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Original Communications.

SUPRACLAVICULAR LYMPH NODES IN GASTRIC CARCINOMA.*

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Considerable attention has recently been given to the secondary involvement of the cervical lymph nodes in cases of gastric cancer and its diagnostic value in obscure intra-abdominal conditions. In the *British Medical Journal*, April 29th, 1905, W. Mitchell Stevens reports a case of latent cancer of the stomach in which the diagnosis was made from the coincidence with the general symptoms of enlargement of the left supraclavicular glands. Autopsy confirmed the diagnosis and showed that the infection had been transmitted by way of the thoracic duct which was extensively involved by the growth. The writer refers to the clinical value of this sign and says that although particular attention was called to it by Troisier years ago, comparatively few cases have been reported. In the same journal on June 24th, 1905, Nathan Raw reports a case of carcinoma of the pancreas, with enlargement of this set of glands, in which the thoracic duct was probably the means of carrying the infection, although this was not demonstrated by the autopsy. *Apropos* of the preceding articles, T. Gillman Moorehead, in the *Journal* of July 6th, says that he "was previously under the impression that this channel of dissemination was well recognized and not in need of further demonstration." He then cites two cases of cancer of the stomach met with during dissection wherein extensive in-

* Read before the Toronto Clinical Society, December, 1905.

volvement of the thoracic duct, with enlargement of the left supraclavicular glands, occurred. Herbert E. Durham, in the same issue, mentions another possible means of involvement of these glands, viz., where the peritoneum has been invaded the infection may be carried by the lymphatics passing up behind the costal cartilages. He refers to some experiments on peritoneal infection in animals, in which the spread was shown to take place rapidly through these channels. It does not appear, however, how this route of transmission can explain the greater tendency to invasion of the left, as compared with the right supraclavicular nodes.

Having, like Dr. Moorehead, been under the impression that enlargement of the supraclavicular lymph nodes by way of the thoracic duct, was not uncommon in intra-abdominal tumors and that its clinical significance was generally recognized, I was surprised to learn that so few cases have been recorded. I wish, therefore to briefly report two cases coming under my observation:

CASE 1.—Enlargement of the left supraclavicular glands in a case of disseminated crude tubercle of the liver.

C. R., aged 59, farm laborer, admitted to St. Michael's Hospital, under my care, November 29th, 1899.

Family history was unimportant. Patient took alcohol occasionally and used tobacco in moderation. Had never suffered from any serious illness except influenza four years previously.

Two months before entering the hospital patient had been working in a cold, damp silo, when he contracted what he considered to be a severe cold, with chills and fever. The latter had been recurring every morning between one and three o'clock, the shivering lasting for about an hour, followed by fever and profuse perspiration. Feeling exhausted he would then fall asleep; next day he would be dull and stupid.

Temperature ranged from 99 deg. to 104 deg. Patient slept well, but showed considerable emaciation and complained of feeling very weak. He suffered no pain, but could not breathe deeply without some discomfort. Examination of the circulatory and respiratory systems revealed nothing of importance. Stomach showed a moderate degree of dilatation. Examination of the stomach contents after a test breakfast showed total acidity, 70; free HCl, 40; no lactic acid and no Oppler-Boas bacilli. Repeated examinations of the blood for the plasmodium malarie were negative. Leucocytes were 10,000 per c.mm., of which the polymorphonuclears formed 92 per cent. Urinalysis was negative. The liver was palpable an inch below

the costal margin in the mammary line. On palpation of the epigastrium, 2 in. below the ensiform cartilage, a lump could be felt. This lump was smooth, not painful to pressure and moved up and down with respiration, being evidently in the left lobe of the liver; no umbilication could be made out. The lymphatic glands above the left clavicle were enlarged, but they were painless and distinct from each other. On December 4th, Dr. Bingham removed one of these glands and microscopic examination showed tuberculous caseation. The condition was therefore, considered to be tuberculosis of the liver, with secondary glandular involvement, though the primary seat of the disease or the point of entry of the organisms could not be determined. The patient continued to grow worse and died February 24th, 1900.

The autopsy was performed by Dr. Dwyer. The liver contained many masses scattered throughout its substance, varying in size from a walnut to a hen's egg. The primary source of the trouble could not be determined, the liver showing much the most advanced process, unless an old fibrous pleurisy, which was found in both sides, be excepted.

Subsequent examination of the liver showed the condition to be a tuberculous cholangitis. Many of the caseous masses were practically free in smooth-walled cavities, which were considered to be the dilated ducts, and surrounded by a thin mucopurulent-looking fluid. The fluid contained myriads of tubercle bacilli. This case is interesting owing to its rarity and from the fact that the diagnosis was arrived at by removal of one of the enlarged glands. The condition of the thoracic duct, however, was not noted at the autopsy.

CASE 2.—J. M., aged 49, teamster, entered St. Michael's Hospital under my care August 22nd, 1905. Family history unimportant. He had never suffered from any serious illness. Had used tobacco and alcohol in moderation.

Patient had been running down in health for the past four years, but had been able to work until a month before entering the hospital. For some time past he complained of feeling weak across the stomach, and the taking of food was followed by severe pain. No vomiting ever occurred. Bowels were constipated. He had often noticed of late that the stools were tarry in color. About five weeks before entering the hospital he noticed enlargement of the glands above the left clavicle. These were quite tender on pressure. He was sure that they were smaller when he entered the hospital than they had been sometime previously.

Patient was much emaciated, and the skin and conjunctivæ were slightly jaundiced. Examination of the circulatory and respiratory systems elicited nothing of importance. The liver was palpable about two inches above the level of the umbilicus in the mammary line. On inflation of the stomach, the great curvature was found as low as the umbilicus. Opposite the eighth and ninth left costal cartilages a lump could be indistinctly palpated, and at the level of the umbilicus and to the left, an elongated mass could be felt. Both these masses moved up and down with the respiratory movements. The recti muscles were slightly rigid above, and some tenderness on palpation was complained of. Examination of the stomach contents showed the absence of free acid; no Oppler-Boas bacilli were found. After entering the hospital the pain, on taking food, disappeared. Patient however, began to suffer from severe pain in the right lumbar region, radiating to the front of the abdomen in the iliac region, and passing down into the thigh, especially along the sciatic nerve. The epigastric tumors became more prominent and the patient's general condition worse. The left supraclavicular glands continued to enlarge slightly while he was under observation. He died on October 2nd, 1905.

A diagnosis of carcinoma of the stomach, with secondary involvement of the liver and thoracic duct, and through the latter, of the cervical lymph nodes, had been made.

Autopsy confirmed the diagnosis. About midway between the cardiac and pyloric orifices of the stomach, a large oval-shaped projecting mass was found, extending from the greater curvature up the anterior wall. A number of hard nodular masses, the size of a walnut, were found in the great omentum just below the stomach. The surrounding glands, including the retroperitoneal, those in the portal fissure and about the head of the pancreas, were much enlarged. The receptaculum chyli was involved in a mass of cancerous tissue, and the thoracic duct showed irregular nodular enlargements along its course, encroaching upon, but in no place completely occluding, its lumen. Near the upper extremity of the duct a number of enlarged glands were noted. The posterior mediastinal glands were enlarged and numerous small yellowish-white nodules were found scattered throughout both lungs.

Microscopic examination of the tumor showed the structure of a columnar-celled cancer. The extreme pain in the right lumbar region, radiating forward to the abdomen and passing down into the thighs, was readily explained by the pressure

of the enlarged glands on the lumbar and sacral plexuses, noted at the autopsy.

In this case the diagnosis was not difficult, and it is interesting only from the coincident involvement of the left supraclavicular glands by way of the thoracic duct.

The following resume of the literature on the subject may be of interest:

Troisier's first article was published in 1886; others appeared in 1888 and 1889. In 1890 he reported a case of primary cancer of the left suprarenal body in a man 34 years of age, with involvement of the thoracic duct, left supraclavicular lymph nodes, and generalized secondary cancer of the lungs. The patient suffered from dyspnea and pulmonary hemorrhage. During one of these attacks the patient expectorated a gland, which examination proved to be cancerous. Death resulted from asphyxia, and autopsy showed the lesions abovementioned, along with involvement of the lumbar, posterior mediastinal, prevertebral and bronchial glands.

Riegel afterwards called especial attention to the clinical significance of enlargement of the left supraclavicular glands, stating that the one usually first to be involved is situated behind the posterior border of the sterno-mastoid.

Ewald, dealing with the subject, dismisses it with the statement that "the swelling of the supraclavicular glands, which was first claimed by Hensch and Virchow, and later by many others, to be a pathognomonic symptom (of cancer of the stomach) is, in my opinion, a rare and by no means constant occurrence." The editor says Lipine observed it in only three out of forty cases on which autopsies were performed. In an analysis of 150 cases occurring in the Johns Hopkins Hospital by Osler and McCrae, the left supraclavicular glands were enlarged in 22 cases, or nearly 15 per cent.; the left axillary in 36 per cent. of their cases. No mention of the sign is made by Martin, Robson and Moynihan, D. D. Stewart, Eichorst and others, refer to the clinical significance of the sign, the first named mentioning the thoracic duct as the means of carrying the infection.

On the other hand, I can find no reference to the matter in the works of Hensch or Sidney Martin, nor in the articles on "Cancer of the Stomach," by Hale White, in Allbutt's system, nor by Riegel, translated by Stockton, in Nothmangel's Encyclopedia.

It will thus appear that the occurrence of enlargement of the left supraclavicular glands in cases of gastric carcinoma, by many authors, is not alluded to. Others refer to its clinical significance, without alluding to the thoracic duct, as the means of transmission of the infection. From the clinical observations of Troisier, Osler and McCrae and others, it is evident that the occurrence is not a rare one, and in the smaller number of cases where the thoracic duct has been carefully examined post-mortem, this channel has been shown to be the route of transmission of the infection. In this way, moreover, we have a satisfactory anatomical explanation of the clinical fact that the left supraclavicular glands are almost invariably the ones to be enlarged. The following conclusions therefore appear warranted:

1. That enlargement of the left supraclavicular glands occurs in a small proportion (15 per cent., Osler and McCrae) of cases of gastric carcinoma.

2. That the thoracic duct is the route of transmission of the infection.

3. That the statement of Riegel, quoted by Osler and McCrae, may be accepted that "This symptom is a valuable positive one (of gastric cancer), but its absence should not be considered as of any value against the presence of gastric cancer."

4. That the enlargement may occasionally occur in carcinoma of other abdominal organs, and also in some microbial infections.

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HYPERNEPHROMA.

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Anatomical Description of Tumor.—The growth retains the general shape of the kidney, and raises the surface in places to about one centimetre. It is composed of discrete and confluent yellow nodules and is separated from the kidney substance by a capsule. This is very thin where the growth bulges in nodules of varying size externally, and internally where it distends the pelvis of the kidney. It is situated in the upper half of kidney, extending from the upper pole to the hilum, occupying the pyramids and cortex. The pyramids are distinct in remainder of kidney. A small portion of kidney substance only is present at the pole. The length of the kidney is 15.5 c.m., its breadth 9.0 c.m., and its depth 5.5 c.m. Its maximum girth is 21.5 c.m. Its capsule is slightly thickened, but strips easily. Its weight is 14 ozs. The growth measures 10 x 9 c.m. A layer of kidney substance surrounds the growth, but is less than 1 m.m. thick over superficies. On section it has a variegated or foliated appearance; its color is mostly yellow, but bands of semi-opaque, whitish-red tint are present, which divide it into rounded compartments, the largest 2 c.m. diameter, the smallest 2 or 3 m.m. These have a somewhat honeycombed look, and in places contain dark reddish plugs. In places the tumor contains dark red areas, as of hemorrhage. It is firm generally to the touch, but friable in places. The pelvis does not appear to be invaded. The calices and papillæ are lost where the growth is situated.

Pathologic Histology.—The growth is composed of stroma and cells, and it may be described as an adenomatous type of epithelial tumor. The stroma is composed of fine vascular connective tissue on which the tumor cells rest. In most places this may be described as a capillary meshwork. In places the stroma consists of wider bands of fibrous tissue. This contains endothelial-lined spaces and in places collections of round cells and golden brown granules of pigment. The cells vary in appearance greatly. Mostly they are large and polyhedral, and have a pale, swollen appearance, somewhat resembling the cytoplasm of sebaceous gland cells. Osmic acid and sudan iii. show these to be in an advanced stage of fatty degeneration. Owing to this condition micro-chemical tests did not demonstrate the presence of glycogen (1). In places

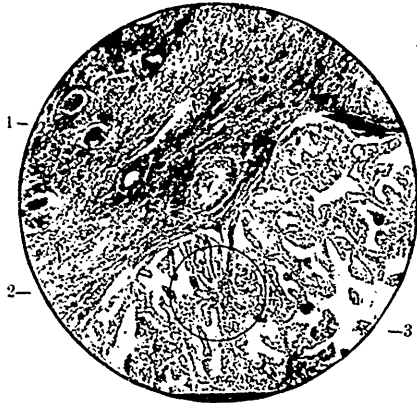
the cells have a frothy appearance, being in process of disintegration, but as a rule the cell membrane can be traced. Cells are high and sub-columnar in other places where an adenomatous or tubular appearing picture is seen in rounded compartments. Papillary masses grow into the spaces of the stroma here. The resemblance to tubules is explained as due to the disposition of cells in single or double rows, or to the arrangement back to back in the rows. Hemorrhages recent and old have occurred in these areas. A delicate meshwork of fibrin which takes the Weigert stain lightly, occupies large spaces. A very minute coccus-like body, in rows of four or five, and sometimes in fours, is seen among and in the degenerating cells of the growth. The nucleus is rounded and somewhat pale as a rule and contains nucleoli and a moderate amount of chromatic network. It is often surrounded by clear perinuclear space. With eosin and methylene blue (Unna) the nucleoli take a deep blue and the linin and nucleoplasm pink color, but the reaction is not constant. Some cells have eosinophilous, nuclear-granulated and blue nucleoli. Toluidin blue and acetic acid show a vacuolated appearance of the nuclei, but no meta-chromatic staining. Though many of the cells were extremely large, there were no true giant cells seen. Mitoses were not examined for specially, and heterotypic mitoses were not seen.

