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Original Contributions.

ADDISON'S DISEASE AND ADRENAL INSUFFICIENCY.*

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WHEN Thomas Addison, during the middle of the past century, communicated to the London Medical Society his famous treatise, "On the constitutional and local effects of disease of the suprarenal capsules," a notable advance was made in internal medicine. Its import was greater than the mere assemblage of a group of symptoms into the entity of the disease which bears his name. By attributing to the adrenal glands an important *rôle* in the body economy, heretofore unsuspected, he quickened the interest of physiologists into investigating the functions of the ductless glands of the body, an interest which has been increasing with the passing years. At his time the part that these organs played in the general economy was almost or altogether unknown. There was, as Addison stated, an ill-defined impression among physiologists that the adrenals in common with the spleen, thymus and thyroid ministered in some way to the elaboration of the blood.

It was while seeking vainly to throw some light upon the etiology of a remarkable form of anaemia that Addison was led into an extensive analysis of every organ of the body. Although such careful study failed to elucidate an evident cause for the anaemia, he noted in a number of cases with symptoms not unlike those of the idiopathic anaemia, a peculiar appearance of the suprarenal capsules. With the conservatism characteristic of the true scientist, he for a long time refrained from venturing to publish an account of his

*Read at the meeting of the Canadian Medical Association, Ottawa, June, 1908.

observations lest, "by partial and prejudiced observation, or by an overstatement of facts, he might incur the just censure of those possessing a sounder and more dispassionate judgment than himself."

To Addison's original lucid and masterful description of the malady there has been but little to add since his time. The following brief notes concerning the clinical aspect of the affection are based upon a study of the cases which have come into the Wards of the Johns Hopkins Hospital. The fact that among some twenty thousand medical admissions there are recorded only seventeen cases in which a certain diagnosis of Addison's disease could be made is indicative of the comparative rarity of the affection. A questionable diagnosis made in some eleven other cases serves to emphasize the difficulty of establishing an exact diagnosis *intra vitam*. Statistics have shown that the disease preponderates among males, and of the seventeen cases here referred to only three occurred among females. It was noted as being rare in the extremes of life, only one case occurring in the first decade, and but one after the sixth decade. Seven of the patients were between thirty and forty years of age and an equal number between forty and fifty.

The four cardinal symptoms of the disease, asthenia, abnormal pigmentation of the skin and mucous membranes, gastro-intestinal disturbances, and general nervous phenomena, were present in varying degrees in all of the cases. The profound asthenia, so characteristic of Addison's disease, is one of the most constant symptoms. It may be the first symptom to attract the attention of the patient and is as a rule progressive. There is usually great fatigue upon exertion, and frequently apparently causeless sudden attacks of weakness amounting almost to collapse. In one patient there were noted definite attacks of asthenia occurring daily at about the same hour over a considerable period. Towards the close of the disease the cardiac muscle shares in the general muscular weakness and the pulse may become imperceptible. In one patient the heart beat grew so feeble that the apex could not be located with the stethoscope.

The pigmentation constitutes the most striking sign of the disease and is almost invariably present in greater or less degree. It was well marked in all of the cases in which a certain diagnosis could be made. In only one case, in which other symptoms pointed to the presence of Addison's disease, was pigmentation absent. In the literature there are frequently described cases of this affection without melanoderma, but many authorities hesitate to regard such a syndrome as a true morbus Addisonii. The discoloration of the skin develops insidiously and varies from a light yellowish brown tint to a brownish black or mulatto color. It may frequently precede the appearance of the asthenia (in one recorded case by twelve years) although they often begin synchronously. In the case of a boy it was noticed that the pigmentation appeared at the age of

six years, while the other symptoms of the disease remained latent until four years later.

The melanoderma of this disease is an augmentation of the normal physiological pigmentation of the body. It appears earliest and most constantly on the exposed surfaces (face, neck and hands) and upon those parts of the body which normally show pigmentation (the areolae, linea alba, axillae, bends of the elbows, genitalia and buttocks). Later, the entire skin may become involved, while any localized area, subject to cutaneous irritation, is apt to become deeply pigmented. The waist line and the site of old scars and plasters frequently show marked bronzing. The pigmentation is as a rule progressive, although remissions in its intensity following an improvement in the general condition of the patient are known to occur. Again, the pigmentation at times would appear to bear some relation to the neuralgic pains of the disease. In one patient, subject to paroxysms of abdominal pain, it was noticed that the skin grew perceptibly darker after each paroxysm.

The discoloration of the mucous membranes is present in the majority of the cases and is an important aid in diagnosis. It may occur on the buccal mucous membrane as a brownish tinge, or in the form of bluish black spots, especially along the line of closure of the teeth. There may be patches on the hard and soft palate and on the under surface of the tongue. In one case a large irregular patch was noted on the dorsum of the tongue. The conjunctivae and vaginal mucous membranes are frequently involved, exceptionally the vocal cords may show pigmented spots.

The gastro-intestinal disturbances are characterized by loss of appetite, nausea and occasional vomiting. There may be diarrhoea or constipation. In some patients gastric symptoms are absent, in others pronounced. In one case the vomiting was a severe and persistent symptom, the patient having vomited daily for a year before admission to the hospital.

The general nervous symptoms are among the most interesting phenomena of the disease. There may be present certain mild cerebral manifestations, such as apathy, headache, insomnia, vertigo and attacks of syncope in the early stage of the disease, while later on in the course delirium, extreme apathy and somnolence may usher in a terminal coma. Neuralgic pains, localized most frequently in the lumbar and epigastric regions, and in the extremities, are common. Pain was present in fourteen of the seventeen cases analysed, and in three of these was the earliest symptom noted. One patient had frontal headache for a year as a first and persistent symptom. In another patient so severe were the pains in all of the extremities that a peripheral neuritis was suspected. In a third patient the other symptoms of the disease were preceded by a facial neuralgia for a period of four years, after which epigastric pains developed. The abdominal pains were paroxysmal in charac-

ter, occurring three or four times a year and accompanied by vomiting. These paroxysms were associated with general muscular tenderness, especially of the arm muscles, developing several days previous to the paroxysms.

The course of the disease is chronic, and only exceptionally is the onset acute and the progress rapid. Two years may be stated as the average duration of the disease as determined from a large collection of cases. The termination would seem to be invariably fatal; in the few cases which have been described as cured the diagnosis must be regarded as doubtful. There are at times marked remissions in the progress of the affection with periods of improvement. The duration of symptoms in the patients, in whom an *exitus lethalis* resulted while in the hospital, ranged from seven months to twelve years.

It is not uncommon to find a tuberculous process in the body elsewhere than in the adrenals in Addison's disease. In four of the cases there were definite pulmonary lesions; in two other cases such lesions were suspected, while a seventh case was associated with an acute miliary tuberculosis.

As a rule patients suffering with the disease show more or less emaciation; occasionally they may appear well nourished, and at times a considerable gain in weight takes place upon treatment. With one patient the main complaint was of loss of weight. Another patient had lost thirty-five pounds in three months.

Addison's disease has been stated by some writers to be characterized by a febrile or subnormal temperature. This must be regarded as an erroneous conception in view of the fact that a mild grade of fever is almost invariably present. The fever as a rule closely simulates that of a mild tuberculous infection with a slight evening rise and morning remission. In the advanced stages there may be a marked evening elevation with a fall below normal in the morning. In but one case did the temperature remain about normal, but even in this instance there were frequent slight elevations.

A study of the blood picture in the cases is of interest in revealing the fact that a marked anaemia is by no means characteristic of the disease. The erythrocytes, in the peripheral blood at least, may be increased above normal, in one case reaching 6,600,000 per cmm. A severe secondary anaemia was present in but one case and this complicated with a pulmonary tuberculosis. The average cell count, compiled from all the cases, showed: erythrocytes, 4,454,000; leucocytes, 7,460; haemoglobin, 77 per cent.

