knowledge is of very varying degrees of completeness and value. Much that passes as knowledge and even suffices in a fashion for practical life, is worth little in the development of the individual's nature. A man from viewing and handling

apples may have what suffices for commercial purposes fairly well, but if he has never tasted an apple his knowledge is of little real value as judged by an educational standard; and no amount of the most graphic description can give a knowledge of an apple that one bite of it will communicate.

To him that has never felt real pain a description of a toothache is mere sound signifying nothing. The man who has been absolutely healthy and vigorous all his life—that is, beastly healthy—is also narrow and ignorant as regards many of those higher things the comprehension of which makes us peculiarly human, such as not a little in literature and art, even much of psychology and philosophy; in a word, much of life in its breadth and depth. The only highest knowledge is realization. A grain of realization is educationally worth a ton of other kinds of knowledge, for it alone is the key that unlocks the real secrets of life. There is no such enviable quality as that which helps one human being to put himself in the place of another. We are born with very varying degrees of capacity to do this. To all, however, endowed by Nature, some experience of life's joys and sorrows alike, including physical ills, is necessary; and I am now convinced that most men have much less ability to put themselves in the place of others than they suppose.

When you hear my history as a patient during the past year, I think you will admit that I have some special qualifications to speak on certain matters. On the subject of pain and misery generally you may be ready to admit that I have graduated to the rank of an authority. But it might not occur to you to think that on other subjects, in fields that fall little under the ken of the so-called average man or even average doctor, there has been some general enlightenment. On such dark subjects as dreams, obsessions, delusions, illusions, the importance of the fundamental conceptions of time and space, hypnosis, the subconscious, and many others, the world is a new world to me. This enlightenment has not only served to emphasize the ignorance of most of us, but to make me feel how little I even yet understand some of the states of my fellow men. I believe that even those long associated with the insane do in any true sense understand them but very imperfectly.

I have been dealing in abstract statements, perhaps some of them almost truisms, yet truisms of a practical importance that is very imperfectly realized. Before passing on to give the history of my case, allow me to put in a few brief sentences some of the conclusions to which I have been led, based on my past experience as illuminated and largely interpreted by my more recent knowledge gained through

so-called misfortune, but which is only so when regarded from the narrower point of view I shall now keep largely to those convictions which have a practical bearing.

1. Realization is the highest kind of knowledge. Most men are to some extent handicapped in the practice of the medical profession by a lack of experiences of the sort which fall to their patients. Development and the highest preparation for action come from the mind that has felt sorrows and pain as well as joy. Much of what is best in art and literature—that is, much of the best teachings of the world—has come to it from the men of sorrows. The greatest musical symphony ever written, expressing as no words can the joy and the sorrow of life, sprung from the mind and heart of a man of many griefs—the unrivalled Beethoven.

2. The medical education of the day is defective in two respects: (a) The student is graduated without certain realizations he might have, and (b) without a certain kind of practical knowledge all who practise medicine require. In my opinion a medical man in starting on his career should not only *know* all a nurse does and a great deal more, but be able to *do* all that she can do; and as about 90 per cent. at least of any graduating class are to be general practitioners, and not teachers or employed in scientific research, I would, if necessary, take the time required to give them, when students, a practical knowledge of all that is now required of a well-trained nurse from the time now given to anatomy, physiology, chemistry, pathology, etc.

3. Pain and the misery associated with profound shock are such great evils that they call for special consideration. When a patient is confined to his bed his comfort in every respect should receive attention, for it is not only important to get the surgeon's wound healed, but to keep the patient from misery while it is being healed. A life filled with suffering in any form is not in itself worth living, from which certain conclusions follow as regards both nurses and doctors. A nurse who is merely a surgeon's assistant or dresser, as I have by personal experience found some to be, fails greatly in her duty; and the surgeon who never had certain experiences, as, for example, in passing a catheter on himself, can scarcely be considered adequately fitted for his work.

4. Shock is so little understood, so widespread, and so great a source of danger and misery, that the study of its nature, prevention, and treatment should still further engage the attention of the whole profession. I scarcely know any subject so urgently deserving the attention of the profession.

5. Many in the nursing profession are ill adapted to it, while we fail

to attract to its ranks many women who would be invaluable, but who seek other avocations. The fundamental remedy is to make the profession more important and honourable in the eyes of the public.

6. Our medical students should be made to realize the importance of the administration of an anæsthetic. They should be trained in producing anæsthesia, general and local, by experts. Much of the administration of anæsthetics on the American continent, as compared with that in England as carried out by professional experts who give their whole time to this, seems to me in comparison barbarous. Is it not time that we encouraged the formation of a somewhat similar class in the profession on this side of the water?

These are a few of the subjects on which, after my trying experiences, I feel very deeply.

Now to give you a very brief history of my case, not for discussion in detail, as my operating surgeon is not present, but rather to indicate to you on what special personal experiences I base the conclusions I lay before you.

The profession is, I am inclined to think, perhaps almost unconsciously to itself, entering on a new epoch—one in which the psychological manifestations in the patient will receive possibly as much attention as the physical, and in some cases more. We are beginning to pass from a condition when as a profession the psychological has been either ignored or treated in the most empirical way. Yet the day has never been when the really great physician ignored the mind. He has been, consciously or unconsciously, given to minister not only to the mind diseased, but to the mind in the diseased subject. We are beginning, however, to recognize that this is not enough, but that psychological science must be applied with all the skill possible in dealing with every patient, because the body is greatly influenced by the mind, and because all sense either of pain or well-being is finally a matter of the mind. Having for some years advocated the introduction of the study of psychology into the medical curriculum, you will be prepared for the importance I attach to noting psychological conditions in myself during all the stages of my illness. Only those who realize two things can possibly understand much that lies deep among my convictions. I believe (1) that the only real possession is appreciation. I may own a beautiful picture, a work of the highest art, but if you appreciate that picture in the sense of feeling its real worth more than I do, this treasure is yours rather than mine. And (2) that pain, when it passes beyond the degree when it serves as a warning, is an unmitigated evil.

It follows that life is valuable to any individual in proportion as his

consciousness is free from pain or uneasiness on the one hand, and on the other filled with appreciations—the more numerous and the deeper the better.

Perhaps no one has made so clear a law of compensation that seems to exist in the universe as Emerson. There is no situation that is utterly bad—that is, wholly without compensation. This, however, is only true if we take life as a whole, and believe that existence is continued beyond this present time and state.

Perhaps the best service I can do is to try to show what have been some of the compensations—some of the many—that went with the various stages of experience that fell to my lot last year. These advantages or compensations consisted of a new or clearer views on a variety of subjects, a large proportion of which would have been impossible to me apart from my so-called misfortunes. I propose, then, now to give a very brief history of my case, noting some of the compensations associated with each stage of its development.

HISTORY OF THE CASE.

First Stage.

The previous history of the patient as good. He had had only one serious illness (in youth) in the form of bronchitis. For some years micturition had been rather too frequent, especially at night. An acute condition, marked by irritation and very frequent micturition, began early in June, 1908. This was attributed by the patient to an exacerbation, owing to catching cold, of a condition supposed by him to be hereditary sensitiveness of the bladder. The heredity, as regards the bladder especially, had led to the condition in question, in spite of the patient having lived soberly and physiologically righteously in this present world. The diagnosis of enlarged prostate was made and palliative treatment recommended. As there was at times retention to the extent of over 30 oz. the gravity of the situation can be understood. Catheterization with a soft rubber instrument was carried out two and sometimes three times daily for a month, the result being relief of urgent symptoms, but there remained residual urine to the extent of 18 to 20 oz.