The adjacent portions of kidney show compression of tubules and marked frothy, degenerative changes of parenchyma with a few interstitial foci of round cells. There is some thickening of intima of small arteries, a very small coccus in places. The glomeruli are widely separated from the capsule of Bowman, and appear compressed or shrunken, and are compressed in capsule of growth. Everywhere the renal tissue is sharply demarcated from growth.*

Nature of Growth.—The term hypernephroma has been applied to these tumors by Birch Hirschfeld, as signifying any tumor of adrenal genesis.† Their morphology is variable and classification is impossible or very difficult on histological distinctions. Some are said to resemble carcinoma (especially in metastases), others sarcoma (Kelyneck justifies this by the acceptance of the mesoblastic origin of suprarenal body). In 1883, Gravitz claimed an adrenal origin for these growths which were known as renal lipomata, and described them as

* McWeeny, *Brit. Med. Jour.*, Feb. 8, 1896, p. 323, and Hektoen and Riesman, *Text-Book of Pathology*, p. 984.

† Kelly. *Hypernephroma*, *Ziegler's Beiträge*, xxiii, 280, 1898, p. 921, and *Phila. Med. Jour.*, 1899, and July, Aug., 1898.



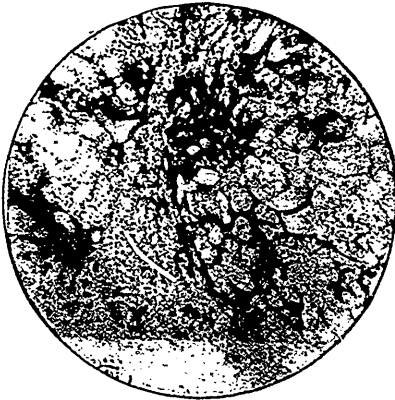
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1. Renal Glomeruli. 2. Fibrous Septum.
3. Villous Growth.



No. 2.

High magnification of portion within circle (No. 1).



No 3.



No. 4.

High power of No. 3.

HYPERNEPHROMA OF KIDNEY.

strumæ lipomatodes aberratæ renis. Since then they have been variously attributed to the epithelium of the renal tubules (adenomata), and to the endothelium of the perivascular lymph spaces (angiosarcoma and endothelioma). The embryological origin of the adrenal cortex has been described by Weldon (2) as from the Wolffian bodies, which enclose blood vessels and nerves, or from the protonephros, in which case they would be epithelial (3). Balfour, Mitsukuri and Minot derive adrenals from a "mesenchymal anlage," the mesothelium on each side of vena cava forming twisted cords, separated by blood vessels, and from a sympathetic anlage of cells from sympathetic ganglia. These anlages unite closely (4). Creighton and Arnold consider the distinction between the cortex and medulla as arbitrary and the differences observed as produced by modification in the arrangement of compact parts, there being no real difference between the cells. At about the sixth month there is no special distinction between the cortex and medulla of embryonic human adrenal (5).*

Thus, although the medullary substance of the adrenal appears to be intimately related to the sympathetic nervous system, the entire organ is part of the urogenital apparatus in origin (6).

The presence of adrenal rests or supernumerary adrenals in urogenital tract is stated by Bayard Holmes to be found in 90 per cent. of all post-mortems (7). R. Williams finds 1 primary adrenal growth in 8,378 consecutive cases of malignant disease. It is known that the suprarenal body is continuous with the front part of Wolffian body (Weldon, Tanosik, Lochwood) even to late intrauterine life, and may be derived from the front of the Wolffian body (the latter extends from lower end of adrenal along ureter to ovary or epididymis). Lochwood points out that at seventh week in human embryo the suprarenal body is larger than the kidney and extends by its lower end downwards in front and to inner side of kidney, occupies the hilum of the kidney and is continuous along the course of the ureter with upper end of Wolffian body. The glomeruli of the Wolffian body are also continued into lower end of suprarenal body (8). Though oftenest found in the connective tissue about the main adrenals, Morris states that bodies identical in structure with suprarenal capsule are found in cortex of kidney, in perinephric tissue, in mesentery and be-

* Good descriptions of the microscopical characters of these growths are given by Hektoen and Riesman, by McWeeny. Mallory and Southard describe the pathological characters in cases of Thorndike and Cunningham; also Boyd and McFarland.

neath capsule of kidney (9). Rolleston has also shown that even in adults the gland is often prolonged into renal hilum, and that supernumerary suprarenal bodies may be found along the renal and spermatic veins. Andrewes describes them in so-called fatty tumors of spermatic cord (10); Schmorl and Oberndorger in the right lobe of liver (11); Marchand (12) and Targett in the broad ligament of (fetal) uterus and in round ligament and in inguinal canal.

These findings may be summarized as follows (13) as favoring the adrenal origin:

1. The situation of the tumor beneath the kidney capsule, the usual site of aberrant adrenal tissue.

2. The similarity of adrenal tumors and of those in question.

3. The sharp distinction between the growth and the renal tissues.

4. Dissemination by the blood stream, *via* the veins, rather than by the lymph glands of the kidney.

5. The resemblance of the tumor cells to those of suprarenal cortex.

6. The presence of fat drops and glycogen in the cells, as is usual, not in the adrenal, but in its new growths.

7. The staining quality of the nucleoli, differing from that of the nucleus, rarely, if ever, seen in renal adenomata.

8. The presence of giant cells, as in growths of adrenal.

9. The existence of an abundant capillary network, as in suprarenal cortex.

10. The presence of lecithin in amounts approximating to those characteristic of suprarenal tissue.

These growths are to be distinguished from those arising in remains of the Wolffian bodies which may be retro-peritoneal in site. According to Birch Hirschfeld, those "embryonal mixed tumors" (Brusse) known as "adenosarcomas," may also arise from renal rests of these bodies. They are characterized by their enormous size, by the presence of muscle cells, striped and non-striped, and by early metastasis.

These latter and hypernephromas show well the intrinsic relation that exists between "abnormal growth" and neoplasms; both show the phenomena known as metaplasia and heterology of tissues. Their complexity of growth is clearly associated with their origin. Yet in neither, in certain respects, is the deviation from the typical characteristic of heterology carried so far as in carcinomata. In mixed tumors of children there is no true bursting through of basement mem-

brane, no true peripheral growth of epithelial cells. Again, hyperemia may be benign, but is usually malignant. While it grows rapidly, recurs locally after removal, and disseminates by the blood stream, not by lymph canals, it is, as a rule, not so malignant as carcinomata or sarcomata. The malignant hypernephroma (whether of the cortex or medulla) bears the same relation to the benign or latent form as teratoma to dermoid, or carcinoma to cystadenoma. They resemble "general thyroid malignancy" in their power of mimicry of the adrenal structure in secondary deposits (14). In short, they are instructive examples of the links in structure that unite simple and malignant growths, and which I have pointed out before (15).

It is hoped that further work may be done on the biochemical and physical changes producing and accompanying this aberrant form of growth.

P.S.—I take this opportunity of expressing my thanks to Mr. A. H. Buch, F.R.C.S., for permission to publish the case, and to Mr. G. Bate, M.B., F.R.C.S., Senior House Surgeon, for the beautiful microphotographs, and to Mr. Henry Morris and Mr. Bland Suttor for their kind references.

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NASAL ACCESSORY SINUS DISEASE.

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These post-graduate clinics serve many useful purposes, one of which is the opportunity they give to discuss some of those diseases we overlook so easily, because they do not occur frequently enough to keep our attention directed to them. Nasal accessory sinus disease belongs to this class. A patient may carry around for many years a septic tank in the way of an empyema of one of these sinuses. For example, a man in London, England, consulted quite a number of physicians, each of whom treated him for a different ailment—neuralgia, tic-douloureux, the protean forms of gastro-intestinal disturbances, etc, with little if any relief. At last he consulted a rhinologist, who detected antral disease. An opening was made and the sinus washed out. The patient returned in two weeks and said, "These are the first two weeks of good health I have had in ten years." The repetition of such histories suggests the question, viz., "Do not our errors in diagnosis and our inefficient treatment vie with the brazen advertisements of the daily press in aiding the charlatan?"

I shall endeavor, in the few minutes at my disposal, to call your attention to the position of these nasal accessory sinuses, their relation to one another, the pathological conditions produced by disease, the etiology, symptoms and treatment.

The Maxillary Sinus is a large cavity, hollowed out of the superior maxillary bone. At birth the alveolar process is almost in contact with the orbital. During the first decade of life these processes are separated by a deposit of cancellous or spongy tissue, which becomes absorbed during youth and early adult life. The other cavities are also absent at birth, and, as they develop in the same way, this condition need not be referred to again.

This sinus varies very much in size. The average height is about 1 1-2 inches, breadth, 1 inch, and depth (antero-posterior) 1 1-4 inches. The walls may be quite thick or mere shells. The cavity may be divided by partitions. This fact explains the difficulty sometimes experienced in finding pus after an opening has been made. The partitions have to be broken down, and the whole cavity explored. I wish to call your attention to the position of the opening between the

antrum and the middle meatus, as it has a most important bearing on the question of drainage. Its position on the inner wall resembles the fanlight so often seen over a bedroom door. It is high up, so that with the body erect the cavity might be two-thirds full of pus, and yet none escape. It is necessary to have the patient either lie on the opposite side, or bow the head downward toward the knees to have the contents of the cavity flow into the middle meatus. There may be a second opening further back.

Frontal Sinuses.—These cavities are placed above the root of the nose. They are separated by a septum, which may or may not be centrally placed. They may extend between the plates of the frontal bone, or those of the roof and floor of the orbital cavity. This explains why the eyeball is displaced when pus from the frontal sinus accumulates either above or below it. The normal opening is in the most dependent portion of the floor, hence the efficient drainage of the frontal sinus. There may be direct communication between this sinus and air cells in lachrymal and ethmoidal bones, and the contents of cells and sinus may mingle and flow downwards and backwards into the maxillary sinus. I shall endeavor, by a somewhat crude illustration, to show how this takes place. You may imagine the uncinate process as a small semi-circular trough, attached to the upper and anterior portion of the wall of the middle meatus. The anterior end of this little trough is so placed that it catches any discharge from the frontal sinus and anterior ethmoidal cells. The posterior end of the trough reaches to the opening between the maxillary sinus and the middle meatus. It is seen then how readily the latter sinus may be infected from the former. On the other hand, if much force be used in washing out the maxillary sinus, infectious matter may be carried along this little trough upwards and forwards into the frontal sinus.

The Ethmoidal Cell Labyrinth.—The ethmoidal bone is divided into three portions. The perpendicular plate, forming part of the nasal septum, the horizontal cribriform plate, and the body or labyrinth, which is situated between the nasal cavity and the orbital. The ethmoidal labyrinth consists of a number of cells. The middle turbinated bone divides these into two groups—anterior and posterior. The contents of the former, as already noticed, empty into the infundibulum or upper and anterior portion of the middle meatus. When the discharge from these cells and from the frontal sinus is exces-

sive it may overflow the little trough or gutter-like channel formed by the uncinatè process, and escape into the anterior naris. The posterior ethmoidal cells empty into the superior meatus or sphenoidal recess, situated in the upper and back part of the nasal chamber. The discharge flows backward into the naso-pharynx. The ethmoidal cells may extend laterally between the plates of the orbit, hence the involvement of the eye in disease of these cells. A posterior ethmoidal cell may communicate with the sphenoidal sinus.

The Sphenoidal Sinus.—This cavity is formed in the body of the sphenoid. A septum divides it into two portions. It is placed centrally, and at the upper and back portion of the roof of the nasal chamber. Its walls may be very thin, hence the risk of penetrating the cranial cavity in using a probe. Its opening is about the middle of the anterior wall. Discharge from this sinus escapes backwards into the naso-pharynx.

The Pathological Conditions Produced by Disease.—These vary with the character of the infection. In simple hyperemia the mucous membrane becomes swollen, and the flow of serum and mucus increased in quantity. If the swollen membrane occlude the opening and prevent drainage, the contents of the sinus may become purulent. The destruction of mucous membrane, periosteum, or osseous wall will depend on the virulence of infection and amount of pressure exerted by the retained fluids. Polypus, myxedemata, and the lesions produced by syphilis, tuberculosis, and the different forms of malignant disease may be present.

Etiology.—Sinus disease has been found much more frequently since the advent of la grippe. The exanthemata, *e.g.*, scarlatina, measles, etc., are exciting causes, as are also diseased teeth, typhoid fever and pneumonia. Syphilis, tuberculosis, morbid conditions of the vascular, digestive, respiratory, renal and genito-urinary systems, and all forms of nasal obstruction are amongst the predisposing causes of sinus disease.

Symptoms.—As these sinuses are most liable to become affected during an attack of la grippe, measles, scarlet fever, typhoid, or pneumonia, they come under the care of the general practitioner at a time when most amenable to treatment. There is always present the possibility of the symptoms of sinus disease being more or less completely masked by the symptoms of the general disease. If the physician fail to recognize the involvement of one or more of these sinuses, his patient makes

only a partial recovery, and worst of all, may have to carry about with him for years a septic tank, that impairs his health, and at any time may imperil his life. Intelligent and eternal vigilance should be ever the talisman of the physician in dealing with disease.

The symptoms may be discussed under two heads (1) acute, (2) chronic. In the acute stage the symptoms may be masked by the coryza of the concomitant disease. Attention should be directed to the quantity and character of the discharge. If the sinus disease be unilateral, the discharge may be much more copious and purulent from one nostril than from the other.