The blood pressure in this disease is of greater significance than the cell count. The thready and frequently imperceptible pulse has been commented upon frequently in the literature, yet but few real blood pressure estimations have been recorded. If it be true that the disease is dependent upon a decrease, or absence, of adrena-

lin, a pressor substance, in the circulating blood, it is to be expected that a low pressure would be a constant feature. Potain regards it as the affection with the lowest of all blood pressures. Janeway, on the other hand, has shown that in some cases at least the pressure may be normal, and has recorded one case in which the systolic pressure was 140 mm. Hg. in two cases reported by Stursberg the systolic pressures were low, being 70 and 65 mm. respectively. In no disease do we find so low a record preceding exitus. In one case admitted to the ward with a systolic pressure of 105mm. there was a fall to 45mm. a few days before death, while in a second case, with a pressure of 90mm. on admission, the pressure fell to 48mm. The highest pressure recorded in any of the cases was 130mm., and the average systolic pressure would appear to be below 100 mm. Hg.

There were no marked urinary disturbances noted in any of the cases. Polyuria, at times occurring periodically, was present in a few of the patients. A trace of albumin is not uncommon. The specific gravity was fairly normal, ranging from 1 015 to 1.025. The substance, haematoporphyrin, described by MacMunn in the urine of Addison's disease, was not found to be present in several of the cases in which a special examination was made for its presence.

The pathogenesis of Addison's disease still remains obscure. It has proven so far to be a clinical, not a pathological, entity. Since the time of Addison numerous theories have been advanced, ever changing and frequently abandoned, with increased physiological and pathological light concerning the function of the adrenals. It has been estimated that definite lesions of the adrenals are present in about 88 per cent. of the cases (Hansemann). In the remaining 12 per cent., the glands have been found to be apparently normal at autopsy. By far the most common pathological lesion is that of tuberculosis of the adrenals and neighboring structures. In two of the three cases which came to autopsy fibrocaseous changes were found in the glands, while the third showed simple atrophy. The tuberculin test was given to nine of the patients while in the ward with a positive reaction in all but one instance. Other less common changes in the adrenals are chronic interstitial inflammation, neoplasm, and hemorrhages into the glands.

It will suffice to recall briefly the more important theories that have been advocated from time to time in explanation of the disease. The experimental work of the early observers seemed to indicate that the adrenals had little or no function in the body economy. Influenced by this view, Wilks and Greenhow attempted to explain the various clinical symptoms by the secondary morbid changes induced in the neighboring semi-lunar ganglia, solar plexus, and sympathetic nerves. This so-called nervous hypothesis failed

to explain cases in which the semi-lunar ganglia have been found apparently healthy; nor did it explain cases of simple atrophy of the adrenals. Such considerations led to a rejection of the nervous theory. A second theory, due largely to the early researches of Brown-Sequard, expressed the view that the adrenals removed pigmentary substances and various toxins from the blood, and that Addison's disease was due to a suppression of this function. Experimental evidence, however, has proven this view to be erroneous.

The greatest advance in our knowledge of the physiology of the adrenals was made through the researches of Schaefer and Oliver, and of Abelous and Langlois, who demonstrated the fact that the adrenals furnish an internal secretion. They were able to obtain from normal adrenals a substance, adrenalin, which acts primarily in raising the blood pressure. Furthermore, they were able to show that from adrenal glands obtained from cases of Addison's disease, no such extract could be obtained. These facts afforded almost convincing evidence in favor of the theory of adrenal inadequacy and gave rise to the generally accepted modern conception of the disease.

The question now arises, can we reconcile the clinical picture of Addison's disease with a cessation of function of the adrenal glands? With regard to many of the symptoms an affirmative answer is possible. In the experimental animal, deprived of its adrenals, a partially complete syndrome of the affection may be reproduced. Both the general asthenia and the cardiac weakness have been noted in such animals. The many nervous phenomena can be less easily ascribed to simple adrenal inadequacy; on the contrary, many of these nervous symptoms point to a direct implication of the nerve areas. Even more difficult to explain is the bronzing of the skin. The experimental animal does not become pigmented, and the phenomenon of pigmentation would seem to point more forcibly than any of the other symptoms to an involvement of the nervous system. Again, there are recorded many cases of Addison's disease with melanoderma, in which at autopsy the adrenals were found normal, and conversely there may be lesions of the glands without pigmentation or other symptoms of the disease.

These typical cases of the disease have caused clinicians to question the direct dependence of the affection upon adrenal inadequacy, and have stimulated the pathologists into investigating the nervous system more closely for the primary cause. The areas most frequently described as showing changes are the semi-lunar ganglia. Here there may be a circumscribed peritonitis, or connective tissue inflammation with degeneration of ganglion cells and nerve fibres. Degeneration of the splanchnic nerves and changes in the spinal cord have been described. Fleiner was able to follow

such pathological changes through a large part of the sympathetic nervous system, including the thoracic and cervical ganglia. The same author found degenerative processes in a number of the peripheral nerves.

The fact that the clinical picture of Addison's disease does not seem to depend exclusively upon a gradual destruction of the adrenals, nor yet entirely upon a disease of the sympathetic system, but that both of these factors would seem to be concerned, has led pathologists to study the possible relation of a lesion in the chromaffine system of the body to the etiology of the disease, since this tissue is common to both the adrenal and the sympathetic system. The chromaffine cell, so named by virtue of its affinity for staining with chromic acid salts, was first described by Kohn in 1898. Such cells are found in the medulla of the adrenal, the sympathetic ganglia, the carotid and coccygeal glands. This tissue Kohn believed to be an organ *sui generis*. There is much evidence to show that the physiological function of the chromaffine system is to produce a substance which raises blood pressure. The medulla of the adrenal is rich in chromaffine cells, while the cortex is wanting in such elements. The extract of the cortex, we know, does not contain a pressor substance. Zuckerkandl has shown that the parasympathetic bodies of the human foetus, which have an abundance of this tissue, contain a substance which raises blood pressure. Mulon was able to demonstrate a pressor substance in the extract from the carotid gland of the horse.

Wiesel believes that Addison's disease is an affection primarily of the whole or a part of the chromaffine system, including the medulla of the adrenal. He studied seven cases, in all of which there were tuberculous lesions in the medulla of the adrenals. The semi-lunar ganglia showed microscopic changes. Microscopically he found a complete absence of chromaffine cells throughout the entire nervous system. Gierke, a supporter of this theory of Wiesel, has examined the ganglia of several aged individuals dying of other diseases, and at no time did he find an absence of chromaffine tissue. Beitzke has described total destruction of both adrenals with a retention of chromaffine tissue in the sympathetic system. The time is not ripe as yet to express an opinion concerning the validity of this recent theory of the disease. Many careful histological investigations of the sympathetic system with special technic will be required before a conclusion can be reached. In many respects this theory would serve to explain, possibly better than any of the former views, the atypical cases of the disease and those in which the adrenals have been found to be apparently normal at autopsy.

Boinet has recently applied the term Addisonism to a clinical syndrome, closely simulating a Morbus Addisonii, which is charac-

terized by slight pigmentation, low blood pressure, and at times certain nervous manifestations. This condition he attributes to an insufficiency of adrenal function, due to an absence or deficiency in the internal secretion of the adrenals. It has been shown that the medulla of the adrenal may be wanting in adrenalin in patients dying from chronic disease. The condition is most commonly encountered in pulmonary tuberculosis, where a low blood pressure and a mild grade of pigmentation are almost constant features. It has been noted by Boinet in cancer of the stomach, in tertiary syphilis and in exophthalmic goitre. Mott and Halliburton found atrophy and degenerative changes in the adrenals in many cases of chronic nervous diseases, and concluded that the adrenal glands, like other secreting glands of the body, are adversely affected by any disease which impairs the general nutrition of the body, especially diseases of a chronic and wasting character.

It has, furthermore, been shown that there may be an acute adrenal insufficiency in many acute infections, especially in diphtheria, where the toxins produce pathological changes, such as cloudy swelling or necrosis in the adrenals. Some clinicians believe that there is in acute diseases with low blood pressure, or threatened failure in the circulation, a therapeutic indication for the administration of adrenalin. Crunbaum states that in healthy persons the administration of suprarenalin extract does not alter the blood pressure, whereas a rise in blood pressure following the giving of the extract indicates adrenal inadequacy. We have an analogous condition in the unmasking of a larvate hyperthyroidism by the administration of thyroid extract. The same writer has also suggested that certain forms of neurasthenia associated with a low blood pressure are manifestations of adrenal insufficiency. The whole subject of adrenal inadequacy presents an interesting problem for future investigations.