Operation had been hinted at more than once. The patient learned self-catheterization, and, hoping for further improvement, sailed on July 16th for England. The voyage was very disagreeable, and to this rather than lack of care the patient attributes the fact that the bladder became infected and urethral fever set in.

Second Stage.

Compensations.—New ideas as to sensations; on the value of mental treatment; and on the selection and training of nurses.

Consultation with a London general surgeon who was a specialist in urology. He recommended immediate prostatectomy. This operation was carried out suprapubically on August 18th, the anæsthetic being administered by a specialist, and in a manner that surprised the patient, who had inhaled ether once in Canada at the hands of a house-surgeon. The operation was followed by a considerable shock. By a misunderstanding the patient was allowed a very small quantities of water after the operation, and suffered greatly from thirst. The wound where the tube for drainage had been inserted was very slow to heal, not completely closing till the thirty-first day after the operation. During the greater part of this period the bladder had been washed out with an antiseptic solution. Throughout the whole history of the case there had been great difficulty at times in introducing a catheter, which was the cause of much suffering—and, in fact, before the first attempts at passing a catheter after the operation were successful, I was again obliged to submit to ether anæsthesia.

On the twenty-sixth day my surgeon was obliged to take a holiday. On the second day of his term his substitute—in fact his house-surgeon—so passed a catheter that I felt as if a lance were being suddenly thrust into me. The same day urethral fever set in and continued till all use of the catheter and irrigation of the bladder were discontinued. During this period the urine had become very foul, but improved when the local treatment was discontinued. My general health was very bad. To this unfortunate period I trace most of the misfortunes that overtook me later. My surgeon on his return recommended change from the nursing home to my own rooms and going into the fresh air. On the thirty-third day I began to sit up on the side of the bed and to learn, like an infant, to walk again. Two months from the date of operation I left for my London home, my general health being rather poor, and the tone of the bladder distinctly bad. I took exercise, and used mental tonics, in the form of reading, attendance at concerts, etc.

Compensations.—This was one of the most fruitful periods to me of all. New light came on such subjects as dreams; the origin, nature, and importance of our conceptions of time and space; the interdependence of the body and mind; on the subconscious; the nature of obsessions; the narrowness of our ordinary view of things; the limitations of the healthy man, etc. On the physiological side I was profoundly impressed with the importance of the study of shock; of the avoidance

of following the same routine with all patients; of nurses being trained to consider the patient's comfort, and not to be mere surgeons' dressers; of their being trained in regard to anatomy and physiology in a very practical way, so as to understand the question of bodily tension and relaxation involved in turning patients with abdominal wounds, etc. Of the great value to a medical man of sound judgment, of common sense as applied to medicine. I also became profoundly convinced that in America we should better our administration of anæsthetics.

Third Stage.

Although things went fairly well with me the urine never cleared up, and the tone of the bladder remained unsatisfactory. On February 18th, 1909, my condition grew worse; an abscess formed, and pointed at the site of the part of the surgeon's wound last to heal. After a temporary closure of this bladder fistula, it reopened in a few days. The patient was again taken to a nursing home—a new one, in which things generally were managed in a way much more to my mind.

For the third time an anæsthetic was administered, and a gum elastic catheter tied in the bladder. This failing to drain, was replaced by a metal catheter, which was introduced under cocaine, and in this way the bladder was washed out, the whole process, in spite of the use of the local anæsthetic, being very painful. Soon the metallic catheter was tied in, and the patient enjoined to lie constantly on the back, with as little movement as possible, day and night. During the first period the catheter was kept in two days and two nights. The opening closed, but soon reopened. The surgeon was much discouraged, but resolved to try the method once more before resorting to another operation (cutting into the bladder). The second ordeal lasted three days and three nights, and was successful. You can but faintly realize the suffering involved in this. During this time my general health was bad, and the urine markedly abnormal.

After continuous irrigation, sometimes twice and three times a day, there was a decided improvement in vesical and general conditions. The patient then learned to irrigate his own bladder through a soft catheter, which soon had to be changed to a gum elastic one. On May 26th, the patient having again learned to walk, returned to his own rooms.

Compensations.—A world of knowledge regarding reflexes; light on the physiology of locomotion; on anæsthesia; pain; hypnosis; and much generally in regard to the relation of mind and body.

The nurses in this home were not merely surgeon's assistants. They all looked carefully to the physical and mental comfort of the patient,

though some were more satisfactory in this respect than others. The head nurse, or lady superintendent, presiding over the department of the house in which my room was situated, was an almost ideal woman for the position she occupied. She worked herself with the nurses, and this explains much. It was worth a great deal to know such a woman.

Fourth Stage.

On June 4th an attack of septic epididymitis necessitated my again entering the home. The treatment consisted in rest, local support, counter-irritation, and pressure. The tenderness disappeared speedily, but the parts long remained enlarged, though this was in no sense troublesome. After about three weeks the patient again returned to his own London home.

Fifth Stage: Convalescence.

On the advice of my surgeon I spent the month of August at a seaside resort—Eastbourne. I lived most of the time in the open air. The change acted most favourably, and this I attribute, not only to physical agencies, but also to psychological ones, especially, after being shut up so long, seeing so many human beings, who were young, healthy, and æsthetically attractive. On September 9th I sailed for Montreal.

To summarize the whole case one might put the matter thus: A patient that had been previously very free from disease had for years shown symptoms of enlarging prostate. He suffered from a bad bladder heredity, which explains the origin of the condition.

After palliative treatment there was prostatectomy. Out of this and subsequent complications there arose a condition of things that resulted in the patient faking an anæsthetic three times; having to learn to walk afresh three times; submitting to unlimited catheterization by means of the three kinds of instruments; much irrigation for an infective cystitis; formation of a bladder abscess and fistula; and being confined to bed at different times for a period amounting in all to about four months—a vast experience full of new light on many things that it is hoped may be helpful to him in this state of existence and those subsequent ones in which he must now more than ever believe.

I would like to add to those already made a few remarks, especially about some matters that seem to me of great practical importance.

My Montreal surgeon who made the diagnosis of enlarged prostate and carried out the palliative treatment was, I am now convinced, persuaded from the first that only operation would remedy the state of things that existed. But I cannot too much admire the tact and fine

feeling he showed. All the preliminary treatment by catheterization was valuable, perhaps essential, in bringing the patient to a realization that there was but one remedy, even if that were a radical one not wholly free from danger to life. Had I been told bluntly at the first interview that such an operation must be performed, the mental shock would likely have been serious, and that this experience was spared me makes me grateful to my surgeon. You all know him and you know him not. I must not fail to pay a tribute to his two house-surgeons, who carried out the catheterization with a care, intelligence, skill, and consideration for the patient worthy of all praise. For twenty-eight days these young men catheterized the patient two, and often three, times a day, giving very little pain, and with no appreciable rise of temperature or other bad symptom, and that in a very sensitive subject; while an English house-surgeon so passed the catheter on his second visit that typical urethral fever followed on the same day. True the patient then had a certain amount of cystitis and was not in as good general health as before, but does that account for the difference? I think not. The remark of one of the Montreal-house surgeons to the other when handing over the case to him is noteworthy. When asked how often he used the catheter on this patient, his reply was, "Three times a day, and every time with fear and trembling." This, in my opinion, is the only spirit in which any man should ever take a catheter into his hand for use on a new patient, or for use on any occasion with certain subjects. Brilliancy and rapidity in passing this instrument are not to be encouraged. The hands of my house-surgeons in Montreal moved like snails. Would that I could say the same of the substitute of my London surgeon. On one occasion my London surgeon himself must have occupied at least twenty minutes before the catheter could be got into the bladder, and yet no urethral fever followed. And though this involved much pain for the patient, in spite of the use of cocaine, I attribute the favourable result to the fact that there were no violent or even rapid movements and no suddenly induced pain. Unless a man uses a metal catheter on himself it is difficult for him to realize how much pain there may be. There is a sort of stretching sensation, even when cocaine has been used freely, and there is a peculiarly disagreeable shock just at the moment a metallic catheter enters the bladder which it is difficult to describe and I am sure impossible to understand without some actual experience.

