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THE

MONTREAL MEDICAL JOURNAL.

VOL. XIX. FEBRUARY, 1891. No. 8.

Original Communications.

A RARE FORM OF KIDNEY TUMOR.

BY JAMES BELL, M.D.,
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AND
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(Read before the Medico-Chirurgical Society of Montreal.)

The subject of the present communication was a French-Canadian woman, aged 39 years. She was admitted to hospital on the 15th of September last (1890), suffering from an irregular fever, exhausting diarrhœa, and copious night sweats. She had also a tumor in the right lumbar region of the abdomen, which was thought to be in some way connected with her constitutional symptoms. Her family history showed a strongly marked tubercular tendency, having lost two brothers from phthisis; one sister still living is the subject of phthisis, and another sister died at the age of 25 years from some abdominal affection called "inflammation of the bowels."

Patient had been married at the age of 15 years, and was the mother of seven strong and healthy children, all living,—the eldest aged 23 years and the youngest 14 months. She had always been strong and healthy until the commencement of her present illness, which may be described in two stages. In 1886, while nursing a child four months old, she had all the symptoms of commencing pregnancy—(cessation of menstruation, morning vomiting, and the sensation of movements of the child). Shortly

after the appearance of this latter symptom she was seized with sudden pains about the right inguinal region, which passed off in a few hours and did not recur. The next day, and at times for several months afterwards, the urine appeared bloody, being quite clear in the intervals. Shortly after this occurrence (in the fall of 1885) she noticed a small tumor in the right lumbar region of the abdomen, about the size of a hen's egg. This was hard and painless, and increased in size slowly until December 1889, when a new train of symptoms supervened. Up to this latter date she considered herself in good health, and apparently with reason, as she was delivered of a healthy child in August, 1889, and recovered perfectly from her confinement. At this time, also, she weighed 165 lbs. About Christmas, 1889, she became feverish, emaciation began, and she suffered from a hacking cough. These symptoms continued till February 1890, when she came under the care of Dr. C. L. Cotton, of Cowansville, who has kindly written me the following account of her illness up to the date of her admission to hospital. He says, in his letter dated October 10th, 1890: "Mrs. A. first consulted me about two years ago for amenorrhœa. At that time I discovered the tumor, which was about as large as at the time of her admission to hospital. . . . . The menstrual function was restored and she improved very much. During the period that she was under my observation the tumor did not appear to give her any trouble. She became pregnant, and was safely delivered at full term by Dr. Brown of Knowlton. I saw nothing more of her until last February, when she sent for me. . . . . She had then the appearance of a person in about the fourth week of a protracted typhoid, though I did not make a diagnosis at the time, as I felt very much puzzled. There was much pain and some tenderness over the tumor, and a very exhausting diarrhœa, with an irregular fever. From that time until you saw her she continued in much the same condition, sometimes free from fever for two or three weeks, when she picked up enough strength to drive out; at other times weakened with night sweats and fever. At one time during the summer she had another hemorrhage, followed by a most offensive diarrhœa containing sloughy

material. I kept the diarrhœa in control with large doses of opium and sulphuric acid. The appetite was very irregular, and severe night sweats weakened her much. At no time did I notice anything in the urine to lead me to think that the kidney was involved." On admission, patient was noted as greatly emaciated, anæmic and nervous, hair falling, appetite poor, tongue clean and moist; bowels loose, six or seven stools per day. Motions more frequent at night; stools loose, but show no special characters. Night sweats. Slight frequency of micturition, six to eight times in twenty-four hours, but not accompanied by pain. Urine normal, clear, and free from sugar and albumen. Deficient chest expansion; diminished resonance over front of chest and prolonged expiratory sounds. Heart-sounds normal, but weak. Pulse 105; temperature ranging from 97½° to 103°F. Skin of a dusky and unhealthy appearance.

The tumor, which occupies the right lumbar region of the abdomen, is about as large as the head of a newly-born infant, freely movable both vertically and laterally, only slightly tender on manipulation. Percussion discovers the colon in front of the tumor. Tumor is smooth and firm, evidently solid, and can be easily manipulated through the lax and thin abdominal walls. Careful examination failed to establish any connection with the pelvic organs, although it is noted, that the os is low, and behind the os is a firm body about the size of an almond, which is painful on pressure. Slightly to the left of the os, and behind it, a larger firm body can be felt, like the fundus uteri. Patient was kept under observation till the 2nd of October, during which time all the symptoms (as already described) persisted. It became evident that she was suffering from some form of toxic absorption, of which the tumor seemed to be the *fons et origo*. No diagnosis had been made as to the nature of the mass, and it was decided to expose it as a preliminary step and then be guided by the knowledge obtained as to its treatment. Although the tumor was in the situation of the kidney, the absence of kidney symptoms and the presence of a well-marked septicæmic condition seemed to exclude the diagnosis of kidney tumor. My own feeling was that it was probably of tubercular nature, and

in connection with the colon or cæcum. The case was desperate, and clearly hopeless unless the toxic focus could be removed. Operation was therefore decided upon. The patient was prepared by evacuating the bowels and restricting the diet to a moderate quantity of milk for twenty-four hours before operation.

On the 4th of October, assisted by Dr. Roddick, I exposed the tumor by a vertical incision directly over it and about an inch to the right of the rectus muscle. It was at once evident that it was a kidney tumor. An aspirating needle was introduced, but withdrew only a little blood and permitted the escape of a distinctly fæcal odor. Before proceeding further the left kidney was felt by the hand of the operator within the peritoneal cavity and found to be normal. The peritoneum (posteriorly) was then incised and the colon displaced upwards. The tumor was covered by a thick, firm capsule, which was carefully peeled off, the vessels and ureter ligatured, and the tumor removed. The capsule was closely adherent to the surrounding structures, especially to a knuckle of the ileum in its lower part, and to the ascending colon. In removing the capsule the fæcal odor was exceedingly powerful and penetrating, and was appreciable on the hands of the operator for forty-eight hours afterwards in spite of the most diligent efforts to remove it. There was no bleeding to speak of,—the site from which the mass had been removed was carefully cleansed, the capsule was sutured to a limited area of the abdominal wound and packed with iodoform gauze. The operation was completed in less than an hour, and the patient was removed to her ward in a very weak condition. She rallied, however, and continued pretty nearly as well as before operation for sixteen hours, when she died.

This case is very unusual—in fact, in my own experience, unique both in its pathology and in the symptoms which it gave rise to. In Dr. Cotton's letter from which I have already quoted he says: "The only opinion that I could form was that the tumor (whatever it was) had formed an attachment to the bowel, and that a sloughing process was going on in the tumor and discharging through the bowels at the same time, causing all the symptoms of systemic poisoning which she had more or less all

summer. The case was very puzzling. The starting point of her present illness was undoubtedly when the renal tumor became inflamed about last Christmas, as she had been very well after her confinement for three or four months. This probably went into a gangrenous condition, and blood-poisoning resulted:" With this opinion I entirely agree, with one exception, and that is with regard to the communication of the interior of the tumor with the bowel. Although the symptoms pointed to this explanation, the post-mortem appearances not only did not support it, but from a careful examination both of the tumor and the attached portions of bowel, this would seem to have been impossible. The notable absence of urinary changes is explained by the peculiar relationship of the kidney proper to the tumor as described in Dr. Johnston's report.

AUTOPSY PERFORMED ELEVEN HOURS AFTER DEATH.

Body that of a middle,aged woman. Subcutaneous fat in fair amount, but firm, dry, and of an orange-yellow color. On the right side of abdomen a recent laparotomy wound extending from the hypochondrium to the iliac region. The edges, kept in apposition by sutures, show no union. The incision opens into a large ill-defined sac in the right flank, about which fibrous adhesions have formed. The inner surface of sac is ragged and necrotic, of a brownish-black color. This discoloration appears due to hemorrhagic infiltration altered by the action of the intestinal gases. The wall of the sac lies in intimate relation with the ascending colon, and is closely adherent to the ileum at a point about six inches above the valve. Although stuffed with iodoform gauze, the sac has a distinctly fæcal odor. The vermiform appendix found free from ulceration. No appearance of present or former fistula in any part of the intestines. The right kidney has been removed. The lower end of right ureter traced down to bladder and found to be normal. Bladder and left ureter normal. Left kidney weighs 160 grammes, is somewhat pale, but seems to be normal. Supra-renal capsules on both sides normal. The right supra-renal lies well above the upper extremity of the sac.

Lungs: A small fibro-caseous nodule at each apex, that in the right lung, surrounded by a circumscribed eruption of miliary tubercles, covering the adjoining pleura for an area of about a hand's-breadth,

No trace of secondary tumors found in any part of the body. Brain not examined.

REPORT ON TUMOR.

The right kidney was sent to me by Dr. Bell immediately after the operation, and was examined at once in the fresh state. Small portions typical of the different parts were hardened in alcohol and in Muller's fluid, cut in paraffin, and stained in hæmatoxylin.

The kidney and tumor, as received, form a large, uneven, nodular mass weighing 650 grammes (20 oz.), and measuring 13 x 10 x 7.5 cm. Its general appearance is shown in fig. 1. The ureter (q) and vessels,

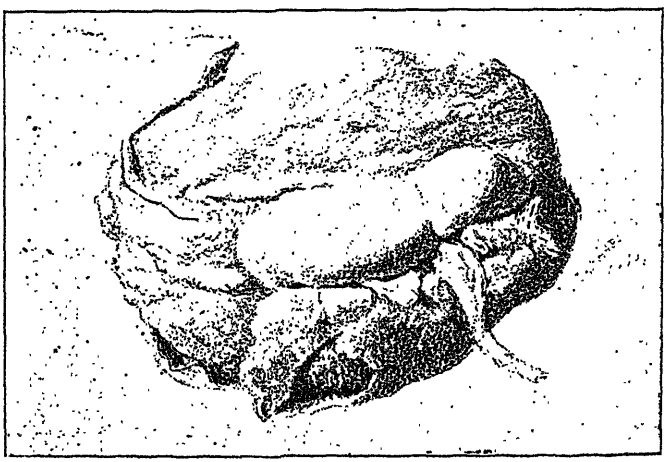

FIG. 1.

enter at the hilus. From this point a narrow zone looking like kidney extends towards the convexity for a distance of 4 cm. anteriorly and 2 cm. posteriorly, and forms less than one-sixth of the entire mass; the remainder is made up of an uneven, nodular growth, opaque-yellow-white in color, which lies within the true capsule (albuginea) of the kidney, but is separated from the renal substance by a narrow, fibrous partition. This growth presents a large central cavity, shown in Fig. 2, containing dirty brownish-red, icherous fluid with an intensely penetrating fæcal odor. In this cavity are several firm, reddish gray masses of blood-clot, one being as large as an egg. The surface of the cavity is covered with a thick, shaggy, greenish-gray, diphtheritic-looking membrane, and shows areas of hemorrhagic infiltration. The contour of the inner surface (shown in Fig. 2) is uneven, consisting of hemispherical, rounded, lobulated projections, varying from 1 cm. to 4 cm. in diameter, and recalling in appearance a cotyledonous placenta. This cavity appears to be a pre-existing cyst, whose surface has recently necrosed. The wall of this cyst varies from 2 mm. to 4 cm. in

thickness, and forms the bulk of the tumor. It is covered externally with a fibrous capsule continuous with that of the kidney. In some places the cut surface of the growth is firm and smooth, of a pale yellow color, and seems œdematous. In others it is softened, and studded with numerous small cysts (not shown in the figure), ranging from a size barely visible to 1 cm. in diameter. These cysts contain in some cases an opalescent fluid, in others blood or a yellowish-brown turbid juice. Their inner surface is rough, soft and ragged.

At one point near the upper end of the cavity a ragged aperture exists, partially stopped by a large mass of blood-clot. Through this rent (shown at x in Fig. 1 and by a probe passed through it in Fig. 2) the cavity of the tumor communicated directly with the perinephritic sac.

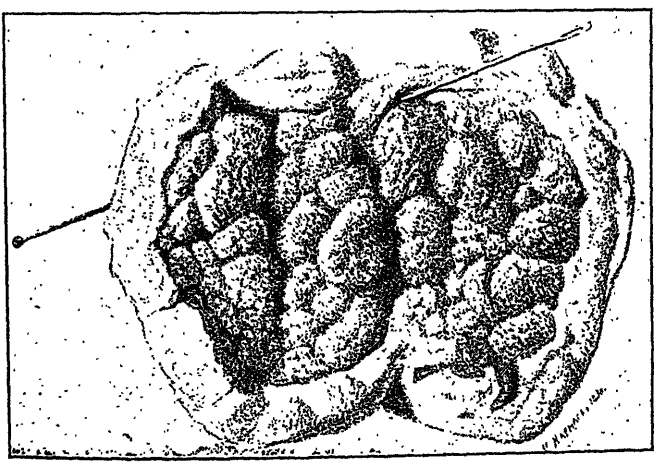

FIG. 2.

On slitting up the ureter, the pelvis of the kidney found to have no connection either with the central cavity or any other part of the tumor, but fine probes passed into the renal vessels can be felt within the cyst wall. None of these vessels seem to be thrombosed. The kidney is small and flattened, evidently from pressure. This reduction in volume is uniform in both cortex and medulla. The capsule is readily peeled off, leaving a smooth surface studded with a number of small, sharply defined hemorrhagic points, not projecting beyond the adjoining tissue, seen on incision to be wedge-shaped, with the base outwards, evidently recent hemorrhagic infarcts. The organ cuts with increased resistance.

Microscopic Examination.—On scraping the cut surface of the firm, smooth parts of the tumor, a turbid juice obtained, containing clumps

of close-set polygonal epithelial cells, some of which contain fat drops. From the cystic portion, in addition to these, a number of large round, flattened cells were found, containing yellow-brown pigment granules, and in some cases one or more red blood corpuscles, either alone or in addition to the pigment. These are evidently cells which have absorbed portions of extravasated blood. In regions of advanced necrotic changes, the scraping contained only fatty debris and sheaves of large needle-shaped (tyrosin?) crystals, with large numbers of bacteria. Sections of the hardened tissue from the firm, smooth areas show an abundant, but extremely delicate, reticular fibrous stroma arranged so as to enclose round or oval alveolar spaces containing a variable number of large polygonal epithelial cells. The dimensions of these spaces vary from 0.05 mm. to 0.5 mm. in their longest axis. The larger contain as many as from 10 to 20 epithelial cells, the majority, however, only three or four, and in some cases small alveolar pockets are seen containing but a single epithelial cell. The large alveoli are lined by a single layer of epithelium directly in contact with the stroma, with no visible basement membrane, leaving a central space which is either empty, or occupied by a cell mass not attached to the wall. In the smaller alveoli a lumen is seldom seen, the three or four cells they contain lying with their edges everywhere in contact. Alveoli of this latter kind form the greater part of the tumor. The majority of the cells are polygonal, but some occur as cubes or flattened cylinders. Their size is fairly uniform, averaging 15 to 20 μ in diameter. The nucleus small (5 μ), round, and centrally placed, usually single. Showed no karyokinetic figures. The cell body consists of clear, transparent, homogenous, apparently structureless, protoplasm. At the border of each cell a distinct, sharply defined, cell-wall appeared to exist in most cases, though it could not be positively determined whether this appearance was not due to delicate filamentous, tendril-like processes from the stroma, passing between the individual cells and encircling them. This latter seemed likely, because in spots where degeneration was commencing the nucleus remained distinct, and, while the cell-body (cytoplasm) became swollen and faintly granular, yet at the border of the cell, this limiting wall was more distinctly seen, and stained more deeply than in the well-nourished areas. In more advanced degeneration the nucleus could be seen lying free within a small pocket, enclosed by a border corresponding apparently to this cell-wall, but directly continuous with the stroma. Where the degeneration was still more advanced, nothing could be seen but a delicate fibrillated meshwork enclosing small spaces corresponding only with that of the original cells, but filled simply with granular material. No large blood-vessels seen in the tumor, Scattered traces of brown pigment existed in many places, chiefly within the stroma. A few groups of leucocytes, with fragmented and biscuit-shaped nuclei, were found here and there, both in

the stroma and alveoli. Sections through the kidney, taken at its junction with the tumor, shows a narrow fibrous band between the renal tissue and that of the growth. In the hemorrhagic infarcts the nuclei stain faintly and the arterioles contain hyaline thrombi. The tufts are shrunken throughout, and the fibrous tissue between the tubules is more abundant and dense than normal.

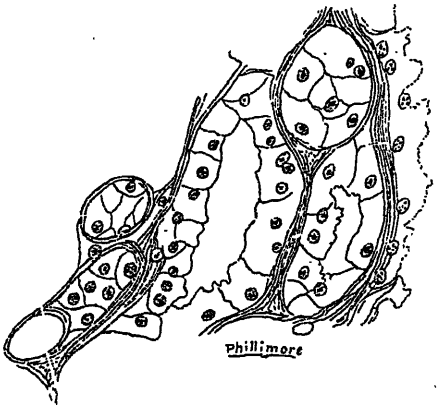

FIG. 3.

Section from the tumor showing the alveolar structure. The clear cell protoplasm and sharply defined cell wall are also seen. Zeiss Obj. D, Oc. 3, semi-diagrammatic. Drawn by Mr. R. H. Phillimore, medical student. The character of the drawing has been much altered in making the zinc etching.

From the situation and general appearance of the growth I was at first inclined to regard it as a tumor originating in aberrant supra renal tissue within the kidney, a condition first described by Gravitz (*Virchow's Archiv*, Bd. 93) under the name of *Strumæ Lipomatodes Aberratæ Renis*. On comparing the sections, however, with specimens of supra-renal tumors in my possession, it shows no resemblance to them, and must be classed as an "alveolar" adenoma of the kidney. As the total number of accurately recorded cases of this nature is still small, a detailed description seemed advisable.