The Maxillary Sinus.—In addition to an increase in the discharge, especially when the patient lies on the opposite side, there may be neuralgic pain extending over cheek and forehead, tenderness on pressure, with photophobia and some elevation of temperature. A copious discharge often gives temporary relief. Within the nasal chamber the mucous membrane is red and swollen, especially that portion lining the turbinates. The middle meatus should be carefully examined, as pus is very likely to be found in this space, if the antral opening be not occluded.

The Frontal Sinus.—General malaise, fever and severe frontal headache, together with tenderness on pressure over the inner angle of the orbit are the symptoms most commonly met with in acute inflammation of the lining membrane of the frontal sinus. There may be some disturbance of the eye, a sensation of weight or pressure and edema of the upper eyelid. If the opening in the floor of the sinus do not become occluded, efficient drainage may prevent the appearance of any distinctive symptoms, other than an increased discharge from one nostril.

The Ethmoidal Cells.—Any discharge from the anterior cells flows into the anterior portion of the middle meatus, whilst that from the posterior group flows backwards into the nasopharynx. There may be rigors, fever, headache, cerebral and eye symptoms.

The Sphenoidal Sinus.—The symptoms are much the same as when the posterior group of ethmoidal cells is involved. In addition there may be intense pain in vertex of the skull, and in occipital region, together with sleeplessness and giddiness. On examination pus may be found in the slit between the nasal septum and middle turbinate.

Chronic Suppuration or "Latent Empyema" Nasal Discharge.—This will vary much in quantity. It may be limited to a few drops, which dry into a firm crust, or it may be quite

copious and of a purulent character. It is sometimes greenish, especially in disease of the frontal sinus. In regard to the odor, there is this marked distinction between sinus disease and atrophic rhinitis. In the former the patient himself is conscious of the odor, whereas in the latter he is not. The two conditions may co-exist. The amount of discharge varies according to the position of the patient, and to the extent of the obstruction in the nostrils from polypus or turgescence of the turbinate bones.

Pain is a very variable symptom. It may be absent altogether or present in the form of neuralgia, headache, or toothache. There is often mental depression or inability to fix the attention for any length of time. Tenderness on pressure may be elicited in diseases of the maxillary and frontal sinuses.

Secondary Symptoms.—Cough, laryngeal irritation, huskiness of voice, asthmatic symptoms, and the protean forms of gastro-enteric and neurotic disturbances.

Eye Symptoms.—We have already seen that the frontal sinus, ethmoidal cells and sphenoidal sinus may extend between the plates, forming the floor and roof of the orbital cavity. It can readily be understood how pus could easily enter this cavity and press upon the optic nerve and globe of the eye, producing impairment of vision and displacement. The movements of the eyeball, the condition of the sight, pain, photophobia, swelling of the lids, interference with the flow of tears, and congestion of the conjunctiva should suggest the possibility of sinus disease.

Treatment.—As Dr. Price-Brown will discuss the treatment of sinus disease at our next clinic, I will briefly summarize the few suggestions I have to make. When dealing with this, as with any other form of disease, we must never lose sight of the supreme importance of these two great factors, viz., correct diagnosis, efficient treatment.

In order to be in any way sure of our diagnosis in sinus disease, we must have very thorough illumination of the nasal chambers, in addition to a clear conception of the exact position of the sinuses and cells, and of their relationship to each other. With the ordinary forehead reflector and a bright, clear, steady light, or with an electric lamp, we can illuminate the anterior portion of the nares, and with the aid of the reflector and throat mirrors we can examine the posterior nares. If the room be dark enough, or if a dark cloth be thrown over the patient's head, we can, by means of a small electric lamp passed into the mouth, illuminate the frontal and antral sinuses, and study the

character of their contents. Dilate the vestibule with a nasal speculum and with a probe and absorbent cotton thoroughly cleanse the anterior and upper portion of the middle meatus. If pus reappear in a few seconds, suspicion is directed to the frontal sinus and anterior ethmoidal cells. After recleansing and cocainising, take a light silver probe, slightly bent near the tip and pass it up into the apex of the anterior extremity of the middle meatus. It often requires some careful manipulation to get the probe to enter the frontal duct. It may even be necessary to cut away the anterior portion of the middle turbinate bone. If the probe be passed backwards it may enter some diseased anterior ethmoidal cells, and liberate more pus. We now proceed to examine the antral opening, which we look for high up at the junction of the middle turbinate with the outer wall of the meatus. The nasal chamber, and especially the middle meatus, should be thoroughly cleansed with spray and probe. The patient is then asked to lie on opposite side, or bend the head downwards with face so turned as to have the diseased antrum uppermost. After a few minutes the patient assumes the erect position, and if pus be again found in the middle meatus antral disease may be suspected, or as has been already stated, this pus may have run into the antral cavity from the frontal sinus or anterior ethmoidal cells. If the frontal or antral sinus be filled with thick pus, or by a morbid growth, transillumination may show well-marked opacity in affected cavity. Pus flowing from the sphenoidal sinus or posterior ethmoidal cells is quite readily detected by passing a probe wrapped with cotton upwards and backwards through the superior meatus.

The treatment of nasal accessory sinus disease must be carried out along the well-defined surgical lines of cleanliness and efficient drainage. When the discharge has free egress, the antiseptic sprays and washes render effective service. A soft rubber catheter, closed at the end, but with perforated sides, is very useful. It is inserted well back in the nostril and then attached to a fountain or other syringe. After a thorough cleansing the affected region may be swabbed with a solution of argyrol (20 grs. to oz.).

Every form of obstruction in the way of hypertrophied turbinates, deflection of septum, polypi, etc., must be removed so as to secure free vent for the respiratory process. In these patients every function of the body should receive as much care as if the case were one of incipient tuberculosis. In the treatment, as in the diagnosis of sinus disease, it may be re-

peated again that intelligent and eternal vigilance must be the physician's talisman.

When occlusion of the opening has taken place, relief must be obtained by a surgical operation. Time will permit of only the briefest possible reference to this. The antral sinus may be opened through the socket of a molar tooth, the canine fossa under the upper lip, or the wall of the inferior meatus. It may be necessary to enlarge the opening in the canine fossa, in order to explore the whole cavity, to remove diseased tissue with the curette, and to pack with gauze.

The frontal sinus may be entered after enlarging its duct with a suitable drill, or burr, or through an external opening made at the inner end of the orbital arch. Diseased cells in the ethmoidal labyrinth may be reached by probe or curette after the removal of the middle turbinated bone. The opening in the sphenoidal sinus may be explored with a probe passed upward and backward through the narrow slit between the septum and middle turbinated. Great care must be taken in using the probe or curette lest it enter the cranial cavity through the thin roof of this sinus.

Whilst these operations are quite easily described on paper, yet the proximity of the sinuses to the orbital or cranial cavity, the need of artificial light, the limited area in which to work, the troublesome hemorrhage, and the use of special instruments make many of them to rank amongst the most difficult and hazardous operations the surgeon is called upon to perform. When the general practitioner has made a correct diagnosis and instructed his patient as to the proper course to pursue, he may very justly claim that it is his duty to leave the operation to the specialist, whose duty and privilege it is to acquire the necessary skill for such work.

Selected Article.

ABSTRACT OF THE ORATION IN SURGERY.*

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Few anniversary celebrations have ever been held in this country that have had or can have a wider significance than that in which we are now participating. It marks not only the centennial of a great and influential Society, in the greatest and most influential State in our Union, but it signalizes also the re-union of men and professional interests which have been too long kept apart by false sentiment and inability to maintain a common point of view. The occasion, then, is so memorable that I feel almost aghast at the task assigned me of trying suitably to characterize the surgical work which has been accomplished, especially within our own limits within the past century. At the same time, I value most highly the compliment conveyed by the invitation to deliver the centennial oration.

I do not know how I may better characterize one aspect of modern surgical progress than by quoting from an address delivered at the opening of the University College Hospital, in London, in the fall of 1873, by Mr. Erichsen, at that time justly considered to be one of the foremost of living British surgeons. In this address he dealt largely with the subject of *Finality in Surgery*, and expressed himself regarding it as follows: (London *Lancet*, October 4th, 1873, p. 489).

In no department of science had intellectual development brought greater changes in a comparatively brief space of time than in medicine. In surgery it appeared to him that there were two great schools: The Practical and The Scientific. A generation back the Anatomical School had reached its acme. Thirty-five years previously, surgery, as a manipulative art, had fallen into a sluggish and inactive state, and no advances had been made in the two greatest operations of surgery since Cheselden, a century before, had introduced his operation, or since Hunter had immortalized his name by his procedure for aneurism. He then went on to say: "But

* Delivered at the Centennial Meeting of the New York State Medical Society at Albany, January 31st, 1906.

there must be a final limit to development of manipulative surgery. The knife can not always have fresh fields for conquest and, although methods of practice may be modified or varied, and even improved to some extent, it must be within a certain limit. *That this limit has nearly, if not quite, been reached, will appear evident if we reflect upon the great achievements of modern operative surgery.* Very little remains for the boldest to devise or the most dexterous to perform." After which he very briefly alludes to the studies of Lister, who at that time was pursuing his painstaking researches almost within gun-shot distance of the place where Erichsen stood while making these remarks, researches which revolutionized the surgery of his day, and made that not merely possible but easily practicable which before had seemed unjustifiable or even criminal.

In the marvellous surgical accomplishments of the past thirty years we see the tremendous effect of the development of a theory and its application, since not until the *germ theory of disease* had been tested thoroughly and proven reliable by scientists (among whose names that of Pasteur must be always mentioned first), could rational methods be adopted for combating the minute and deadly enemies by which mankind is always surrounded.

Another theory, which must be credited to the past century, has had much to do with explaining many problems that interest us, perhaps not so much as surgeons, but as scientists—namely, *the theory of evolution*. In those earlier days this theory was rarely correctly stated; too often at present it is not correctly judged, and comparatively few can grasp its entire significance. In its briefest expression it means the establishment of an organic continuity between the lowest and the highest forms of life; but, taken in conjunction with an accurate knowledge of embryology, it has much to do with the explanation of many of the congenital defects and arrests of development with which we as surgeons have to deal.

The two greatest discoveries of the past century are one of British, the other of American origin; both, in other words, of Anglo-Saxon offspring. I allude, of course, to Anesthesia and Antisepsis.

When Wells introduced nitrous oxide gas, when Morton promoted the use of ether, and when Simpson first administered chloroform, there were placed before the profession, within a short period of time, three of the greatest blessings which a kind Providence has ever vouchsafed to mankind. It

is late in the years now to describe the horrors of the old-time operating room, or even to quote the vivid descriptions either of surgical clinics of the time or of the feelings of the operators who took part in them. If one desires to seek descriptions of such gruesome scenes he may find them, but will read them as one reads accounts of the Inquisition and its tortures. But this has all disappeared, and that the performance of an operation can now be robbed of all that makes it unpleasant and disquieting is one of the marvels of the century and one of its greatest accomplishments.

Indeed it means much more than the abolition of suffering; it means that that which was previously beyond human endurance is now placed easily within it; it means that that which was formerly considered inhuman and unjustifiable is now regarded as humane and scientific.

The introduction of anesthesia took away the most imperative need for rapidity, and the introduction of antisepsis required more time for attention to detail. In consequence, there grew up a certain school of men who seemed to feel that time was no object in operating, and that so long as the patients were comfortably asleep the principal indication was thereby met. It did not take long, however, for the profession to learn that the anesthetic itself is by no means a harmless agent, to be administered for indefinitely continued periods, but that it has its own disadvantages, and that the shorter the time during which the patient is kept under it the better for him. We have accordingly reverted somewhat to earlier conditions, and have learned that while time should not be sacrificed to other conditions of greater importance it nevertheless is of value, and that he is the best operator who, other things being equal, saves time so far as he can.

But what shall now be said of the changes effected by the introduction of antiseptic methods? There are those who can look back further than I can, and yet it has happened that quite within my easy recollection the whole aspect of surgery has been changed by the work of Lister and his co-workers. I can remember my first season as house surgeon, in one of the largest and newest of the Western hospitals, when throughout that long and, to me, sad season, scarcely one patient was submitted to any major or semi-serious operation who did not die of blood poisoning. I saw men die after what seemed to me even minor operations. Scarcely a patient entered the hospital with a compound fracture whose doom was not sealed. Tracheotomy was a useless performance; trephin-

ing was interesting as a spectacle, but useless as a resource. Even internal urethrotomy became a fatal procedure; and so throughout the list. This was in the years of grace 1876 and 1877.

What, then, can be said of the men and the method by whom and by which all of this horrid reality was changed, so that the practice of surgery became a pleasure rather than a solemn duty? The younger men who have entered the profession within recent years can never appreciate what it meant to practise in those earlier days, which yet are not so long past. Only he who has seen case after case of compound fracture go to the ground, as the result of preventable infection, can fully appreciate the necessity for the precautions which we take to-day, or can have within him that true feeling of reverence and love for the man who brought about this revolution. That to Pasteur a monument has been erected, and that Lister has been made an English lord, constitute but a small part of the respect and honor we should yield them. This, perhaps, is the best which a government of the aristocracy can do, but there is a higher position and a nobler one which they occupy, and ever will, in the heart of every surgeon, as of every one who is capable of appreciating what has been accomplished through their life and labors.

What shall be said next of the extension of research by which surgical pathology has been wedded to the study of surgery as an art, and made an inseparable part of a surgeon's self-preparation for his work? Next to asepsis and anesthesia the evolution of the surgical laboratory and the work done therein, constitute the most conspicuous advance in the science of surgery made during the past century. Not that surgical pathology is by itself a subject distinct from general pathology, but that it implies the application of the principles of general pathology to surgical problems. Here, as in many other places, the microscope and the test tube for minute work, and the introduction of experimental methods, both in the study of disease and the perfection of technique, have afforded opportunity for most wonderful discoveries and most striking progress.