Since it has been frequently stated that a diagnosis of Addison's disease is impossible during the life of the patient, a word concerning some of the diagnostic methods at our disposal may be of interest. The fully developed clinical picture of the typical cases is easy of recognition, while the atypical cases are equivocal. The fact that tuberculosis of the adrenals is by far the most constant lesion of the disease renders the tuberculin test of great value, especially in those cases in which there is no evidence of an associated tuberculosis elsewhere in the body. The estimation of the blood pressure, here probably the lowest of any affection, gives us valuable information concerning the cardiac asthenia. The presence of haematoporphyrin in the urine is believed by some to be of value in the differential diagnosis. During the past year Sergent has described a diagnostic sign in Addison's disease which would appear to be helpful. If a pointed instrument, or the nail of the

finger, be drawn quickly over the abdominal wall, a white line (la ligne blanche dite surrénale) is left in its streak, forming a striking contrast to the surrounding bronzed skin and persisting for several minutes.

The obscurity which prevails concerning the pathogenesis of the disease has influenced the views which dominate its therapy. There has up to the present been no well authenticated cure of a case of Addison's disease. Various therapeutic measures have at times been credited with beneficial effects, probably due to the fact that the disease has a fluctuating course with intercurrent remissions. Following the discovery of the internal secretion of the adrenals, it was hoped that a rational treatment could be established by means of organotherapy. Unfortunately, suprarenal medication has not yielded the brilliant results obtained by thyroid feeding in myxœdema and cretinism. Suprarenal feeding was employed in five of the cases of this series without marked results. In but one case was a distinct improvement noted. Adams, after an extensive study of the cases recorded of Addison's disease treated with organotherapy, concludes that upon weighing the whole evidence, "there yet remains a residual conviction that suprarenal medication has been of real value in a certain class of cases of Addison's disease." Bramwell thinks that those cases which improve on organotherapy may be due to adrenal inadequacy alone, and that the remainder are due to an additional lesion, and suggests that those cases which improve have a non-tuberculous lesion. If this be true, the importance of diagnosing a tuberculous process by means of the tuberculin test is obvious. In the tuberculous class of cases tuberculin immunization may prove to be a valuable therapeutic procedure.

Discussion.

Discussion by Dr. A. McPhedran, Toronto, on Dr. Benson Cohoe's paper on Addison's Disease and Adrenal Insufficiency:

Dr. A. McPhedran complimented Dr. Cohoe on the excellence of his paper. He was inclined to the view that the gland was involved in all cases, and in the great majority it is the original seat of disease. In some cases disease in the neighborhood of the gland may destroy its nerve supply, and this arrests its function.

The symptoms are closely parallel to those of the other essential anæmias—the anæmia which may be moderate, gastro-enteric disturbances, slight fever, and preservation of subcutaneous adipose tissue, and in addition the great weakness and the pigmentation, all indications, as shown especially in pernicious anæmia.

He had seen few cases with characteristic symptoms. In one —that of a lady seen with Dr. Crawford Scadding last year, she had pulmonary tuberculosis in 1900, and made a good recovery.

Her weight had risen from less than 100 pounds to 140. About one and a half years ago she began to lose strength, and pigmentation developed very rapidly and became very dark, almost black. There was much vomiting and diarrhœa, and the weight fell rapidly to a very low point. Suprarenal extract raised it moderately, but more than 7 or 8 tablets always causes vomiting. She is taking 4 daily, and has improved so as to be able to drive out; the pigmentation has greatly lessened, and weight raises to 100 pounds.

In a man at present under his care in the General Hospital, the symptoms are all characteristic. His blood pressure is about 100, and rises only to 112 by adrenalin chlorid solution (1 in 1000) in 15.

The failure or variation of adrenalin treatment may probably be explained by the associated conditions, especially tuberculosis of the organs and the disease of the nervous system. In thyroid gland disease is not so complicated, and therefore treatment by thyroid feeding gives more satisfactory results in cretinism, myxœdema, etc.

Dr. W. C. Heggie, Toronto, gave the history of a case of Rapid Addison following 4 years after tubercular of lung and peritoneum.

Two questions on Dr. Cohoe's paper by Dr. R. D. Rudolph:—

1. Are not the adrenal glands often over or under active without any organic disease?

2. Is it not probable that in cases where patients have died from Addison's disease, and the glands have been found to be normal, that the nervous combat by the sympathetic system has become so poor that the glands do not act, and hence death with symptoms of Addison's disease and yet normal adherents?

Discussion by Dr. J. H. Elliott, Toronto:

With tuberculous infection of the adrenals found in 88 per cent. of cases of Addison's disease, it seems rather remarkable that the symptoms of this disease are not found present in a larger proportion of cases of pulmonary and other tuberculous infections.

In over 2,000 cases of pulmonary tuberculosis, many of which showed infection of other organs, and ran a chronic course sufficiently long for symptoms to develop, I have only observed one in which Addison's disease appeared, and this, I think, is a fair example of its incidence in the records of large hospitals and sanatoria.

This patient, as in the cases reported by Dr. McPhedran and Dr. Heggie, developed it many years after the healing of a tuberculous ankle, and nearly two years after clinically cured of pulmonary tuberculosis.

Would it be possible that adrenal insufficiency due to adrenal infection may play some part in the asthenia and wasting so marked in some patients whose pulmonary disease does not seem

to be sufficiently advanced or extensive to account for the severe grade of these symptoms?

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THE SURGERY OF THE AUDITORY LABYRINTH.*

BY CHARLES M. STEWART, M.D., M.R.C.S. (ENG.),
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ALTHOUGH there has been operative interference on the auditory labyrinth since 1897, when Jansen gave his classical paper on the subject before the Medical Congres at Moscow, yet it is only within the last few years that deliberate and planned operations have been described for the relief of symptoms produced by labyrinthitis. To-day we have minutely described such operations as superior vestibulotomy, inferior vestibulotomy, double vestibulotomy, sequestrotomy, extirpation and curettage. For the scientific establishment of labyrinthine surgery we owe much to J. D. Richards, of New York; Richard Lake, of London, and to Jansen himself.

My personal experience in this work is very limited, having only to do with four cases. The reason for selecting this subject was not that I have anything new to bring forth, but only that the paper might stimulate discussion and interest in labyrinthine work. I feel sure that a great many fatal mastoid cases have occurred on account of the surgeon neglecting to search for labyrinthine disease when he was doing the radical mastoid operation.

A most exact knowledge of the anatomy of the internal ear is essential before any surgical interference is undertaken. This can best be obtained by chiselling out a few labyrinths on the cadaver. The physiology of the internal ear is rather unsettled, particularly the vestibular part. The labyrinth is composed of two main parts—the cochlea, which contains a membranous structure, wherein is a specialized epithelium essential for hearing; the vestibule and semicircular canals, which also contain a specialized epithelium connected with static and dynamic equilibrium.

The labyrinth is situated in the petrous portion of the temporal bone. To its inside is the temporo-sphenoidal lobe of the cerebrum, covered by the meninges of the middle cranial fossa, behind is the cerebellum covered by the meninges of the posterior fossa. The dome of the jugular fossa is directly below the vestibule and posterior semi-circular canal. The internal carotid artery lies directly in front and below the cochlea. On the inner side lies the fundus of the internal auditory canal with its meningeal prolongation, and so bringing the subarachnoid space in intimate relation with the

* Read before the Ophthalmological and Oto-Laryngological section of the Academy of Medicine, Toronto, November, 1908.

modiolus of the cochlea. The vestibule is an ovoidal space with the following dimensions: 1-5 inch x 1-5 inch x 1-8 inch. In its roof, posterior wall and floor are the openings for the semi-circular canals, while in front and external is the first turn of the cochlea. The outer wall of the vestibule corresponds to the promontory on the inner wall of the middle ear, the tympanic part of the Fallopian canal, and the two foramina, viz., ovale and rotundum.

Facial Nerve.