While this paper was in preparation a report of a case of multiple adenomata of one kidney successfully removed by operation has been published by Dr. Keyes of New York (*Am. Jour. Med. Sc.*, Dec. 1890). As this paper includes a pathological report on the specimen by Dr. H. Biggs of the Carnegie

Laboratory, containing a good deal of general information on the subject of renal adenoma, together with a full bibliography, it seems unnecessary to go into the general bearings here further than is necessary to make clear my views as to the nature of the present case.

Adenomata of the kidney are classified by Weichselbaum and Greenish into papillary and alveolar or tubular, though no special difference appears to exist between the two forms. It is stated that the papillary form occurs in connection with the collecting tubules, and the alveolar, in the convoluted tubes. This statement does not seem to be well established, but as the present case was obviously not connected with the medulla of the kidney, the present case has no bearing upon the matter.

One form of renal adenoma, does occur in which the condition is essentially an overgrowth of the convoluted tubes. These are seen as small, compact, diffuse epithelial nodules lying in the cortex, and the epithelium composing them resembles closely that normally found in the convoluted tubes. Now in the present case the epithelium comprising the tumor does not resemble any normally found in the kidney, and on comparing sections of our tumor with specimens of these adenomata of the convoluted tubules just referred to, the dissimilarity is strikingly brought out. It is difficult to see why the cells of an adenoma originating in epithelial tissue normally present in the kidney should differ materially from it in appearance. This difference is not in accordance with what we know of adenomata in other parts of the body. In the liver, for example, where adenomata are very common, the cells comprising them are always readily recognizable as liver cells. Again, in struma of the supra-renals, whether simple or malignant, and whether arising in the adrenals themselves or in the aberrant portions of supra-renal tissue mentioned above, the cells of the tumor always preserve the characters distinctive of the cells which normally form the supra renal cortex. I have a specimen of this form of tumor where secondary growths in the lungs and liver preserved in every instance the close resemblance to supra-renal cortex.

From this it would seem that there are no grounds for assum-

ing that adenomata growing in the kidney are developed from the cells of the metanephros unless the epithelium resembles that normal to the kidney.

W. H. Councilman (article "Adenoma," *Wood's Reference Handbook*), in describing the various forms of adenoma of the kidney, lays stress on the fact that, even when the epithelium resembles that of the kidney (*e.g.*, in cylindrical adenomata), no trace of glomeruli are ever found. He also emphasizes the fact that in the forms most nearly allied to renal tissue, viz., adenomata of the convoluted tubules, the arrangement is not such as to suggest functional activity. This latter point, however, does not seem to be well taken, as these growths do not depart more from the renal type into the arrangement of their epithelium than do the hepatic adenomata.

Orth (*Lehrbuch der Sp. Path. Anat.*, Band II, p. 109), in a critical survey of the facts concerning hypertrophy and regeneration of the kidneys, while admitting that, to a certain extent, the secreting epithelium possesses powers of repair and hyperplasia, considers that there is no evidence that entire tubules are ever evolved out of existing kidney structures after birth, if at all, and regards enlargement of the kidney following extirpation of the opposite organ as simple and not numerical hypertrophies.

Some light may be thrown on the question by comparing the adenoid tumors occurring in the kidney with those of the liver. Both organs agree in presenting a form of adenoma characterized merely by a disorderly growth of epithelial cells readily derivable from the ordinary hepatic and renal cells. Here the resemblance ceases. The liver presents no other form of primary epithelial tumor except the rarely occurring condition of primary carcinoma of the bile ducts. The kidney, on the other hand, though, on the whole, relatively seldom the seat of tumor formation, presents an extraordinary variety of widely different epithelial growths, none of which show very close relationship to any of the structures normal to the organ. These facts seem easy to interpret on embryological grounds. The liver is a glandular organ, preformed at a very early stage as such, and in which every portion represented in early fœtal life persists to

form permanent functionating tissue. The kidney, on the other hand, arises in a way not yet fully understood from some portions only of a large number of embryonic structures, the subsequent fate of the parts not employed to form permanent tissues being to a large extent unknown.

Of course the great variety in structure characterising renal adenomata may be connected with the fact that in the normal kidney we find constant differences in the character of the epithelium in the convoluted tubules, looped tubules, and collecting tubules, but, except in adenomata of the convoluted tubules, no relation has been demonstrated between the site of the growth and the nature of the epithelium. It would not, perhaps, be going too far to say that the epithelioma of the convoluted tubules is the only one clearly shown to be undoubtedly of renal origin.

While Colnheim's hypothesis of the origin of tumors has been unduly strained to account for the origin of tumors in regions where no undeveloped rudiments were known to exist, this contrast between the behaviour of the liver and kidney in the matter of primary tumors bears it out most strikingly on theoretical grounds. We have two organs having one homologous form of adenoma. In the organ (liver) in which all the parts represented in the embryo become permanent tissue, no other forms of adenoma occur. In the other (kidney), where several structures are arrested at various stages of their development, other adenomata are not only found, but are also very dissimilar in structure.

The presence of these rudiments in the kidney and their absence in the liver, seems to be the most reasonable explanation of the very different attitude of these two organs with regard to the occurrence of epithelial growths, since adenomata of the convoluted tubules and the ordinary adenomata of the liver present such striking analogies.

When we find a tumor occurring in the kidney and yet differing essentially from it in the nature of its cells, we may account for it in one of two ways. First, we may conclude either that it was derived from the metanephros, and that the estranged appearance of the epithelium is due to subsequent metaplastic

changes in the cells themselves: a state of affairs not yet clearly shown to occur in any tissues of the body. Second, we may suppose that it never formed a part of the metanephros, but was included in it mechanically, by heteroplasia. There is abundant evidence that this frequently occurs in the body, and we have other instances of it in the kidney itself.

In connection with the development of the kidney, we have certain fœtal structures, such as the pro-nephros, and portions of the Wolffian ducts and Wolffian body, which undergo atrophy at an early period of fœtal life, and it appears reasonable to suppose that parts of these may persist, become enclosed in the kidney, and subsequently form tumors in it. Theoretically, the kidney should be the organ, of all others, able to furnish instances of the teratoid origin of tumors from persistent embryonic rudiments, yet, with the exception of striped muscle tumors, few renal growths have been regarded from this point of view, the tendency being rather to consider renal growths as necessarily originating in true renal tissue.

Bland Sutton (*Lancet*, 1887) has suggested the possibility of the so-called congenital cystic kidneys being in reality due to persistent remnants of obsolete portions of the Wolffian duct.

Although Cohnheim's hypothesis of the origin of tumors from the persistence of superfluous portions of embryonic tissue has not fulfilled its originator's expectations by explaining the genesis of all forms of tumor as was at first attempted, still the teratoid nature of dermoid cysts, sacral hygromata, cysts about the neck or floor of the mouth, and their connection with obliterated fœtal canals has been repeatedly demonstrated by Bland Sutton and others. Virchow showed (Ueber die Bildung von Knochencysten, *Berliner Akad. der Wissenschaft.* 1876) that cysts occurring in the shafts of long bones and in the jaw could be traced back to islets of cartilage which had become separated from the epiphysis, and which he was able to demonstrate in normal bones.

Of course the complete proof of the congenital nature of these forms of renal adenomata, whose cells differ from renal epithelium, can only be furnished when the structures which give rise to them have been detected in the kidneys and their source

recognized. This can only be done by the careful examination of a large number of embryos in comparatively early stages of development. On the other hand, in view of the small number of observations in this direction, and the fragmentary state of our knowledge of the development of the kidney, the absence of such evidence does not negative this view. On the contrary, we have seen, on the one hand, that it is in accordance with the tendency of adenomata in other regions to remain true to the cellular type of their parent tissue, while, on the other hand, the proof of the teratoid nature of other anomalous growths has been found forthcoming when carefully sought for.

For the present, I would suggest, as a working hypothesis, that the only true renal adenomata are those of the convoluted tubules, and (perhaps) the papillary form found in the pyramids.

While this view as to the heterologous nature of renal adenoma has been suggested by the fact that the histological features of the tumor in this case differ so widely from those which might be expected in any growth developed in normal kidney, I am not able, from examination of the specimen, to throw any light as to the tissue from which it is derived. The peculiarities of the specimen consist in the non-renal appearance of the epithelial cells and their intimate relation with the finer filaments of the stroma. The tumor, however, shows in places such marked degenerative changes, that one cannot help wondering whether, even in the best preserved portions, the peculiar structure of the cells may not be due to a process of involution.

The relatively large, polygonal cell-bodies, composed of clear, translucent, fat-containing protoplasm, with distinct, sharp cell-wall and small, round, centrally-placed nuclei, have certainly more resemblance to the epithelium found in sebaceous glands than to that of any other region.* Two undoubted cases of sebaceous cyst of the kidney have been recorded. One by Paget (*Surgical Pathology*), the other by Madelung (*Centralblatt für Chir.*, 1888). A third (doubtful) case has been observed by

* This similarity in the section of tumor hardened in alcohol seems to be due to the extraction of the fat which lay in the cells in the fresh condition, leaving the cell body shrunken and making the cell wall unusually distinct. The cells, too, in any case, are larger than any sebaceous cells I have seen.—[J.]

Schlegenthal (*Langenbeck's Archiv*, Bd. xxxvi). In all these cases other typical epidermal structures were detected, and, as in the present case none were found, and no cases of pure adenoma of the sebaceous glands, unaccompanied by epidermis, are recorded, I think that the resemblance is only apparent and due to a degenerative process in the cell-body, the result of slow growth and defective nutrition.

As to the possibility of the tumor belonging, after all, to the class of aberrant supra-renal strumæ it is not easy to express a positive opinion. The cells of these tumors often contain fat-drops, and fat-containing cells are normally found in the supra-renal cortex. The arrangement of the supra-renal tumors as to epithelium, as far as shown by the specimens I have examined, is dendritic and in columns, rather than tubular and in alveoli. The columnar and not the tubular arrangement is one characteristic of normal supra-renal cortical tissue, and supposing we are correct in assuming that the arrangement of the tumor remains true to its physiological prototype, tubular adenomata would not be derived from supra-renal tissue. The occurrence of aberrant struma in the kidney does not exclude, but rather renders probable, the occurrence of other heterologous growths. Formerly, when renal tumors were not removed by operation, more carcinomata and fewer adenomata were reported. In the present case it cannot positively be stated that this tumor might not have become cancerous, though the absence of metastasis and infiltration of the adjoining kidney substance as well as the microscopic appearance of the tumor itself seems to negative it. All that can be stated of the tumor here described is that it had existed for a long time in the kidney, possibly from an early period of fœtal life. Subsequent degenerative changes occurring in it, an incidental contamination by putrefactive bacteria (entering by the blood-vessels ?) caused the recent changes, giving the case the clinical changes it presented.

A CASE OF OBSTRUCTED INCOMPLETE INGUINAL HERNIA—HERNIOTOMY—DEATH.

By Stanley S. Cornell, M.D., Athens, Ont.

Patient, S. S., a farmer, aged 71 years.

Past History.—Twelve years ago, while suspended by his belly across the upper ends of the staves of a high sap-tub, and engaged in drawing sap from its bottom with a pail, the patient experienced the sensation of "something having given way" within his abdomen. This occurrence was subsequently attended with little inconvenience save the presence of an enlargement in the right groin. The "enlargement" was of the size of a hen's egg, soft and elastic; and in this condition it remained until the 28th November, 1890.

Present History.—Upon the 28th Nov., during the exercise of moving hay into a high loft, there occurred to the patient the consciousness that his "old weakness" had become exaggerated. Examination disclosed the enlargement in the groin increased to twice its original size; and with its altered condition symptoms of intestinal obstruction developed. Pain in the right groin, radiating to the umbilicus and stomach; distension of the intestines; vomiting of matters biliary; constipation, and hiccough were the symptoms manifested. When these symptoms had been in progress two days, I was called in attendance.

I found the patient much depressed by the severity of pain, by the frequency of hiccough, and by the persistence of vomiting. The matters ejected from the stomach consisted of partially digested food mingled with bile and a peculiar muddy matter made up of fine brownish particles. From the vomit was emitted an odor sour and fecal. The tongue was coated with a grayish-brown fur, existing in the form of patches irregularly scattered over its dorsum. The pulse was weak and compressible, and constipation was still present. Examination of the groin revealed the following: A tumor the size of a large goose-egg, slightly elastic and greatly distended, situated a half-inch above Poupart's ligament, midway between the anterior superior spine of the ilium and the pubic symphysis, and giving a flat percussion-

note. The movements of the tumor—or, properly, hernial mass —under manipulation were very limited, and the act of coughing transmitted no impulse to it. The overlying skin was not altered in color from the normal.

The gravity of the situation was fully explained to the patient, and the necessity of the operation of taxis or herniotomy discussed; but this appeal was met by a request that mild measures be first employed. Accordingly, retirement to bed in a warm apartment, the local application of hot stupes, the internal administration of iced milk and morphia, were prescribed, and purgatives interdicted. Unfortunately, these measures were neglected, and the patient heroically walked about the house and upon an adjacent lake-shore.

By the following morning these symptoms were not ameliorated, pain, vomiting and hiccough having continued without intermission. Further advice as to the propriety of operating being unheeded for another twenty-four hours, and the symptoms taking on more urgent characters, I asked that a consultant be called. The latter arrived twelve hours later, and confirmed my opinion that reduction must be immediately effected by either taxis or herniotomy.

The Operation.—The required instruments for operation were immersed in 1 to 30 carbolic solution, the abdominal, pubic and scrotal hairs were removed with the razor, and the denuded parts thoroughly scrubbed with a 1–1,000 perchloride of mercury solution. The patient was now deeply anæsthetized, and an attempt at reduction by taxis made. This failing to effect any diminution in the size of the hernial tumor, the operation of herniotomy was begun. An incision was conducted through the skin to the underlying fascia from the base of the outer aspect of the hernial mass to a point one-half inch external to the spine of the right pubis. Beneath the first layer of fascia another layer containing fat was encountered and divided upon the director; then a small number of muscular fibres was incised, and the sac of the hernia came to view. Although I made this dissection with care, I regretted not being able to demonstrate the elegant arrangement of hernial coverings so well described

in text-books of anatomy and surgery; but it is probable that the long time involved in the incarceration of this hernia induced induration and adhesion of tissues.

The Sac: its condition and treatment.—The sac was pear-shaped, rounded inferiorly, and elongated at its superior portion; thick and elastic, and of a bright-red color. Over its surface existed a number of small distended veins. The reaction of color upon pressure of the finger was prompt. The nature of its contents could not be definitely known from physical examination, but it is probable that omentum and intestine—the former in larger proportion—were present.

At this stage of the operation, the respirations ceased, the pulse was imperceptible at the wrists, the eyes were fixed, and the face and arms deeply cyanosed. As this condition of depression was thought to depend more upon the lowered vitality of the patient than the quantity of ether inhaled, and as it was evident that a prolonged operation would be met by death upon the table, exploratory incision of the sac was neglected. The finger, carried upward upon the neck of the sac, encountered an impervious constriction, whose division was effected by the introduction of a blunt-pointed bistoury upon the flat, the insertion of its point within the internal abdominal ring, and the approximation of its cutting-edge to the inner and central portions of the internal pillar. Two slight nicks made in an upward direction enabled the finger to sweep the circle of the ring and break a few remaining adhesions. Taxis being still ineffective, resort to downward traction of the sac was had, and a narrow band of firm fibrous tissue was discovered encircling its neck. This was divided, and at once the contents of the sac noiselessly escaped into the abdominal cavity. After this the sac was easily reduced. It is important that I should here remark that the sac was introduced WITHIN the ABDOMINAL CAVITY by means of a CLEAN finger. A drainage-tube was inserted deeply in the wound-cavity; deep sutures of ASEPTIC silk were employed to bring the divided fascial layers together; and coarser silk to approximate the edges of the skin-wound. Over all, iodoform gauze, absorbent cotton, and a sublimated gauze spica were applied.

Post-Operation Period.—Extreme depression followed the operation, the pulse being feeble and the skin of the whole body cold. The cardiac tone became so much reduced, and the symptoms presented such evidence of vital failure, that hypodermic injections of whiskey were given, and bottles of hot-water applied to every accessible portion of the body. Soon signs of returning power manifested themselves by increased tension of the pulse and a greater degree of warmth of the body. But this improvement of reaction was at once combated by delirium, in which the patient would arise violently, throw himself from side to side, and talk at random. In addition, hiccough redeveloped and became a high-pitched, prolonged, squealing inspiratory sound, in which breathing and articulation were seriously interfered with. Vomiting of matters of an indeterminate character also occurred at intervals. The hypodermic administration of a quarter-grain of morphia was followed by a temporary subsidence of delirium, hiccough and vomiting; but their recurrence rendered it necessary to repeat the injection after the lapse of two hours. The second administration procured a fitful sleep during the night.

FIRST DAY AFTER OPERATION.

Morning.—The pulse is small, weak and rapid, and the extremities are cold. Pain is not present, but in its stead is experienced a sense of soreness at the seat of incision. The stomach is free from nausea. Although a clear idea of current events is shown by rational discussion, there is manifested a peculiar anxiety with reference to anything that pertains to the possible results of the operation. Occasionally a question irrelevant to anything in relation to himself and not bearing upon any answerable subject betrays the patient's delirium. Cough is present. The abdomen is not distended to a greater degree than before operation; and constipation is still present. The urine was voided voluntarily during the night.

Treatment.—Iced milk, with a large proportion of cream, in tablespoonful quantities by the mouth every three hours will be administered, and pellets of ice be given as often as the patient

desires. The room is to be kept at a temperature of 80°F., and sufficient clothing applied to the patient to impart general warmth.