I would divide the work done within a surgical laboratory under two headings,—the minute and the gross.

Under the title of *Minute Work* I would include that which is purely *histological*, that which would be ranked as *bacteriological*, and that which may be perhaps best spoken of as *biochemical*. By the *Histological*, the nature of the tuber-

culous, leprous, actinomycotic and numerous other morbid processes has been singularly cleared up. The works that have been published, for instance, on tumors alone, within the past four decades, would fill more than one shelf in any large library.

Under the heading, Bacteriological work, I would include the researches which resulted in that most important advance which we sum up under the title, the Theory of Sepsis and the Practice of Asepsis. The work done by Nicolaier and Kitasato on the origin and nature of tetanus, by Villemin and Koch in the study of tuberculosis, and by Neisser on the specific nature of the gonococcus, also come under this heading.

Of the gross work of a surgical laboratory I can give only illustrative examples. When Senn began his work and published his first experiences with intestinal anastomosis he employed methods which were crude, compared with those now in vogue, but they have since been widely extended and made available in various ways, of which in the beginning no one dreamed. The anastomotic method has been extended not merely from one part of the intestine to another, but from gall-bladder to the bowel—though this is to-day rarely done—and from the stomach to the duodenum, or to any other convenient part of the alimentary canal, while even by trans-diaphragmatic methods it has been suggested to anastomose the stomach to the esophagus above the diaphragm.

The lessons thus taught by this work upon the bowel led to more vigorous prosecution of experimental work upon diverting other currents or other functions of the body and rearranging them to suit new needs. Thus, for instance, the method of nerve grafting has been widely extended, and made available in a large number of cases of infantile and other palsy, as well as for establishing nerve communication around injured or excised nerves. Of this perhaps there is no more conspicuous illustration than the treatment of facial palsy by transplantation of the hypoglossal or the spinal accessory into the facial nerve. Nerve suture also has become a general expedient and one which it is criminal to neglect when demanded.

Similarly, tendons have been disengaged from their proper insertions and replaced anew, so as to utilize the power of muscles still active, and atone for paralysis of parallel or even antagonistic groups. Tendon suture and tendon grafting, then, have become every-day expedients for the correction of deformity and restoration of function, in which they have been wonderfully successful.

We have learned that among the tubular connections of the body, the ureters, like the intestines, may be resected, transplanted or anastomosed, as occasion may demand.

Similarly, even the blood vessels have not escaped the investigator's attack, and we have found that they may be sutured, either longitudinally or even by end to end suture, as the researches, especially of Murphy, brilliantly have demonstrated.

No more remarkable illustrations of what can be accomplished, at least in the laboratory, have been reported than those from the Hull Physiological Laboratory of Chicago University, by Carrel and Guthrie (*Am. Medicine*, Dec. 30, 1905, p. 1101). These experiments include such feats as reversal of circulation in veins and arteries, replantation of completely severed limbs and transplantation of the kidney and thyroid. Such experiments as the following, for instance, were performed: The heart of a small dog was extirpated and transplanted into the neck of a larger one, by anastomosing the cut ends of the jugular vein and of the carotid artery to the large vessels of the heart. The circulation was re-established through the heart, and it showed fibrillary contractions, beating at the rate of 88, while the normal heart was beating 100 per minute. Similarly a kidney was extirpated and transplanted into the neck, anastomosing the renal artery to the carotid artery, the renal vein to the jugular, and causing the ureter to empty into the esophagus. On the third day the circulation was normal and good excretion of urine was going on. So, too, with the thyroid, which was extirpated and replanted with reversal of the circulation. Forty days later it was easy to recognize systolic expansion of the gland.

Concerning blood pressure, on which none have done more brilliant work than Crile and Cushing of our own country, they have revolutionized our notions regarding surgical shock, they have shown the importance of both recording and maintaining blood pressure, they have demonstrated the value of the proper use of salt solution, and particularly they have given experimental proof of the marvellous nature of that singular substance, adrenalin.

Blood analysis has reached a degree of development and accuracy which cause it to rank with urinalysis, both in complexity and value. About all that was ever done in this direction one hundred years ago was an inspection of the so-called "buffy-coat" after venesection.

It is quite unnecessary to allude to the minute developments in urinalysis, which have not merely materially complicated it,

but have made it a most valuable aid in diagnosis. There are those who claim to gather much of diagnostic value from a minute microchemical examination of the saliva, while the importance attaching to an examination of the cerebrospinal fluid is year by year increasing.

Almost our entire knowledge of cerebral localization has been gained in the anatomical and surgical laboratory by a score of diligent investigators, a list of whose names should, by common consent, be headed by Sir Victor Horsley. A great deal has been done in explanation of the various traumatic disturbances of the brain, included under the terms "contusion" and "compression." Perhaps in this line of investigation the French surgeons have taken the lead, and yet much has been done at home. So with regard to infectious processes within the cranium. The researches and publications of Sir William Macewen have brought us a clear knowledge of the subject which no one had attained until he began his work. The relation between the various sinuses of the face and cranium and the interior of the brain box have been thus impressed upon our knowledge, and in such a way that surgery may now usually anticipate the evils of intracranial suppuration, if only the surgeon be given an early enough opportunity.

In the surgery of the spinal cord it remained for American surgeons,—Harte of Philadelphia and McCosh of New York—to show that suture of a completely divided spinal cord may be successfully made, with at least partial restoration of function, a demonstration which the ordinary laboratory has not yet afforded. Compression paralysis, moreover, has been made amenable to surgery, at least in many instances, whether a result of a morbid process, as in kyphosis, or of recent traumatism, and relief has been afforded which could not possibly have come in any other way.

Study next what has been done with special organs, and take first the heart. Modern surgery of the heart includes, not merely aspiration or opening and drainage of the pericardial sac, or incision into it for the purpose of breaking up adhesion, but includes actual attack upon the heart itself, there being now on record not a small number of instances of gun-shot or stab wounds where the heart has been exposed, the injury uncovered, and the heart substance sutured while still beating. A number of lives have been saved in this way which else would have been inevitably lost. More than this, massage of the organ has been successfully practised for collapse following

anesthesia, and it has been shown to be not only feasible, but justifiable, in such instances to open the thorax or the upper abdomen, if they have not already been opened, and, directly or through the diaphragm, deliberately seize or manipulate the heart, combining such massage with artificial respiration, and compelling it to expel the blood which may empty into it; thus in several instances snatching the patient from a yawning grave. Crile especially has shown how successful this measure is upon animals and has given the principal impetus to its practice in the operating room. The lungs have been made almost equally amenable to surgery. The earliest suggestions in this direction were made by one of our countrymen, Warren Stone. They were later improved upon by Estlander, who usually gets all the credit for it. Beyond this the lung is often invaded for abscess, gangrene, less often for hydatid cyst, tuberculosis or other granulomata, and even the more distinct tumors.

The operation of opening the larynx for suffocative conditions is an old one, but the extension of the method for any other condition than that threatening immediate death is a very modern development of the old idea.

On the esophagus extensive operations have been successfully practised, and foreign as well as American surgeons, Bryant particularly, have shown the possibility of attack both upon the esophagus and the lower end of the trachea; even the great bronchi; exposing them posteriorly through an opening made at the back of the chest.

Of the alimentary canal, what might not be said? We have learned that there is practically nothing which cannot be done with the alimentary tube from one end to the other, that no part or section of it is essential for vital purposes, that the entire stomach may be removed, and that several feet of intestine can be easily and comfortably spared.

In addition to this, the past twenty-five years have brought us a revelation regarding the possible morbid activities of the vermiform appendix and the disastrous consequences which may ensue upon involvement of this little tube. For widespread gangrene of the neighboring intestine, I have myself in one instance removed nearly nine feet of bowel, in another six, and in two others but little less; in all four instances successfully, and I have further shown, after a study of reported cases, that it would appear that the more extensive intestinal resections yield an even larger amount of success than do the lesser.

Regarding the pancreas, a large amount of experimental work has been done, by which many problems have been cleared up, even if not finally solved. In this experimental work many Americans have been engaged, none among them, however, doing better or more telling work than my colleague, Dr. Williams, in the University of Buffalo. The acute pancreatitis which might have been suspected twenty-five years ago on *a priori* grounds is now a demonstrated fact, with an equally demonstrated remedy.

Likewise the liver is no longer sacred ground, but in itself and in its adnexa is now frequently exposed to surgical attack, and with a marvellous amount of resulting benefit. Of the viscous itself it may be said that we not only open abscesses and hydatid cysts, but that we remove more or less extensive portions when involved in localized tumors or malignant growths. I have under my observation a patient from whom, nearly five years ago, I took away not only a large cancerous gall-bladder with enormous calculi, but a goodly portion of the surrounding liver. She is to-day doing her own housework and in all these respects as well as ever in her existence. When the liver is displaced it may be fastened in place, just as is done with the kidney.

The spleen becomes a legitimate object of surgery when crushed or ruptured by injury, when displaced so as to become troublesome, or when the site of abscess or of tumor. Moreover, its complete removal is indicated in cases of so-called splenic anemia, or Banti's disease, where the measure has given good results.

Very much has been done with the so-called ductless glands, among which the thyroid is the most prominent and most often attacked. All this work was at least begun and long continued in the laboratory, and not tested upon the human being until ample reason had been afforded by results of the experimental investigators. In consequence, the indications for operations upon the thyroid in the various forms of goitre are clearly defined, the only possible exception to this statement being in the case of exophthalmic goitre, where men still differ somewhat according to their notions concerning its pathology. A large amount of laboratory and experimental work has been done with bones and joints. Murphy has accomplished much more of late by utilization of muscles and fasciæ than anyone ever could expect to with ivory balls and sockets driven into bone ends.

There is another category of surgical procedures of which

it might be said that they are the outcome rather of clinical observations than of laboratory work. Thus, for instance, in 1883, Van de Warker, of Syracuse, reported the case of an abdomen which he had opened, supposing that he had to deal with a minor form of hydrops. After incision and inspection it was discovered to be a case of tuberculosis of the peritoneum. The complete recovery of the patient led to the introduction of celiotomy as a curative measure, and the amount of good that it has accomplished is very great. Some surgeons simply open and evacuate, some wash out with salt solution, while, in my own experience, I have had the most encouraging results from complete evacuation and lavage and then the introduction of a *credé* lactate of silver solution in the abdominal cavity while closing it.

Operations for the radical cure of hernia have been practised from the earliest days of surgery, becoming perhaps a little less crude with each advancing century or surgical cycle. While every one desires to close the inguinal canal, there are so many ways of accomplishing this that one may well hesitate as to which is the best. Of late I have used, with gratifying success, when the length of the hernial sac permitted it, after ligation and fixation of its neck, either the entire sac, twisted into a small cord and used as a suture, being passed from one side of the ring to the other by means of a large needle with a large eye; or, when the sac is too large, I have not hesitated to make a strip from a portion of its structure and used this for the same purpose, after extirpating the balance. In this way I have found suture material of ample length of fresh animal tissue, which is sure to be aseptic, which utilizes something that else would otherwise be completely removed, and saves taking away a strip from the edge of the canal and thus widening or in any way weakening it.

Of laparotomy as a general measure we have lost all our dread. As performed for the relief of intussusception it was first done upon a negro slave by Wilson, in 1831. His patient had suffered for seventeen days; nevertheless the entangled intestine was successfully released and the patient made a complete recovery (Dennis). It was not, however, until after Lister's triumph that abdominal section became by any means a safe operation. At present it is everywhere performed, unfortunately, too often by those who have had insufficient experience. If in any way the mortality at present attaching to it should seem unduly large, although in reality small, it is partly ascribable to the fact that too many of the younger sur-

geous of the country think to win their spurs in the profession by a series of cases of abdominal section, for which it may be that experience and training have not yet fitted them. The larger one's experience becomes in this direction the less certain he is as to the interior conditions from exterior examination, and the more guarded he becomes in the descriptions of what he expects to encounter. Thus it too often happens that a case which appears simple is complicated in a way to demand the ripest experience of an expert operator. The last quarter of the century has seen an extraordinary increase in the number of abdominal sections done in all parts of the world, for which there is perhaps much good reason. As the factor for safety has increased, one sentimental objection to its performance has disappeared, while the great advantage accruing by substitution of accurate knowledge acquired by the operative method for previous guesswork is obvious, even to many patients. Moreover the importance of early attack upon cases of cancer is more and more widely appreciated, and I fear no opposition to a statement, which may be regarded almost as a challenge, and one that I have frequently made, that a well grounded suspicion of intra-abdominal cancer justifies a well performed explanatory operation, directed, first, to its determination, and, second, if possible, to its removal. In cases of cancer of the stomach, for instance, to wait until diagnosis can be made by the sense of touch, from the outside, is to wait until the patient has passed the period of safety, whereas if, so soon as cancer is suspected, a judicious operator were entrusted with the case he might do much to prolong life and make it comfortable, even were it still too late to make a radical operation. If this be true of cancer of the stomach, it is equally true of most other visceral cancers in parts which are open to surgical attack.

Of course, you will say I have so far omitted all reference to that epoch-making operation of MacDowell's, who performed his first and historic ovariectomy 97 years ago, *i.e.*, in 1809. So much has been said about it, and it is now so generally known and widely credited, that it seems hardly necessary to do more than mention it as perhaps the most historic event in surgery in America in the first part of the previous century. Of that to which it has led other writers of far more graphic power have written at length. When in 1821 Nathan Smith did ovariectomy in Connecticut, while still ignorant of MacDowell's performances, upon which he improved by dropping the pedicle into the abdominal cavity, he certainly

gave it great encouragement. Allan G. Smith also successfully imitated it in Kentucky, in 1823, and D. L. Rogers in New York, in 1829. Not until seven years later was the operation first performed in England, and not until fifteen years later in France. In the surgery of the ovaries and of the ovarian cysts much, nay nearly all, is due to the work of American surgeons. T. G. Thomas, in 1870, first devised and successfully made a vaginal ovariectomy, while Battey popularized vaginal oophorectomy in 1872, and Sims contributed of his own methods and experience in making the vaginal route an effective and serviceable one for a variety of pelvic conditions.