Our knowledge of general, and especially skin sensations, has recently been greatly enlarged, chiefly by certain English investigators, and so far as pain is concerned I could add to what is already known. Reflex

pain or referred pain is characterized by its diffuseness and its massive quality, by its being difficult to locate definitely, and by the fact that it may be far from the seat of the original cause of the pain.

As already stated, on two occasions I had a metallic catheter tied in for several days and nights, and to avoid injury was obliged to remain as nearly absolutely motionless as possible all the time. The whole constituted the most trying ordeal through which I have ever passed. Apart from the local pain in the urethral region and pain in the back from constantly lying on it almost motionless there was severe referred pain. It was impossible for me to say exactly where this was located, but it certainly was either in the scrotum or its contents principally. And in this connexion let me point out that no function of the body may escape the evil influence of such severe and long-continued pain. On both the occasions referred to I vomitted in the evening food taken in the morning in an absolutely undigested condition. Here, then, was a case of reflex vomiting, traceable to irritation in the urethra and also a cessation of digestion due to the same cause and to pain. I believe *the urethra to be the most sensitive and most dangerous reflex tract in the whole body.*

You will understand, therefore, putting all these facts together, why I believe that no student should be allowed to graduate till he has had certain experiences, some of them in his own person. Among these I would certainly include the passage, under skilled observation, of a soft rubber and a gum elastic catheter on a subject, and the passage previously of both of these and a metallic catheter on himself. It is difficult for me to believe that, had the London house-surgeon who was my surgeon's substitute had any such personal experience, that I would have so suffered at his hands, to which more than anything else my subsequent misfortunes were, in my opinion, due.

Allied to pain, yet very different from it, is shock. One who has been exceedingly weary or utterly exhausted is in a better position than any one else who has not had the actual experience to understand the sensations associated with shock. Pain one can to some extent describe, but shock is beyond words. I would that every member of the medical profession could have this experience for two minutes; it would be invaluable to him. But I would not wish the worst human fiend the experience of two hours of shock. It is very imperfectly understood physiologically. Blood pressure cannot in itself be a final explanation for any physiological condition, though altered blood pressure is undoubtedly associated with many. No doubt there is low blood pressure; but an explanation that refers shock to a profound modification in the

structure even of the nerve cells—allied to that which occurs in exhaustion, but much more marked—seems to me to be far more satisfactory.

That the concentrated wretchedness that the subject experiences is not realized by surgeons generally is the only explanation I can give as to why they are not more deeply concerned about the matter. If they felt as I do, this subject would be set down for discussion at the very next medical or surgical congress. On no subject connected with medicine do I feel so strongly, for I can give no description of my sufferings under shock that would be at all adequate. There was no physiologist, pathologist, or surgeon near to help me in any way. My own regular nurse, an admirable surgeon's dresser, failed me miserably. Then came a good angel in the form of a young woman, a nurse in training, whom I had never seen till that day. Would that time permitted me to describe her and her mental ministrations. She seemed to slowly draw me out of a hopeless slough of awful misery by methods of human sympathetic appeal that perhaps only a woman has at command. Well, it was so, for men are hopeless as nurses, and in many other situations if they could only see it; but as a sex they have an exceedingly good opinion of themselves, and seem to think they are equal to anything and everything that can fall to any human being to do or to understand.

And here again a word about nurses. During the past year I have seen enough of about a hundred who were either graduate nurses or nurses in training to give me ground for some strong convictions. I would rule out at least three classes of women from this profession:

1. Those without the delicate mental touch termed tact. A tactless woman is a sort of monstrosity. I had some slight and unpleasant experience of one such nurse in Canada, and a bad two days of another in England, when the matron at my request replaced her by a very admirable substitute.

Those whose hands will never learn delicate handling. One such I could only put up with because she was so well disposed and looked so successfully to my comfort in small matters, which is so important when one has both big and little pains and miseries to endure. Quite a contrary experience was mine with a young nurse who during all the weeks she attended to me after my big operation never on a single occasion caused me the least pain. A wonderful hand had this little nurse, and it was associated with a fine brain.

3. The amorous nurse. She is more or less dangerous for patients, students, and young doctors. Like Liszt, to the charming young lady

who failed to please him in piano-playing, I would say: "Get married—get married quick—good-bye."

To my thinking, it would be better for themselves and for all concerned if many nurses in "homes," etc., in England were under less tension. On the other hand, I fear that many nurses in training in Canada do not take their profession seriously enough. They mingle thoughts of work and play too much together. I would not be doing justice to several of the London nurses who looked after me did I not bear witness not only to their professional efficiency and their sympathetic attention to every detail bearing on the comfort and welfare of the patient, but also their high degree of general culture, their refinement, and, what was a great matter for me, the beauty with which they spoke the English language. Some of them could give lessons in speaking to not a few of the London actors and actresses. But nowhere have I met a woman of more tact, better adapted to minister to the needs of the patient, and nowhere a nurse of more ability and general culture than two who were among my attendants in the Royal Victoria Hospital in this city. I again repeat that, in my opinion, the great problem is to attract the best type of woman to this noble profession by making it more and more honourable in the eyes of the public.

To do any sort of justice to the subjects of both psychological and practical interest to which attention has been called in passing would require a separate paper; but a word on a matter of a good deal of practical as well as of scientific interest—namely, hypnotic suggestion.

We are accustomed to invest with importance only that form of hypnosis brought about by some very special means that appeal to the eye. We are in these matters rather under the domination of the eye. As a matter of fact, everyone hypnotizes himself by suggestion many times daily. We do it unconsciously. Let me illustrate by a curious case of the latter kind. When taking an anæsthetic for the third time the expert said to me "Now breathe out. Never mind the breathing in; that will take care of itself." Not only did I follow his directions before I became unconscious, but I found that I was breathing in the manner indicated when I had regained consciousness. The effect of the suggestion had lasted through the whole period of unconsciousness and beyond it. We may all observe that we make suggestions to ourselves that, at a later period when we meant them to be active, cause an uneasiness that is followed by a recurrence of the suggestion. When the metal catheter was in the bladder I hypnotized myself so fully with the idea of lying still that the suggestion seemed to be active in sleep

even to a very complete degree. In such a case the value of such a personal hypnosis is obvious.

There is a peculiarity about the patient recovering from anæsthesia that is known, I imagine, to comparatively few—a sense of isolation and loneliness that may be quite foreign, as it was in my own case, to one's natural temperament. After an anæsthetic a patient is to some degree conscious sooner than might be supposed. I do not think a patient should ever be left alone on the supposition that he knows nothing or feels nothing. He feels very soon, and the sympathetic psychic touch of the nurse to whom he is accustomed—not a stranger—or that of an intimate friend, will prove a great comfort to him. After my prostatectomy, before I could speak other than with a thick tongue, I said "Nurse talk to me"; but she did it not and went on reading her book, for which I find it rather hard to forgive her, although she was a good surgeon's assistant.