Evening, 7 *p.m.*—The pulse shows diminished tension and volume and increased rapidity. The extremities and face are cold. The patient visibly attempts to evade a conviction of ill-feeling by an anxious inquiry into matters extraneous to himself. The skin of the extremities is relaxed, and the face has taken on a sunken appearance associated with a dusky hue. Hiccough, absent during the day, has returned, and with it vomiting of milk and a dark, faeculent matter. The patient is free from pain, the intestines are still distended, the abdominal muscles are not rigid in any region, and voluntary urination has occurred twice since morning. Constipation is still present. 9 *p.m.*—The hiccough has assumed such increased severity, and so threatens the complete performance of respiration, that morphia (¼-gr. will be given hypodermically. Rest now follows the injection of morphia, and there are evidences that its full physiological effects will be manifest. The pulmonary physical signs indicate the presence of large and small moist râles in all regions anteriorly and laterally.

SECOND DAY AFTER OPERATION—DEATH.

Morning.—The patient lies in a narcosed state. The pupils are minutely contracted, and the respiratory acts are stertorous and carried on at long intervals. The pulse is small, weak and intermittent, and the extremities are cold, relaxed and bluish. Attempts to arouse the patient are met by momentary answers intelligently given; but the condition of stupor again manifests itself, and urging with the fingers and by the voice elicits no response.

Treatment.—$\frac{1}{10}$ gr. pills of nitro-glycerine every two hours; hot broth, strongly seasoned with pepper; and hypodermics of whiskey frequently repeated.

Afternoon.—The condition is not altered. 3.10—The patient, in response to a loud interrogation, has just told me he recognizes my identity by pronouncing my name. 3.15—Death has occurred, the respirations being easy and noiseless.

Cause of death.—Heart-failure dependent upon prolonged obstruction and gangrene (?) of incarcerated intestine; and upon pulmonary œdema.

Post-mortem appearance of the wound.—The edges of the inner two-thirds of the wound are firmly approximated by the presence of a hard, lymph-like substance glistening in appearance; and in the drainage-tube is detected a small quantity of reddish serum.

CHOREA: ITS RELATION TO RHEUMATISM AND TREATMENT.

By George A. Brown, M.D., Montreal.

Having had a few cases of chorea in practice, which impressed upon me the fact that there was some peculiar connection between chorea and rheumatism, has induced me to write a few words on this subject.

It is not a new idea that chorea is related to rheumatism, for as early as 1850 Dr. Kirkes (in an article in the *London Medical Gazette*) speaks of the relation, and says "that future experience will still more positively demonstrate that an affection of the left heart, with the presence of granular degeneration, is almost an invariable attendant upon chorea, under whatever circumstances it may be developed."

Lately this subject has again been brought to the notice of the medical profession, and during the last few years several very interesting articles have been written on chorea as a rheumatic manifestation.

There are still some very eminent men who do not agree with recent writers, and amongst them is Dr. Hammond of New York, who says "that while it is certainly the case that chorea exists coincidently with rheumatism, its influence is nothing more than a depressant." He considers the disease to be a neurosis.

Dr. Gowers says "that it is impossible to regard chorea as a result of rheumatism, since each disease occurs frequently without the other, and no relation has been traced between chorea and the common cause of rheumatism, exposure to cold."

I will now give the main facts in favor of chorea being a rheumatic manifestation.

It is a well-known fact that rheumatism may develop before, during, or after an attack of chorea. Having had a case in practice lately which bears very much on this point, I will give a brief sketch of her history.

S. A., girl, aged 12, came to me, Aug. 24, 1890, complaining of choreic movements of the left side of the face, arm and leg, which began about eleven months ago. The movements were so severe at first that she could not speak plain, and deglutition was very difficult. On making a physical examination of the chest I found a mitral systolic murmur, with hypertrophy of the left ventricle. Her past history was good; never had rheumatism. *Family history*—Mother and father both had rheumatic fever.

Ten days after seeing patient (Sept. 3, 1890) parents noticed that the choreic movements were beginning in the right hand, and at the same time she was complaining of pain in the right metatarso-phalangeal joint. The next day there was general chorea and the pain increased in severity.

Four days after the pain commenced I saw the patient, and found her suffering from severe general chorea and pain in the great toe. On examination, I found the right metatarso phalangeal joint of great toe swollen, hot, red, and very tender: temperature 101°; pulse 108. Mitral murmur was much louder. Under the influence of salicylate of soda and rest in bed the rheumatic manifestation soon disappeared, and at the same time there was a marked improvement in the choreic movements. The salicylate was stopped and the patient put on Fowler's solution.

On Sept. 18th, 1890, I found that the choreic movements had left the left side of the body and were confined entirely to the right side. On Sept. 24th I was sent for again. Mother told me that the movements had disappeared for a few days; but that she had taken her out on a cold day, and on returning she complained a great deal of cold. During the night she was very feverish; choreic movements returned on both sides, and with

them an erythema of both arms and legs. Temperature 101° at time of visit. Under the influence of salicylate of soda the fever and rash disappeared, and the chorea improved so much that I decided to continue the salicylate and the arsenic together. After one week, movements left the right side of the body, and in two weeks time had ceased in the left side.

From the above case I think there is evidence to prove that the chorea and endocarditis were caused by the rheumatic poison which we know was present, as the patient developed an attack of rheumatism during the chorea. When the rheumatic attack occurred, it aggravated the disease, causing the chorea to become general. Therefore, I think one is justified in saying that the chorea of the right side was due to the rheumatic poison, as they both occurred simultaneously; and if one admits that the right-sided chorea was due to the rheumatic poison, then why not the chorea of the left side and the endocarditis due to the same cause?

I will give a short synopsis of one or two cases reported by Dr. Cheadle, where rheumatism occurs before or after chorea, and which show the intimate connection between the two diseases.

A. T., girl, aged 10, with rheumatic history, admitted to hospital June 26th, 1889, with chorea and morbis cordis. She had had three attacks of rheumatic fever, the last attack occurring six months before entrance to hospital. During the last attack morbis cordis developed. Chorea commenced a fortnight before admission. Nineteen days after admission severe pericarditis set in with joint symptoms. This case shows that the rheumatic poison must have been very active before and during the chorea.

A. W., girl, aged 16, admitted to hospital with stiffness, swelling and tenderness of the wrists, knees and ankles. Never had any joint affection before. Four years ago had chorea. Examination showed signs of mitral disease and increased præcordial dulness, showing that the disease was of old standing and caused by the chorea. Mother and sister had rheumatic fever.

W. T. D., boy, aged 8. A year ago had an attack of chorea brought on by fright, and followed six months later by arthritis. Six months later another attack of chorea and tonsillitis. Exami-

nation of heart: loud mitral systolic murmur. It appears as if the chorea and rheumatism were interchangeable in this case.

The statistics of the Collective Investigation Committee show that of 439 cases, 116 or 26 per cent. had acute or subacute rheumatism before chorea, also 63 had rheumatic pains, making a total of 179 or 40 per cent. They do not give the number of cases which occurred during or after chorea, which would increase the per centage.

In nearly every fatal case of chorea there are vegetations on the mitral valve identical with those of acute rheumatism. In all the above cases there was a mitral lesion, and in two of the cases it had developed before any rheumatic manifestation had appeared. Sturges reports 80 fatal cases, with only five where the valves were healthy. Dr. Fagge reports 18 fatal cases, with only one case where the vegetations were absent. This seems to me to be an important fact, as how could a neurosis, pure and simple, cause this pathological condition.

As to the causation of the endocarditis there are two different opinions,—one, that the chorea itself causes the endocarditis: the other, that it is caused by the rheumatic poison. I think the latter view is the correct one; for in the case reported by myself it was evident that the chorea was caused by the rheumatic poison, knowing that in the majority of cases endocarditis is caused by rheumatism. I think it is fair to assume that the endocarditis in that case was due to the same cause.

Dr. Gowers says "that organic disease of the heart is present in three-fourths of the cases with family history of rheumatism, and that it is only present in one-third without a family history," showing that the rheumatic diathesis must have some connection with organic disease of the heart.

The next point of interest is that in the majority of cases there is a family history of rheumatism, or some rheumatic manifestation has occurred at some time in the patient's life. The report of the Collective Investigation Committee shows that of 439 cases, 199 or 45 per cent. had a distinct rheumatic history, and if one adds the rheumatic or ague pains, it increases the per cent. to 57. Dr. Barlow found rheumatism to be present in

57 per cent., exclusive of family history. Dr. Cheadle, who says that he took particular care inquiring into this point, found it to be 73 per cent. I have had three cases since I left the General Hospital, and during my residence there I had charge of two, and in each case there was a rheumatic history. Although there is not a rheumatic history in every case, yet it is a striking fact that it is present in almost three-quarters of the cases. Every one knows how difficult it is to obtain a family history from some patients, who do not remember much about their relations, and still these cases are put down as having no family history, when there might be one unknown to the patient.

The statistics of the Collective Investigation Committee prove that chorea is more frequent in girls than boys, which agrees with the view of chorea being a rheumatic manifestation, as the statistics of acute rheumatism (Goodhart) show that it occurs more frequently in girls than boys under twenty.

Dr. Sée said "that chorea had a tendency to become localized to one side in one-third of his cases"; besides being localized, it may cease in one side and affect the other. This latter manifestation was very marked in the case reported by myself, and, I think, can be explained by the erratic nature of the rheumatic poison, which seems to have the power of affecting individual structures.

Different authorities hold that chorea is caused by fright. This fact has been recorded and several well-marked cases reported; but if one goes a step farther, and examines the evidence, there is often a rheumatic history. And on examining the heart during life, a mitral systolic murmur is often found; if not, when death supervenes, a mitral lesion is found at the autopsy. In the first part of this paper I gave a case report where the chorea was caused by fright, and during the attack a mitral lesion developed. The patient recovers from an attack, but six months later has an attack of rheumatism, and six months later has a second attack of chorea without any exciting cause. Dr. Wilks reports a case of a boy who had chorea immediately after being terrified by a gunpowder explosion, resulting in death, and at the autopsy an inflamed mitral valve was found. There

are very few cases where chorea has occurred immediately after fright, while the majority of cases take from one to two weeks. That fright can affect the nervous system is well illustrated by the complete arrest of digestion after a mental shock. If fright can affect one part of the nervous system, then why not affect the vasomotor system, thereby interfering with metabolism, and, with a rheumatic predisposition, cause an excess of lactic acid, which acts on the nervous system on account of its lowered vitality or instability, which is common in childhood. This would explain the interval between the fright and the chorea. The fright may be the exciting and the rheumatic poison the predisposing cause.

Finally, I think that in the majority of cases chorea is a rheumatic manifestation; but admit that there are other causes, as organic disease of the brain. This is shown by the autopsies of Guy's Hospital, where 14 fatal cases were due to intercranial tumor. My own opinion is that it is always a manifestation of some other disease, as rheumatism or organic disease of the brain. From the following conclusions it is evident that in the majority of cases it is a rheumatic manifestation:

(1) That rheumatism may precede, concur or follow an attack of chorea, which is the only disease which does so.

(2) That they have a common lesion, namely, endocarditis, and sometimes pericarditis.

(3) That in the majority of cases there is a rheumatic history.

(4) That it is more frequent in girls than boys, which is also true of rheumatism.

(5) That it seems to have the power of shifting from one side to the other, which is characteristic of the rheumatic poison.

(6) That there is generally an emotional excitability in both diseases.

Treatment.

The treatment of chorea is often very unsatisfactory, as certain cases will persist no matter what is done for them. The first great point in the treatment of chorea is rest for the nervous system. It is a well known fact that when choreic patients enter a hospital and are compelled to remain in bed, and have no

excitement, they get well quickly. I think that a great many of the severe choreic cases are due to this fact, as the patient is generally subject to exciting causes during the day.

If patients were put to bed it might worry them so that you would only defeat your object. I think there is one way of getting over this difficulty, by making the patients sleep during the afternoons. Give them some hypnotic at first and after a time they will sleep of their own accord. The medicinal treatment has improved of late years. Sulphate of zinc has held its place for a long time, but has lately given way to arsenic, which is held by some writers to be a specific; but this is not true, as in a great many cases it fails.

The favorite preparation is Fowler's solution. It is given in small doses at first, from three to five minims, and then increased up to fifteen, or until the drug produces its toxic symptoms. Arsenic has been used very successfully hypodermically in choreic cases. Dr. Hammond says "that when you produce toxic symptoms by the stomach, to continue it hypodermically in increasing doses. In this way the toxic symptoms subside." He has given as high as thirty minims at the commencement, and increased it to fifty. He also says that it is liable to produce abscess if the following precautions are not observed. First remove the lavander and reduce the Fowler's solution to one-half, using glycerine as your diluent, as it is the least irritating. Also introduce the syringe where the skin is moveable, as in the forearm. Iron has generally been given to improve the blood. Salicylates have, as a rule, failed.

Having advocated chorea as a rheumatic manifestation, it appears that anti-rheumatic treatment is not much good. During the treatment of my last case I was surprised with the rapidity with which the case was cured by a combination of salicylate of soda and arsenic. The case had lasted for eleven months, and there was no improvement, although arsenic had been faithfully tried by two medical men. When the rheumatic attack occurred, and she was saturated by salicylate of soda, and when the salicylate was stopped and she was placed on arsenic in increasing doses, she recovered in four weeks time. When the choreic

movements returned again, and she was placed on the two together, she recovered in two weeks. The salicylate was at first pushed and then continued three times a day, at the same time the arsenic was given in increasing doses. As there are no statistics on this combination, I am not prepared to say that it will reach the same in every case; but if there is a case with a distinct rheumatic history, I think one ought to get the same results, as no doubt the salicylate controls the rheumatic poison while the arsenic acts as an alterative to the nervous system.

RADICAL CURE FOR FEMORAL HERNIA.*

By Kenneth Cameron, M.D.

On June 20th, 1890, Mrs. H., aged 41, consulted me for a small, painful swelling in the left groin, which proved to be a partly reducible femoral hernia.

Past History.—Her general health had been excellent. She was a very stout, but very active woman; married three times, and pregnant twelve times, of which two sons only are living. About four years ago her house caught fire, and in her hurry to remove her furniture, while going down stairs, she took a false step and strained herself, at the same time felt something give in left groin and discovered a small lump about the size of an almond, which was easily reduced. A few days after this she had an abortion at the third month, and from that time she began to fail in health and to lose flesh rapidly. About a year and a half ago, after the death of her youngest child, she began to have attacks of loss of consciousness, which at first only occurred occasionally, but gradually increased in frequency until now there is not a day during which she has not two or three. At first they come on often without apparent cause, but more frequently with any emotion or sudden sound, while now the slightest sudden noise, such as rapping at the door or even speaking to her suddenly, may precipitate an attack, while one always occurred if there was much difficulty in reducing hernia. Appetite became very capricious; she would refuse nourishing

* Read before the Medico-Chirurgical Society of Montreal.

food and crave for indigestible articles of diet, and has recently been indulging in considerable amount of stimulants in the form of beer, which I stopped, without any apparent benefit. Shortly after these fits began she could not tolerate the truss she had been wearing, the result being that the hernia remained down nearly all the time and rapidly increased in size, rendering her unfit to carry on her work. On one or two occasions there was a good deal of difficulty in reducing it, but never so great as to render medical aid necessary.

Family History.—There is no neurotic tendency, but a marked tubercular taint.

Present Condition.—The patient was found to be well developed, but very poorly nourished; muscles very soft and flabby; complexion sallow and anæmic; hyperæsthesia over the lower part of the abdomen, and especially in the left groin, where a lump about the size of a walnut could be seen, which she said was excessively painful and would hardly permit it to be touched, but when her attention was engaged in answering questions the tumor could be handled freely, though she remarked that it was painful; with coughing or straining it would become as large as an orange, and this could be reduced without difficulty. Heart sounds were weak, but otherwise normal; pulse weak and compressible; lungs showed no sign of disease. There were no symptoms indicative of uterine derangements, and she thought that she was two months pregnant. Urine diminished in quantity but healthy. Appetite entirely gone, the stomach being very irritable, so that she can retain only a little hot tea. Bowels moved only by purgatives or enemata. Mind and memory seem perfectly clear; patellar reflexes active.

She attributed all her symptoms to the hernia and begged that some operative measures might be resorted to for her relief. Symptomatic treatment was then begun. Oxalate of cerium and bismuth checked the vomiting so that she could retain a little milk and bovinine, followed by quinine, with iron when the stomach would tolerate it.

During this time I had several opportunities of seeing her in the fits. Having been brought on by some slight cause, she

would drop down quietly wherever she happened to be; she would be carried to her bed or couch, where I usually saw her. She would be lying perfectly still, with legs straight and toes extended, hands clenched; no spasms or convulsive movements were ever detected; face much paler than usual; eyes drawn up, corneal reflex sometimes, though not always, absent, pupils dilated and equal; breathing hurried; pulse very weak, almost imperceptible at the wrist. A loud sound might cause her to open her eyes, but she would close them again and remain in same condition; she would remain so from a few minutes to hours. The fit usually terminated by her suddenly opening her eyes and staring about in a dazed manner, when she would either recover completely or relapse into another fit. She was, as a rule, very quiet except during a thunderstorm, when she always had an attack, and would become very violent, several persons often being required to hold her.

After a month's treatment with but little improvement, an operation was decided on and carried out on July 22nd with the assistance of Drs. Allan, Springle and A. W. Gardner. The sac was exposed and opened, when a small piece of omentum was found to be adherent; this was cut off and the rest reduced. In order to tie the neck of the sac as high as possible, ligatures of silkworm gut were passed from above Poupart's ligament round the neck and back, and tied. The sac was then pushed up as far as possible into the ring and held there by deep sutures. The wound was closed and dressed with iodoform and sublimated gauze. There was a good deal of pain for the first three days, but this ceased after a free purge by sulph. of magnesia. From that time she steadily improved. The wound united well except at a stitch-hole and drainage-tube wound. Later on the deep sutures broke down and were removed by a small incision, and ten days after the wound was completely healed. Having been kept in bed for six weeks, she was allowed up, with a well-fitting spica bandage for support. From the time of the operation there had not been any of the fits; on one occasion, during a thunderstorm, she got very excited, but showed none of her former symptoms. Her appetite returned, her bowels became regular,

she began to put on flesh rapidly, and claimed that she had not felt so well for several years.