After the facial nerve leaves the fundus of the internal auditory meatus, it passes outwards and slightly forwards for 1-8 inch; here it has an enlargement on it, called the geniculate ganglion. From this point it passes backwards and downwards at right angles to the first part, and at an angle of 15 degrees with the horizon. This second part of the nerve is about 1-2 inch long. The middle portion of this part of the aqueduct is visible in the middle ear. Often this portion of the canal is incomplete, thus exposing the nerve in the tympanum. Below the nerve at this juncture is the foramen ovale; above it is situated the ampullæ of the external and superior semi-circular canals; to its inner side is the vestibule. The last 1-8 inch of this second portion of the facial nerve is buried in the posterior wall of the tympanum, and is just above and behind the pyramid, from which emerges the stapedius muscle. The third part of the nerve passes downwards and a little outwards and backwards, making an angle of 120 degrees with the second part of the nerve. The third part of the nerve is in relation to the deepest part of the posterior meatal wall. The nerve leaves the skull at the stylo-mastoid foramen.

Pathology.

The vestibule is the seat of th greatest pathological activity. Infection takes place in two principal points, viz., the foramen ovale, and from an erosion in the external semi-circular canal, as it lies in the inner wall of the aditus.

Inflammatory conditions in the labyrinth are due to the same variety of organisms that are found in middle ear suppuration. When it is a very virulent infection, the germ is usually the streptococcus pyogenes. Cholesteatomatous conditions are occasionally met with in the labyrinth, and tubercular labyrinthitis is fairly common in tuberculous suppuration of the middle ear. Caries and necrosis follow labyrinthitis, depending on the acuteness of the inflammation. Sequestra sometimes form; the cochlea may form one, but the vestibule usually goes with the semi-circular canals. Death in labyrinthitis is due to intra-cranial complications—either meningitis or abscess of the brain. The tract of infection is usually along

the filaments of the auditory nerve, and in this way the subarachnoid space becomes infected. Bezold has estimated that labyrinthitis occurs in 1 in 500 cases of chronic suppuration of the middle ear. This seems a very small percentage; but this may be accounted for in that the cases most frequently occur in children, and as the symptoms are very vague at best, they are especially so in young children. In children, the bone separating the labyrinth from the middle ear is thinner and less dense than in adults, thus explaining why labyrinthitis is more common in the first decade of life. In children with acute otitis media, you may suspect labyrinthitis where there is marked systemic infection.

Symptoms.

It is impossible to definitely diagnose labyrinthitis before operation. Symptoms which we consider point to labyrinthine involvement may be well-marked, and yet when we do a radical mastoid operation, the labyrinth is found perfectly intact. On the other hand, fistulous openings may be found in the labyrinth when we least expect them. It is a serious matter to explore a healthy labyrinth in an infective area, such as in a mastoid operation. So it is good practice not to open a labyrinth that shows no external signs of disease. When doing a radical mastoid operation, the external wall of the labyrinth should always be carefully searched for fistulæ. The use of adrenalin greatly facilitates a good view being obtained of the field of operation. A strip of gauze, previously soaked in adrenalin and then packed in the tympanum and mastoid cavity and left there three minutes, will blanch the parts thoroughly. Carefully examine with a probe the foramina ovale and rotundum, also the promontory. The external semi-circular canal just opposite the aditus is a common seat of a fistulous opening.

Symptoms which are useful in labyrinthine diagnosis are nystagmus, vertigo and disturbances in equilibrium.

Nystagmus.

The patient is never conscious of this condition; so this symptom must always be sought for by the surgeon. Pressure on the stapes will produce nystagmus if the labyrinth is healthy. Barany has worked out a caloric test for finding out whether a labyrinth is functionating or not. It is this: When syringing a middle ear with cold water, the eyes turn to the opposite side from the disease, and with warm water to the same side as the disease. In gross lesions of the labyrinth it is impossible to produce nystagmus by heat or cold. Occasionally following an ordinary radical mastoid operation we note that nystagmus, vertigo and disturbances of

equilibrium have developed. This is due most likely to luxation of the stapes or injury to the external semi-circular canal.

Vertigo.

This condition is produced by abnormal stimulation to the specialized end organs in the maculæ and cristæ of the vestibule and semi-circular canals. Deaf mutes and animals who have had their labyrinths removed have no vertigo. Patients suffering with vomiting and vertigo, who have suppuration in the middle ear, is very suggestive of labyrinthine involvement. Cochlear lesions do not produce vertigo. Cochlear disease is manifested by deafness, which is a constant symptom. Tinnitus is an occasional symptom.

This labyrinthine giddiness must be differentiated from the giddiness produced by cerebellar disease. This can usually be done by examining the eyes and noting the pulse.

Rombergism.

Patient standing on one foot, and eyes shut, sways or falls to the side of the diseased labyrinth.

Gait

The gait is often characteristic. The patient walks with feet widely apart, sways considerably and has a tendency to go to the affected side.

These symptoms are all marked for a few days when a healthy labyrinth has been interfered with, but when the labyrinth is gradually encroached upon by disease, the change is so gradual that the other organs in the body which contribute to keep perfect equilibrium take on the function of the diseased labyrinth.

Facial paralysis occurring in a case of suppurative otitis media is not uncommonly due to destructive changes in the aqueduct of Fallopius, and would be very suggestive of labyrinthitis.

There is no labyrinthine localization. The following four cases I have notes of:

1. Tubercular labyrinthitis. Woman aged 31 years. Suffered from chronic suppurative otitis media in left ear for many years. Radical mastoid operation done. Result good. Cavity dermatized and dry in seven weeks afterwards. In two years afterwards patient developed phthisis, and shortly afterwards the ear began discharging again. In the pus were found tubercle bacilli. Facial paralysis developed, and the nerve could be seen when the ear was mopped out with absorbent cotton. The nerve became disintegrated and disappeared, due probably to the irritation of the pus and to the spirit drops that were used. The patient was incapacitated by vertigo. The labyrinth was extirpated; semi-circular

canals, vestibule, and a portion of the cochlea removed. Vertigo persisted for about 10 days. Ear healed up perfectly. To-day patient is living and looking very well. Vertigo is all gone. The facial paralysis persists.

2. Man aged 19 years. No previous history of labyrinthine trouble. In the course of performing a radical mastoid operation, a fistulous opening was discovered in the external semi-circular canal, pus was oozing out of it. The canal was opened up to the ampullæ and curetted. Not followed by vertigo. Second day afterwards patient sat up in bed and had ear dressed. No giddiness. Recovery uneventful.

3. Woman aged 36. Radical mastoid operation was being performed. Stapes seen in foramen ovale and was very loose. Caries around the opening. Stapes removed. Inferior vestibulotomy done. Vertigo followed operation for about two weeks. Hearing destroyed.

4. Woman aged 41. Suffered with suppurative otitis media for 12 years. Facial paralysis for three weeks. Radical mastoid operation done. Large sequestrum picked out of the labyrinth. It was composed of portions of the vestibule and semi-circular canals. Recovery uneventful. Facial paralysis followed, but was nearly gone one year afterward.

Operations.

The radical mastoid operation must always be previously done. The upper part of the skin incision should be made well forward, so that the auricle may be pushed well forward and downward. The facial ridge must be lowered as much as is considered safe for the nerve.

Operations on the cochlea are much more serious than on any other part of the labyrinth. The danger lies in injuring the modiolus, and so opening up macroscopical channels for infection to be carried to the meninges. The cochlea should not all be removed. Only the upper two whorls at most should be removed, and special care taken not to injure the modiolus. Both Jansen and Richards lay special stress on this point. Proceed to the cochlea by way of the promontory.

Vestibulotomy.

The vestibule may be opened by way of the external semi-circular canal, and above and behind the facial nerve. This method is called superior vestibulotomy. Or it may be opened by way of the foramen ovale, which is below and in front of the facial nerve. This method is called inferior vestibulotomy. Although inferior vestibulotomy has the best position for drainage, yet superior vestibulotomy is the preferable operation, for the following reasons:

1. The region is more accessible.
2. There is less hemorrhage.

3. You obtain a better view into the vestibule.

4. You can explore the external semi-circular canal at the same time.

Between these two openings into the vestibule is a ridge of bone, and in it is the facial nerve. Milligan has called this the bridge operation. The two operations should practically always be done together. The operation then is called double vestibulotomy. It is better not to expose the facial nerve, for, in the after-treatment, it is likely to become injured by the discharge from the granulations. Facial paralysis usually occurs if it is exposed. This may clear up in time, provided the nerve does not become disintegrated.