One of the most important surgical developments of recent times has been the more rational treatment of cancer. While the etiology of this scourge of humanity is still not clear, and while men who are giving up their lives to its study are still disputing as to its nature and origin, we have nevertheless learned a great deal about it. It stands to the credit of the State of New York that it was the first government in the world to inaugurate an institution for the scientific study of cancer, and the State Laboratory for the Investigation of Cancer, in connection with the University of Buffalo, is entitled to the credit of being the pioneer institution of its kind in the world. As yet neither there nor elsewhere have been worked out such final results as to justify one in claiming positively any given origin for this disease. Without committing its staff, therefore, or without placing responsibility for the statement upon anyone else, I nevertheless feel no hesitation in saying that among the most careful workers and thinkers in the world to-day the parasitic theory is assuming an ever-growing importance, and I say this advisedly, and in spite of the opposition which such a statement frequently creates, and in spite of objections which may be raised against it. The statement is the outcome of personal acquaintance or correspondence with the men whom I consider the keenest in this line of research, as well as of familiarity with what has been recently written by them and by others. The trouble has been that the profession are not yet ready for the statement, and one may easily prophesy that for a long time they will not receive it, not, at least, without most serious questioning, nor, for that matter, should they. Nevertheless all other lines of investigation lead up to mere negation, whereas work done in this direction leads ever to more and more fruitful results.

It is of sufficient importance to remind you here, by way

of digression, that cancer occupies a unique position in the classification of diseases. It is perhaps the only disease of which it can be said that in and of itself it has no symptomatology; to which may be added that it has scarcely a distinctive sign by which it may with certainty be recognized. One must take several factors into consideration in diagnosing even a superficial growth, and deep growths baffle the best diagnostic skill. In cancer of the stomach, for instance, there is not a single feature which is not met with in other cases, and the same is true of almost every organ of the body. This is a sad confession to have to make regarding a disease which kills annually in our own State six thousand individuals, but it lends plausibility to the general wisdom of making early explorations, since only in this way can the senses of sight and touch be brought into advantageous co-operation with the arguments obtained by inductive processes alone.

But it is not my object in this address to go deeply into this subject. It must be said, however, that the studies just alluded to have led to a very much clearer recognition of the clinical aspects of cancer, and, consequently, to much more accurate notions regarding its treatment. In some respects, at least, most surgeons are agreed—namely, that cancer is in the beginning a local disease, and, as I am fond of putting it, *if* it could be recognized in time, and *if* it could be made accessible, and *if* it could be early and thoroughly removed, it would be, in most cases, at least, a curable disease. However, the “ifs” in the above statement are exceedingly important, and the very nature of the disease makes it impossible to successfully apply these canons of treatment in many instances; but the statements do apply to all cancers which are within reach and which may be diagnosed early by any one of the various means or methods serviceable for the purpose. And matters have now gone so far in the direction of earlier recognition of, and surgical operations for deep-seated cancers, especially within the abdomen and even the cranial cavity, that I have never hesitated to lay down the following rule, with a challenge to any one who may desire to controvert it—namely, that a well founded suspicion of deep-seated cancer justifies, in the first place, an exploratory operation, directed, at first, toward its recognition, and secondly, if possible, toward its relief. Were application more frequently made of this general principle by competent men (let us hope never by incompetent men) we should have fewer deaths from this awful disease.

Another conspicuous feature of the century's growth and

progress has been the development of the perfected modern hospital, which bears no more relation to the ancient institution of that name than does the modern microscope to the simple lens which was known to Roger Bacon.

Hospitals provide mainly for local needs and are supported both by private and public generosity, but there come occasionally calamities and wars which make demands that no fixed hospitals can supply. It is to meet the need of such exigencies that the Red Cross Association was founded, and it has been in furtherance of its objects that devoted men and women have sacrificed their time, their labors, and even their lives, in doing good to others, relieving the distressed, caring for the sick and wounded, and demonstrating the noblest of human and humane traits. It is doubtful if altruism can reach a higher degree of development than has been evinced by those who have so nobly performed these duties.

So far we have dealt with the past and the present. What is to be said of the future?

Each Year Book of Surgery shows us that it is still too soon to speak, as did Erichsen, of Finality in Surgery. The records show that practically no part of the body which is accessible by any route has been omitted from experimental attack; time may still be required to indicate whether these attacks are to be frequently repeated or not.

The so-called "anatomical surgeon" of the past generation has practically found his limitations. Gross anatomy holds but little now in store for even the most conscientious student. Therefore, the day of the surgical anatomist and operator alone has passed, unless to his purely anatomical knowledge he has added much of collateral origin and interest. To every surgeon, however, more and more must come that final knowledge of anatomy gained only through the microscope, and employed to his advantage in studying, as well, the process of repair as of disease. Such additions, for instance, to our knowledge as have been afforded by recent investigations concerning the neurons have a far-reaching significance which entitles them to the consideration of the surgeon as well as of the neurologist.

Into surgical pathology our surgeons must be led ever more and more deeply, sometimes by direct, again by devious ways. That the surgical laboratory will maintain a more and more important position, both in surgical teaching and in preparation for surgery, must go without saying. In surgery, as well as in general medicine, though probably in lesser degree,

we shall learn that, to use an Hibernicism, the best way to treat disease is to prevent it. In so far as we draw nearer to a discovery of the foundations of life, the surgeon will profit with the biologist and the general practitioner. The future is too misty to say where we shall find ourselves in this regard at the end of the second century of our existence.

The tendency of late has been for the surgeon to drift away from the internist, for reasons which are obvious to all. He has, however, in my estimation, drifted too far and needs to come back into closer correlation with his colleagues and closer comparison of methods with results. The pendulum has swung a little too far in the direction of divorce between medicine and surgery. There is work enough for each in his respective field, and it will be to the interests of humanity that they work rather toward than away from each other. Calm judgment, patience and discretion should go hand in hand with the most active research. Only by combination may the latter be made of its greatest possible avail.—*Buffalo Med. Journal.*

Progress of Medical Science.

SURGERY.

IN CHARGE OF EDMUND E. KING, GEORGE A. BINGHAM, C. B. SHUTTLEWORTH
AND F. W. MARLOW.

Varicocele at St. Thomas' Hospital.

A careful enquiry has been made by Corner and Nitch into the subsequent history of 100 patients operated upon for varicocele at St. Thomas' Hospital. The results of their investigations are published in the *British Medical Journal* of Jan. 27th, under the caption, "The immediate and remote results of the high operation for varicocele."

The usual incision and removal of two inches of the pampiniform plexus, with approximation of the stumps by suture, was performed in all cases.

They mention hemorrhage, orchitis, edema and thickening of the scrotum, enlargement of the testis, hydrocele and suppuration as sequelæ of the operation.

With our modern methods of hemostasis bleeding does not often occur. Faulty knots and defective ligatures must be avoided. Two cases are cited where, after operation, the pelvis became filled with blood, no doubt due to a rupture of the peritoneum by the pressure of the effused blood outside this membrane in the inguinal canal. The method of bringing the two stumps of the excised veins in apposition by tying the proximal and distal ligatures together is condemned, on account of the danger of one of them slipping and hemorrhage resulting. It is better to suture the two stumps together with catgut.

Passive hyperemia may follow the removal of so many different channels and result in acute or subacute orchitis (56 per cent.), leading to further complications, edema and thickening of the scrotum, enlargement of the testicle and hydrocele. Suppuration occurs very infrequently and, of course, is always due to faulty technique.

Changes in the testis, epididymus and scrotum are taken up under the remote effects of the operation, also hydrocele, hernia and recurrence.

In 100 cases they found the testicle sclerosed in 90, enlarged in 55, testes equal 15, smaller 21. The scrotum was thickened in one-half the cases, hydrocele was found 23 times, spermatocele, hernia and recurrence, 2 cases each. Sensibility of the organ was unaltered in 84, increased in 9, decreased in 5, and lost in 2.

Seventy patients expressed themselves pleased with the result, unaltered in 26 cases, and 4 patients had more trouble.

The authors condemn the practice of removing too large an amount of the pampiniform plexus and attribute the high percentage of complications to such a procedure. C. B. S.

Primary Tuberculosis of the Kidney.

Hurry Fenwick, F.R.C.S., in a post-graduate demonstration at London Hospital, in October last, pointed out that a diagnosis of primary tuberculosis of the kidney in women was comparatively easy, provided the patient had the usual symptoms, such as renal pain, a renal tumor, an evening rise of temperature, tubercle bacilli in the urine. He claims that in some cases latent disease may be detected when even no symptoms exist to lead to a diagnosis of tuberculosis in one or other kidney. He bases the diagnosis on certain characteristic changes about the ureteric orifices in the bladder.

With the vast amount of clinical material at his disposal and his wide experience in tuberculous lesions of the kidneys, Mr. Fenwick, in certain cases, from a cystoscopic examination of the ureteric orifices, asserts that he can even foretell the exact pathological changes that exist in the kidneys. When he is certain of his data, he even goes so far as to make a sketch, before operation, of the changes likely to be found in the affected kidney, and then demonstrates the correctness of his views at the time of operation. Several beautifully colored illustrations appear in the *British Medical Journal* of Jan. 27th, giving a pre-operative delineation of a tuberculous kidney based on cystoscopic findings.

Mr. Fenwick states that a "dragged out, retracted" ureteric orifice is a very important feature in one class of tuberculous kidney. He asserts that when this condition is well marked, it can be absolutely relied upon as indicating tuberculous infection of the corresponding kidney. He has observed that a retracted, displaced, ureteric orifice points to a thickened, shortened ureter, with narrowing of its calibre and back pressure of urine on an unyielding thick pelvis. The strain is mainly borne by the upper and lower calyces, consequently the tuberculous changes are found mainly in these traumatized areas, with tuberculous deposits radiating from these primary foci to the cortex, where strong capsular adhesions are usually to be found. Mr. Fenwick believes that a thickened, leadpencil-sized ureter, associated with a red, "retracted," ureteric orifice, is characteristic of a certain type of renal tuberculosis.

LARYNGOLOGY AND RHINOLOGY.

IN CHARGE OF J. PRICE-BROWN

Submucous Resection of the Deflected Septum.

This method of treatment of severe cases of deviated septum has been so widely adopted by rhinologists during recent years, and so much has been written upon the subject, that its consideration in a general medical journal is worthy of the closest attention.

While it is talked and written about as something almost entirely new, Scanes Spicer, one of the leading laryngologists of London (*Jour. of Lar.*, June, 1904), claims that submucous resection of the cartilaginous septum is of comparatively ancient date. Chassaignac resected the septum submucously in 1851. Several years later Hartman and Peterson also performed the operation. MacKenzie, McBride, MacDonald, and Ball all mentioned it in their text-books, and in 1888, Greville MacDonald, at the Glasgow meeting of the British Medical Association, described this method of treating septal deviation as the "New Operation." This is eighteen years ago, and from then until now both MacDonald and Scanes Spicer have performed the operation when required. The latter, however, was chary about cutting away much from the antero-superior border or the tip of the septal cartilage. He mentioned this from the fact that while a patient shown at the time by St. Clair Thomson had his breathing powers much improved by the operation, and was well satisfied with the result, yet there was some sinking of the tip of the nose and a widening of the columella at the base.

In the same number of the *Journal of Laryngology*, a report of St. Clair Thomson's case, done by his own special method, is given. In it a large septal deviation was excised with complete preservation of the mucous membrane on both sides.

The operation was performed thus: An incision was made through the perichondrium on the convex side, and the membrane deflected back as far as required. The cartilage was then divided through to its under surface, deepening the original first cut, care being taken not to cut through the mucous membrane. The muco-perichondrium on this side was likewise dissected back as far as required with equal care, after which the whole of the deviated septum was excised. The under surfaces of the two muco-perichondria were then placed in apposition. The healing was rapid and the two

mucous surfaces with their ciliated epithelium being preserved, atrophy could not occur.

St. Clair Thomson's precautions to avoid buttonholing were simply patience and perseverance during the operation. Two points were essential: First, to be particular not to puncture the mucous membrane while cutting through the cartilage; second, to avoid puncturing while dissecting off the mucous membrane from the concave side. The time required for the operation was two hours, during which period the patient was under the anesthetic.

In his second case he buttonholed the mucosa on the concave side, owing to an inflammatory adhesion of the perichondrium to the cartilage. This was remedied, however, by contact with the opposite mucosa, the perforation eventually being entirely healed. The healed mucous membrane, or new fleshy septum, while hanging in the median line, will for a while quaver during inspiration of air.

In the *Laryngoscope*, June, 1905, W. L. Ballenger describes a new technique for the operation. This consists chiefly in the use of a new *swivel septum knife* for the removal of the cartilage, after dissecting back the two folds of the muco-perichondrium. In the old way, it was necessary to take away the deflected cartilage piece by piece, and sometimes the anterior portion of the vomer by means of cutting forceps or knives contrived for the purpose. This was a long and tedious process. His new method, by using the swivel knife, makes the operation easier, shorter and more perfect.

In performing the operation, Ballenger, with a special knife, makes a curved incision in the septal mucosa of the left side, regardless of whether this side is concave or convex. This incision is about an inch in length, beginning near the floor of the nose and curving forwards and upwards about one-fourth of an inch posterior to the anterior end of the cartilage. He next uses Hajek's semi-sharp elevator to separate the anterior end of the muco-perichondrium, following this by Hajek's blunt elevator to complete the balance of the operation of the muco-perichondrium on that side. Next, the anterior end of the cartilage is separated from the mucous membrane of the right side, carefully avoiding perforation—the same two instruments being used in dissecting back the muco-perichondrium of this side as the other, and the work being done with equal or even greater care.