On Sept. 27th she took a drive in a street car to the other end of the town, and that night she had an abortion. Dr. Springle attended her, as I was out of town, and from which she recovered in ten days. From that time she has been going about her housework wearing a soft water-pad for support. With the exception of two illnesses, she has been enjoying fairly good health, and at the present time the wound is firmly united, there is no indication of return, and not the slightest impulse conveyed to the hand on coughing.

Such is the case from the physical point of view, but there is a moral aspect which it would be well to consider.

The patient is a Jewess by birth, but her present husband is a Christian. For this reason she was shunned not only by the rabbi and her people, but even by her own son by a former Jewish husband. When she let it be known that an operation was going to be performed, her son at once went to see her, and was soon followed by the rabbi and her former friends. But this did not alter her condition in the slightest. During her stay in bed they were very attentive to her and have now become thoroughly reconciled.

Although I consider that the operation was the most important factor in the relief of the symptoms, I cannot help but think that the reconciliation with her co-religionists had an important bearing on the case.

REPORT ON THE TREATMENT OF PULMONARY TUBERCULOSIS BY KOCH'S METHOD,

In Dr. MacDonnell's Wards of the Montreal General Hospital.

By Dr. W. D. Smith, *House Physician.*

When this plan of treatment was first practised in the Montreal General Hospital (December 19th, 1890) surgical patients were selected, because in them the manifestations of the disease and the effects of the fluid upon it were more readily observed. The following cases of pulmonary tuberculosis, without external disease, were subjected to treatment, beginning Jan. 12th, 1891.

Case I.—The patient, M. M., aged 18, was employed in the G. T. R. shops up to August last, but for the past fifteen months he has been in bad health, having suffered at first from cough, expectoration, debility, loss of weight, with shortness of breath on exertion, and occasional night sweats, symptoms from which up to the present date he has never been entirely free. No history of previous illness except measles when a child. The family history is negative, the father having lost his life by accident while young; the mother is alive and healthy; a sister died in infancy. No relative died of phthisis.

The patient was first admitted on the 22nd of October, 1890, and remained six weeks in the institution. Previously to admission he had been losing flesh rapidly and the cough was very frequent and racking. It was noted on admission that he was pale and ill-nourished; weight 108 lbs. The physical signs then present indicated consolidation of the right apex and commencing disease in the left. No evidences of disease were noted elsewhere. During his residence in hospital the temperature register was carefully kept. The range was low throughout. The morning temperature was 97° to 98°, generally being just above 97. For one week it was a little higher than usual, being 98.4° to 98.8 for six mornings. The evening temperature never reached 100°. In fact the temperature might be said to be almost constantly normal. The pulse was counted morning

and evening, and it varied between 88 and 100. The respirations never exceeded 24. During the six weeks he gained weight to the extent of ten pounds. A cough, which was worse at night and towards morning, was the only symptom present. Elastic tissue and a small number of tubercle bacilli were found in the sputum.

This case was considered suitable for the Koch treatment, because (1) the disease, though well pronounced, had not destroyed a large area of lung; (2) the patient having been under close observation for six weeks before beginning treatment, deviations from the regular course of the symptoms following the administration of the fluid would be more noticeable. Inasmuch as the temperature, for instance, had never reached 100° it would be fair to assume that any elevation to a higher point than that would be the result of the treatment.

On the 3rd January, 1891, he was re-admitted for the purpose of being submitted to Koch's treatment. He told us that there has been no change in his condition since he was discharged. He has lost weight, for he weighed but 110½ lbs. against 118 lbs. on the day of his discharge. The cough has been no better; the expectoration has been scanty. No night-sweats. From time to time there have been slight pains in the upper part of the right chest. Appetite has not been good. Bowels have been fairly regular.

Jan. 12th, 1891.—The following notes were taken before the inoculations were begun: A thin, ill-nourished youth, somewhat anæmic. The chest is flat from before backwards, and especially just below both clavicles. Expansion is markedly diminished over upper right front. The chest measurement on a line with the nipple is 30½ inches on expiration and 33 inches on inspiration; the left side measures 15 inches on expiration, 16 inches on inspiration; the right side measures 16 inches on expiration and 17 inches on inspiration.

Right side of chest.—From the apex to the lower border of the third rib there is pronounced dulness on percussion, the lower limit of which is fairly well defined in front, but less so in the axilla, where it reaches to the 3rd rib. Behind there is also

a dull note on percussion as low down as a level midway between the spine of the scapula and its angle, but this lower limit is not so clearly defined as in front or in the axilla. Over this dull area vocal fremitus is increased. The breathing at the apex is decidedly harsh, and perhaps might be called blowing. This state of the breath sounds is uniformly present over the upper part of the lung in front, but behind it is not so marked. Over the front of the right lung, in the axilla and over the upper of the dull area of the back, small moist râles are audible just at the end of inspiration. Above the level of the second rib in front these are of a less moist character. The vocal resonance is manifestly increased over the upper part of the lung, but there is no bronchophony. Over a small area, about one inch in diameter, just under the right clavicle, its existence was suspected.

Left side of chest.—At the upper part of the chest, just under the clavicle, the pulmonary note is not of normal clearness, and the note in the supra-spinous region is of the same character. Throughout the rest of the lung the note is quite clear. There is no increase in vocal fremitus. No adventitious sounds or increase in vocal resonance.

From the 3rd January to the first inoculation on Jan. 12th, the pulse, temperature and respirations were taken every two hours, day and night. The secretions were all examined. The expectoration was daily measured and submitted to bacteriological examination.

Dr. Wyatt Johnston's report on the sputum before inoculation:

Jan. 5th, 1891.—Sputum muco-purulent, thick and tenacious; amount, half an ounce in twenty-four hours; contains numerous small fragments of elastic tissue. Tubercle bacilli scanty; not found in every microscopic field, but some present in every specimen examined. They occur singly as a rule. Hardly any other bacteria present.

Jan. 6th.—Sputum one ounce; same characters as before. A few tubercle bacilli found in every field.

Jan. 7th.—Sputum half an ounce; same character.

Jan. 8th.—Sputum lost.

Jan. 9th.—Sputum half an ounce. Tubercle bacilli more numerous, about fifty occurring in every field.

Jan 10th.—Sputum one ounce, of same character; bacilli same as yesterday.

Jan. 11th.—Sputum half an ounce. Tubercle bacilli rather more numerous; a few clumps of bacilli found.

Jan. 12th.—Sputum one ounce, chiefly clear mucus, containing tough, opaque-yellow streaks; these contain a few tubercle bacilli in every field.

PROGRESS OF CASE.

First Injection, .001 cc. at 11.50 A.M., Jan. 12th. No change was observed other than that the moist râles were more numerous.

Second Injection, .002 cc. at 3 P.M. Jan. 13th. At 6 P.M. the temperature was 100°. At 10 P.M. complained of dizziness. On following day there was loss of appetite.

Third Injection, Jan. 15th, at 12.10 P.M., .002 cc. No result.

Fourth Injection, Jan. 17th, at 12.10 P.M., .003 cc. Up to date the most important change is a decided loss of weight.

CASE II.—Michael C., aged 28, admitted Jan. 6th, 1891, for the first time, complaining of cough with expectoration and loss of weight. The illness dates from the influenza epidemic of last year, which was said to have left him in a very weakened state. On or about the 1st September last he suffered from severe pain in the side with cough, and was confined to his bed for a week. Since then he has been subject to severe attacks of coughing, which are wont to come on in the evenings and the early mornings. The expectoration has been scanty. About six weeks ago coughed up half a wineglassful of frothy blood, and on one or two occasions since he has noticed bloody streaks in the sputum. No diarrhœa; no night sweating. He says that he has lost 10 lbs. in weight since Sept. 1st.

Family History.—Father died of "pleurisy" at 44, after an illness which lasted two years. Mother died of "inflammation of the lungs" at 54, after five weeks illness. Has two brothers and one sister alive and well. A brother is in hospital now with peripheral neuritis and pulmonary tuberculosis. Three of his sisters died in childhood of scarlatina. One died of phthisis at 28; another sister died of an unknown cause. Father's brother and two first cousins on the mother's side died of phthisis.

State on Admission.—Well built, well-nourished, muscular young man. Former weight said to be 146 lbs. Present weight

138½ lbs. Good complexion; no anæmia. Tongue clean; appetite good; bowels regular; moderate amount of perspiration at night, but no actual night sweats. Cough is present towards night, and is especially troublesome in the morning. The total amount of expectoration in the 24 hours is less than an ounce.

The chest is well shaped; there is deficient expansion on the right side, and flattening below right clavicle. Total measurement of the chest is 36 and 33 inches; total expansion 3 inches.

Right side of chest.—There is distinct dulness from the apex of lung to the lower border of the third rib in front, and to a level one inch below the spine of the scapula. The lower limit of the dull area in front is well defined, but, behind, the note gradually passes into fair pulmonary resonance. Vocal fremitus is not perceptibly increased. Over the dull area the breathing is harsh, and there is prolongation of expiration; small moist râles are audible over this part of the lung as well as at the extreme base, but in the intervening portion of lung no adventitious sounds are audible. Below the right nipple there is a small area over which friction is heard. At the apex, vocal resonance is increased.

Left side of chest.—No physical signs detected. Examination of other organs negative.

From Jan. 6th to Jan. 12th the temperature, pulse and respiration were taken every two hours day and night.

Dr. Wyatt Johnston's report on the sputum:

Jan. 7th, 1891.—Sputum opaque, thick, muco-purulent, half ounce in last twenty-four hours; contains numerous small fragments of elastic tissue. Tubercle bacilli very unequally distributed; sometimes as many as fifty are found in a single field of $\frac{1}{12}$ oil immersion, and sometimes five fields are searched before finding any bacilli. Some clumps of ten to twenty of the bacilli are met with. Micrococcus tetragenus present.

Jan. 9th, 10th, 11th, 12th.—Sputum examined daily; has become more nummular; on the 9th and 12th contained traces of blood; amount never exceeds half an ounce daily. Tubercle bacilli found in every specimen examined, but are never very numerous; not found in every microscopic field.

PROGRESS OF CASE.

First Injection, .001 cc. at 12.10 P.M., Jan. 12th. At 7 P.M. stitch-like pain in right mammary region. No other reaction.

Second Injection, .002 cc. at 3 P.M., Jan. 13th. The temperature reached 101° at 6 P.M. No other symptoms. (The temperature in the six days before inoculation had never at any hour of the day gone higher than 99°.

Third Injection, .003 cc., Jan. 15th, at 12.10 P.M. Result negative. Loss of appetite on the following morning.

Fourth Injection, .003 cc. at 2 P.M., Jan. 17th. No result.

CASE III.—Patrick B., aged 46, a barkeeper for the last thirteen years. History of chronic alcoholism not improbable. No venereal history. The family history points strongly to pulmonary tuberculosis. The mother died at 40; a brother at 26 of consumption. Three brothers and two sisters died between the ages of 10 and 15 years; the exact cause of these deaths could not be ascertained.

The present illness was said to have begun two years ago, when he was confined to bed two or three weeks with a severe cold. He had cough and free expectoration, lost weight, and on several occasions suffered from night-sweats. In three months he resumed work, and with the exception of a slight cold on one or two occasions he has been very well since, though he has never been quite free from cough. About a year ago his throat became sore and his voice hoarse. During the last three months has lost about 14 lbs. There is a history of a slight hæmoptysis about two years ago. Up to the time of admission he has been under treatment for laryngeal tuberculosis.

State on Admission.—A fairly well-nourished man, who has evidently been very muscular and active. Bright complexion. Weight 133 lbs. The voice is very hoarse, and rapidly becomes more so when he speaks for any length of time. Tongue clean; appetite poor; bowels generally confined. Never had any diarrhœa or hæmorrhoids. The chest is well formed; total expansion, two inches. Slight flattening above and below both clavicles, but more so on the left than on the right side. At the left apex there is slight dulness and a few dry râles. No other adventitious sounds are heard in any part of the chest. Vocal resonance is increased at both the apices. Pityriasis versicolor in

dark patches over the chest and abdomen. Pulse 80, regular; respirations 24. The liver dulness measures but three inches in the right mammary line. The urine is high-colored, specific gravity 1030; no sugar or albumen.

Condition of the Larynx.—Dr. Major reports as follows:—"Jan. 9th, 1891.—Swelling and œdema of the right arytænoid region; ulceration of the surface and edge of the posterior two-thirds of the right vocal cord and posterior third of the left vocal cord. General redness; slight thickening of the epiglottis."

The patient was kept under observation from January 5th to January 12th, and two-hour observation, as in the other cases, were made. The temperature has been found to range between 98° and 100.6°. The pulse has generally been about 80° and the respirations 24.

Sputum examined on Jan. 6th, 7th, 9th, 10th, 11th and 12th. The quantity varies from half an ounce to three ounces. It is composed for the most part of clear viscid mucus, in which small opaque streaks occur. These are formed of mucus strings with leucocytes and large epithelial cells. Several specimens of the sputum were examined on each occasion for tubercle bacilli, always with negative results.

PROGRESS OF CASE.

First Injection, .001 c.c. at 11.40 A.M., Jan. 12th. The temperature was 100° at the moment of inoculation and began to rise almost immediately, reaching 103° at 9 o'clock, when there was chilliness, but no distinct rigor. The following day no change in his condition was noticeable.

Second Injection, .001 c.c. at 11.30, Jan. 14th. No reaction.

Third Injection, .002 c.c. at 12.10 P.M., Jan. 15th. The temperature rose gradually to nearly 101°. Dr. Major reports no change in the larynx.

Fourth Injection, .002 c.c. at 2 P.M., Jan. 17th. No reaction. Temperature has been about 99° in the whole twenty-four hours.

In all three cases, no change has been noted in the cough or in the expectoration.

Retrospect Department.

RETROSPECT OF PATHOLOGY.

By Wyatt Johnston, M.D.,
Demonstrator of Pathology, McGill University.

Recent work bearing upon the possible parasitic nature of cancer. See also *Retrospect* for April, 1890.)

Parasitic (?) Bodies found in Cancers.—Dr. Wm. Russell of Edinburgh reports (*British Medical Journal*, Dec. 13, '90) the finding of a peculiar and characteristic organism in microscopic sections of cancer. These bodies varied considerably in size, ranging from half the size of a red blood corpuscle to one and a half times its size (4 μ to 12 μ in diameter). They were characterized by a peculiar staining reaction which caused him to give them provisionally the name of "Fuchsin" bodies.

"Directions for staining: 1. Saturated solution of Fuchsine in 2 per cent. carbolic acid in water. 2. One per cent. solution of iodine, green (Grübler's), in 2 per cent. carbolic acid in water. Place section in water. Then stain in fuchsine ten minutes or longer. Wash for a few minutes in water. Wash for *half a minute* in absolute alcohol. From this put the section into the solution of iodine green and allow it to remain, well spread out, for *five minutes*. From this rapidly dehydrate in absolute alcohol, pass through oil of cloves, and mount in balsam."

Sections from forty-three cases of cancer were examined, the bodies being found in all of them. The cases included "malignant epithelial growths" of the lips, face (rodent ulcer), antrum, mamma (both primary and recurrent), prepuce, cervical glands, stomach, liver, spleen and abdominal glands, suprarenals, uterus and ovaries.

In order to check these observations, sections from over fifty specimens of non-cancerous tissue were examined, with almost invariably negative results. The fuchsine bodies were not found in sections of inflammatory lesions of the lungs, bowels, or meninges, nor in tuberculosis. The examination of sections from an embryo at the 4th month, fatty and amyloid degenerations, different forms of sarcoma, and, in short, all the other kinds of

pathological material that he could think of, gave negative results.

No details are given as to the methods of hardening used beyond the fact that the bodies were found in a number of old laboratory pickles prepared by the ordinary methods.

The bodies were only found in five specimens which were not distinctly cancerous. In two of these—a case of chronic sinus and one of chronic ulcer of the leg—he thinks that external infection was possible, and points out that chronic ulcers tend to become cancerous at times. They were also present in one case of obstinate syphilitic ulceration, where the disease was so intractable as to suggest the possibility of there having been dual infection.

Dr. Russell is inclined to regard his "fuchsine bodies" as a fungus belonging to the yeast group. No very clear information as to its minute structure is given, and it is difficult to see why it has been thus classified. To determine the nature of those bodies more delicate methods of hardening and staining will be required, and, as any attempt to show a connection between these bodies found *in sections* of hardened tissues and any appearances seen in the fresh cells, is conspicuously absent, this portion of the work seems absolutely valueless.

On the other hand, the large amount and variety of non-cancerous material examined with negative results, and the constant presence of the bodies in all forms and varieties of cancer, if confirmed by other observers, suggest a new and valuable means for diagnosing cancers under the microscope. The method is simple enough to be used by anyone fairly familiar with microscopical werk.

Prof. W. H. Welch of the Johns Hopkins Hospital, Baltimore, (*J. H. Bulletin*, No. 8, 1890), demonstrated microscopical specimens of carcinoma which showed peculiar intercellular formations corresponding to those described as sporozoa and similar parasites, and presumably to those described by Russell, in specimens preserved in Fleming's fluid (chrom.-acet.-osmic acid mixture), Dr. Welch thinks it premature and unwarranted, from any evidence yet brought forward, to regard them as sporozoa

or any other form of parasite. He thinks these bodies, as far as epithelium is concerned, are explainable (1) as degeneration products of the epithelial cells; (2) as fragments of leucocytes taken into the cells.