You will by this time infer that my ideal surgeon is a man who, with all the general and special professional knowledge and skill of the day, illustrates, perhaps even more than the physician, that state of mind which results from contact with at least a little of every important department of culture; and who is possessed of that rarest and most valuable of all human gifts, the power to put one's self in another's place.

SURGERY.

UNDER THE CHARGE OF DRs. ARMSTRONG, BARLOW, ARCHIBALD, AND CAMPBELL.

PROFESSOR W. KAUSCH. "The Treatment of Hydrocephalus in Infants." *Archiv. f. Klin. Chirurgie*, Bd. 87, Heft. 3., 1908; "The Treatment of Hydrocephalus by Repeated Punctures," by the same author, *Mitt. aus den Grenzgeb. d. Medizin und Chirurgie*, Bd. 21, Heft. 5, 1910.

The treatment of hydrocephalus dates back to the time of Hippocrates, who, so far as we know, first tapped the ventricles for it. The work of Leonard Hill in particular (1896) first gave us what was apparently a reasonable physiological foundation for the modern treatment of the disease by proving that the normal course of the cerebrospinal fluid after it leaves the ventricles, is into the longitudinal sinus, largely by way of the Pacchionian granulations, and so direct into the blood current. Of late years quite a number of articles have appeared with several new methods of treatment. The whole subject is reviewed more or less exhaustively in these two articles of Kausch, whose interest in the matter was awakened while he was first assistant to the late von Micku-

licz in Breslau. Professor Kausch, in his first article of 88 pages, reviews the entire literature, giving tabulated lists of the cases recorded, the nature of the operation employed, and the results. As a result of all this work he came to the conclusion that simple puncture, whether of the ventricles or, where possible, of the lumbar canal, if repeated frequently enough, gives definitely better results as to cure, with less danger to life, than any of the more complicated operations. In his second article, which has just appeared, he pursues this argument, and quotes in support of it two cases of his own that he had treated after this fashion since the appearance of his first article. The results in these two cases were, he claims, excellent in spite of the fact that both died, one from a complicating enteritis, and the second from too complete evacuation of the ventricles at the last puncture. The first case was a child of four and a half years old, in whom the hydrocephalus was ultimately demonstrated to be due to basal meningitis blocking the foramina around the fourth ventricle. There were performed 13 ventricular punctures in the space of 44 days, evacuating 3,035 ccm. in all. The size of the head, as demonstrated by photographs, was enormously reduced, and Kausch had reasonable grounds for the expectation that the process was coming to a stand-still.

The second case, a child of four months old, likewise following meningitis, had nine ventricular punctures done, evacuating 827 ccm. during the course of several months. Kausch's conviction is that the punctures must be repeated frequently, and where necessary large amounts drawn off. Unfortunately this led him ultimately into removing too large an amount under a negative pressure of 117 cm., a procedure which was followed in a few hours by death with convulsions.

While it can hardly be said that the figures of the author demonstrate conclusively his contention, it is nevertheless clear that the more complicated operations have been followed by enormous mortality. One may briefly refer, quoting from Kausch's two articles, to the various procedures which have in the last 15 years been proposed and carried out. Drainage of the lateral ventricles to the exterior, as recommended by Wernicke, in 1881, and carried out by Keen and others, is long since abandoned on account of mortality from too rapid exit of the fluid and from infection. The method records two cures and one improvement in the total number of cases reported. VonMickulicz, in 1893, was the first to conceive the idea of a permanent internal drainage of the lateral ventricles either into the subdural or into the subcutaneous space. Practically, he performed only the latter operation; and he devised a small gold tube, one end of which lay inside the ventricle and the other in the

subcutaneous tissue. He operated on seven cases by this method; all died, although one lived for seven months, with temporary improvement. Sutherland and Cheyne were the first, in 1898, to carry into practice drainage from the ventricle to the subdural space, basing their operation upon the work of Leonard Hill, in the expectation that the fluid would be carried off by the longitudinal sinus. Kausch reckons that of 18 cases operated on by this method there have been no cures, although improvement was noted in several.

It may be mentioned in passing that at the Royal Victoria Hospital there have been treated five cases by this method in the last ten years, of which four have died soon after the operation, while one, a patient of Dr. Garrow, is living at the age of three years, although mental development is apparently not proceeding.

The subcutaneous drainage of the lumbar canal proposed by Quincke has given only one cure, a patient of Kausch's complicated by a spina bifida. Kausch fashioned out of the spina bifida sac a tube leading from the lumbar canal to the subcutaneous space and the drainage proved permanent and successful.

Another method, first devised by Ferguson, 1898, was that of drainage from the lumbar canal to the peritoneal space. Kausch modified this idea by carrying a tube from the ventricle under the skin of the neck and thorax, through the rectus at the costal border, and so into the peritoneum. The method has no successes to its credit, but a modification by Harvey Cushing is mentioned in the third volume of Keen's Surgery as having given "a considerable measure of success." This modification consists in doing a laparotomy, trephining through one of the lumbar vertebræ, fitting into the hole thus made one half of a specially prepared tube (somewhat like the Murphy button), then doing a laminectomy and shoving in the other half of the instrument which locks with the first. This is presumed to afford permanent drainage from the lumbar canal to the retroperitoneal space. Cushing has not yet published particulars.

The recent advances in vascular surgery based upon the work of Payr and Carrel have led to two very ingenious methods of operation, which are still, however, rather unfavourable in their results. Payr, in 1908, proposed to intercalate a portion of the saphenous vein (taken from the parent) between the ventricular cavity and the longitudinal sinus directly. His most recent article reports three cases treated in this way, one of which died in three months after improvement, a second died in two hours, and a third died in 16 days. McClure, of Johns Hopkins, working under Cushing's guidance, devised a method of unit-

ing the subdural space with the external jugular vein by means of a portion of the saphenous vein taken from one of the parents. The end of the vein is anchored inside the dura but not within the ventricle, it being taken for granted that the fluid can find its way from the ventricle to the cortex. The other end of the vein is brought under the neck muscles and united to the proximal end of the cut external jugular by the Carrel method. While this operation succeeded in 50 per cent. of the animals used for experiment in the sense that the vein remained patent, the child upon whom the operation was performed died in a few hours. There is but the one case report of this as yet to hand.

All these methods assume that the only cure for the condition lies in the drainage of the fluid secreted. Ballance has proposed to attack the problem from another side, upon the theory that the condition is one of over-secretion chiefly, and only secondarily lack of absorption. He advises ligation of the two internal carotids leaving an interval, and reports two cases, of which one was cured, while the other died from infection. The conclusion of the whole matter, to judge from Kausch's long article, seems to be still, as before, a pessimistic one. *Prognosis infausta!* In looking over Kausch's reports and his references it would appear that some hope may be expected from frequently repeated punctures, but rather in cases which result from an overcome meningitis than in those of the idiopathic or congenital type, in which the communication between the ventricles and the spinal canal is free. These continue to baffle internist and surgeon alike.

E. A.

Society Proceedings.

THE MONTREAL MEDICO-CHIRURGICAL SOCIETY.

The twelfth regular meeting of the Society was held Friday evening, March 18th, 1910, Dr. W. Grant Stewart, President, in the Chair.

PATHOLOGICAL SPECIMENS.