Sequestrotomy.

This was the first described operation on the labyrinth. Facial paralysis was the usual result. This was due either to disease or to the destruction done by removing the sequestrum. Suspect a sequestrum where granulations persistently re-form. Never remove a sequestrum forcibly. If necessary, chisel away healthy bone, so that the sequestrum may be picked out of its bed.

Extirpation of Labyrinth.

When this operation is done, it is usually for tuberculous conditions.

Indications for Operation.

1. Labyrinthitis, as evidenced by one or more fistulous openings or other signs of disease in the external wall of the labyrinth.

2. Luxation of stapes.

Jansen recommends operation after 24 hours, if there is nystagmus, disturbances of equilibruim increasing, tongue coated and temperature going up.

3. Meniere's disease—labyrinthine apoplexy. Patients suffer with marked vertigo, intense nausea, severe tinnitus and absolute deafness. Richard Lake has reported five cases where he has done an ablation of the vestibule. He operated for vertigo. The cases had never suffered at any time with suppurative otitis media.

4. A patient suffering with suppurative otitis media, and having vertigo, vomiting, nystagmus and disturbances of equilibrium, should have a radical mastoid operation done at once, and careful search made for labyrinthine mischief. In such a condition, a Heath's mastoid would be contra-indicated.

It is interesting to note that there is no weakness in the muscles of the body after operative interference with the vestibule and semi-circular canals. Ewald's experiments on animals showed that the labyrinth was responsible for the tone of the skeletal muscles. Operations on man support Crum Brown's theory, given many years ago, that the labyrinth is concerned in giving information as to the position of the head and body after rotation.

142 Carlton St.

THE NEW CITY MORGUE.

BY ARTHUR JUKES JOHNSON, M.B., M.R.C.S. (ENG.),
Chief Coroner, City of Toronto.

At last the City of Toronto has a Morgue. It has taken a long time to get it; but, though slow in coming, it is quite up to the expectations of all those who are interested in it.

Forty years ago the only public morgue in the recollection of the oldest inhabitant was a small frame building which stood on the sand near the foot of what is now Frederick Street. It was about fifteen feet long by ten or twelve wide, and was lit from above by a row of small panes of glass which went round a central part of the roof that was about a foot higher than the main roof. This building contained a table, and, as it was close to the lake front, generally a few pike-hooks. It had a door in the east end, and was ventilated by means of circular registers, such as are used in heating rooms, which were placed vertically, one or two in each wall of the building, about two feet above the floor; as these could be turned from the outside, they made convenient peep-holes through which anyone wishing to see what was going on inside could look.

This old building was replaced between thirty and thirty-five years ago by the building until recently used as the City Morgue, which still stands on the north-west corner of Frederick Street and the Esplanade. Originally this building had a concrete floor throughout, and many of the coroners at present in the City of Toronto can remember the pangs of cold which they suffered when they undertook to hold inquests during the winter in this awful building, with their feet on the concrete floor. Nine or ten years ago many of the coroners absolutely refused to hold any inquests in this building.

Latterly the place became more and more disgraceful, and for a long time has been unfit for use. It was never protected, and there are many gruesome stories told of incidents that occurred there.

Many might think that protection was unnecessary and that no man would have nerve enough to commit any depredation on a body in the Morgue, and yet the following incident is vouched for: The body of a too-venturesome skater who had gone through the ice on the Bay, having been fished up, was put into the Morgue. In a very short time his wet clothing became a solid mass of ice. He happened to have on a new pair of skates, the old kind that had a strap round the boots; the next morning it was discovered that during the night somebody, who evidently wanted a new pair

of skates, had pried up one of the windows at the Morgue, cut the frozen straps that held the skates to the feet of the deceased, and escaped.

All this is now done away with. The new Morgue is undoubtedly the finest building of its character, and the most perfectly equipped for the purposes for which it was built, that there is on this continent. It is a large square stone and brick building situated on the north side of Lombard Street, on a lot which extends from No. 84 to No. 96. The main door, in the middle of the building, is reached by a set of stone steps, and on entering the building the first room on the east side is a general office for the purposes of the Morgue, and a place where messages can be taken for the ambulance of the Medical Health Department. During the day in this room there is a stenographer, with a telephone beside her; she leaves at 5 p.m., and her place is taken by the caretaker, who is on duty all night. Besides these two, the driver of the infectious diseases ambulance is about the Morgue when not occupied in moving patients to the Isolation Hospital, the stables of his ambulance being at the back of the Morgue.

The west side of the building on this floor is devoted in front to an identification room, and at the back to a post-mortem room; between these two rooms there is a cold storage plant, with receptacles that may be pulled out into either of these two rooms. A body arriving at the Morgue is taken into the post-mortem room, one of the receptacles is pulled out into this room and the body laid upon it, the receptacle being pushed back into the cold storage portion. If anyone wishes to see a body for the purposes of identification they go into the front of the building and the body is drawn out of the opposite end of the cold storage plant and is shown to them in the identification room. In this way all bodies going to the Morgue will be preserved in cold air, and the public will be prevented from satisfying their morbid curiosity, as in the identificaton room all they can see, unless they have an order to see a certain body, is what looks like one tremendous filing system.

The coroner's court room is upstairs, and is a large and handsome room, very well lit, with a dais at the east end and a private room off it for the coroner's use. There are also rooms for witnesses, jurors and counsel.

The whole building is finished in quarter-cut oak, well heated by hot water system, and well lit by large windows for the day time, and gas and electric light at night.

This building is now open for use, and must be used as much as possible for all inquests.

When the old building became unfit for use the coroners were for a time allowed to hold inquests in the old Police Court. When the City Hall was built the old Police Court was dismantled, and

a deputation of coroners waited upon the City Council and asked permission to hold their inquests in the Police Court in the new City Hall. This was granted, as they understood it, until the old Police Court was repaired and made into a coroners' court. This arrangement was very satisfactory to the coroners, but in a short time they discovered that the resolution was that they should have the use of the Police Court in the City of Toronto until the alterations to No. 1 Station were completed; when these were finished the coroners found themselves without any place to hold an inquest, as nothing had been done to the old Police Court. Finding so much difficulty in procuring a decent and safe place in which to hold an inquest, they laid the matter before the Attorney-General's Department, the result being that an Act was passed compelling all municipalities to provide a coroners' court, and in any municipality where such court was not provided the coroner should have the right to use the Police Court of that municipality or hire any place at the expense of the municipality for the purpose of holding an inquest.

This brought matters to a focus, and the City Council voted $25,000 for the erection of a Morgue.

This occurred five or six years ago; but the coroners have not been worrying about it, because, as soon as this Act was passed. they had a right to hold their inquests in the Police Court in the City Hall Buildings. This right, of course, has now expired; no more inquests can be held in the Police Court, at least without special permission from the City Council, as a proper coroners' court, with a morgue, etc., etc., has been built and is now at their disposal.

A CASE OF EXOPHTHALMOS IN THE NEW-BORN CHILD.

BY JAMES M. MACCALLUM, M.D.,
Oculist to Toronto General Hospital; Oculist to Victoria Hospital for Sick Children.

IN July, 1905, there was referred to me from the Burnside Lying-in Hospital a baby of one week in whom exophthalmos of the left eye had developed immediately after birth. The forceps had been applied to the head. The proptosis had increased in spite of the application of a pressure bandage, until when seen by me the eye was practically extruded from the socket, the cornea opaque and threatening to slough.

With the help of Dr. Starr and of Dr. S. Johnson, who gave the anesthetic, the child was at once operated upon. An incision was made between the external and the superior rectus, through the conjunctiva and orbital fat, exposing a bluish mass underneath the periosteum. This was incised, giving escape to a large mass of clotted blood. The finger introduced discovered a small linear fracture in the roof of the orbit. The exophthalmos at once disappeared. The wound was closed and the eye bandaged up. The opacity gradually cleared up under the use of Dionin in 5 per cent. solution, and the child was discharged in a month.