The dissected folds being now elevated and separated from the cartilage, the latter is cut out by means of the swivel knife

in a single piece, the prongs of it being inserted on each side of the cartilage, thus protecting the mucous membrane from injury. Almost the only part of the cartilage left is the anterior tip which is retained to support the tip of the nose. The entire curvature is thus removed in a single triangular piece, the apex being the posterior end.

Sydney Yankauer, in the *Amer. Jour. of Surgery*, June, 1905, while advocating submucous section as the one operation to be commended, when properly performed, opens his article by some rather adverse criticism. He says that in many instances submucous resection of the deviated nasal septum has resulted in permanent perforation. Kreig, the supposed originator of the operation, had twelve per cent. of perforations. Freer, whose admirable articles on the subject and complete set of instruments for the operation, have attracted wide attention, had six perforations out of his first fifteen operations, being forty per cent. Another operator, in describing his cases at a meeting of the New York Academy of Medicine, stated that twenty per cent. of his operations were followed by permanent perforations; but that he did not consider perforation of the septum at all harmful. A wag among his confreres blandly asked: "Why subset at all if a clean hole punched through the septum is all that is needed?"

Notwithstanding the recitation of these facts, Yankauer is a strong supporter of the operation, particularly when done with due care by a method devised by himself. He claims that immunity from perforation can be accomplished; and also states that Freer's subsequent resections were rarely followed by perforations.

Besides those already named, many new instruments have been added to those employed in this operation. Killian's new knife for the separation of the muco-perichondrium from the cartilage is warmly advocated by London operators.

Joseph C. Beck, in the *Laryngoscope*, Jan., 1906, has quite a list that he brings to the fore. He has a new hypodermic needle, specially suited for nasal work; a self-retaining operative nasal speculum, adapted for dilating both nostrils simultaneously; a combined dilator and clamp, to be used one blade in each nostril, to press the two mucosa flaps together after the cartilage has been removed. This allows ample space for packing, without disturbing the newly-placed tissues. After the packing is finished the clamp is removed.

John McCoy, also in the *Laryngoscope*, Jan., 1906, intro-

duces some new instruments. His knife is claimed to be a particularly safe instrument for making the incision through the cartilage. His straight forceps is an equally good one for removing both the cartilaginous and the bony septum. His curved forceps is shown also for cutting away the submaxillary ridge when included in the deviation.

While giving a faithful synopsis of the work that has so recently been done, and well done, in this much-vexed field of septal deviation, the abstracter would ask the question: Is it not possible for the pendulum to swing too far? Is the removal of the septal cartilage in all cases of severe deflection the one and only method by which adequate relief can be afforded? And in view of the conditions, is it not a dangerous method to be placed in the hands of every rhinologist just entering this important branch of medical science and art? If men like Freer, one of the most enlightened and accomplished of surgeons, made 6 perforations out of his first 15, no matter how successful he might have been afterwards; and other experienced rhinologists averaged 12 and 20 per cent. of perforations in all their cases, what would the inexperienced man do in his brilliant first efforts? Another question which is perhaps equally potent: Is it wise, even when a brilliant operation is performed, and the two folds of mucous membrane heal firmly back to back, to remove the entire cartilage in so many successive cases? This operation in its largeness has only been done during the last two or three years. What will be the effect upon these weakened septa during the long years of the future, for many of these patients will live twenty, thirty or even forty years yet? We know how weak an organ the septum is, for very frequently we find it perforated even without operation. And when perforated it always occasions more or less distress to the patient. The question may well be asked: Will there not be a very much larger percentage of perforations among the people during future years, if every rhinologist considers it his duty to do a submucous resection in every case of severe septal deformity? Is not conservative surgery the true note to ring in this as well as in other regions of the body, particularly when a true cartilaginous septum can be retained, and the nasal cavities freed from stenosis by other methods?

Editorials.

SMALLPOX AND VACCINATION.

We regret exceedingly that the Anti-Vaccination League of Toronto is increasing in numbers and apparently in influence. This League regards the recent decision of the Toronto School Board not to enforce in the future the rule requiring that each child shall be vaccinated before it enters the Public School as a substantial victory. Perhaps the most remarkable thing in connection with the meeting of the Board was the statement of one of the trustees, Mr. Parkinson, that when he was Principal of the Givens Street School, some 675 children were vaccinated within forty-eight hours; and of the 675 children thus vaccinated, six never came back to school and were ruined for life. Mr. Parkinson happens to be a reputable and intelligent man, and commands the respect of the public to a very considerable extent. He is considered by the majority of our citizens to be well qualified for a position on our School Board. Such a remarkable statement coming from Mr. Parkinson is likely to do incalculable harm. It is quite unnecessary to discuss the question in detail. If anything has been proved as to what might be called mathematical correctness in connection with the medical science, it is the fact that vaccination prevents that most loathsome and highly contagious disease, Smallpox.

We also know that vaccination done in a cleanly way is about the safest kind of a needle scratch to which anyone can be subjected. The almost infinitesimal danger connected with this slight operation is as nothing when compared to the incalculable benefits which accrue from it.

Professor Macallum gives us some interesting statistics in a letter to the lay press of Toronto. In the city of Gloucester, Eng., the law as to vaccination was not enforced before 1897, and in 1896, during the epidemic of Smallpox there developed 1,799 cases, including 1,000 who were children under the age of 14. The Officer of the Imperial Government, who investigated the conditions of the outbreak, expressed the positive opinion

that Gloucester would not have suffered as it did had its child population been vaccinated.

There is a small minority of the public so constituted as to be simply beyond reason. Argument with such persons is useless. Under such circumstances we are inclined to accept the opinion of Dr. Sheard, Toronto's able Medical Health Officer. He thinks that the public have been so long protected that some people begin to question the need of protection. He says there will have to be something done to enforce thorough vaccination. In this province the Ontario Government will have to see to this, prejudice or no prejudice. The counties where Smallpox has been growing, due to lack of vaccination, find that the disease is killing their industries and trade. It has cost them thousands upon thousands of dollars in lost trade in the last two years. He also adds that there has not been a year for a long time when Smallpox has done so much damage as it did in 1905 and the first two months of 1906.

ADULTERATION OF FOODS.

One of the greatest evils of the present day is the adulteration of foods. This evil has been well known and thoroughly appreciated by a large portion of the community for many years. Many battles have been waged between the advocates for pure food and the manufacturers of food substitutes in the United States during recent years. We understand that what is called the Pure Food Bill has been passed by the United States Senate. The New York *Evening Mail* thinks the people are to be congratulated on obtaining at last a national enactment which will begin a health-saving and life-saving work which will be little less than revolutionary.

The New York *Tribune*, however, is not enthusiastic about the passage of the bill by the almost unanimous vote of 63 to 4, as it considers that such a vote really betrays the insincerity of those who have long opposed the passage of such a measure. It adds, that for 15 years legislation dealing with the abuses of food adulteration and fraudulent branding has been side-

tracked session after session. It refers to the special pleas which have been made on behalf of the manufacturers of food substitutes. It was contended that the adulterated foods manufactured were as wholesome as the unadulterated products they replaced. It was also stated that a groundless prejudice against foods in any use would be created if manufacturers were compelled to disclose their formulas.

Some of the provisions of the new Bill are practically as follows: It will be a misdemeanor to manufacture or sell adulterated or misbranded foods, drugs, medicines, or liquors in any part of the United States, or to ship such goods to a foreign country. The punishment decreed is a fine of \$500, or imprisonment for one year, or both.

CARNEGIE INSTITUTION AT WASHINGTON.

Considerable interest has been taken in the work of the Carnegie Institution established in Washington. Professor R. S. Woodward, formerly of Columbia University, is the President, and his recent Annual Report has been much discussed in the United States. The President, in this report, tells us much that is interesting about the policy and plans of the institution. It is essentially an organization for conducting scientific investigation. Prof. Woodward calls it a university without students, because it does the research work of a great university without the ordinary college work of teaching and examination.

The work which is now being done is divided under four heads: (1) Large projects requiring years of work from a corps of investigators, about ten of such being under way. (2) Small projects by individuals for short periods, there being about three hundred. (3) Tentative investigations encouraged in the hope of improving talent. (4) The publication of meritorious works that would not otherwise be printed, of which forty volumes have been already issued.

Prof. Woodward is anxious that close relations be maintained by this institution with other universities, especially re-

search centres. He also recognizes the increased eagerness of the public to learn the result of scientific research and desires some sort of co-operation between the institution and the existing media for the dissemination of information, that is, he wants to be in close relationship with the press of the country.

Among the greater projects now under way are investigations of fundamental problems in animal and plant biology, horticultural experiments, the steady stimulation of historic research, investigations regarding nutrition, such as the well-known work of Prof. Chittenden, of Yale, the Solar Observatory, etc.

The President thinks that more good is likely to result from these large projects than from the many minor investigations which are being carried on.

NOTES.

Model Hospital.

The City of Charlottenburg has decided to erect a small model lying-in and infants' institution, in honor of the Silver Wedding of the German Emperor and Empress, with the object of carrying out one of the favorite ideas of the Empress. There are to be thirty beds for women expecting confinement, who are to be allowed to remain in the institution until their children are three months old, and thirty beds for infants to be fed artificially. The mothers, during the time of their stay, will learn how to arrange their diet and mode of life so as to have a supply of wholesome milk for their babies, and how best to treat their children as they grow up. In the department for artificial feeding the most scrupulous attention will be given to periodical examination of cows and dairy, to the cooling and sterilization of milk, vessels, etc., so that in time a basis may be formed for the establishment of fixed rules to regulate the rational feeding of infants.

Toronto General Hospital.

The members of the Extern Staff of Physicians and Surgeons at the Toronto General Hospital, Doctors Murray, Stewart, Turner, Gilchrist and Wells, placed their resignations

in the Superintendent's hands on Feb. 28th. They contended that when they received their appointments it was understood that daily luncheons would be provided for them at the hospital. When the Superintendent of the Hospital, representing the Board of Trustees, told the members of the Extern Staff that the hospital could not provide the luncheons any longer the Doctors immediately resigned.

We are pleased to be able to state that the difficulty between the Extern Staff and the Trustees has been satisfactorily arranged and the Doctors have withdrawn their resignations and returned to their work.

The Extern Staff will be increased in numbers and the hours of their services have been arranged so that they will only be required to spend the half of each day in the hospital.

Ontario Medical Association.

The President again desires to call the attention of members of the Ontario Medical Association to the annual meeting for 1906. As was announced some time ago, the meeting will be called at 8 p.m., Monday, August the 20th, the evening preceding the inauguration of the British Medical Association's meeting, and will take the form of a purely business session.

The prestige of the greater meeting to follow should not diminish the sense of responsibility of the members to their local society. Such important matters as the closing of the business of this year and the intelligent preparation for a successful meeting in 1907 demands a wide and sympathetic interest in the welfare of the Association.

International Medical Congress.

It is now expected by physicians and surgeons on both sides of the Atlantic that the Fifteenth International Medical Congress, to be held in Lisbon, April 19th to 26th inclusive, will be a much greater success than was formerly anticipated. It is said that very elaborate preparations have been made for the meeting by the profession of Lisbon and Portugal.

A large number from Great Britain, France, Germany, Austria, Russia, Spain and Italy have reported that they will

attend and take part in the congress. Among those who will go from Canada are Doctors William Oldright, A. McPhedran and W. H. B. Aikins, of Toronto.

We understand that more than fifty physicians of the United States have decided to attend, among whom are: Dr. Senn, of Chicago; Dr. McMurtry, of Louisville, and Dr. Vanderveer, of Albany; Doctors L. S. Seaman, Gaylord, Gorgeas, Jno. B. Murphy, Hasbrouck, J. C. Wives, Carl Bronnell, Walter Chase, McCaskey, Turek, A. E. Macdonald, C. H. Hughes, G. B. Montgomery, A. D. Davis, H. C. Alexander, C. W. Allen, Emmett Holt, A. C. Victor, H. Gradle, J. Cannaday, C. W. Fassett, Raymon Guiteras and Mr. Clark Bell.

MEDICAL ITEMS.

We are pleased to learn that Queen's College will confer the honorary degree of Doctor of Laws upon Dr. C. K. Clarke, Supt. of the Asylum for Insane, Toronto, at the Medical Convocation on April 12th. Before coming to Toronto Dr. Clarke was for fourteen years Professor of Mental Diseases in the Kingston Medical College.

We have much pleasure in publishing in this issue an abstract of Dr. Roswell Park's Oration on Surgery, for the Centennial Meeting of the Medical Society of the State of New York. What we have published is really an abstract of the abstract which appeared in the *Buffalo Medical Journal* of February. It unfortunately happened that Dr. Park was very ill at his home in Buffalo for a great part of January and a portion of February. His many friends in Canada will be pleased to learn that he is now convalescent.

The merits of a target recently invented by Col. Peters (Dr. George Peters, Toronto) were discussed at a meeting of the Ontario Rifle Association, March 5th. The target is an electrical arrangement self-registering, and indicates the scores as fast as the marksman can shoot. Lient-Col. Macdonald and Major Mercer, who had inspected the target, praised it very highly. The Association unanimously decided to appoint a committee to investigate, and requested Dr. Peters to instal one of his targets on the Association's range.

Personals.

Dr. Arthur B. Sutton (Tor. '04) will commence practice in Omamee in June.

Dr. F. A. Clarkson leaves for England this month to do special work in London.

Dr. Edmund E. King, of Toronto, will sail from New York for Liverpool, May 2nd.

Dr. Brefney O'Reilly, who is now on his way to Japan, expects to return to England next July.

Dr. A. F. Malloy (Tor. '04), of Exeter, was married to Miss Annie Townsend, of Toronto Junction, Nov. 29th, 1905.