S. B. WOLBACH, M.D. The first specimens are organs from a case of syphilis with cirrhosis of the liver associated with tuberculous peritonitis. The clinical history was that of cirrhosis of the liver with ascites. At autopsy the clinical diagnosis was confirmed and in addition there were typical tertiary syphilitic lesions of the skull. Another interesting finding was an anomaly of the aortic valve of the heart which has but two segments. These specimens have been preserved in

Kaiserling. The spleen shows chronic passive congestion which goes with cirrhosis of the liver.

The second specimen is one of considerable interest in that the clinical history simulated abscess of the liver; at least there was rapid enlargement of the liver with irregular high temperatures. At autopsy the liver was found riddled with tumour masses which were so necrotic that it was a question whether it was tumour or abscesses. The possibility was considered of this being primary carcinoma of the liver. Later on a very small carcinoma of the stomach was found, a little larger than a 50 cent piece and not much thicker, and without ulceration or peritoneal involvement. Histologically it is of the scirrhus type. It is the second case of very extensive metastases from a very small carcinoma of the stomach I have seen.

The next specimen is that of multiple herniæ of the substance of the brain into the arachnoidal villi. This condition is almost constant with increased intracranial pressure, that is, small herniæ take place into the Paccionian granulations and into the small arachnoidal villi, are found at the base of the skull in relation to the sinuses and veins of the dura. When working on the subject I called attention to the existence of sinus thrombosis due to these herniæ. In this preparation there is a yellowish mass of softened brain tissue which projects into the left lateral sinus and distal, to that is a thrombosis which has completely occluded the sinus. The cause of the intracranial pressure in this case was purely a local one, that is, softening of the brain on the inferior surface of the occipital lobe on the left side. This softened area lay directly over the sinus at the point of entrance of one of the cerebral veins, and as I showed at one time there are arachnoidal villi in this region that project into the sinus.

The next specimen is simply a case of massive softening of the brain. The basal ganglia on the right side are completely softened due to thrombosis of one of the larger cerebral arteries. The two specimens here are from the same case of epidemic cerebro-spinal meningitis, which occurred about a week or so ago in the hospital. The case is interesting in that it was treated with Flexner's serum, and although the meningococci persisted in the spinal fluid up to the time of death, at autopsy we found very little exudate. There was the merest trace of exudate on the brain, one small fleck of fibrin on the right side and a very small amount at the base of the brain. On the cord the exudate was localized at the place from which I have removed the segment. The cause of death was thrombosis of the superior right lateral sinus which was occluded as far as the jugular foramen, and for some dis-

tance beyond. The specimen shows the dura with the thrombosed sinuses.

Another specimen is the cord from a case of tuberculous meningitis; the brain after preservation showed the condition so poorly that I do not present it here; the spinal cord shows quite well the appearance due to tuberculosis.

We have here the vertebral column from another case of tuberculous meningitis; this shows the cervical part of a pre-vertebral abscess. The brain and spinal cord is not shown in this case. The 1st, 2nd, and 3rd vertebræ are caseous.

Another specimen here is a typical case of atrophic cirrhosis of the liver—the hobnail liver.

This specimen is one of prostatic hypertrophy with very marked hypertrophy of the bladder with very many diverticulæ. As you will see the enlargement which caused the obstruction is mostly of the so-called middle lobe; there is also an ascending infection with double pyelonephrosis.

The last specimen is a spleen from Dr. Armstrong's case of Banti's disease.

C. P. HOWARD, M.D. The case of carcinoma of the stomach referred to by Dr. Wolbach is one of great clinical interest. The patient was a young woman who had been ailing for about three weeks with general malaise, slight irregular fever, and pain and tenderness in the gall bladder region. After admission to Dr. Molson's service in the Montreal General Hospital her condition became much worse, there was high irregular fever, and severe pain referred to the right hypochondrium, where there was a large, palpable and visible mass present. A provisional diagnosis of subdiaphragmatic abscess was made, and an aspirating needle was inserted into the mass but no pus obtained. There were no gastric symptoms.

An exploratory laparotomy performed by Dr. Hutchison three or four days after admission, revealed an enormously enlarged liver but no abscess. The patient rapidly succumbed. Post mortem examination revealed the fact that the liver enlargement was due to a carcinoma which was at first thought to be primary in the liver, as no evidence of carcinoma had been noted in the stomach. However, a subsequent, more thorough examination of the stomach revealed a very small carcinoma of the stomach, which had been on first examination entirely overlooked.

This case teaches several lessons. First, the acute, rapid course which carcinoma ventriculi may run: in this case the duration of the illness

was not more than six weeks. Secondly, the possible occurrence of high fever and chills as pointed out by Osler. Thirdly, the extensive metastases which may occur in the liver from a very insignificant primary gastric growth. The latter may be overlooked by the pathologist.

GEO. E. ARMSTRONG, M.D. The spleen from the case of Banti's disease was removed from a young man of 38 who was referred to me by Dr. Lafleur. The clinical history is rather brief. He was in the West, and not feeling well consulted a physician there who located some apical lesion. He then came East to Dr. Lafleur who, in making a systematic examination, discovered this very large spleen accompanied by enlargement of the liver, the lower border of which lay about 2 inches below the ribs. There was some fluid in the abdomen, and anæmia—a typical picture of what is known as Banti's disease, described by the Florentine pathologist about 1882. The patient was kept under treatment for some time. When he first arrived the red cells were 3,800,000, whites between five and six thousand. With rest and treatment the anæmia increased and the spleen continued to enlarge, the reds were now 3,100,000, whites 4,000 and hæmoglobin 55 per cent. A second count two days later gave the reds as under 3,000,000, whites 4,000 and hæmoglobin between 55 and 56 per cent. The spleen extended seven inches to the right of the navel and below seemed to rest against Poupart's ligament and fill the left loin. There did not seem to be any doubt as to the diagnosis. The liver was enlarged, there was fluid in the abdomen, anæmia was present with this huge spleen. The diagnosis was one of spleno-megaly with cirrhosis or Banti's disease, and the only treatment which offered any promise of relief was removal of the spleen. This I did about 10 or 12 days ago. The adhesions were not numerous nor dense and the spleen was removed with a very small loss of blood, and the man is making a very good recovery. After removal and about 500 grammes of blood had been allowed to escape it still weighed 4,050 grammes. About 60 cases have been collected. Dr. Ben Johnson, of Richmond, Virginia, has reported 62 cases with a mortality of 19½ per cent. This mortality, probably, overstated the safety of the operation, no one man has removed a sufficient number to acquire very much experience with this operation. This is the second spleen that I have removed for Banti's disease. The first one I reported before the Society four years ago. That spleen was not as large as the present, weighing about 1,000 grammes, though the operation was much more difficult on account of the dense adhesions and the enormously distended veins which I had to deal with. In that patient there was the enlarged spleen, the liver was more cirrhotic and contracted than in the present

case, there was a certain amount of fluid in the abdomen and an icteroid hue which is not noticeable in this patient. Removal of the spleen seems to be followed by a very permanent recovery in these cases. In my first case, now four years ago last January, the patient is now in perfect health. He is a man who has a great deal of responsibility and has worked pretty hard since, but he says he is quite well, engages in out door sports and seems to be in perfect health. In the present case there has been no perceptible enlargement of the lymphatic glands, no aching in the bones indicating any special connexion of the bone marrow with this organ. The blood count early after the operation showed an increase in the red cells.

S. B. WOLBACH, M.D. The spleen from Dr. Armstrong's case is one of great interest, because it is unlike any other case I can find in the literature.