In view of the frequency of the application of obstetrical forceps to the head injuries to the eye are surprisingly rare. They vary from a scratch of the cornea to an exophthalmos, or even complete avulsion of the eye. Naturally, these injuries receive but scant consideration in the ordinary text-books on obstetrics. The best account of them is probably that given by Bruno Wolff in the Festschrift of Professor Hirschberg, 1905, which has been translated into the *Ophthalmoscope*.

The venous obstruction of normal parturition often leads to retinal, sometimes to even sub-conjunctival, hemorrhages, which latter might possibly be enough to cause slight exophthalmos. Post-mortem records show that an exophthalmos showing itself at birth or shortly after, increasing in severity day by day, is usually due to hemorrhage, and the hemorrhage due to fracture of the orbit.

Wolff, in a table of 112 cases of trauma to the eye during birth, gives 12 of exophthalmos of varying degree. Such cases are then sufficiently rare to merit record, especially when the outcome was so happy as in this.

Surgery.

IN CHARGE OF
F. N. G. STARR, M.B.
AND N. A. POWELL, M.D.

CANCER OF THE BREAST; ITS TREATMENT AND THE SCIENTIFIC GROUNDS UPON WHICH THE SURGICAL TREATMENT IS BASED.

In the fourth William Mitchell Banks Memorial Lecture, delivered November 3rd, 1908, and reported in the *British Medical Journal*, this subject was taken up and discussed most interestingly by Henry Morris, President of the Royal College of Surgeons of England.

Many Canadian surgeons will recall with pleasure the visit of Sir William Banks to the Montreal meeting of the British Medical Association and the brilliant address on surgery which he then delivered. A still larger number knew of him as standing for all that was best in the surgery of the Mother Country.

The credit justly his due for the large share that was his in the evolution of our present methods of treating mammary cancer has been too long delayed. To no one more fittingly than to Henry Morris could the task of calling attention to this have fallen. How well this pleasant duty has been performed can be judged by a part of the address which follows:

"The modern history of the operative treatment of cancer of the breast and of Banks' connection with it is very noteworthy, as it affords an excellent opportunity of studying the working of different philosophic methods in medical science, and I will therefore briefly recall it. From the first, with commendable candor, he explained that his views were in large part due to the paper by Charles Moore, published in the year 1867. Moore and his colleagues, especially Campbell de Morgan, were propounders of the theory of the local origin of cancer, and to them the sufferers from cancer are indebted for the advocacy and practice of extensive removal at an early stage of the disease.

"Banks wrote:

" 'In 1867, Moore of the Middlesex Hospital, whose experience in that institution was great, wrote what is now an almost historic paper on "Inadequate Operations in Cancer," which set a great many minds thinking, inasmuch as it was a revolt against constituted authority. It made me think, too, so that I became deeply interested in the question.'

"Like Banks, Christopher Heath also tells in a clinical lecture,

published in 1871, that it was Moore's paper which led him to perform as a routine practice much more extensive operations for mammary cancer than had been customary with surgeons previously. And amongst English-speaking surgeons Samuel Gross, of Philadelphia, made a notable move in 1880 in favor of the free removal of breast cancers, and pushed the cause with earnestness and enthusiasm. Gross also ascribed his own movement to the teaching contained in Moore's article, and which he alluded to as *'a remarkable paper.'* And Gross was quite right, for Moore's paper is a very thoughtful and philosophical treatise, and an admirable example of a shrewd and correct induction from clinical experience leading to a most important improvement in surgical treatment.

"It should be read by those extremists in our profession who think no progress in knowledge concerning medicine, surgery, or the ancillary sciences can be made except by experiments on animals; and who by their exaggerated language, and by ignoring or denying the many discoveries which have been made by careful observers at the bedside and in the *post-mortem* room, conduce to and increase the bitter resentment and hostility against all who practise these knowledge-giving and necessary experiments.

"Moore proved by induction the correctness of the theory of the local origin of cancer. His conclusions and reasons are entirely in conformity with recent investigations on the minute anatomy and pathology of the lymphatics. He first briefly described the other chief theories of the origin of cancer, namely, the (1) constitutional, (2) textural or organic, and (3) the regional. The question as to which of these several theories is correct, Moore stated, can only be decided by accurate and repeated observations of the mode of recurrence. He pointed out that there are two elements of uncertainty in the question: uncertainty, namely, whether all the area invaded by the primary disease was removed by the operation; and the uncertainty respecting the possible duration of the *inactive* life in a fragment of cancer, severed in the operation from the primary tumor, and left in the tissues.

"If from a series of operations an imputation upon their completeness is justified, then, so far as those cases go, it is superfluous, he thought, to invoke either the constitutional, the textural or the regional theory. He stated his opinion that the difficulties of completely extirpating cancer are much underrated by those who hesitate to suspect the perfectness of their operations; that there is too often reason, without calling in the evidence of the microscope, to expect the return of the disease.

"His directions for operative treatment were that not only the whole mamma, but skin, lymphatics, fat, and when the disease even approaches the pectoral muscle, part of that muscle, too, should be

taken away. The axillary glands, when diseased, should be cleared away in one mass with the breast, without dividing the intervening lymphatics. The flaps of skin should be undercut, so as to remove any undetected prolongations of the disease, and chloride of zinc should be applied to parts not capable of being removed.

"With reference to the spreading of cancer, he said:

" 'Its continuity with the first tumor was traceable over half the chest, the pleura, and the glands from the neck to the groin, or the inguinal region, and possibly also to the liver.' How possible, the interesting and important investigations of Sampson Handley have made very clear.

"The reading of Moore's paper stirred Banks to adopt the routine removal of the whole of the fatty and lymphatic contents of the axilla, and of the skin covering the mammary gland, as well as very wide resection of the fascia connected with the muscles upon which the mammary gland rests. He arrived at his own conclusions through witnessing many imperfect operations, and by observing the frequency of early recurrences, and the situations and tissues in which these recurrences appeared. He brought no fresh microscopical, anatomical, physiological, or chemical information to bear; but his conviction as to what the proper operative treatment should be was entirely an induction from clinical experience.

"And he was induced to adopt this important change in practice because of the greater immunity from recurrent disease which he expected from it, and quite apart from the advances in aseptic and antiseptic surgery, although, happily, these advances gave courage to surgeons in the performance of the more extensive operations.

"Banks read his first paper, which he styled 'A Plea for the More Free Removal of Cancerous Growths,' before the Lancashire and Cheshire Branch of the British Medical Association in 1877, and in it he suggestively asked, 'Have you ever imagined what the results would be if all cancers were thoroughly excised when they were no bigger than peas?' His next paper was published in 1883, and was read at Worcester and also at the Liverpool Medical Institution in the same year. He gave it the title, 'Free Removal of Mammary Cancer, with Extirpation of the Axillary Glands as a Necessary Accompaniment.'

"Four years later, in 1887, he brought the same subject before the Harveian Society of London, and reported the results of 82 operations.

"In 1900 he delivered the Lettsomian Lectures on 'Practical Observations on Cancer of the Breast,' and published the analyses of his results in 213 cases of operation.

"The meeting of the Harveian Society listened to his paper

without endorsing his views. Prominent London surgeons questioned whether the completed operation recommended by Banks and Gross afforded better results than the incomplete. One very distinguished surgeon among them thought that patients lived longest who had never been operated upon, and that it was a question for consideration *whether a local excretion of cancer did not render patients less liable to constitutional disease.*

"Banks was very much cast down, he tells us, after this debate, but he returned to Liverpool resolved on continuing what he felt sure was the right line of treatment, but which he had so unsuccessfully come to London to advocate. He would, of course, listen to no argument in favor of a return on his part to the dangerous treatment, as he had learnt to know it to be, of excising the cancer tumor and leaving behind a remnant of the breast.

"But the opposition to wide operations did not end with the discussion at the meeting of the Harveian Society. It was followed up in a work published shortly afterwards, in which the practice of removing the whole breast as a routine operation for mammary cancer was condemned; as also was the removal of glands which are not felt to be enlarged through the external textures; and disapproval was expressed of Kocher's operation for removal of the tongue.