Paget's Disease of the Nipple.—Dr. A. B. Macallum of Toronto (*Canadian Practitioner*, Oct. 16, 1890) has found in two cases of duct cancer of the nipple following chronic eczema peculiar bodies corresponding to those described by Darier as sporozoa. Dr. Macallum found these bodies in great numbers in epithelial cells, forming the crusts on the surface; as well as in the deeper layers of the epidermis. He thinks the presence of these bodies may be of considerable diagnostic value in distinguishing cases of Paget's disease from simple eczema, though they are liable to be confounded with the somewhat similar bodies found in epitheliomata. He suggests that as the exact nature of these bodies is incompletely understood, they should be called provisionally "endocytes."

Klebs (*Deutsche Med. Wochenschrift*, Nos. 24, 25, 1890) gives the results of inoculation of cancerous particles into a breed of white rats, in which spontaneous cancer had been observed. The result was in most cases entirely negative. In a few instances transient epithelial growths developed from the implanted tissues, but the stroma of carcinoma was wanting. He has carefully investigated the peculiar bodies in cancer cells, and thinks that they are merely a substance secreted by the cell or a degeneration of its substance. In the implanted cancers these "hyaline" bodies never multiply or increase, but always become absorbed. [These correspond apparently to the fuchsine bodies of Russell.] Klebs considers that cancer must still be regarded as a spontaneous increase in the vegetative function of tissues (idioplasia).

In a subsequent communication (*ibid*, No. 32, 1890), Klebs deals with the question of what constitutes the earliest stages of carcinoma. In one apparent case of pachydermia of the larynx, which subsequently became manifestly cancerous, he was able, when the growth was first removed, to detect a dilated cystic condition of the submucous lymph spaces. This he regards as

favoring an invasion of the epithelial cells. A view somewhat similar to this was advanced by Dr. H. F. Formad some years ago.

It seems to be generally admitted that certain structures are found in cancer cells which are absent from normal tissues. These bodies, regarded by some as parasitic in nature, appear to be nothing more than portions of cancerous tissue which have undergone degeneration.

Reviews and Notices of Books.

The Time-Relations of Mental Phenomena. By Jos. Jastrow, Professor of Psychology at the University of Wisconsin. New York: N. D. C. Hodges, 47 Lafayette Place.

Prof. Jastrow is one of the most distinguished members of the modern school of experimental psychologists. In this work he shows what has been done up to the present time in estimating the time relations of mental phenomena, and indicates what gaps there are to be filled and the end to be achieved.

The author starts with a quotation from Johannes Müller, which well illustrates the dangers of prophecy in matters of a scientific nature. Müller, in 1844, said that "we shall probably never secure the means of ascertaining the speed of nerve activity," but, as Prof. Jastrow points out, a decade had not passed by before Helmholtz ascertained the rate in the nerve of the frog to be eighty feet per second. We now, however, are able to estimate with a fair degree of accuracy not only the physiological but also the psychological elements in the process beginning with sensory stimulation and ending in motor contraction.

Outlines of Physiological Psychology. By Dr. Geo. T. Ladd, Professor of Philosophy in Yale University. New York: Charles Scribner's Sons. 1891.

It is rarely that we have reviewed a book with so much pleasure as Prof. Ladd's larger work on the same subject some time ago. But it was somewhat too large for a numerous class, and we think the author has acted wisely in issuing a smaller

work on substantially the same plan and, happily, of kindred worth. The book is really what its title implies; and in 500 octavo pages a large field is covered with the same discrimination and sound judgment so conspicuous in the earlier work.

We are occasionally asked what work in psychology may be read with profit by a medical man, whether an undergraduate or a practitioner. At last we think *the* book for such enquirers is found. There is no inconsiderable amount of sound physiology set forth in this book in a clear and impressive way; and there are special advantages in reading the physiology of the nervous system as looked at from the point of view of the psychologist. Never was there a time when psychology was of such immediate interest to the medical man as now, seeing the great and rapid advancement in the knowledge of the nervous system of man in health and in disease.

As a text-book the present work must meet the case of a large number of students who have not the time and patience to wend their way through the earlier volume; though, if they do succeed in giving the latter a careful perusal, we think they will not regret it. This last work abounds in illustrations of a most useful kind, and the print is clear and large. We believe it is one of the books of the day that is really needed, and hope that it may fall into the hands of many students and practitioners of medicine, as well as others. W.M.

Sociology: Popular Lectures and Discussions before the Brooklyn Ethical Association. Boston: James H. West, Publisher. 1890.

By sociology is meant the science of social evolution. "The work is one of salutary caution rather than definite and formal instruction concerning the duties of the hour." The lectures published in the present work are on a variety of topics, but as a whole bear on the main problem of social evolution. A few of the titles may illustrate this statement: The Relativity of Knowledge, Primitive Man, Growth of the Marriage Relation, Evolution in Medical Science, Education as a Factor in Civilization, etc. etc. To the physician who wishes to be more than a

practitioner, and who watches with interest the tide of human affairs, this book will possess many attractions. It cannot but furnish suggestions which, amid the anxieties of medical practice, will direct his thought into wider channels and perchance shape his philosophy on truer lines. Unless the doctor reads *something* of this kind he is very apt to degenerate, or at least never to reach the highest developments of manhood. "God-like is the physician who is also a philosopher."

A Treatise on the Diseases of Infancy and Childhood. By J. LEWIS SMITH, M.D. Second edition. Philadelphia: Lea Bros. & Co. 1890.

Notwithstanding the many excellent volumes that have been issued recently on diseases of children, the work of Dr. J. Lewis Smith easily holds a front place. Its several editions have all been thoroughly revised. In the present one we notice many of the chapters entirely rewritten. Full notice is taken of all the recent advances that have been made in the sterilization of infant's food, in the treatment of diphtheria, in intubation, and of the investigations relating to the bacterial origin of many of the diseases of early life. As its author states in the preface, the necessary revision has virtually produced a new book. In the amount of information presented the work may properly be considered to have doubled in size, but by condensation and the exclusion of all obsolete material, the volume has not been rendered inconveniently large. Many diseases not previously treated of have received special chapters, including many of the diseases of the new-born, also epilepsy, tetany, and appendicitis. The article on intubation has been written by Dr. O'Dwyer, and will be read with much interest. Among the more important articles may be mentioned those on Cyanosis, Scarlet Fever, Diphtheria, Pleurisy and Cerebro-spinal Fever, which are particularly valuable and exhaustive. Yet, withal, is the work a very practical one. Especial care has been taken that the directions for treatment shall be particular and full. In no other work are such careful instructions given in the details of infant hygiene and the artificial feeding of infants.

We have no hesitation in cordially recommending this work. It is, moreover, pleasantly written, and both type and binding are excellent.

Antiseptics in Obstetric Nursing. By JOHN SHAW, M.D. London: H. K. Lewis. 1890.

This is an expansion of the course of lectures delivered by Dr. Shaw in 1889 to the class of midwives and monthly nurses at the Hampstead Home Hospital, and is intended as a text book for nurses and midwives. He says that the two great revolutionary and epoch-making forces of modern medicine are *Anæsthetics* and *Antiseptics*, and he traces briefly the effect of the latter upon the practice of obstetrics and gynæcology. He extols chiefly Semmelweiss and Lister, and gives a short account of the former's work at the Vienna Krankenhaus. He considers the predisposing and exciting causes of septicæmia, describes the action of germs and germicides, and enters fully into the antiseptic precautions which are now considered essential in gynæcology and obstetrics. He gives much useful information in pleasant readable form, his principles are sound and his advice wholesome, though in some particulars his methods are more cumbersome and complicated than those we are accustomed to. Students and practitioners, as well as nurses, will find here many useful hints and many points not usually dwelt upon in the sysmatic text-books.

Electricity in the Diseases of Women. By BETTON MASSEY, M.D. Second edition, revised and enlarged. Philadelphia and London: F. A. Davis. 1890.

This useful little text-book treats particularly of the application of strong currents, and is enlarged and more complete, as a treatise, than the first edition, which we reviewed most favorably in a recent issue of the JOURNAL. We can only repeat what we then said, that it was the most useful book for those who were taking an interest in the important subject of the treatment of diseases of women by electricity. We cordially recommend it.

Society Proceedings.

MEDICO-CHIRURGICAL SOCIETY OF MONTREAL.

Stated Meeting, November 7th. 1890.

F. J. SHEPHERD, M.D., PRESIDENT, IN THE CHAIR.

Drs. Muirhead and Thompson were elected members of the Society.

Syphilitic Osteitis.—DR. JOHNSTON exhibited specimens of severe condensing osteitis of the skull-cap and tibia, due to syphilis. From the same case, several black pigmental plaques were found situated in the pharynx on the left side, at the level of the glottis. The mucosa was thickened and deeply pigmented; the submucosa beneath was white, dense and very firm. There was no evidence of scarring or ulceration in the neighborhood. This condition was possibly due also to syphilis.

Severe Syphilitic Ulceration of the Rectum leading to Perityphlitis.—DR. JOHNSTON showed to the Society, from the same case, this very interesting specimen, which is reported in full in the December number of this JOURNAL.

DR. SHEPHERD, referring to the above specimens, dwelt upon the interest of a case with such widespread lesions, and the possible beneficial results that might have been obtained from anti-syphilitic treatment; alluding to the perityphlitis, it was his opinion that an operation would have been justifiable if suppuration had occurred.

Chronic Gastric Ulcer, Perforation and Fatal Peritonitis.—DR. REDDY related the clinical history of the case. The patient, a girl of 20, was acting as wet nurse when she first consulted him a few months ago. She then had symptoms of indigestion, for which pepsin was given. Two days later she felt well, and remained so for the following twelve days. When, apparently, after an undue exposure to cold, she was seized with severe abdominal pain, and soon developed all the symptoms of an acute peritonitis. Salines were given and hot stupes applied. The pain was relieved, and for some hours the patient appeared much better; when she complained of slight pain in the left hypochon-

drium, vomited once, and suddenly died, thirty-six hours from the onset of her illness. Dr. Reddy remarked that at no time, during the illness, were there any symptoms pointing to the primary disease. He had since found out that the patient had been under treatment a year ago in the Montreal General Hospital for gastric ulcer. Dwelling upon the obscure symptoms of many of these cases of ulcer of the stomach, he mentioned the case, which had come under his notice, of a nurse who had died suddenly without ever evincing any signs indicating the lesion in the stomach.

Dr. Johnston exhibited, for Dr. Reddy, the stomach, which showed a small perforation in the base of a chronic gastric ulcer. The ulcer was one-half by one-quarter of an inch, situated posteriorly on the lesser curvature, midway between the pylorus and the fundus. About the ulcer were distinct, radiating fibrous bands in the submucosa. There was general acute purulent peritonitis with very marked cloudy swelling of the liver, kidneys and heart, the latter being probably the cause of the very sudden death noticed in the case.

Discussion.—Dr. Shepherd did not think that the relief from pain which followed the administration of salines could be attributed to the action of the salines: he rather believed that it was the quiet which in many cases precedes death.

Dr. Lapthorn Smith cited his and others' opinion that salines alleviated pain in acute peritonitis.

Dr. MacDonnell dwelt upon the prevailing idea of the essential union of peritonitis with pain. We were too apt to regard peritonitis as always accompanied by pain. He referred to a fatal case of appendicitis which had been under his care in the hospital. The patient had been free from pain for two days previous to his death. Had he not been deceived by this lull in the symptoms, he believed that operative interference might have proved successful. Dr. M. thought that the explanation of the disappearance of the pain which occurs in some cases of acute peritonitis might be attributed to the peritoneum becoming accustomed to the inflammation.

Submaxillary Calculus.—Dr. Hutchinson exhibited this

specimen, which was about the size of a marble. The patient, a man about 45, had come to him complaining of a sore mouth and difficulty of mastication. A hard lump could be felt, which proved to be a calculus, around which suppuration had commenced. It was situated in the Whartonian duct.

Dr. Shepherd remarked that these cases were comparatively rare. He referred to a specimen which Dr. Hingston had shown to the Society. Dr. H. had removed it from a patient who had been sent to him as the apparent subject of malignant disease. There had been considerable swelling and suppuration.

Dr. Lapthorn Smith stated that he had exhibited before the Society a calculus the size of a pigeon's egg which he had removed from the parotid gland.

Fibroma Pendulum.—Dr. England brought before the Society a middle-aged man with a tumor, pendulous and pedunculated, growing from the upper and inner part of the thigh. The tumor, in size and appearance, was not unlike the scrotum. It was eight months since it was first noticed, and was growing more rapidly of late. Patient complained of no pain beyond the inconvenience it gave him.

Dr. Johnston would not express himself positively as to the nature of the tumor short of a microscopical examination. He mentioned cases of congenital growths which, after a period of quiescence, suddenly took on active action.

Dr. Shepherd had seen several cases somewhat similar to the one under examination. He believed it allied to fibroma molluscum, found singly or in connection with smaller growths.

Enormous Enlargement of the Liver.—Dr. R. L. MacDonnell related the history of a female patient who had been sent to his clinic at the Montreal General Hospital for advice. She was 30 years of age, married, had three children and two miscarriages. There was every appearance of good health. There had never been anæmia, jaundice, ascites, nor gastric derangements. Ever since her first child was born she has suffered from occasional attacks of pain in the right hypochondrium, with a sense of discomfort at times, but she has not been laid up in such a way as to prevent her doing housework every day. There is

no history of alcohol, but syphilis is highly probable, since her husband has been a man of very dissolute habits, and she has had a purulent uterine discharge for many years. The abdomen is not distended, but the walls are remarkably flaccid. The liver can be plainly felt extending downwards to a line two inches below the umbilicus, filling up the greater part of the abdominal cavity. The outline is uniform, and the cleft between the lobes can be distinctly felt. On palpation, the enlargement is uniformly dense and resisting. There is no fluctuation and the surface is quite smooth. The area of hepatic dulness in the right mammary line extends from the third rib to a line two inches below the umbilicus, and measures thirteen inches and a half. In the axillary line the liver extends as high as the 6th rib, and the dorsal line, its upper limit, is as high as the 9th rib. The increase is therefore very much greater in front than behind. No splenic enlargement was discovered. Examination of the urine afforded negative evidence of disease. Dr. MacDonnell remarked that this was the largest liver he had measured, and that he thought it was larger than any on record. There were several noteworthy features in the case: (1) the excellent condition of the patient's health; (2) the absence of evidence of implication of the kidney or of the spleen was against the diagnosis of waxy disease; but still, it would be impossible to imagine a liver corresponding to a greater extent with every detail of the classical description of waxy disease. Moreover, there was fair evidence of a combination of two potent causes of waxy disease—chronic suppuration and syphilis. Cases are, however, on record both of cases of amyloid disease of the kidney in which no evidence was given by the urine, and of cases of amyloid disease of the liver in which the kidney was not involved. He would make further observations of the case and report at a later date.

Typhoid Fever in an Infant Eight Months Old.—Dr. F. R. England read the following case report:—

"Mr. President and Gentlemen,—The case which I have ventured to bring before you to-night is one of typhoid fever occurring in an infant eight months old, and before reading a

report of the case I shall not attempt to make any other apology than acknowledge that there is nothing remarkable or peculiar about the case in any way. I have reported it simply because typhoid in very young children is an extremely rare disease—at least is a disease rarely recognized in infants.

"A. L., an artificially fed babe, aged eight months, small, thin and delicate-looking, with a rather large and irregular-shaped head (from lying the greater part of the time on the right side), covered well with long auburn hair. Family history good. In the month of June, which was the commencement of our infantile trouble in the city, he had some difficulty in digesting his food, and had one or two attacks of vomiting and diarrhœa, also an attack of bronchitis. The parents, acting on my advice, went away to the country for the hot months, where they remained until Sept. 18th. While they were in the country, the mother said he got on well and gained in size and weight.

Present attack.—They had not been home more than ten days when his stomach and bowels again became deranged. There was some vomiting and a little diarrhœa. He was worrisome, restless and feverish. I was sent for on the morning of Oct. 2nd, the third day of the illness. The pulse then was rapid, 140 per minute; temperature 102½°F.; respirations not much accelerated. Examination of the chest showed the heart and lungs to be normal. The abdomen was much distended and tympanitic. Remembering the old digestive trouble in the early part of the season, and being suspicious as to the quality and freshness of the milk supply, I put down the disturbance as being probably due to an entero-colitis, and treated the case accordingly; beginning with a small dose of castor oil and carefully regulated the feeding. After watching the case for a week, and doing all I could to relieve the symptoms, I found my patient no better, the temperature still remaining high, from 102½°F. in the morning to 103° and 104°F. in the evening; the remission usually beginning after midnight. The pulse was small and rapid, varying from 140 to 160 per minute, the heart's action feeble, and the abdominal distension not at all lessened. With these rather grave symptoms persisting so long in so young a child, I began

to look upon the case as being somewhat serious, and was at a loss to explain, to my satisfaction, the real cause of all the trouble. About this time, on examining the abdomen, I found the spleen enlarged, so much so that I was able, by gentle pressure over the abdomen, to feel its smooth, firm surface beneath my fingers, extending fully two inches below the ribs. The liver could also be felt about an inch below the costal cartilage. In a day or two I was greatly surprised to discover an eruption over the abdomen, chest and back, consisting of numerous small, isolated, bright rose-spots, about the size of a pin's head or a little larger, which, if seen in the adult, would at once be recognized as the typical typhoid eruption. The appearance of these spots, the persistent high temperature, the tympanitis, with gastro-intestinal derangement, evidenced by vomiting, pain and looseness of the bowels (though at no time was there much diarrhœa), together with a decided enlargement of the spleen and liver, compelled me to look upon the case as one of typhoid fever, though I had never before met with a case or remember of seeing one reported in so young a child. The temperature during the second week of fever remained high, ranging from 102° to 103½°F. The tongue and buccal surfaces were red and dry, the gums swollen and hot. Slight bronchitis developed during the second week, causing a dry, irritating cough. Headache seemed to be present, for the hands were constantly kept to the head or the ears pulled. The eyes were sensitive to light, and were kept closed if the cradle happened to be turned towards the window. At the beginning of the third week the temperature at the evening exacerbation continued about the same, but at the morning remission it was from 1° to 2° lower than it was during the second week; at the end of the third week the temperature had become intermittent in character, each exacerbation falling lower and lower, until the normal was reached on Oct. 17th, about twenty days after onset of the fever. The tympanitis remained throughout, but disappeared immediately on the temperature falling to normal. The nourishment relied upon was diluted cow's milk, rice-water, and raw meat juice, or bovinine as a substitute for it. The medicinal treat-

ment was wholly symptomatic. Twelve drops of brandy every two hours was given throughout with, I believe, much benefit in sustaining the heart's action. A full dose of quinine was given in the afternoon if the temperature was up to 103°, and the same dose repeated in the evening if the fever remained high. Tepid sponging of the body and cold to the head were systematically carried out. Small linseed tea enemata, with a little turpentine added, were given occasionally, and thought to relieve the distension by causing flatus to be passed per rectum. Notwithstanding the long and rather severe course of the fever, no complications or sequelæ followed, and the infant made a good and uninterrupted recovery.