There are two types of spleno-megaly with anæmia in the adult. One is Branti's type, in which the spleen shows marked fibrosis, the other is the family type or Gamber's type, in which the spleen contains enormous numbers of endothelial cells. Some cases of Gaucher's spleno-megaly have been reported as endothelioma of the spleen.

In Dr. Armstrong's case the spleen is a blood forming organ. The extreme size (over 4,000 grammes) is due to the myeloid transformation. The specimen was studied by means of smears made immediately after operation and by sections. In the smears the various stages of red cell formation can be followed with greater ease than in the average preparations of active bone marrow. In the sections the appearance is that of very active bone marrow. Special stains for connective tissue show that there is very little if any increase in connective tissue. This specimen also contains great numbers of megakaryocytes.

The only other other mention of the spleen as a possible blood forming organ in Branti's disease is in Wartbin's paper. He describes the finding of nucleated red cells and giant cells of the bone marrow type, but states that he could find no evidence of red cell formation. He regarded the giant cells and nucleated r ds as metastatic from the bone marrow.

Dr. Armstrong's case, I believe, is unique. The history of the patient is to be followed with the greatest interest.

A. E. GARROW, M.D. Willie Meyer two years ago removed a very large spleen with very numerous firm adhesions, particularly to the diaphragm, so much so that although he made a very large incision, from the costal margin almost to Poupart's ligament, he was unable to separate the spleen from the diaphragm and from the numerous

adhesions with the stomach until he had done a subcutaneous resection of the lower three ribs, the 10th, 9th and 8th. He dissected these, and well behind it was remarkable the ease with which the upper splenic pole could be felt. In spite of the rapidity, however, with which this operation was done and the comparatively small loss of blood which ensued, this patient died on the table. The man was aged about 63, and was in poor shape for the operation though he had been under observation in the medical wards for some weeks.

E. W. ARCHIBALD, M.D. One point which interests me is the finding of very numerous nucleated red cells in this spleen, which Dr. Wolbach judges to be in its hypertrophy, essentially a blood forming organ still. If I understand him rightly, the hypertrophy of the spleen in this case may be due to an increase in this blood forming function. I am reminded of a case of mine, an instance of traumatic rupture of the spleen. It was a woman of middle age, who fell on a pile of stones, striking her left side, became collapsed in a few hours, recovered slightly from the collapse during the night; on the following day came to hospital in a state of profound anæmia, and was operated on on third day because of the onset of fever. I did not excise the spleen nor suture it in this case as bleeding had stopped; I merely exposed it, and finding this, and that it was covered by a few clots, I packed the neighbourhood. Fluid developed in the pleura, however, and fever persisted for two weeks, so that I then put in a needle, and withdrew a large quantity of blood-tinged fluid from the pleural cavity. Smears from that fluid showed large numbers of nucleated red cells; and the only conclusion at which I could come was that the accident had, at the same time that it caused rupture of the spleen, also caused a rent in the diaphragm, and that the effused blood found its way directly into the pleural cavity, and there lay unabsorbed. Under this supposition, the spleen does represent one of the factories for the making of red blood cells, a point still much in dispute. I do not think that there can be any mistake that these were nucleated reds, as they were verified by Drs. Klotz and Bruère at the time.

S. B. WOLBACH, M.D. In the normal state we do not find nucleated reds, that is, stained smears from the spleen do not show nucleated reds, although in the severe anæmias of infants the spleen takes up that function, and the spleen in certain animals always remains a red blood forming organ, that is, erythroblastic, and I think that Dr. Archibald's finding has even more significance than he has attributed to it.

E. W. ARCHIBALD, M.D. I was attributing the nucleated reds in this case to the severe anæmia; the woman had lost a large amount of blood,

and I was assuming that the spleen, as in other severe anæmias from disease, was undertaking the reparative process necessary, and that in that process the nucleated reds were formed. How does Dr. Wolbach explain the presence of the nucleated red cells in the case of Banti's disease?

S. B. WOLBACH, M.D. In Dr. Archibald's case might not a fracture of the rib, with a discharge of bone marrow into the pleural cavity, account for the presence of nucleated red cells.

E. W. ARCHIBALD, M.D. Dr. Wolbach's supposition of a fracture of the rib with escape of bone marrow is, I confess, a plausible one; and although no skiagram was taken of my patient which would have proved definitely the absence or presence of a fractured rib, there were, nevertheless, none of the clinical signs of such a lesion. Her symptoms were all abdominal.

TWO CASES OF APPENDICES PERFORATED BY PINS.

GEORGE SHANKS, M.D. I am indebted to Dr. Armstrong for permission to show these two specimens. The first case was that of a young man, aged 21 years, who had symptoms pointing to appendix trouble extending over one and a half months. At operation his appendix was found not acutely inflamed, but on removal and section contained a pin. The second case was that of a lad of 15 years, no history of previous attacks. Three days before admission he was seized with severe pain in lower abdomen. On opening the abdominal cavity free purulent fluid was found and the appendix was perforated by a pin. Both of these patients remember having swallowed pins, the first patient about two and a half months, the second about one and a half months previous to admission.

THE EFFECT OF COLD ON THE BODY.

J. G. ADAMI, M.D., and W. H. TYTLER, M.D.

Dr. Tytler read this paper.

The thirteenth regular meeting of the Society was held Friday evening, April 1st, 1910, Dr. W. Grant Stewart, President, in the Clair.

LIVING CASES.

A. C. P. HOWARD, M.D. The two cases which I wish to present to-night occurred in the Children's Clinic of the Montreal General Hospital. The first is a case of microcephalic idiocy. The child is nine months of age, the family history is negative, the antecedents, as far as known, being perfectly healthy. The parents are Hebrews of Russian extrac-

tion, and no blood relation exists between them. The child is the first born; the pregnancy perfectly normal though the labour was rather prolonged. The mother noticed that the head had the peculiar configuration, as is seen at the present time, and that all the sutures were prominent and ossified and that both fontanelles were closed. The child never cried at birth nor subsequently. For the first six months as it did not nurse well, the breast pump was used and the child fed with a spoon. While it developed in weight and size it never showed even the slightest intelligence. It would follow a light with its eyes; it was rather nervous, being easily started by the shutting of a door or any sudden noise. No teeth have appeared, and it has always lain in an apathetic attitude. Spasm of the limbs and of the head was noticed early and from the first month of life the child lay with its head thrown back. At three months of age the child was first brought to the clinic and a diagnosis of tetany was made. At nine months of age the child returned and it was now noted that it was under weight and undersized. The circumference of the head is only 35 ccm., the sutures stand out prominently, both fontanelles are completely closed. The forehead is exceedingly low, small and poorly developed. The eyes are directed upwards into the orbit. There is pronounced weakness of the trunk and head; all the limbs are in extreme spasm resembling the cerebral palsy of infancy, i.e., with the forearm flexed on the arm, and the hand at the wrist, while the legs are in a similar position though not to such a marked degree; all the reflexes are increased and the child is apparently blind. Dr. Mathewson examined the fundi and reported that they showed only a slight degree of optic atrophy and no characteristic change of the amaurotic type of idiocy which was the condition at first suspected. This case seems to be one of micro-cephaly; it has all the characteristic marks. It is not a common condition. It is of congenital origin; probably the primary factor, at least in the true micro-cephaly, is the lack of development of the brain; in the pseudo- it is probably due to severe intrauterine disease. Early ossification of the skull and its consequent small size is a secondary factor. Gradually there develops this paralysis and spastic diplegia. The prognosis is bad: as a rule as in other forms of idiocy, they acquire some intercurrent infection and succumb early, though some live to 40 or 50 years of age. It used to be thought that an early operation on the skull by removing fragments of bone in various places would relieve the condition; this, however, did not prove successful as it was pointed out that the primary condition was not in the skull but in the brain.