"It was considered that evidence pointed to the fact that large and sweeping operations which include not merely the free removal of the primary disease, but the dissection of the glands—whether in cases of tongue, vulva, penis, lower lip, or breast—were successful, not because the surrounding tissues were widely removed and the lymphatic ducts and glands taken away, but because the operations were practised in favorable cases.

"If we seek for the reason why the wide operations proposed by Moore, and urged by Mitchell Banks and Gross, were opposed by able and experienced London surgeons, it is to be found in the difference in the philosophic views as to the origin of cancer held by those who proposed and those who opposed them. Whilst Moore and his school regarded cancer as being at first a local disease, the others held the view that cancer is primarily a blood or constitutional affection.

"And if a blood disease from the outset, what was there to hope from these extensive removals of tissues? How could the excision of a local tumor eradicate a malady of the whole system? How could recurrence be prevented until the whole constitution was cured of its pernicious tendency? Hence it was thought to be 'a question for consideration whether a local excretion of cancer did not render patients less liable to constitutional disease'! I again quote these words because they give so emphatically the

stamp and motto of the blood theory of the origin of cancer, to the opposition against extensive excision of local cancer.

"But between this debate at the Harveian Society and the delivery by Banks of the Lettsomian Lectures in 1900 a good deal of water had ebbed and flowed at the mouth of the Mersey, and other barks had floated on the tide, carrying even larger sails than any that had been in view before.

"It was now Banks' turn to cry, 'Hold! Enough!' Not only had the constitutional theory of the origin of cancer receded before the strong and widely-rolling wave which placed the microbic theory for many consecutive years in the foreground, but in 1889 and 1892 papers which made considerable additions to our knowledge of the minute anatomy of the lymphatics of the breast and pectoral fascia were published by Heidenhain in Langenbeck's *Archiv*, Vol. 39 (1889), and by Harold Stiles in the *Edinburgh Medical Journal* in 1892 respectively. Both Heidenhain and Stiles agreed in believing that the entire mammary gland is not removed by the operations which had been usually practised, a fact about which anatomists, being also surgeons, who had witnessed operations for breast cancer some years ago, must have been quite sure.

"Both Heidenhain and Stiles gave expression also to their views as to the mode of extension, and the causes of local recurrence of cancer after amputation of the breast.

"In 1894 Halsted, of Baltimore, influenced by the work of Heidenhain and Stiles—twenty-seven years after the publication of Moore's paper and seventeen years after the first paper by Banks—published the results of some very extensive resections which he had been led to perform, and gave a description of the steps of his operation illustrated by plates. The consequence was that a revision of the practice of performing limited operations was deemed to be necessary by those who had previously resisted the more extensive excisions. Thus a reform which had failed to be effected *by the correct induction from clinical and pathological observations of Moore, De Morgan and Banks, and others,* was brought about by the practice of Halsted, based as it was on a deduction both premises of which were imperfect—namely, that the disease spreads in the course of the lymphatic current and by an embolic process.

"Although Heidenhain had not altogether overlooked the process of permeation and the tendril-like growth of lines of cancer cells along the fine lymphatic vessels, he had failed to appreciate its significance as the principal agent in dissemination. It was left for Sampson Handley, now a successor of Moore and De Morgan on the staff of the Middlesex Hospital, to find out, in the course of his investigations during the last three or four years in the cancer research laboratory of that hospital, that permeation—or, in

other words, the growth of the cancer cells in the lumen of the fine lymphatics—takes place almost as easily against as with the lymph stream, and extends centrifugally from the primary tumor, in an ever-widening circle and in the plane of the principal lymphatic plexus—that is to say, along the deep fascia.

"'According to the embolic theory' of Heidenhain and Stiles, 'which four years ago met with general acceptance, the force of the blood and lymph streams was the principal agent in dissemination, the cancer cells themselves being so much driftwood' (Sampson Handley).

"Halsted's operation was based on the embolic theory, and Halsted's operation, based on this theory, was what converted the opponents of Banks. It is intelligible how an operation based on an erroneous theory can be at once too extensive and too limited, and this is the case with the method of Halsted.

"Moore had written: 'It must be considered that operations are not adequate merely because they have been large'; and Handley points out that an operation may be very extensive and yet futile if it is based upon false pathological premises. Handley's careful investigations have shown that the very extensive removal of skin practised in the Halsted operation is unnecessary; and, on the other hand, that a sufficiently wide removal of the deep fascia, and the requisite undermining of the skin flaps form no part of Halsted's technique.

"And, in regard to the removal of muscle, Handley does not consider it dangerous to leave the uppermost part of the great pectoral, provided it be well retracted upwards, while the costo-coracoid membrane and the subclavian glands are being removed. The removal of the pectoralis minor, he thinks, is a mere matter of convenience to the operator; but as the serratus magnus is a far greater source of danger, he advises that at least a superficial layer of this muscle should be taken away, and in advanced cases the removal of the whole thickness of it together with the overlying breast is requisite. This teaching, based on microscopical pathology, is almost identical with that put forward by Moore and Banks on clinical grounds.

"In the course of the thirty-three years since Moore wrote, the surgical pendulum had swung from one extreme to the other, and in so doing Banks thought it had got somewhat off the line. And so in his Lettsomian Lectures he, with the courtesy which softens controversy, but with the candor and straightforwardness which command respect, commented on the work which had lately been done by others. He desired to dissent absolutely from Dr. Halsted's view that the entire pectoralis major needs to be removed, that the pectoralis minor should be divided, and that the supraclavicular region should be invariably cleared out. He refused to

recognize that the rule ought to be 'operate on the neck in every case,' and he opposed to that apothegm his own experience to the effect 'that when cancer has laid hold of the supra-clavicular glands it has got such a grip as to be past extirpation.'' Banks supported his views by his operative results, which, though equalled, have not been surpassed by others.

It is evident, reading between the lines, that Banks was smarting under a sense of wrong done to him, for he says:

'' 'In justice to myself, and to the memory of my late friend Gross, I think it rather hard that a certain group of surgeons should date the origin of the modern operative treatment of cancer from the microscopic researches of Heidenhain and Stiles, and the labors of Halsted and themselves.'

''If this opinion be not now unanimously held by surgeons, I cannot doubt that it will be by posterity, who will be able to take a dispassionate view of the history of the treatment of mammary cancer from the date of Moore's paper in 1867 to Banks' Lettsomian Lectures in 1900.

''Perhaps Banks was too optimistic if he expected to be a prophet in his own land and among his own people. For it has not infrequently been noticed that if a suggestion come from across the seas, and especially if it be made in Germany, it is much more likely 'to catch on' than if it emanates from one of our own people.

''But I have the satisfaction of referring to one of his English commentators, at least, who takes a fair and correct view of Banks' rightful claims.

''Jacobson, in *The Operations of Surgery*, says:

'' 'The tendency nowadays to talk and write as if the origin of the modern operative treatment of cancer of the breast dated to the labors of Heidenhain, Stiles and Halsted, ignores most unfairly the work of others who should not be forgotten. And one name at least—that of an English surgeon—rises pre-eminently as a worker in this field. I refer to Sir W. M. Banks. For twenty-three years this surgeon, with unfailing earnestness and characteristic vigor and terseness of expression, has in many places urged the need of more extensive operations in this disease. And then Jacobson adds: 'If honor is to be given where it is due, a fair share of it must justly fall to him.'

''I have neither time nor intention to introduce a description of what my own practice has been, and is, in the surgical treatment of breast cancer. As a member of the staff of the Middlesex Hospital, I followed Moore and De Morgan; but I should like to mention that for many years I have been in the habit of removing the fascia over the serratus magnus, and often a layer, and on occasions, in places, the whole thickness of the muscle; and that as a teacher at my hospital and an examiner at the University of

London and the Royal Colleges, I was in the habit of pointing out to the students and candidates that a good half of the mammary gland was in contact with the serratus magnus, and only the rest with the pectoralis major; whereas their answers to questions led one to believe that the general impression they had got was that the mamma rested entirely on the great pectoral muscle.