"In support of my diagnosis, I may add that the father of my patient is principal of one of our boarding schools, and during my attendance three of the pupils were taken ill and obliged to leave the school with symptoms of typhoid fever."

Discussion.—DR. JAMES STEWART was struck with the low temperature throughout the illness.

DR. MACDONNELL also believed the temperature low, particularly in the case of a child suffering from what he believed to be indisputably typhoid fever. Children were so susceptible, from the slightest derangements, to elevation of temperature, that he would have expected, in the present case, a higher range of temperature.

DR. JOHNSTON asked about the intestinal symptoms. He had examined the fœtus in many cases of abortion from typhoid fever; though he had found the typhoid bacillus, the intestinal conditions were but slightly marked, and there was no ulceration. He believed that infants were not so exposed to the entrance of bacteria.

DR. M. C. MCGANNON mentioned a case in his practice of a child, three years old, who had regularly gone through an attack of typhoid fever.

Anchylosis of the Spine.—DR. MOLSON, referring to the case of anchylosis of the spine which he had shown to the Society at a previous meeting, said that the patient had been given an anæsthetic and carefully examined, and the case pronounced one of true anchylosis.

Stated Meeting, November 21st, 1879.

F. J. SHEPHERD, M.D., PRESIDENT, IN THE CHAIR.

Dr. J. Elder was elected a member of the Society.

Spina Bifida.—DR. JOHNSTON exhibited this specimen for Dr. Gurd. It was a female fœtus, apparently about the 6th month. The extremities were well formed; amnion nowhere adherent. There was well-marked acrania (exencephalia) and spina bifida. In addition, there was a very sharp angular curvature of the spine forwards, with moderate double lateral curvature in the lower dorsal region. The state of the nervous system could not be made out accurately, as the specimen was not received quite fresh. Recent researches by v. Recklinghausen and Klebs tended to show that the primary cellular disturbances, terminating in the production of spina bifida and rachischisis, took place at a much earlier period than had been hitherto supposed. Klebs even considered that the initial error of development was certainly to be placed as early as the time when active cellular growth was commencing in the notochord, and was even inclined to place them earlier still, at a period before the closure of the medullary canal, possibly even to abnormal arrangement of cells about the primitive groove, when the folds of the amnion were being formed. This view would materially alter the bearing of so-called maternal impression in this condition, as the impression, to be effective, must thus have occurred about the time when the first menstrual period was missed, presumably before the mother was conscious of being pregnant. A number of well-preserved embryos in the early stages would be necessary to settle this question, and in order to be of real service in this way the specimens should be put in many times their volume of strong alcohol, a few hours, at the latest, after the abortion occurred, as by the end of twenty-four hours the delicate nervous structures were too far altered by decomposition to repay careful study.

DR. GURD said that this was an 8½ months fœtus, and the second similar kind of monstrosity which this lady had given birth to. He had exhibited the first one about three years ago.

It also had an encephalocele. He thought the deformity might be put down as resulting from maternal impressions, as the mother had each time, during pregnancy, visited her mother, who has been suffering from a form of insanity for about five years. Mrs. L., who had given birth to this monster, has three well-formed, intelligent children living, one of whom was born about two years ago. This monster came with the arm presenting, but as it was felt to be small, and as the abdomen indicated a small child, turning was not resorted to, and the case was left to nature for its delivery. The absence of a cranial vault did away with the usual difficulty of a cross-birth. The child weighed two pounds. There was an unusually large amount of amniotic fluid present.

Discussion.—DR. SHEPHERD had found in many of these cases a musculis sternalis. It was absent in the present case.

DR. F. W. CAMPBELL did not think that in the present instance the abnormality in the development of the fœtus could be attributed to maternal impressions.

DR. MILLS said that with respect to the representation in offspring of conditions in the ancestors, observation seemed to show that defects of the nervous system were especially liable to a varied or multiple manifestation. Insanity was not always insanity in the offspring, but might be some other deviation from the normal, expressing itself, however, chiefly in the nervous system. And when one considered that at the outset the whole of the influence of ancestors was represented in two cells, the ovum and sperm cell, which cells, by union, segmentation, growth and development, gave rise to the whole being; and that during this the environment might be very variable, it was possible to understand even great organic differences, not to mention dynamic or functional ones. The whole brain at first was represented by but a few cells, and it seemed, possibly owing to environment, that in some cases hereditary tendencies might work out into the total absence of certain cells when there was much hindrance to normal development, and in other cases only to an imperfect functional action of cells present in the usual numbers and locality; hence a great variety of results

from modifications at an early period of the history of the embryo. He could conceive this hereditary weakness of parts resulting, not in a corresponding functional defect in offspring, but in actual deficiency of parts; and that might have been the case in this monster, but, of course, it could not be demonstrated.

Rare Form of Tumor of the Kidney.—DR. JAS. BELL then read a paper on this case, which appears in the present number of the JOURNAL.

Discussion.—DR. JOHNSTON believed the tumor to be of the nature of an adenoma of the kidney, and showed a series of specimens illustrating the principal forms of adenomata of the kidney.

DR. MILLS said there were three ways in which to account for the peculiar character of the contents of the cavity of the tumor. Either the fæcal odor was due to the agency of bacteria that had in some way got into the sac and acted on its contents, as they do in the intestines, and these give rise by their action to those chemical compounds responsible for what we term a fæcal odor. Or the odor might be due to the absorption by tho by the kidney (diseased one) of this body from the blood of the compound after it had passed into the blood—no doubt a normal action of the kidneys—at all events when skatol and indol were in excess. Or, again, the kidneys may normally remove from the blood bodies usually excreted in greater abundance by the intestines. The last two supposed cases were not in opposition, as both might happen together. For his own part, he had long been convinced that the excretions were much more complex than our analyses made them. If all the excretory organs were considered supplementary to one another, each possibly removing, in variable quantity, at least some of the bodies removed or manufactured from the blood, he believed the physician would have a truer and more useful view of eliminative processes. He had observed that in more than one portion of the body the secretions of parts were characterized in a way that suggested that they took on the nature of excretions that were, in some of their peculiarities, more in harmony with what was recognized commonly as the normal in those regions. He would instance

the excretions of sebaceous glands and the mucous membrane of the nose, pharynx, etc. Micro-organisms might have something to do with this, but the general principles he had referred to seemed to him very inadequately recognized both by physicians and physiologists, and were of great practical importance.

Dr. Roddick had been present at the operation. It occurred to him that it was very likely that this fæcal odor might have been due to the close contact of the bowel to the tumor, so that gases from the bowel reached the cavity of the tumor, or else, to the entrance of bacteria. He remarked that in many cases of abscess cavity in near neighborhood to the intestines a marked fæcal odor was perceptible where there existed no apparent communication.

Dr. Smith agreed with Dr. Roddick, and believed the interchange between the bowel and the sac to be more or less osmotic.

Dr. Shepherd said that an abscess near the abdominal cavity never occurred without fæcal odor.

Dr. James Bell, in replying, said that he agreed with Dr. Mills as to the probable cause of the fæcal odor which, at the time of the operation, was so powerful that he thought there existed a communication with the bowel. A close examination at the post-mortem proved the contrary.

Dr. Johnston, referring to the very penetrating fæcal odor, remarked that intestinal gases alone, without the presence of bacteria, could not produce it. Bacteria cut off from air usually produce a different odor. The intestinal bacteria had entered the cavity of the tumor, and there, acting in a closed sac, had produced this very penetrating fæcal odor.

The Extra-Peritoneal Treatment of the Pedicle in Abdominal Hysterectomy for Fibroids.—Dr. Lapthorn Smith read a paper on this subject. Referring to those fibroids which were not amenable to Apostoli's method, and in which an operation was necessary, he urged the choice of abdominal hysterectomy, and the extra-peritoneal treatment of the stump. Dr. Price of Philadelphia, who employed this method, had had twenty-three consecutive hysterectomies without a death. The death-rate of the best operators using the intra-peritoneal method of treating

the stump was as high as 50 per cent. The advantages of the extra-peritoneal method were:—

1st, The speed with which the operation could be completed, a very important factor in producing a low death-rate;

2nd, The absolute security against hemorrhage, which is either directly or indirectly the cause of most of the deaths by the intra-peritoneal method. It is concealed, and the patient may die from hemorrhage without the operator's knowledge, while with the extra-peritoneal method, not a drop of blood could be lost without its being seen;

3rd, Even if hemorrhage were diagnosed in the intra-peritoneal method, its arrest would necessitate a serious second operation by the operator himself. In the extra-peritoneal method, the nurse could instantly stop it by making a quarter of a turn of the serre nœud;

4th, By the intra-peritoneal method, it is absolutely impossible to sew the stump in such a way as to completely arrest oozing, owing to the œdematous nature of the tissues, and to the fact that the few ounces of bloody serum left in the cavity would offer a culture field for bacteria, with the results of septic peritonitis, which he had found present in those fatal cases so treated, in which the patient had not died from concealed hemorrhage. With the extra-peritoneal method, there is little or no oozing; but what little there is, is absorbed by the dressing and removed every few hours;

5th, In either case, if adhesions have been torn, a drainage-tube must be used;

6th, The constriction of the elastic band or other means of controlling hemorrhage during the preparation of the stump for intra-peritoneal treatment, causes paralysis of the blood-vessels and sometimes death of the peritoneum. In one case he had found the whole stump sloughing. With the extra-peritoneal method, downward sloughing of the stump has sometimes occurred, but this could be avoided by taking care to exert less pressure on it with the serre nœud; as a rule, far too great force is applied; only enough should be applied to barely control the hemorrhage, the wire being gradually tightened by the nurse on the appearance of oozing;

7th, Although the extra-peritoneal method gives an enormously smaller death-rate than the intra-peritoneal method, neither is an ideal one. The only ideal method is (1) removing the tumor by abdominal section, leaving a rubber band on the stump, (2) dropping the stump into the abdominal cavity, (3) thorough disinfection of the vagina, and (4) vaginal extirpation of the stump, leaving lock forceps on the broad ligaments.

When this method is thoroughly known and practised by the best operators, the death-rate will probably fall to almost nothing. Dr. Mary A. Dickson of Brooklyn claims that she was the first to employ this method.

DR. BELL, referring to the dangers of catgut mentioned in the course of Dr. Smith's paper, said that he used catgut when prepared by himself, and had had no occasion to regret its use. It could with proper care be perfectly sterilized.

DR. RODDICK thought that the rigid drainage-tube used in abdominal surgery might possibly do harm, and believed some more pliable material would be generally adopted.

DR. SMITH, in his reply, remarked that he condemned commercial catgut, but not that specially prepared by the surgeon himself.

Appendicitis.—DR. J. H. B. ALLEN related the following clinical history :—Chas. B—, aged 26, consulted him about the 16th May last for intense and constant pain about the umbilicus. Patient had always enjoyed good health with the exception of an attack of colic a year ago, which lasted a few days, and was relieved by poultices and a free purge. He had first felt the pain the day before he saw Dr. A. The patient was unable to stand erect. There was no vomiting, and the bowels had moved once. On examination, there was marked tenderness in the right iliac region ; no signs of tumor ; pulse 66 ; temperature 101.2°. A quarter of a grain of morphia was given hypodermically and an enema and poultices ordered. Patient did not improve, and on the 17th the symptoms had become more aggravated. The enema had not acted, the bowels had not moved for 48 hours ; vomiting had now set in, and was almost constant. Abdomen distended and tender ; no dulness on percussion and no tumor

felt. Temperature higher: pulse 66. Thinking an operation necessary, Dr. Shepherd was called in consultation. It was decided to give the patient a drachm of sulphate of magnesia, and operate the next morning should there be no improvement. A few hours later flatus was passed with considerable relief. The next day, patient's condition being improved, the operation was deferred. A large enema of soap and water, with half an ounce of turpentine, was given, which brought away a considerable amount of fæces. The patient improved steadily from this out, and made a good recovery. Dr. Allen believed the case to be one of appendicitis. The onset was sudden, with signs of obstruction and localized tenderness. There was no history of biliary calculi, and no calculi were found in the fæces. The history of his illness a year previous favored the appendix. The absence of the tumor, he thought, could be explained on anatomical grounds, as shown by Dr. Ransohoff in a recent paper. The appendix being deeply seated behind the cæcum and below the mesentery of the ileum, abscess about it may continue for some time without the occurrence of a tumor. He said the writer had directed attention to another clinical feature of many cases of appendicitis, the occurrence of intestinal obstruction which this case showed very well, and was probably due to the pressure of the thickened appendix upon the ileum from below and behind.

Dr. Shepherd mentioned that many cases of catarrh of the appendix passed off without further pathological change.

Stated Meeting, December 5th, 1890.

F. J. Shepherd, M.D., President, in the Chair.

Fibroid involving Posterior Wall of Uterus.—Dr. George Armstrong exhibited this specimen, which he had removed from a patient aged 31, married ten years, the mother of one full-grown child. The patient had been in fair health until last January, when menstruation became profuse; she was unwell twice a month, each time lasting thirteen days. These symptoms continued until October, when she was seen by Dr. Armstrong.

She was then very anæmic. Under examination, the cervix was found lacerated and the fundus somewhat enlarged. Nothing further abnormal was noticed. The cervix was then dilated and a fibroid found involving the posterior wall of the uterus, one-fifth of its surface being adherent to the uterine wall. The patient made a good recovery. Her menses were delayed, not reappearing until the 23rd November, six weeks from the date of the operation.

Submucous Fibroid.—DR. ARMSTRONG also showed this specimen, which he had removed from a woman aged 32, married thirteen years, sterile. Menstruation began at 12 years, which had since been regular, but scanty. When seen by Dr. Armstrong she was complaining of considerable bearing down pain and retention of urine. A large mass occupied the pelvic cavity; and the uterus was pushed up and out of the pelvis. The patient had had electrical treatment for six weeks without benefit (her weakened condition had not permitted the application of a strong current). The abdomen was opened and the tumor removed. The extra peritoneal method was adopted in the treatment of the pedicle.

DR. LAPTHORN SMITH referred to the advantages of the extra-peritoneal method of treating the stump. He believed, however, the ideal operation would be removal of the tumor by abdominal section and vaginal extirpation of the stump.

DR. ALLOWAY, alluding to the first specimen exhibited by Dr. Armstrong, remarked that in cases of hemorrhage it was well to dilate and examine the cavity of the uterus, as the source of the hemorrhage often proceeded from growths, which, on being removed, improved all the symptoms. With regard to the operation adopted in the removal of the second specimen, he considered the treatment of the pedicle of prime importance. The danger in the use of the present method of constriction by Koeberlé's wire was sloughing above and below the constriction. The returns from this method were good, but not satisfactory. Dr. Alloway approved of the method employed by Dr. Kelly of Baltimore in hystero-myomectomy, an improvement on Schroeder's method of multiple sutures. "The abdomen is incised as usual, the tumor

turned out, and a rubber ligature made to constrict the neck. The uterus is thus removed by V-shaped incisions. The raw surfaces are thus approximated by stout, buried, continuous catgut sutures, and the peritoneal edges by interrupted ones. The peritoneal sutures are left long, so that the stump can be drawn well up. The uterine arteries are then tied on each side by passing a silk ligature through the substance of the cervix, the rubber ligature is removed, and then the peritoneal surface of the stump united to the parietal peritoneum by continuous silk or catgut. No other sutures are applied, but the ligatures uniting the peritoneal edges of the stump are held by artery forceps."

Dr. Wm. Gardner had been very successful with the wire clamp. He believed that the constriction should be as little as possible. Tait always cut the wire on the second or third day, and so limited the amount of downward sloughing. He thought Dr. Kelly's method suited for typical cases of myoma when the cervix only is involved.

Dr. Geo. Armstrong removed the tension from forty-eight to seventy-two hours after the operation.

Radical Cure of Femoral Hernia.—Dr. Kenneth Cameron read the report of this case, which appears in another part of this Journal.

Dr. Mills asked Dr. Cameron his explanation of the nervous symptoms in this case.

Dr. Shepherd allied the nervous symptoms to those of hystero-epilepsy; the disappearance of which was most probably due to the moral effect of the operation.

Dr. Kenneth Cameron, in replying, believed the nervous symptoms present to be those of hysteria, aggravated, possibly, by family troubles.