The second case is one of true amaurotic family idiocy, and here the

diagnosis was suspected by us and confirmed by Dr. Mathewson. This history is somewhat similar to the first case. The child is 18 months old; the family history is negative, except that there is a very marked tuberculous history on the father's side; there are a great many brothers and sisters of both husband and wife as well as nephews and nieces, but none are similarly affected. The woman is also a Russian Hebrew, and this is her second child; the first is now 2½ years of age and is perfectly normal. The second pregnancy was normal except that the mother nursed the first child for the first four months. The child was born at full term and was nursed for twelve months. For the first three or four months it seemed perfectly normal and gained in weight and apparently was a bright, healthy baby. At this time, however, it took some infantile complaint and from that time the mother dates the beginning of its present illness. She noticed that the limbs grew quite flaccid and loose and that the child which formerly could sit up, gradually refused to do so or if propped up would immediately fall over again. This condition has gone from bad to worse until now, though eighteen months of age, it is helpless. On first looking at this child one is struck at once with the different picture. It is slightly under weight, the head is not larger than normal, the anterior fontanelle is just open; it has four teeth but cannot talk; there is a considerable flaccid paralysis of all the extremities and especially of the head, the child has to be propped up although one and a half years of age. It is rather peevish at times but for the most part lies quietly, and only when disturbed does it evidence any irritation; it is apparently blind although not completely. Its hearing is extremely sensitive and any sharp and sudden noise will make the child start violently. The examination of the eye grounds in this case clinched the diagnosis, and my thanks are due to Dr. Mathewson for his report. Dr. MacCordick kindly drew a sketch of the eye grounds, which is a typical picture of amaurotic idiocy. The optic disc shows no atrophy as yet.

Warren Tay first described the eye changes in 1881, and subsequently, in 1886, Bernard Sachs reported the symptom complex of amaurotic idiocy; it has certain special characteristics. In the first place it is a family disease; it is also almost peculiar to the Hebrew race; out of 68 cases reported 61 were, in Hebrews. As far as I can find only one case is reported in an American child. Tuberculosis and lues play no role; what does seem to play a prominent part is blood relationship in the parents. A lot of work has been done on the pathology of the disease. It is a most widespread disease of the pyramidal cells of the entire central system, both in the cerebrum and cerebellum, the medulla, pons

and spinal cord. These changes are first of all a swelling of the pyramidal cells, then an eccentric position of the nucleus; the Nissl bodies disappear; there is a secondary change of course in the nerve fibrils but no primary change; there results complete destruction of the nerve cells. The nucleus may entirely disappear and one sees nothing but a swollen protoplasmic mass. It is of interest to note that recently in addition to the infantile type, eight or ten cases of children of more advanced years have been reported. The pathological process is identical in the two types, but the juvenile type has occurred more frequently in non-Hebraic races.

A. C. P. HOWARD, M.D. The occurrence of this cherry red disc is explained by the fact that in the retina there is the same change as in the central nervous system, viz., a swelling and subsequent atrophy of the nerve cells of the ganglionic layer. In the macular region the choroidal vessels shine through the atrophied retina especially well, whereas in the surrounding region there is a fibrosis and thickening which, of course, cuts off the light and gives the general white appearance.

W. F. HAMILTON, M.D. I would like to ask Dr. Tytler concerning the first specimen, the combined biliary cirrhosis with adeno-carcinoma of the gall bladder, what relation did he consider existed between those two conditions, if any.

E. W. ARCHIBALD, M.D. The case of strangulated undescended testicle was that of a man, 31 years of age, who was sent into the hospital by Dr. J. J. Ross in the evening. The provisional diagnosis was appendicitis, and we operated for this condition. A certain lack of thoroughness in routine examination must be admitted, in the sense that we did not before operation examine the scrotum to see whether both testicles were present or not. There was no rise of temperature nor of pulse by the next morning, but in the afternoon he developed fever, and it was decided to operate. Exploration was undertaken with the idea that it was a case of ordinary appendicitis with the appendix lying low over the brim of the pelvis, thus accounting for the unusual situation of the pain which was hypogastric and chiefly on the right side. As soon as the incision was made the mass shown you to-night presented itself, and of course it was recognized at once. If we had carried out the proper routine examination of the whole body, we could not have failed to discover the absence of one of the testicles from the scrotum, whereupon the correct diagnosis might have been formulated with some degree of likelihood, if not with certainty.

J. ALEX. HUTCHISON, M.D. I would like to ask if there was any

vomiting. I had a case of this once and a pronounced symptom was vomiting, and this vomiting was thought at first to be due to some intestinal obstruction. I found the absence of the testicle, however, and the diagnosis was plain.

E. W. ARCHIBALD, M.D. There was vomiting, but only on two occasions, first in the morning about 10 a.m. when the pain started and again in the afternoon; he was operated on 24 hours later.

THE INFLAMMATORY "PELVIC MASS."

W. W. CHIPMAN, M.D., read the paper of the evening.

F. A. L. LOCKHART, M.D. I am sure we have all thoroughly enjoyed this paper which Dr. Chipman has given us; it is not only a scientific paper but one which is full of good practical points which I think can be followed by any of us. I think that his description of the genital canal by calling it a bifid cylinder is extremely apt. Some years ago a series of experiments were carried out where different varieties of pigment were introduced into the vagina and were subsequently found at operation in the cavities of the Fallopian tubes, thus showing that there must have been a current of some sort proceeding from the external to the internal genitals, and undoubtedly this is the source of infection in a great many of our cases of inflammatory pelvic mass. There is one class of case of interest, and that is where the patient is profoundly ill for quite a while, the condition improving under rest in bed and proper local treatment, but there still persists a mass connected with the uterus, and where it is difficult to make out whether it is the Fallopian tube or the ovary or an entirely independent inflammatory mass. The mass is one which is formed by an inflamed omentum. I have had several such cases where it was difficult to make out the mass but, after seeing three or four, one can diagnose it with a fair degree of accuracy. The boundaries of the mass are extremely well localized; it, of course, is absolutely immobile and is apparently almost subcutaneous. The comparative rarity of these inflammatory cases in private to what one gets in one's public practice is notable; I suppose the hygienic and general surroundings of such patients have something to do with the figures. My own experience is that the bacillus coli is quite a frequent invader of the pelvis. That, of course, is usually seen where there is some connexion between the mass and some part of the alimentary tracts, especially the rectum, and gives rise to an especially purulent form of infection, one which can be treated by local measures, but which goes to operation sooner or later. You can usually tell the nature of the case by the character of the pus which pours out when the tube is opened. Another point is that Dr. Chipman states

that the streptococcic mass feels like plaster of Paris poured out into the pelvis. In the acute stage, you will not get the margins of the mass so clearly defined because there is extension of induration from the tube itself to the surrounding structures, but you take a subacute or chronic case and the margins are most clearly defined. That has been my experience, and in quite a large proportion of cases of pelvic inflammatory mass the boundaries of the mass are quite clearly defined. I think we must congratulate Dr. Chipman upon the results of his treatment in those cases. As one gets older one operates less. Of course, in our first years we want as many operations as we can get; we are alarmed at the patient's condition and we rush in and operate, and are then astonished at the mortality. The routine treatment carried out in my ward is as follows: When an acute pelvic inflammatory case comes in, the patient is put to bed, kept absolutely at rest, is given hot antiseptic douches, and cold is applied to the abdomen, and it is wonderful what a large proportion of these cases will clear up. As regards the permanent cure of some of these cases; I have one patient who had a large inflammatory mass, very chronic and she had been sterile for fourteen years. She was given hot douches, the application of iodine and the use of tampons and electricity, and in twelve months she was apparently well, and in twelve months more gave birth to a full term child. To Dr. Chipman's list of those who have done a great deal of interesting work in connexion with the bacteriology of the pelvis, I would like to add one more name, especially as it is that of a man in whom we are largely interested, and that is Dr. Fraser Gurd. Dr. Gurd went into the pathological department of the hospital and did a great deal of serious work on this subject, two of his papers are considered quite standard monographs on this subject.