Dr. Wm. Hackney (Trin. '97) has returned to Ottawa after spending some years in post-graduate work in London, England.

Dr. George Badgerow paid a flying visit to Toronto in March. After spending two weeks in Canada he sailed for England, March 19th.

Dr. A. McPhedran, of Toronto, sailed on the 31st of March to attend the International Congress, after which he will visit at Paris and London.

Dr. Charles O'Reilly returned to Toronto, March 25th. Before leaving London he attended the King's levee at Buckingham Palace, Feb. 26th, and was presented to His Majesty by Lord Strathecona.

Dr. W. H. B. Aikins left for Europe, March 27th. After attending the International Medical Congress at Lisbon, he will go to Vienna, by way of Madrid, and return to his home the latter part of June.

Dr. William Oldright, of Toronto, will sail for Gibraltar, April 3rd, accompanied by his wife and daughter. After attending the Congress in Lisbon, Portugal, they expect to make a tour of Spain and Italy.

Dr. J. Sing, of Belleville, met with a railway accident recently, receiving serious injuries to the head and left arm. A train ran into his vehicle as he was crossing the tracks. It is miraculous how the doctor escaped with his life.

Sir James Grant, of Ottawa, celebrated his golden wedding on January 22nd. Congratulatory addresses were presented by the St. Andrew's Society, the Protestant Hospital Committee, and the profession of Ottawa. Sir James was born in Inverness-shire in 1830, and came to Canada in early boyhood.

Obituary.

DR. MATTHEW WALLACE.

Dr. Mat. Wallace, of Toronto, died of cancer of the bowel, March 3rd, 1906, aged 57. He received his medical education in the Toronto School of Medicine, and graduated M.B. (Tor.) and M.D. (Vic.) in 1880. In writing his obituary notice we feel that we cannot do better than reproduce the following articles from the *Toronto Globe*, the first of which was published some months before Dr. Wallace's death:

THE BLESSED PHYSICIAN.

The men who have had the opportunity of reading the post-mortem opinion of their neighbors are rare. We do not tell people the good we see in them while they still live and are able to feel that in the estimation of their contemporaries they have not lived in vain. We wait at the bedside of the true nobility of the earth, dumb and soundless, until assured that the angel of death has touched him, and then we break into eulogies that can reach his ear no longer.

Perhaps it is better so, for there are cases where eulogy would be a jarring note—where the pure unselfishness of good deeds might be sullied by the seeming reward. Perhaps least of all do we think of contemporary praise of the good physician, that greatest blessing that a community can have. Ian MacLaren has given us a picture of the good physician, in that Dr. Maclure, whose funeral on the wild winter's day was the memory of the glen, and happy are those who have had a Dr. Maclure come like a household benediction into their own lives.

Toronto may have more than one such blessed doctor, but one at least the east end of the city has known for many years. A man of strong athletic build could have been seen at any time during the past two decades threading its streets on bicycle or street car. making his way to humble homes, where his cheery, brother-like greetings were more medicinal than all the drugs of the pharmacopeia. The poorer and the more hopeless the home the more need, in this physician's estimation, of the rarest skill and watchful attention, so that one of the afflictions of poverty might at least be stayed or removed. And if there were two calls on his attention the cottage got his first ministrations. The patient in the well-to-do home would have no difficulty in getting another physician, while the same could

not be said of the little cabin where there was positively no hope of fees or other reward than the fervent "God bless you" of the sorrowing and stricken. That class of cases our Toronto Maclure conceived to be his special field. But, whether impoverished or otherwise, all were treated alike so far as fees were concerned. No bills went out to anybody. The doctor was too busy curing people to have time to be keeping tab on the number of places where he scattered sunshine and healing. If any felt that they owed the doctor anything and they had a little loose change that they had no other use for they could send it on—they knew his address. Thus he went about doing good, as if his profession was a consecrated one and available for all, like that of the priest. And with it all there was none of the affectation of goodness—no cant, no snivelling, but bluntness, heartiness, and jollity, with an occasional expletive that denoted kinship with ordinary sinners rather than with cloistered saints.

In the midst of these activities, which made twenty-four hours all too short for a day's calls, fate spoke. And its sentence was what is generally considered the most cruel that can be pronounced. The word cancer has such significance of slow and malignant corruption that the very naming of it freezes the blood. This was the word applied to the symptoms which for some time had made themselves apparent in his constitution, and for the first time in his life he who had sat like the genius of healing at a thousand bedsides was himself stricken beyond all hope of cure. No names are mentioned, because it is not good form to pour out the ointment of appreciation aforehand. And he had not worked for the reward of eulogies any more than for the reward of lucre.

A CANADIAN MACLURE.

The death of Dr. Matthew Wallace, which occurred on Saturday, terminates a long and painful illness which has been watched with unaffected sorrow by an uncommonly large number of men and women who knew of the marvellously unselfish life which was thus being closed grievously and untimely. Two years ago Dr. Wallace would have been remarked for his vigorous physique, but cancer developed and the efforts of the surgeons after a long battle have proved unavailing. It can be said without exaggeration that Dr. Wallace was literally an angel for healing in all parts of East Toronto, or, indeed, wherever there was much suffering and little money. His

practice was almost wholly among patients who were subjected to the twin evils of poverty and disease. Homes where the two went hand-in-hand always knew that at the corner of George and Queen streets there was a physician who would hasten to their bedsides at any hour of the day or night to assuage their pains, and see, moreover, that they had food or medicine when the means for obtaining either were absent.

He had no high philosophy about it. He had no nicely balanced creed or ethical code in regard to the obligations of a physician. Indeed, the studious sociologist could have proved to a demonstration that many of his actions were calculated to encourage unthrift and thoughtless improvidence. He just followed the impulses of his big heart, which made it a pleasure for him to bustle into some lowly and perhaps ill-regulated home in his breezy, hearty way and leave a poor neglected old man or old woman or hectic child better and easier and more hopeful for his visit.

And then the mystery that this strong battler against disease, this cheerer of hearts, this lightener of burdens, in the best and most useful years of his manhood; he who had met death and worsted it at so many bedsides met it in the noon-tide of life at his own, and met it in its most terrible and most malignant aspect! Questionings in such a case are vain. We must wait until the meaning of it all is revealed. It can, at least, be felt that, in the most poignant hour, when thoughts of his loved ones, soon to be left fatherless, pressed upon him, his own unselfish life of serviceableness would have a sweet savor. He could leave his family no grander heritage than the memory of such a life. There have been thousands of statues erected to men that did less for their kind than Dr. Matthew Wallace.

DR. CHARLES EDWIN JAKEWAY.

Dr. Jakeway, of Stayner, died March 1st, his death being due to a very distressing accident. While getting some hay and straw for his horse at half-past ten at night his lantern exploded, igniting the hay and straw in the loft and smothering him in a short time. The body was quickly recovered, but efforts at resuscitation were unavailing. There was no injury to the body except that the hands were slightly burned.

Book Reviews.

Differential Diagnosis and Treatment of Disease. A text-book for practitioners and advanced students. By AUGUSTUS CATTLE, M.D., Fellow of the New York Academy of Medicine; Member and ex-President of the American Pediatric Society; Professor of Diseases of Children, New York Post-Graduate Medical School and Hospital; Visiting Physician to the New York Post-Graduate and German Hospitals; Consulting Physician to Isabella Home and Hospital, etc. With two hundred and twenty-eight illustrations in the text. New York and London: D. Appleton & Company. 1906.

This volume combines what has usually been called internal medicine with enough of the various specialties to enable a general practitioner to have at least a working knowledge of them. In other words it is a most suitable book for the family physician, the mainstay of our profession, who has been, during the last decade, slowly forced out of existence by the specialist. The reader can rely upon any new information given as being thoroughly up-to-date. To cover the ground at all well in 800 pages, means that every point must be stated concisely, a decided merit in the eyes of a busy man. The original illustrations are most excellent.

Diseases of Metabolism and of the Blood, Animal Parasites, Toxicology. Edited by RICHARD C. CABOT, M.D., Instructor in Clinical Medicine at the Medical School of Harvard University. New York: D. Appleton & Company, Publishers.

This is the second volume in a series entitled. Modern Clinical Medicine, the first of which was Infectious Diseases, edited by J. C. Wilson, Professor of Medicine at the Jefferson Medical College, of Philadelphia.

This volume is equal to the one which preceded it, and is characterized by the same exhaustiveness of treatment. The translation and general editing has been carefully done by Dr. Julius L. Salinger, and the many annotations made throughout the work by Dr. Cabot are of special value. When we consider that the original work was written by such eminent clinicians as Gerhardt, Ewald, Ehrlich, Grawitz, Leube, Litten, v. Noorden, Naunyn, and Jaksch, little need be said as to the standard of the teaching herein presented. It bears the stamp of direct, simple, clinical teaching such as characterized the instruction of those above mentioned.

The work may be regarded as setting forth the most advanced teaching in medicine. It is an epitome of the latest researches in a field hitherto regarded as obscure and almost unexplored.

The work is unexcelled in any language and should have a place in the library of every physician. The busy practitioner both in medical centres and in remote hamlets may here find his inspiration and guide. One of the distinguishing features of the work, which renders it especially valuable to the practitioner, is the very full discussion of treatment, embracing full diet-lists as well as all the modern aids, such as organo-therapy, medical gymnastics, massage, hydrotherapy and electro-therapeutics, without subordinating actual drug treatment. We predict for this book as favorable a reception as was given to *Infectious Diseases*.

The Signs of Internal Disease, with a Brief Consideration of the Principal Symptoms thereof. By PEARCE KINTZING, B.Sc., M.D., Professor of Physical Diagnosis and Diseases of the Heart, Maryland Medical College; Physician to the Franklin Square Hospital, Baltimore, Md. Illustrated. Cleveland Press, Chicago. 1906.

"The Signs of Internal Disease" is a book especially adapted for the student body, as a ready reference and aid to them in their hospital work. The author warns them of the small value of a book on physical signs unless used as a guide and impresses them with the absolute necessity of repeated examination.

It is the work of an orderly brain, and although there may be nothing startlingly new, yet one is struck by the consecutive thought shown in the arrangement of the sections; the book contains, besides the physical signs of disease, and the more prominent subjective symptoms, a résumé of the latest laboratory methods; the plates are numerous and graphic, many of them drawings, serving the better to convey ideas from mind to mind than the perfectly symmetrical plates we are accustomed to. It is a book we can highly recommend.

The Diseases of Infancy and Childhood. For the use of Students and Practitioners of Medicine. By L. EMERTT HOLT, M.D., Sc.D., LL.D., Professor of Diseases of Children in the College of Physicians and Surgeons (Columbia University), New York; Attending Physician to The Babies' and Foundling Hospitals, New York; Consulting Physician to The New York Infant Asylum, Lying-in Hospital, Orthopedic, and Hospital for the Ruptured and Crippled. With two hundred and forty-one illustrations, including eight colored plates. Third edition. Revised and enlarged. New York and London: D. Appleton & Company. 1906.

Frequent revisions of a text-book in pediatrics are necessary if it would adequately present to its readers existing knowledge in this department of medicine. The present revision has been made without any important changes in the general arrangement, and at the same time without materially increasing

the size of the volume. Certain chapters have been much abridged while others have been much expanded.

The needs of the student and practitioner rather than those of the specialist have been constantly kept in mind. The purpose has been to restrict the book to its own field—now so constantly widening—omitting the discussion of subjects which are fully treated in works upon pathology, general medicine and surgery.

Convinced of the great value of good pictures, both of clinical and pathological conditions, special pains have been taken in this revision with the illustrations. Many old ones have been replaced by better ones, and altogether twenty-five new illustrations have been introduced.

While alterations have been found necessary in almost every chapter, the principal changes have been made in the articles upon the following subjects: Examination of the Sick Child, Hypertrophic Stenosis of the Pylorus, Diarrheal Diseases and Dysentery, Vaginitis, Cerebro-Spinal Meningitis, Mental Defects, Chondro-Dystrophy, Status Lymphaticus and Diphtheria. Most of these chapters have been entirely rewritten; some appear for the first time in this edition. Holt on the Diseases of Infancy and Childhood is the standard of excellence.

Selections.

Heart Block and the Stokes-Adams Syndrome.

The cause of the heart beat, and the path which is taken by impulses passing from the auricles to the ventricles, has been a matter of controversy for years. The physiologists have practically always been divided into two camps regarding the matter, one group insisting that the transmission of the heart impulse takes place through the nervous system, the other that it occurs by means of muscular tissue. Until within two or three years the former group seemed to have a little the best of the argument, but the discovery by His, Jr., in 1903, that there existed a muscular band which connected the auricles with the ventricles put an entirely new face on the matter. This bundle, which is now quite generally spoken of as the bundle of His, is, in man, a narrow band 18 millimeters long, 2.5 millimeters wide, and 1.5 millimeters thick. The bundle runs posteriorly in the septum of the ventricles, from which it passes into the musculature of the right auricle and its valves.

The experimental demonstration that the bundle transmits the impulses from the auricles to the ventricles has been made by His, Humblet, and more recently by Erlinger, whose interesting experiments should be read by all students of heart disease. Without going into detail regarding the methods of experimentation, it may be stated that by varying degrees of compression of the bundle of His all stages of heart block, *i.e.*, interruption of the transmission of impulses from the auricles to the ventricles, may be obtained. Slight compression results merely in an increase in the intersystolic pause; more marked compression produces intermittency in the ventricular contractions, and complete compression causes the auricular and ventricular contractions to occur independently of one another. The experiments also showed that, while the accelerator cardiac nerves are not influenced by heart block, the vagi lose their control over the ventricles.