Compound Comminuted Fracture of the Thigh complicating the Knee-joint.—Dr. James Bell brought before the Society a man, aged 30, who, about three and a half months ago, had been brought to the hospital with a severe fracture of the lower third of the thigh, with extreme laceration of the soft parts. Amputation was deemed advisable, but patient's consent could not be

obtained. Under ether, the wound was thoroughly cleansed; several small, loose fragments of bone removed, and one inch of the bone excised, equal, altogether, to four inches of the shaft of the femur. The articular end was split and the condyles pulled apart; these were brought together and pinned with Macewen's nails for excision of the knee-joint. No bad symptoms occurred. The temperature never rose above 99½°. The patient was discharged within three months and twenty days, with good union and a fair amount of motion in the knee-joint, which Dr. B. believed would be improved by passive motion. There were three and a half inches of shortening.

DR. SHEPHERD had seen the patient and had thought amputation necessary. He had never seen a better result from such a severe accident. Thought Dr. Bell should be congratulated on the result.

Cardiac Phenomena in Typhoid Fever.—DR. MCKECHNIE then read his paper, which has since been published in the January number of this JOURNAL

DR. JAMES STEWART complimented the writer on a paper so thorough and well prepared. He agreed with the conclusions of Dr. McKechnie as to the origin of the murmurs. Referring to Case I, he did not believe that much stress should be laid on the diagnosis of dilatation by percussion, as it was open to many sources of error. He did not think that mere dilatation was sufficient to account for the murmur in Case I.

DR. MILLS believed that a dilatation could suddenly develop, which he based upon recent investigations on the heart. That this increased dilatation was due to the stimuli acting through the nervous system, on removal of which, the heart returned to its original contour, leaving no physical signs of dilatation.

DR. MCKECHNIE, in his reply, remarked that the capillary pulse noticed when Case II came under observation disappeared as the heart-walls weakened and reappeared as convalescence advanced.

MONTREAL VETERINARY ASSOCIATION.

Stated Meeting, December 17th, 1890.

DR. M. C. BAKER IN THE CHAIR.

The Chairman exhibited a case where a large sarcomatous tumor was found in the choroid plexus of a horse. The tumor involved the whole of the choroid plexus, forming two large dark-gray masses, completely filling the lateral ventricles and third ventricle. The diameter of each of the masses was about two inches. They were nowhere adherent to the ependyma. On section, the tumor felt gritty and appeared to be of the nature of a psammoma. The veins of Galen showed a similar change, but to a slight extent only. The animal, a carriage mare, aged 10 years, had presented symptoms of blind staggers for several years; the blindness had recently increased. At one time she appeared totally blind, but shortly before death recovered her sight. The head was spasmodically turned towards the right, nearly touching the shoulder. For three days before death had constantly champed her jaws. In trying to destroy her by chloroform, although she inhaled almost pure chloroform vapour for three-quarters of an hour the respiration remained ten per minute, as before, and the pulse became stronger (52 to 56). Finally the throat was cut.

*Adenoma of Mammæ in the Dog.**—DR. J. ROBERTSON, D.V.S., of the U.S. Army Veterinary Department, exhibited specimens of malignant adenomata in the mammary glands of dogs. In the first case, that of a small Scotch terrier bitch, aged, multiple infiltrating nodules were found beneath the skin over the thorax and abdomen. In the second case, a large Newfoundland bitch, there was a single large tumor in a mammary gland from the abdominal region. This was as large as the fist, and showed traces of calcareous change. In the lungs numerous firm, white nodules, granular on section, were seen; each was surrounded by a fibrous capsule, and could readily be shelled out from the adjoining lung tissue. These secondary

* Pathological Laboratory, McGill University.

nodules had no apparent connection with the pulmonary arterioles. Microscopically, the tumors, both primary and secondary, in both cases showed tubular structure, the tubes being lined in most cases by a single layer of cylindrical epithelium.

Renal Calculus in the Horse.—MR. S. TWOMBLY exhibited specimens of renal calculi obtained from the right kidney of a horse in the dissecting-room. A hard mass was felt in the kidney. This proved to be a large calculus weighing 27 ounces (800 gms.); two smaller calculi weighing half an ounce each (15 gms.) were also found. The calculi were rough, dark brown on the surface, and, on section, showed irregular consecutive labyrinth-like arrangement of dense, firm, dark greenish-brown rings, alternating with whitish, soft, crumbling, granular areas. Analysis by Dr. Ruttan showed the darker part to consist of oxalate of lime and the whitish granular part of carbonate of lime with considerable traces of phosphate.

MR. TOWNSEND read a paper on "*Parturient Apoplexy.*" Several cases recorded, in which he had collated the post-mortem records, all agreed in the fact that no gross lesions of the brain was discovered.

*Colloid Goitre from the Neck of a Hen.**—DONALD CAMPBELL, D.V.S., of St. Hilaire, exhibited a tumor about the size of a walnut. The growth was smooth, rounded and encapsulated, and consisted of minute, closely-set cysts filled with a colloid substance; the intervening stroma extended directly from the capsule. Microscopically, in most of these cysts the central cavity was filled with a homogenous colloid mass, the walls being lined with a single layer of small, low, cylindrical epithelial cells arranged on a basement membrane.

* Pathological Laboratory, McGill University.

Selections.

Treatment of Hepatic Colic.—In a recent number of *La Médecine Moderne*, Professor Germain Sée discusses the always interesting and important subject of the treatment of hepatic colic. The obvious primary indication is to promote the expulsion of the gall-stone, and this, Professor Sée urges, should be accomplished by remedies which increase the flow of bile. The sufferings of the patient are, however, usually so intense that we are compelled to consider first the application of measures directed to the relief of pain. Of these, by far the most speedy and effectual is the hypodermic injection of morphine. This usually acts very well, but Prof. Sée warns us that in some cases the patients, after a fit of vomiting, fall into a state of alarming collapse, even when only one centigramme of morphine has been injected. We must also bear in mind that morphine is one of the substances which diminish the biliary secretion. Of antipyrin, Prof. Sée says that "it will only render mediocre services in this matter, and that we should not lose time by prescribing it." Chloral and chloroform have a less certain action than morphine, but possess the advantage of not hindering the secretion of bile. Professor Sée advises that chloral, if used at all, should be given by enema, as it will not be well tolerated by the stomach. He is disposed to believe that both chloral and chloroform may act favorably by relieving spasm and promoting the relaxation of the walls of the bile-duct.

The second and most scientific indication is to increase the biliary secretion. The mere presence of the gall-stone, and the irritation which it excites, have a tendency to augment the flow of bile, but help may be obtained from the use of various medicinal remedies. Of cholagogues, Professor Sée enumerates bile itself, turpentine and its derivatives, terpine, terpinol, benzoic acid, salicylate of soda, and olive oil. He points out that bile is inadmissible, as its employment tends to make the biliary secretion thicker rather than to render it more fluid, as is desirable. Turpentine and its derivatives are comparatively inefficient cholagogues, but are nevertheless of some value. The "Dur-

ande remedy" owed its success to the presence of turpentine. Of two only of the remedies enumerated does Professor Sée hold a high opinion—viz., salicylate of soda and olive oil. The cholagogue action of the former of these, although pointed out by Rutherford, is hardly sufficiently recognized in this country. It seems to increase the entire biliary secretion, but more particularly its fluid elements. According to Professor Sée, it not only acts as a cholagogue, but has also an analgesic effect, which is obviously desirable in the condition under consideration. It is advised that salicylate of soda be given with large quantities of fluid, as this seems to assist its action.

The cholagogue action of olive oil has been a subject of dispute, and was denied by Bidder and Schmidt. The later experiments of Rosenberg, however, seem to show that if the animal experimented upon be kept upon a normal diet, and olive oil be administered, " a considerable augmentation of the biliary secretion, especially of its fluid part, begins in from thirty to forty-five minutes, the maximum increase is obtained from the third to the fifth hour, and there is also a considerable increase of fatty acids which are capable of dissolving cholesterine." Prof. Sée believes that clinical experience proves that the administration of olive oil both promotes the removal of gall-stone and relieves the attendant pain and jaundice. Its *modus operandi* has been the subject of some fanciful theories. Thus it was at one time supposed that the oil actually ascended the duct and acted locally upon the impacted gall-stone. For this idea there was never any adequate foundation, and it must suffice to say that the administration of olive oil tends to increase the flow of bile and to make it more liquid. The chief objection to this line of treatment is that the oil is often badly tolerated, and that even if it be well borne at first, intolerance is quickly excited.

Professor Sée finally discusses the remedies that are contra-indicated in an attack of biliary colic. Chief among these are those medicaments which tend to excite strong peristaltic movements of the intestine, as these are apt to be propagated to the bile passages. Hence strong purgatives are injurious. Purgation should only be employed after the crisis is over, and even

then with caution, as it may excite a fresh attack. Nevertheless, it cannot be wholly dispensed with, as it is desirable to clear out the bile that has found its way into the intestine. We should also avoid those substances which diminish the biliary secretion, of which Prof. Sée enumerates the salts of potash, calomel, iron, copper, morphine, atropine, and strychnine.

These recommendations coming from so esteemed a source, and founded upon such ample physiological experiment and clinical trial, will be received with the respect which they deserve. Probably the point which runs most counter to ordinary practice is the advice given in regard to the use of purgatives. At the crisis of the malady, when the duct is contracting violently and the patient is in extreme agony, no one would dream of giving a purge; but a little later on, when the pain has been subdued, while the impaction remains and jaundice is deepening, moderate purgation with such an agent as Glauber's salt has often proved the most efficient of all methods of treatment. Turpentine does not seem to justify the hopes that, on theoretical grounds, were raised regarding its value in biliary colic. Salicylate of soda and olive oil are well worth a trial, and Professor Sée's recommendation will ensure their wide employment. Whatever medicinal remedies we select, it seems evident that copious draughts of warm water, to which a little soda has been added, are invariably advantageous, and it is well that so simple a measure should not be overlooked or neglected because of its simplicity. —*London Lancet.*

Pulmonary Consumption. (By Benjamin W. Richardson, M.D., F.R.S., of London, Eng.)—In many parts of provincial England it was once a practice, hardly yet abolished everywhere by the common people, to treat persons affected with consumption of the lungs by making them swallow live snails. The vulgar idea of the *modus operandi* of the measure was, that the snails found their way to the lungs of the patient and ate the black worms which lived on the lungs and caused, by their depredations, the disease. The snail treatment got a great reputation, for which it probably depended on two collateral causes. The persons who were benefited by it were led to seek the remedy

in purer air than they had been accustomed to live in; and in addition to the snail, which did neither good nor ill, they partook freely of new milk and cream, rich foods likely to be important adjuncts to the cure. Of late the idea that pulmonary consumption is a parasitic disease is revived. The lung infested with hosts of a specific bacillus is supposed to be destroyed by them or by the secretion which they eliminate; and the mode of cure is expected to be found in a lymph or poison which shall kill the bacillus without injury to the patient.

At the present moment the general press is filled with reports and anticipations of such a kind that the uninitiated in the mystery of disease are beginning to see an immediate future when phthisis pulmonalis, which next to alcoholic disease stands highest as a cause of mortality, will practically be wiped off the blackboard of death, and one of the most fatal maladies of past ages be known no more. This were indeed a consummation devoutly to be wished. For the success of the mode of treatment attributed to Dr. Koch, but claimed already by some rivals of his school, can be proved by one proof alone, namely, the effect of the practice on the death-rate.

Up to this time pulmonary consumption has had a high, though declining, death-rate, on which no defined line of *curative treatment* has had any obvious effect. The figures which indicate the death-rate will show therefore, from date, the effect of the new mode of treatment. In order to arrive at perfectly correct returns, many details will, however, have to be taken into account. First and foremost, it must be remembered that consumption is now on the decline from sanitary improvements alone. In 1881 the late Sir Edwin Chadwick joined me in making a calculation, by which we estimated the mortality from consumption in England in the year 1880, in order to compare it with the mortality of the disease in England during the year 1847, the space of thirty-three years being marked by moderately advancing sanitation. From that comparison we learned that pulmonary consumption had decreased in the proportion of 3½ per cent. of the deaths from all causes; that is to say, 12.57 persons died from it in 1847 to 9.12 in 1880. During the past ten years the

decrease has been going on at a more rapid rate, although the figures are not yet at command. This must all be taken into account here in estimating the assumed evidence of benefit from new treatment of a specific order.

To some minds it will occur that the proofs ought to come directly from the clinical results. The expectation is fair, yet not altogether without alloy. At first it may be that they will appear even though, in the end, there should be grievous disappointment. We are dealing with hypothesis so far, and hypothesis, leading to practice, invariably carries with it a certain measure of success. Hope is such a flatterer in trials in which hopeful reason is engaged, that, for a time, it misleads the gravest, touching sometimes the pessimistic fraternity itself. The true tests of success will have, in fact, to meet many diversions and obstacles. Those of us who remember the introduction of cod-liver oil into the treatment of consumption will realize all these difficulties. That famous treatment came to us on the highest authority. Moreover, it stood on a plausible theory, and at first cures upon cures were attributed to it. In course of time it turned out that, although the treatment had its value, it was no specific. The cases it was supposed to cure were good simulated cases of bronchial phthisis, not the veritable affection; cases which might have recovered, under favoring circumstances, without medicines, and which advertise the innumerable empirical "cures."

In the test that will have to be applied to the new era, as some call it, every kind of doubt will have to be overcome. We must know whether the proposed new method is applicable to all types of the affection: to alcoholic phthisis, which strikes down the middle-aged, as well as to the encroaching malady which steals on the predisposed young. We must discover whether the predisposed are as favorably influenced as those free of constitutional taint. Is the youth with delicate lung, the pigeon-shaped chest, and the hectic cheek, in whom the physical disease is pronounced, as amenable to the cure as the more favored person who comes under its influence? Granted, for argument's sake, that one attack is cured by the new treatment,

how long will the cure hold good? Will the predisposed person, safely cured, be warranted from a renewed attack if he or she go out into the world, "take cold," and suffer from that localized pneumonia or acute tuberculosis which older observers look upon as the origin, in nine cases out of ten, of the fatal malady?

The specific action of this treatment is claimed to be on tuberculous tissue only. It does not act by killing germs; it can only influence living tuberculous tissue, which tissue it kills, not other healthy or even diseased tissue. It claims to cure pulmonary consumption by destroying the tuberculous material, the *materies morbi* of tubercle,—a retreat back to the old theory of treatment, and dead against the so-called germicide method. But it is also claimed for it that it cures lupus, and therefore we must assume that lupus is tuberculous; in a word, whatever it cures is of tuberculous type—a tremendous leap.

The people appear to be accepting all that is said as absolute proof. To the popular mind, at this moment, tuberculous disease is near its end in this world. A physician who has had forty years of experience on this subject must not be misunderstood if he cries "Wait and see!" before accepting so unqualified a decision. Some remarkable results may take record at first; but what next? We who are accustomed to observe without burning enthusiasm, are forced to remember results which have astonished calculations derived from experiences in the main sound and certain. We see sometimes in practice certain spontaneous cures or recoveries. I have recently seen a young lady patient, whose sister died of phthisis, and who, two years since, was stricken with every indication of the disease—dry crepitation in the left lung, hæmoptysis, wasting, and night sweats,—but who has made so perfect a recovery that if I had not, with my own eyes and ears, recognized the symptoms, I should almost have doubted the diagnosis. For some time in my practice at the Royal Infirmary for Diseases of the Chest I introduced peroxide of hydrogen as a remedy, and with several such startling results I thought at first a specific had been discovered; but time corrected the hope. Three years ago I treated an extreme case of lupus of the face with sodium ethylate; scales

formed on the red ulcerated surface with free exudation of serous fluid, followed by complete recovery. It seemed specific treatment; but in three succeeding cases the same mode of treatment rendered no such effective service, although in one for a time there was the greatest promise. Under this new treatment shall we see similar successes and failures? Once more. We shall require to know in what manner the remedy operates. Is it through the nervous system, or is it by some chemical or chemico-vital action which it exerts in contact, in infinitesimal division, with the tuberculous living substance?

Poisons Produced by Bacteria.—A few weeks ago we referred editorially to some experimental work of Roussy upon the pathology of fever, in which he demonstrated what appears to be a fever-producing albuminoid, which he termed "pyretogenin." We have now to mention the labors of Brieger and Fränkel (*Berl. Klin. Wochensch., Centralblatt für Phyciologie*) upon the toxic substance produced by the diphtheria bacillus of Löffler. Pure cultures of the bacillus were prepared in large quantity in pepton broth with or without the addition of glycerine. Roux and Yersin had previously separated the toxic substance from bouillon cultures and believed that it belonged to the class of enzyms, a conclusion which the writers cannot endorse. They succeeded in obtaining the substance dry, and class it among the albuminoid bodies, the "toxalbumen," as they name them. The cultures were at first passed through a Chamberlain clay filter. The germ free, lemon yellow, clear filtrate proved to be very poisonous to animals, and produced symptoms similar to those caused by inoculation with the bacillus, including the peculiar paralytic phenomena of diphtheria. When heated to 60°C. it lost most of its toxic properties. It resisted acidifying with sulphuric acid, and steaming to 50°C. An examination for ptomaines and volatile bases gave a negative result. It also failed to diffuse through membranes into water or a solution of sodic chloride. It was precipitated by ammonic sulphate and sodic phosphate as well as absolute alcohol, the latter method being the one usually employed. After dialysis and drying *in*

vacuo the substance was obtained as a snow-white, amorphous, granular powder, easily soluble in water, from which it was not thrown down by boiling, sodic sulphate, sodic chloride, magnesic sulphate, plumbic acetate, or by dilute sulphuric acid even when heated. It is precipitated by carbonic acid or other reagents that throw down albuminous bodies. With Million's reagent a red color was produced, as well as the biuret and xanthroprotein reactions. The plane of polarized light was rotated to the left. From these various reactions the writers conclude that this substance is closely related to serum albumen, though the ultimate organic analysis showed a composition closely allied to pepton, with the following percentages: C. 45.35, H. 7.13, N. 16.33, S. 1.39, O. 29.80. This body in a pure state was very poisonous, two and a half milligrams for each kilogram of body weight of the animal experimented with proving fatal, though sometimes only after weeks or months. (This confirms earlier observations by Roux and Yersin.) Very small quantities injected subcutaneously caused abscess and necrosis, and later wasting of the body. The authors believe that this "toxalbumen" is produced from the albumen of the infected part in the ordinary diphtheritic process, and in this connection recall the "ichthyotoxicum" which A. and N. Mosso obtained from the serum of the murex, and the poisonous albuminoids obtained from plants by Kobert and Stillmark. Further experiments were frequently hindered by the fact that cultures lost their virulence and stopped producing the poisonous substances. In cultures that had lost their virulence an albuminoid body was found that could be distinguished from the other by its dark-brown color and non-toxic properties.