A. LAPHORN SMITH, M.D. There are a few points on which I would like to lay a little more stress. I was very glad to hear Dr. Chipman say that the genital tract was a bifurcated tube. Many speak of it as though there were two tubes and that you can have one of them infected with gonorrhoea and the other quite healthy. But I hope the day is not far off when it will be understood that you cannot have an infection of one tube without an infection of the other. And here comes up the question of conservative gynecology so called, but where a second operation has to be performed because the first operation only removed one side when both sides were infected. Thirty times, at least, I have had to do a second laparotomy on my own or on some other operator's patients because only half of the work was done the first time.

Dr. Chipman has called attention to another interesting point which

I have not heard mentioned before; namely, that tubercular disease of the tubes always begins from above while gonorrhoea always begins from below. I have often heard it stated that tubercular disease sometimes begins from below and works its way up, but I am inclined to think that Dr. Chipman is right in saying that it always follows tubercular infection higher up, such as tubercular gland, which has ruptured and poured its contents into the peritoneal cavity, the bacilli then gravitating towards the tubes.

I have a very clear conception of the process by which the pelvic mass is formed. The gonococci spread up the vagina, uterus and into the two tubes. If it is a bad case the mucous membrane at the uterine end of the tubes is destroyed and replaced by a cicatrix which contracts and forms a tight stricture just as it does in the male urethra. The pus which has so far been escaping hitherto can no longer get out through the uterine end and therefore flows towards the fimbriated extremity. As it would mean death to have the whole peritoneal cavity infected, nature pours out lymph to seal the tube, and thus a tubal abscess is formed. This abscess would break into the peritoneal cavity as I have seen it do once, but as a rule before it has time to do this the policeman of the peritoneal cavity, the omentum, surrounds it and coils of intestine become adherent to it at the weak place so that it is walled off. In time, the exuded lymph becomes organized into fibrous tissue and most of the pus is absorbed. What remain forms the pelvic mass. On opening the abdomen to remove it the first thing to do is to detach the omentum and the coils of intestine. Although it is not good to operate on these cases during the acute stage it is just as bad to wait too long. I have seen these tubal abscess in one case break into the rectum, bladder, vagina and through the abdominal wall. As she had a very high temperature and almost no pulse I declined to operate on her and she died a few days later. When I hear that Dr. Chipman only loses one and a half per cent. of these cases I know that he has learned to be very cautious, as I am now. But it was not so twenty years ago. At that time we were afraid to wait until the acute stage was over, and consequently we had a much higher death rate. By waiting three or four weeks in most cases the cocci will have given off enough ptomaines to kill themselves by their own excretion and then the pus becomes quite harmless.

I would like to point out one source of error and a very common one, namely, when a patient has been kept in bed on a milk diet and been given a good deal of morphine for pain, her rectum and sigmoid becomes packed with faeces which form a mass in the pelvis which

the family doctor has mistaken for a pelvic mass. But the finger sinks into it and forms an impression, and a dose of castor oil will bring away several chambers full and the mass will disappear.

Dr. Chipman has spoken of this pelvic mass being mistaken for a solid tumour. I had such a case, a patient sent to me by Dr. Aubry, whose condition had been diagnosed in New York, and at Burlington, as a large fibroid tumour. Before operating I thought it was so too, but on opening the abdomen I found that this large mass was made up of two pus tubes, two large cystic ovaries and a little uterus packed away in the centre of it, all glued together.

When I operate on a bad case of pelvic mass alias pus tubes, after removing the tubes and ovaries I pull the omentum down and then pass a perforated rubber drainage tube through Douglas' cul de sac and out through the vagina, and sit the patient in the Fowler position. Several pints of pus and bloody fluid drain away which otherwise the peritoneum would have had to take care of.

H. M. LITTLE, M.D. I would like to ask Dr. Chipman whether a gonorrhoeal pelvic mass often occurs in the absence of pregnancy with resulting abortion or labour. For my part I have never seen such a case. At the Maternity we have had some 40 or 45 cases of florid gonorrhoea, but a pelvic mass has never resulted. Active treatment was carried out before the confinement and great care was taken during the confinement, and puerperium to make no internal examination and to avoid all local treatment which might cause infection to ascend into the uterus. Whether streptococci, or other pathogenic organisms are present in the vagina or not, it remains undisputed that, except under very exceptional circumstances, puerperal infection will not occur unless the patient is examined vaginally. In all operative cases particular care should be exercised about the cleansing of the vulva. It is unusual to see a patient die of puerperal infection when the vulva had been satisfactorily cleaned and the hands of the operator were above suspicion.

In making a diagnosis of the character of the infection present, one clinical point is of interest. If the temperature and pulse are charted on a basis, for example, of a temperature of 104 corresponding to a pulse of 140, of temperature 103, pulse 130, etc., it will be found in most of our local infections that immediately post partum the red line indicating the pulse, lies above the black line of the temperature, and that about the 5th or 6th day the two lines cross; when the infection is due to the streptococcus the red and black lines lie more or less together, and follow the same general course, while in the sapræmic form

of infection, the black temperature line usually lies high above the red line of the pulse.

A. L. C. GILDAY, M.D. As one of the younger members I am rather interested in the question of interference in these cases and would like to ask Dr. Chipman as to what are the indications for such a procedure in these cases.

WESLEY MILLS, M.D. Before Dr. Chipman replies, Mr. President, I may voice one thing that we have all felt but which has not been definitely dwelt upon because those who have spoken on the subject have very naturally referred to the matter rather than the form of the paper. I would like to voice our thanks to Dr. Chipman for the form of the paper. I think that scientific and medical men are not, perhaps, sufficiently alive to the importance of observing what was more common in the past, that is, the literary form of what they write, and any one amongst us who does pay attention to that, and in this I would include also the artistic side or the delivery, will find us all appreciative and thankful, and I hope Dr. Chipman will feel this.

W. GRANT STEWART, M.D. I am sure we can congratulate Dr. Chipman on his excellent paper given to the Society to-night. We came with great expectations and we have not been disappointed. This large gathering before me is a compliment to the popular reader of the paper of the evening. It is a very valuable contribution to the literature. It represents a great deal of valuable work, and it contains the observations and conclusions of a scientific and accurate observer.

The paper has given rise to a most able discussion. Dr. Lockhart emphasizes one thing which the paper indicates, and that is the conservatism of modern gynæcological surgery. And the more the experience the greater the caution in undertaking gynæcological operations. We have all benefitted much from the paper and the interesting discussion, and we are deeply indebted to Dr. Chipman.

A NEW FORCEPS FOR THE REMOVAL OF THE ANTERIOR LENS CAPSULE.

F. T. TOOKE, M. D. The report of this instrument appears in this Number of the JOURNAL.

METALLIC POISONING.

W. F. HAMILTON, M.D. This case with one other will be published later.