The bearing which these observations have on certain forms of heart disease, and especially on the so-called Stokes-Adams syndrome, can not be overestimated. It will be remembered that the cardinal symptoms of this condition are bradycardia, in which the auricles may be definitely shown to beat more rapidly than the ventricles, and aponelectiform or epileptiform attacks. As Erlanger states, all the cardinal symptoms of

Stokes-Adams disease may be explained by the effects of heart block. The relation of heart block to slow pulse and disparity of action between the auricles and ventricles has already been made clear in discussing the experimental work. The epileptiform attacks are explicable as the result of anemia of the brain, and are doubtless similar to those seen after hemorrhage in warm-blooded animals. The apoplectiform attacks are probably due to venous congestion of the brain, which has long been known to be associated with slow respiration, paralysis of the glottis, and spasmodic symptoms.

A glance at the autopsy protocols of the published reports of cases of Stokes-Adams disease shows at once that, so far, no one pathologic condition has been found as a cause. It is also apparent that in some cases lesions are described which could easily exert pressure on the bundle of His—tumors of the septum, for example. Naturally, up to the present time, there has not been an opportunity to examine this bundle in any large number of cases. We believe that a case of Stokes-Adams disease has recently been reported by Stengel, in which definite disease of the auriculo-ventricular bundle was present, and there is little doubt that similar reports will soon be forthcoming. Some points which have been developed in the treatment of this affection, on purely empirical grounds, are interestingly made clear by the experimental work, especially the disadvantage of digitalis in this affection, and the good results sometimes following the use of iodids. The latter may be partly explained on the ground that the disease of the bundle of His is sometimes syphilitic. Erlanger suggests that atropin, by steadying the pulse, will also be of value in this condition.—*J. A. M. A.* (Editorial).

Spermatic Insufficiency and Diastematic Insufficiency.

Ancel and Bouin explain that insufficiency of the testicles does not mean inadequate production of the seminal secretion alone. There is a seminal gland in the testicle and an interstitial gland. The seminal gland comprises the seminiferous tubules, while the intertubular connective tissue is what the authors call the interstitial gland or diastema. The latter is probably the seat of the production of the internal secretion of the testicles. Experiments on animals have shown that each gland is practically independent of the other and may fail in its task without compromising the functional activity of the other. There is, therefore, a "spermatic insufficiency" and a "diastematic insufficiency." The former is shown solely by

the absence of spermatozoa and is physiologic in the aged. The diastematic insufficiency is manifested in other and numerous ways. If the gland fails to work at all, the age of puberty does not bring virility and the individual grows into a natural eunuch. If the gland does not fail until after puberty, the manifestations are less marked, but the beard and hair are liable to drop out, the voice to become hoarse, the mammæ may develop and the outlines become more rounded generally. The individual may remain infantile or develop into a giant or present the characteristics of the female. These various types and transitions have been noted among pigs, and when slaughtered the testicles were found abnormal, as anticipated. Experiments on rabbits proved that it is possible to retard the development of puberty for six months by ligating the vas deferens. Diastematic insufficiency in boys as puberty approaches is evidenced by a rapid and exaggerated growth of the limbs, tardy appearance of the hairy system and of the development of the external genitals, marked muscular weakness, nervous exhaustion, asthenopia, etc. The noticeable action of the interstitial gland in the testicle on the development of the skeleton is responsible for the stimulation of the growth of the epiphyseal cartilage as the first manifestation of diastematic insufficiency, transient or permanent, appearing during the period of puberty. They add that such lads seem to be peculiarly predisposed to tuberculosis, possibly owing to lack of the "invigoration" from the internal secretion of the interstitial gland in the testicle.—*Press Medic. and J. A. M. A.*

A New Treatment for Furuncles and Carbuncles.

The local treatment by electricity is advocated by Marcus (*Münchener medizinische Wochenschrift*). Previous to the appearance of suppuration, he opens the follicles of the affected area and introduces into them an epilation needle connected with the negative pole. Through this a current of one to two milliampères is passed at first, which is afterwards increased to ten. By slightly moving the needle around, the opening of the follicle is considerably enlarged, and a quantity of frothy serum is soon poured out, containing portions of tissue and numerous cocci. Then the needle is removed, the spot is carefully cleansed; the needle is again introduced and one or two milliampères are again allowed to pass. The positive pole is now to be connected with the needle, and the current again raised to ten milliampères. This causes the liberation of acid, which is always more energetic in its nascent condition. In

two or three minutes the treatment is suspended and the surface again washed with water. Each affected follicle is treated in the same manner. If suppuration has already commenced, a larger needle is introduced into the follicles and moved around, until the entire greenish yellow pus plug is broken up and disappears in foam. Then the positive pole is introduced and again followed by the negative pole. A wet dressing is applied. This treatment is not applicable to very large carbuncles or extensive swelling.—*N. Y. Med. Jour.*

Physiology of Reproduction.

A very valuable contribution to the physiology of mammalian reproduction has appeared during the past year in a paper read before the Royal Society by Mr. Marshall and Mr. Jolly. From their observations they conclude that the changes in the uterus which determine menstruation are due not to ovulation but to the action of the internal secretion of the ovary. They further suggest that the interstitial cells of the ovary may be the source of this internal secretion or hormone, as such secretions are termed by Dr. E. H. Starling, and, as the latter points out, definite evidence has been brought forward in a recent research by Miss Lant-Claypene that the interstitial cells in the testis are derived from the germinal epithelium, and that these cells are equipotential with those forming the ova and the Graafian follicles in the ovary. The observations of Fraenkel on the function of the corpus luteum are in part confirmed by Mr. Marshall and Mr. Jolly, who believe that the internal secretion of the ovary, elaborated either by the follicular cells or the interstitial cells of the stroma circulating in the blood, induces menstruation and "heat." In animals which have been deprived of their ovaries, and in which the phenomena of "heat" are therefore absent, these phenomena can be reintroduced by the injection of ovarian extracts. After ovulation the corpus luteum is formed, and this organ provides a further secretion, the function of which is essential for the changes taking place during the attachment and development of the embryo in the first stages of pregnancy. In his Croonian lectures Dr. Starling describes a series of experiments carried out by him with the object of discovering the relation between the growth of the fetus *in utero* and the growth and activity of the mammary glands. As he points out, there are so many facts which militate against the old view that the growth of the mammary glands in pregnancy is determined reflexly through the ner-

vous system, that physiologists are ready to believe that the nexus between the mammary glands and the generative glands is of a chemical nature. It is evident that this chemical stimulus may originate from any one of four sources—the uterus, the placenta, the ovary, or the fetus. As the result of a series of very elaborate experiments on rabbits, too lengthy to be detailed here, Dr. Starling comes to the conclusion that the growth of the mammary glands during pregnancy is due to the assimilatory or inhibitory effects of a specific chemical stimulus produced in the body of the fetus and carried hence through the placenta by the fetal and maternal circulation. The removal of this inhibitor stimulus at the end of pregnancy determines the spontaneous break-down of the built-up tissues, *i.e.*, activity, which in the cells of the mammary gland is expressed in the formation of milk.—*The Lancet*.

Enteroptosis.

Mathes remarks that the large number of women with enteroptosis observed at the gynecologic clinic at Graz, where he is assistant, early attracted his attention, and he has made a special study of this condition. His conclusions may be summarized in the statement that enteroptosis is a constitutional and hereditary anomaly of the entire organism, a lack of vital energy in all the body tissues, although it derives its name from the most striking manifestation, the sliding down of the bowels. The abdominal organs slide downward on account of the insufficiency of the frequently hypoplastic, sunken-in thorax and the relaxation of the abdominal walls. The organs in the lower abdomen thus become supported only by their ligaments and the abdominal walls. The condition is readily recognized from the general aspect of the body. The spine is bent over and the longitudinal axis of the thorax forms an obtuse angle with the similar axis of the abdomen. The expression of the face is juvenile. In short, the habitus enteroptoticus is identical with what we call the habitus phthisicus. The clinical importance of the anomaly depends on the degree in which the nervous system is involved. The greater the congenital anomaly, the earlier the results become manifest. This is especially the case in the infantile form characterized by hypoplasia of the thorax and the infantile general aspect. The chlorosis of such girls is a "crisis" of enteroptosis. The latent predisposition is fanned into an actual malady by some special stress, some genital or other affection, an exhausting disease, pregnancy, tight lacing, overstrain, lack of proper

nourishment or similar drag on the vitality. The symptom-complex of retroflexion of the uterus is identical with that of wandering kidney and enteroptosis. The peritoneum of women with this displacement of the bowels is exceptionally sensitive, and this sensitiveness is increased by any genital affection. The effect on the general nervous system has nothing to do with hysteria and neurasthenia. Enteroptosis is undoubtedly on the increase, but the paintings of the old masters show that it has always existed. Memling's "Eve," in the Vienna gallery, is a typical example, and also some of Botticelli's women, while the number of modern painters who admire the enteroptotic type, he states, is considerable, especially the pre-Raphaelites. Treatment must consist in general strengthening measures. In severe cases strict bed rest and Weir Mitchell forced feeding may be ordered. Gymnastic exercises to strengthen the muscles of the thorax and of the abdominal walls correspond to causal indications. A well-fitting abdominal bandage below the umbilicus, supported on the pelvic girdle, will put an end to a number of the disturbances. Weight from the shoulders should be avoided. In conclusion Mathes declares that the local treatment of gynecologic affections should be restricted to the minimum and to those cases alone in which it responds to the causal indications. Prophylaxis is important to recognize and to compensate the constitutional effect and to keep all exciting causes away from those predisposed to this condition.—*Arch. of Gyn. and J. A. M. A.*

We learn that a somewhat serious epidemic of typhoid fever has existed in certain outlying districts of Montreal for the past two or three months. There seems to be some mystery regarding the cause of the outbreak. It seems that the Health authorities have not as yet given any accurate information on the subject, and prefer not to do so until they are sure of their ground.

We are told by *American Medicine* that the system of free distribution of diphtheria antitoxine throughout the State of New York has been enforced for a few months with the result that the disease has been reduced about 80 per cent. This means that instead of claiming 420 lives out of over 1,000 children afflicted with the disease, diphtheria gets only 88 victims out of 1,000.

The Treatment of Follicular Tonsillitis.

A. Sbrocchi (*Clinique Moderne*), after describing the symptoms and course of follicular tonsillitis, considers in great detail the numerous forms of treatment hitherto in general use. He believes that all of them completely fail both in limiting the extension of the disease and in diminishing the sufferings of the patient. Any improvement which follows their use he ascribes to the natural, though not invariable, tendency of the disease to spontaneous cure. As an alternative he proposes a remedy which has been occasionally mentioned by other writers, but hardly ever with the complete confidence to which its superiority to all other forms of treatment entitles it. This treatment consists of the systematic painting of the tonsil with a 1-in-1,000 solution of perchloride of mercury. At each sitting each tonsil should three times be painted in turn all over with the solution on : cotton-wool sponge fastened to the end of a penholder. At the first sitting a patient and gentle attempt should be made to remove all secretion from the tonsil both in front and behind, but without wounding the mucous membrane. The soft palate and uvula should also be touched with the solution. The sittings should be repeated at intervals of three or four hours. If the treatment has been thoroughly carried out, with the help of good illumination, depression of the tongue, and appropriate phonation to enable the whole surface to be reached, even a single painting will be followed in the course of a few hours by a decided fall of temperature and a great improvement in the patient's condition, and the morbid process will come to an end after three or four paintings at the outside. No other treatment, internal or external, is necessary or desirable. Where four paintings fail to effect a cure, Sbrocchi considers the fact proof of a diphtheric infection, and proceeds at once to the injection of antidiphtheric serum. His corrosive sublimate treatment is entirely ineffectual as against diphtheria, both the more usual form of diphtheria and also that which sometimes stimulates a follicular tonsillitis.—*British Medical Journal*.

Results with Antithyroidin Exophthalmic Goiter.

In the past year the value of Moebius' antithyroidin in exophthalmic goiter has received widespread confirmation, observes Walter Baumgarten, of St. Louis. It has shown itself by far the most successful attempt yet made to produce a serum to combat thyroid intoxication. It is obtained from the

blood of sheep drawn six weeks after extirpation of the thyroid. Injected subcutaneously it proved to be entirely without value, and frequently resulted in abscess formation at the point of injection. Given by mouth, however, it has been followed by very encouraging results. Nine cases have been reported in the past year by Thienger, Hempel, Peters, Lorner, and Duerig. In one case no improvement occurred. In the remainder there was a reduction of the pulse rate, and an improvement in the general circulation, in the size of the thyroid and its consistency, and improvement in the tremor, in strength, and in the subjective feeling of well-being. In some cases this improvement continued only during the administration of the serum or for a short time afterwards. Duerig, however, reports a case in which improvement was maintained for six months, after an administration of the serum for a period of four months preceding.

Christens has used with equally favorable experience the dried, pulverized blood of thyroidectomized sheep, instead of the serum, administering it by mouth as in the case of Moebius' antithyroidin. It must be recognized that antithyroidin and the dried blood as used by Christens are purely symptomatic remedies, and that as far as experience has shown they give only temporary results. Even though temporary, these results have, however, justified its use. Aside from occasional nausea and feeling of aversion, it produces no untoward results except when grave circulatory disturbances have made their appearance, especially myocarditis, when it undoubtedly adds to the gravity of the case and is strongly contraindicated.

Eulenberg reports seven cases treated with Moebius' antithyroidin, in five of which the general condition, at least, was greatly improved. He considers the serum a distinctly helpful palliative measure, but he does not feel justified in letting it replace the dietetic and physical methods of treatment, which should be carefully adhered to.—*Interstate Med. Jour.*, Jan., 1906.

Intraocular Hemorrhage Treated with Dionin.

Dionin is gaining wider and wider recognition as an extremely valuable agent in a large number of external and internal diseases of the eye, says John Green, Jr. In subconjunctival injection it was found by Blanco (*Arch. de Ophthalmol.*) to cause resorption of a severe intraocular hemorrhage, with restoration of vision to normal.—*Interstate Med. Jour.*, Jan., 1906.