It will be seen from the foregoing that great progress has been made in isolating the peculiar toxic substances produced by micro-organisms. It appears now as though it would soon be necessary to admit, as suggested by Vaughan, before the pathogenic character of micro-organism can be said to have been established, that its peculiar toxic product shall have been isolated and studied.—*Jour. Amer. Med. Association.*

THE

Montreal Medical Journal.

VOL. XIX. FEBRUARY, 1891. No. 8.

THE CAUSE OF THE FIRST SOUND OF THE HEART.

Up to the present day this subject has been in an unsettled condition. While there has been perfect agreement that the second sound was caused by the tension of the semilunar valves and by this only, some have denied that the auriculo-ventricular valves took any part in the causation of the first sound, and, as in the case of other theories, a so-called convincing demonstration was furnished. Others thought they had proved equally conclusively that the valves were at all events the principal factor; while still others explained the sound by eddies of the blood.

Recently Professor Haycraft has undertaken the investigation of this vexed subject, and has taken broader ground than his predecessors generally. Haycraft and others have extended Helmholtz's view that the sound heard when a skeletal muscle contracts is a resonance note of the auditory meatus. Haycraft emphasizes what must be clear upon a little consideration, that the heart-sounds as heard when listened to over the chest-wall are not the same as when the stethoscope is placed upon the heart itself; nor should this be expected, for what is really heard is the heart-sound greatly modified by the resonance of the chest-walls, the stethoscope, and the auditory meatus of the observer.

It is shown that the first heart-sound as heard with the stethoscope when placed over the organ itself or against the thoracic wall differs in pitch from any muscular sound known; but it does answer pretty well to what might be expected from a valvular sound modified by the resonance of other parts. In fact, Dr. Haycraft thinks he has demonstrated that "the first heart-sound

is an impure musical note, a minor third below the second sound and in the bass clef. It is a valvular sound like the second sound. It is accompanied by resonance tones of the chest, stethoscope and the ear, these tones being produced by the shock of the contracting heart. In addition, it is, of course, possible that there may be concomitant sounds produced by the rushing of the blood and other minor disturbances." We have given this investigator's conclusions in his own language.—(*Journal of Physiology*, vol. xi, p. 494.)

It will be gratifying to physicians to learn that the view to which they have always been most inclined has been strengthened if not positively settled by these recent studies, in which the physiologist has been assisted by two able musicians. It is also noteworthy that broad views on the causation of the heart-sounds have been taught by a Canadian physiologist. Prof. Mills, in his "Animal Physiology" and his later "Comparative Physiology," writes as follows, after referring to the various exclusive views taught: "But, looking at the whole question broadly, is it not unreasonable to explain the sound resulting from such a complex act as the contraction of the heart and what it implies in the light of any single factor? That such narrow and exclusive views should have been propagated even by eminent physiologists should admonish the student to receive with great caution explanations of the working of complex organs based on a single experiment, observation or argument of any kind. The view we recommend the student to adopt, in the light of our present knowledge, is, that the first sound is the result of several causative factors, prominent among which are the sudden tension of the auriculo-ventricular valves and the contraction of the cardiac muscle, not leaving out of the account the possible and probable influence of the blood itself through eddies or otherwise; nor would we ridicule the idea that in some cases, at all events, the sound may be modified in quality and intensity by the shock given to the chest-wall during systole."

It will appear that such views as the above are in harmony with the latest investigations, and even broader; for we do not think the contraction of the heart muscle can be wholly ignored

or, indeed, cast into the shade; nor must we regard the second sound *as we hear it* as a purely valvular sound; for in the nature of the case it must be modified by many of the same conditions that affect the first sound. Haycraft's investigations are chiefly valuable on account of their breadth and the importance attached to the valvular element in the first sound.

THE NATURE OF KOCH'S LYMPH.

Prof. Koch has made a partial statement as to the composition of his lymph. From the beginning of the treatment of tuberculous affections with this fluid, its composition has been an open secret. There is nothing in the recent statements of Prof. Koch that will lead any one to be much wiser on the subject than they previously were. The simple statement that the lymph consists of a glycerine extract derived from the pure cultivation of tubercle bacilli does not enable one to have very clear ideas as to the nature of the agent. Prof. Koch says:* "Into the simple extract there naturally passes from the tubercular bacilli, besides the effective substance, all the other matter soluble in 50 per cent. of glycerine, consequently it contains a certain quantity of mineral salts, coloring substances, and other unknown extractive matters. Some of these substances can be removed from it tolerably easily. The effective substance is insoluble in absolute alcohol. It can be precipitated by it, though not, indeed, in a pure condition, but still combined with the other extractive matter. The coloring matter may also be removed, rendering it possible to obtain from the extract a colorless, dry substance containing the effective principle in a much more concentrated form than the original glycerine solution. For application in practice this purification of the glycerine extract offers no advantage, because the substances so eliminated are unessential for the human organism."

Prof. Koch himself appears to have no definite knowledge as to the nature of his lymph.

* Cablegram to Medical Record, January 17, 1891.

CONTINUED REPORT OF KOCH'S TREATMENT OF TUBERCULOSIS AT THE MONTREAL GENERAL HOSPITAL.

SURGICAL CASES UNDER THE CARE OF DRS. RODDICK, SHEPHERD AND BELL. REPORTED BY R. E. McKECHNIE, M.D.

CASE I—(*Continued from last Number, page* 557).

Dec. 24th.—1 c.cm., of the 1 per cent. dilution was injected. A very definite reaction followed, the temperature beginning to rise six hours afterwards, and reaching its highest point (102¾°) in five hours more. The diseased surface became deeply injected and very itchy. The next day several blebs of sero-pus were seen, and towards evening scabbing began.

Dec. 27th.—1-2 c.cm. injected to-day. Six hours afterwards the temperature began to rise, reaching its maximum of 101½° in two hours more, accompanied by the usual symptoms of nausea, headache, etc. This was the last injection given up to date, Jan. 23rd, 1891. The temperature reached the normal by 8 A.M. Dec. 28th, and remained between 98° and 99° till Jan 6th, several times since when it has reached 100° without any known cause.

The diseased surface, up to Jan. 6th, had remained covered with scabs, but on this date these came off, leaving red granular surfaces, with small patches of skin, showing a tendency to cover adjacent parts.

On Jan. 9th the diseased surface was of a dull, angry appearance, and quite painful. In a day or so it took on a moderate suppurative action, which has now given place to scabbing, the lupus patch being now extensively covered with thick hard scabs. But beneath these pus still exists.

CASE II—(*Continued*)—Received its next injection of $\frac{1}{10}$ c.cm. of the diluted lymph on Dec. 24th. Six hours afterwards the temperature began to go up, accompanied by chilliness, nausea, and headache. It reached 102½° in two hours, and its maximum of 103° in four hours more. Coincident with the high temperature, an increase in the pus in the urine was again noticed, and a little blood appeared. No local reaction in the testicle was noticed with this injection.

Temperature reached the normal at 12 P.M. the next night, from when till the next injection of $\frac{1}{10}$ c.cm., on Dec, 24th, it remained normal. In this interval no blood appeared in the urine, and the pus diminished. Following this injection the temperature rose to 103°, accompanied, as usual, by much sickness and considerable prostration. No definite change was noted in the quantity of pus in the urine, nor did the testicle show any reaction following this injection. Temperature did not reach the normal till 10 o'clok the next night.

Jan. 19th.—From Dec. 28th to date no injection was given. Urine was carefully watched and not a trace of blood seen. The pus, also, never reached the quantity observed after some of the injections, and no pain or swelling was noted in the testicle. Patient felt better than before the first injection, and was anxious for the treatment to recommence. He still had frequency of micturition night and day—every fifteen minutes or so. On Jan. 19th $\frac{1}{10}$ c.cm. of the dilution was injected. The temperature rose to a maximum of 102⅔°, reaching normal at 12 P.M. the next night. Patient felt all the typical symptoms—

viz., chill, nausea, headache, backache, and pains in the limbs, and was much depressed. Again, coincidently with the high temperature was an increase in the pus in the urine. But no blood appeared. The testicle also got very painful, and swelled about one-third larger.

Jan. 21st.—The deposit of pus is now the lightest it has been since treatment was begun, some specimens showing only a trace. The urine is also improved, the reaction neutral instead of markedly alkaline, and its fœtid character when freshly passed has left. Last night was the best he spent for months, as he slept for several hours consecutively, retaining his urine without inconvenience.

Jan. 22nd.—The same improvement is noted in the urine, and he again passed a good night, sleeping two and three hours at a stretch, instead of awaking every fifteen minutes to urinate. He also has gained 4½ lbs. since the beginning of the treatment.

CASE III—(*Continued*).—Dec. 24th—An injection 1 c.cm. of the diluted lymph was given. Following this was a very severe constitutional reaction, the temperature reaching as high as 104½°, and being accompanied by the usual febrile symptoms.

Locally, glistening points of exudation appeared on the diseased areas, with deeper-seated bluish spots of necrosis, the size of hempseed, and also deep-seated pin-head points of pus. These surfaces became very itchy and their margins surrounded by an inflammatory blush. In two days' time an active superficial suppurative process involved all the facial patches, and inflammatory action was noticed in the patches on the hands. In about a week, scabbing began, which gradually grew in thickness overlying a thin layer of pus.

Jan. 6th.—The scabs began to be detached to-day, leaving red granulating surfaces. The right upper eyelid is now much thickened by an inflammatory process, and small pustules have formed upon it, in parts where there was no suspicion before of tuberculous tissue.

In the course of a few days the scabs all came off, but active suppuration set in over all the surfaces, accompanied by elevation of temperature and the usual febrile symptoms. In fact she was just as sick as though she had had an injection of lymph. This state lasted about a week, giving place to scabbing, with no fever. At present the patient is feeling quite well; but all the diseased surfaces are covered by exceedingly thick, heaped up scabs. Further injections are deferred, until these come off and what the treatment has done been estimated.

CASE IV—(*Continued*).—In the case of chronic cystitis, injected for diagnostic purposes, no reaction was obtained with repeated injections. This fact, taken with this other, that he had an existing possible cause of the cystitis in a posterior gonorrhœa, proved that his case was not tuberculous. So treatment was discontinued.

CASE V—(*Continued*).—In the case of moderate involvement of the lungs, with the addition of an anal fistula, no complete result was obtained, as patient left hospital to return home, one of his children being at the point of death. With him a slight constitutional reaction was obtained with each injection, but no changes were noticed in his lungs, nor any increase in his cough or sputum. An increase in the discharge from the anal fistula was observed, and the fistula was slowly closing up; but the case is incomplete. With this case, as high as $\frac{1}{10}$ c.cm. of the diluted lymph was injected, at no time causing a severe reaction, although invariably there was some elevation of temperature.

CASE VI.—C.D., a girl, aged 4½ years, with a chronic, rather painless, swelling of the left knee. It was diagnosed to be of tuberculous origin, and with the consent of her parents she was put under Koch's treatment. No evidence of tuberculosis elsewhere could be found.

Dec. 24th.—She was injected with $\frac{1}{100}$ c.cm.; or, rather, with $\frac{1}{10}$ c.cm. of the 1 per cent. solution diluted ten times further, giving her thus $\frac{1}{10}$ c.cm. of a cubic millimetre of the pure lymph. This minute dose gave definite reactions—the temperature 101°, accompanied by pain in the back, etc. An important change also took place in the knee, which became hot and very tender.

The injections have been repeated as follows:—

Dec. 28th.—$\frac{1}{10}$ c.cm. of the above $\frac{1}{100}$ dilution.

Dec. 31st.—$\frac{1}{10}$ c.cm. of the same.

Jan. 8th.—$\frac{1}{10}$ c.cm.

Jan. 14th.—$\frac{1}{10}$ c.cm.

Jan. 19th.—$\frac{1}{10}$ c.cm.

In every case there was constitutional reaction, with nausea, headache, etc., and elevation of temperature; and local symptoms, as heat and excessive tenderness of the affected knee. Although the measurement of the knee had been taken before the first injection, it was not measured afterwards to note swelling, but with this exception enlargement of the knee or inflammatory swelling has occurred, after every injection, from ¼-inch increase in circumference after the second injection, to as much as ¾-inch after the fourth. Between the injections the swelling decreases and knee regains its normal size; the tenderness disappears and patient regains her cheerfulness.

Treatment of this case is to be completed by operation, comparison being instituted with a similar case now in the wards which is not receiving the Koch treatment, and which will be operated on at the same time.

CASE VII.—W. B., a young man, aged 20. One year ago he was operated on and a chain of tuberculous glands in the left parotid and submaxillary regions dissected out, the wound healing rapidly.

He returned to hospital a few days ago with a small sinus above the left sterno-clavicular articulation. This sinus followed a small abscess which had formed in this region, no cause other than suppuration of a tuberculous gland being made out. In both submaxillary regions, and both axillæ, a few glands from the size of a pea to that of a bean were noted, none of these being tender. No pulmonary involvement was made out.

Jan. 15th.—He was injected with $\frac{1}{10}$ c.cm. of the 1 per cent. solution. A slight rise of temperature followed this, with headache and backache and a feeling of heaviness; but no local manifestations were observed.

Jan. 16th.—Injected $\frac{2}{10}$ c.cm., causing another slight rise of temperature, with more severe headache and backache. Locally, there was a distinct increase in the amount of pus issuing from the sinus.

Jan. 17th.—Injected $\frac{1}{10}$ c.cm., with just about the same constitutional reaction as the day before, and nothing new locally.

Jan. 20th.—Patient's temperature was quite normal after three days intermission of the treatment. Headache and backache had left and appetite returned. The increased discharge of pus from the sinus was still present. This day he was injected with $\frac{1}{10}$ c.cm., and got a most

characteristic reaction, with chill, increased temperature, headache, pain in back and extremities, and nausea. The temperature reached 101°, remaining at that from 10 P.M. to 4 A.M. Locally, the parts about the sinus got very tender. Pain was also felt among the glands in the right submaxillary region, and in both axillæ, but with the exception of that in the right axilla, the pain complained of was slight. In the right axilla was found a gland, about the size of a marble, larger than any noted there at the first examination. This gland was excessively tender, so much so that he kept his arm from his side to avoid preesure on it.

Temperature practically did not reach normal for two days, when patient had regained his normal feelings. But up to date the gland in the right axilla is still very tender.

Obituary.

JOHN STEWART, M.D.—We regret to have to record the death of Dr. John Stewart, of Kingston, Ont. He was a native of Perthshire, Scotland, and received his professional education in Edinburgh He settled in Kingston upwards of fifty years ago, and has always taken an active part in medicine and politics. It was mainly through his exertions that the Royal College of Physicians and Surgeons of Kingston was founded.

EDWARD BELLAMY, F.R.C.S.—London has lost, through the premature death of Edward Bellamy, another of its prominent surgeons. Mr. Bellamy was, at the time of his death, senior surgeon to Charing Cross Hospital. He was the author of the *Student's Guide to Surgical Anatomy* and the translator into English of *Braun's Topographical Anatomy*.

MR. JOHN MARSHALL, F.R.C.S. ENG., F.R.S., LL.D.—With great regret we record the death of Mr. John Marshall, Emeritus Professor of Surgery, and Consulting Surgeon to University College and Hospital. He was lately President of the Royal College of Surgeons, and for a number of years he represented this body in the General Medical Council. The institution of the conjoint scheme for examinations was mainly obtained through his efforts. He was the author of several works, as the "Outlines of Physiology, Human and Comparative," and a work on anatomy for artists. He was, we believe, the first to introduce into practice the use of certain oleates in the treatment of local inflammation.

Recently his attention was directed towards furthering the scheme for the formation of a teaching university in London. He was, unfortunately, cut off in the prime of his intellectual manhood.

Medical Items.

—Dr. Wesley Mills, Professor of Physiology in McGill University, has been elected Vice-President of the American Society of Naturalists.

—Henry C. Lea, of Philadelphia, has given the sum of $50,000 to the University of Pennsylvania for the erection of an Institute for Hygiene.

—Dr. A. P. Brubaker has been appointed to the chair of Materia Medica and General Therapeutics of Jefferson Medical College, vice Prof. Bartholow, resigned.

—Josephus Hyrtl, formerly Professor of Anatomy in the University of Vienna, was the recipient, on his 80th birthday, of many congratulations from far and near. To the address of the Medical Faculty of the University he replied in a long Latin speech, which is said to contain abundant evidence of the still powerful intellect of the venerable emeritus professor.

—The prospectus of the London Post-Graduate course for the first term of the year 1891 has been issued. The course consists of ninety-six lectures or demonstrations, and comprises work in the more important special hospitals of the metropolis. Among the lecturers we find many of the leading physicians, surgeons, and specialists of London.