"I think that too much importance is just now being attached to clearing the axilla from the apex downwards, instead of from the base upwards. The essential precaution is to avoid cutting across the lymphatics or leaving behind any glands or fatty tissue.

"Nor do I believe in the danger of making a direct cut into, or even of removing a slice from, a cancer tumor, for the purpose of diagnosis, before the operation is commenced, provided the wound is stuffed with a little aseptic gauze and covered with collodion previous to proceeding with the excision, and the knife used for the incision is laid aside. The danger lies in inadvertently dividing affected infiltrated tissues, which was so frequently done in the days of inadequate operative measures." N. A. P.

INAUGURAL SYMPTOMS.

In an address on "Inaugural Symptoms" in the *British Medical Journal* of November 28th, 1908, Moynihan points out that, owing to the stress laid upon post-mortem findings, undue value has been laid upon the late symptoms of certain conditions. He contends that "Late symptoms are no more characteristic of any disorder than early ones, and their importance as signals for early therapeutic aid is relatively insignificant." "Late symptoms are too often the heralds of death; inaugural symptoms may be the cry for timely surgical interference."

It is for the surgeon then, during an operation, to note any early pathological changes and then to re-cross-examine his patient and to elicit the early symptoms of these early pathological changes. It is depressing to the surgeon to have referred to him cases of carcinoma when the possibility of complete relief has long passed.

"That cancer of the stomach is a common malady we know well enough; it claims an appalling number of victims every year. It is a disease which is purely local in its early stage, a disease which, accordingly, lends itself readily enough to radical treatment. Yet it is probably safe to say that there are not in all England ten patients who have been cured of this dire complaint. The tale of the victims of appendicitis is told almost daily in the newspapers. If the early symptoms of this disease are commonly understood and appropriate treatment adopted from the first (not

necessarily operative treatment), the terrible mortality would be very considerably reduced. I think that it is almost certain that the acute fulminating cases (so-called) of this disease give always a definite warning of their approach; it is our ignorance of this warning that proves so disastrous. How does it come about, then, that we are so pitifully helpless in these and in many other like diseases? It is, I venture to say confidently, because we rely for our diagnosis not upon inaugural symptoms, but upon those of late appearance; we confuse far too frequently the symptoms of a tardy complication with those of the original morbid process itself. We hesitate to diagnose cancer of the stomach before a lump can be felt, and we have not the courage, in a case of reasonable doubt, to open the abdomen to look. We question the evidence of duodenal ulcer until hemorrnage occurs, though hemorrhage is a late, dangerous, and preventable manifestation. We dare not hint the presence of gall stones until jaundice comes, though symptoms of the plainest meaning have been present for years, and in spite of the fact that jaundice is an infrequent symptom of gall stone disease. Indeed, much of the text-book symptomatology urgently demands revision. It is based upon diagnoses made in the advanced or terminal stages and verified upon the dead. Our knowledge now of the 'pathology of the living' must urge us to scrutinize the early history more closely and to endeavor to correlate the inaugural disturbances of health with the morbid conditions responsible therefor, which are laid bare by operation.

"I think there is a fault of which we are all in greater or less measure guilty—we are very apt to ignore or belittle the history of the case from the patient's point of view, the anamnesis that is. The word 'anamnesis' is one the significance and usefulness of which seems to be insufficiently appreciated. It means the calling again to mind incidents in the past, the recollection of occurrences almost or entirely forgotten until thought was concentrated thereon. Its meaning in medicine accordingly should be the reproduction in the patient's mind of the details of the earliest clinical history. The 'previous history,' as it is generally told in published case reports, is a jumble of the statements of the patient and of the prejudices, opinions, and reflections of the recorder. It is time that the word anamnesis' came into general adoption, and that it should be held strictly to indicate the recollection by the patient of the details of his illness—that, neither more nor less. The anamnesis cannot be too detailed, for it affords the only authentic information which can be obtained, and when it is reviewed in the light of the fuller knowledge which has come to the surgeon after the exposure and careful, purposeful scrutiny of the parts involved, we should little by little become confident in making our diagnosis at a much earlier period than now seems custom-

ary or possible. A plan which I frequently follow is to ask the patient to write for me in the most detailed manner the story of his own sufferings from the time of their very earliest onset, exaggerating nothing, omitting nothing because of its irrelevance or apparent triviality. Many little points may be brought out in this way, points which are apt to escape one's notice when the examinations are being made."

"It is dealing with the acute catastrophes occurring within the abdomen that we shall probably derive the most instant and striking advantage from an attentive study of inaugural symptoms. It is in these cases that minutes gained mean lives saved; for the earlier the gravity of the case is realized and surgical treatment adopted the safer will the issue be. Other things being equal, the mortality rises in direct proportion to the time which has passed since the disaster occurred. Many of the symptoms and signs formerly described as attendant upon the perforation of a hollow viscus are not manifestations of that particular incident at all, but are evidences of a later and preventable complication, acute diffuse peritonitis. To take a specific example, the perforation of a gastric or duodenal ulcer. But let me first say that a catastrophe of this kind is almost always capable of being forestalled. Though the onset of perforation in an ulcer is acute, the ulcer itself is of the chronic type. It is an ulcer that has existed for months, or years, and it has given, in almost every instance, not only sustained evidence of its existence, but a recent warning that the pathological processes engaged in it were becoming more acute. The warning, however, is commonly ignored, because the significance and importance of it are not understood, and, accordingly, a disaster is precipitated. There are few catastrophes occurring within the abdomen that are veritably 'acute.' When we speak of such things, we refer, as a rule, to the abrupt incursion of acute symptoms into the even and placid course of a disorder whose more tranquil manifestations have been present for months, or it may even be for years.

"If the physician depends upon text-book symptoms for his diagnosis of perforation of an abdominal viscus the patient's life would be in jeopardy before surgical relief is sought. Let him rather note the sudden onset of an acute, intolerable pain that does not abate, rigidity of all the abdominal muscles, light and shallow breathing, with an inspiratory phase that often ends abruptly in a 'catch,' together with the intensely anxious expression which the face always wears—are ample warrant for a diagnosis of a perforation. A previous history of indigestion is rarely, if ever, lacking. A rapid pulse-rate, vomiting, abdominal distention are not to be looked for among the inaugural symptoms. They are the proof that

precious time has already been wasted and a valuable opportunity thrown away."

He then briefly discusses duodenal ulcer and tells us of the absurd frequency with which this condition is confused with such terms as "hyperchlorhydria," "acid dyspepsia" and "nervous dyspepsia." The physician, unfortunately, waits for terminal symptoms such as hemorrhage while valuable time is being lost. Some readers will remember that W. J. Mayo has facetiously remarked, "That most cases of duodenal ulcer give a history of having been *cured* of dyspepsia at least nine times"!

The text-books in medicine then come in for severe criticism in that they invariably describe late symptoms of gall stones and overlook entirely, "The fulness, weight, distention or oppression in the epigastrium coming soon after meals, usually within half or three-quarters of an hour, relieved by belching, elicited with remarkable constancy by certain articles of diet, and dependent rather upon the quality than upon the quantity of the food. There is a sensation of great tightness, which, if unrelieved, may become acute pain, from which the patient obtains ease by bending the body forwards, by flexing the right thigh on the abdomen, or by loosening all garments which fit tightly to the waist. While the discomfort lasts the patient may notice a 'catch' in his breath, and he finds, perhaps, that it is impossible to breathe deeply without feeling an acute stabbing pain at the right costal margin. There may be a feeling of faintness and nausea, and, rarely, vomiting may occur spontaneously. After a more than usually severe attack of 'indigestion' the body and side may feel stiff for several days. A frequent and very characteristic early symptom of cholelithiasis is the occurrence during an attack of indigestion of a slight sensation of chilliness, especially in the evenings after a meal. The patient may shiver for several minutes, and may hasten from the table to huddle over a fire. The sensation of 'goose flesh' is often experienced, and several medical men upon whom I have operated said that in the severer phases it was not unlike a very slight rigor, the chilly stage being quickly followed by one in which the body feels hot, and the skin begins to act freely. To quote from Naunyn, 'On an average, every tenth human being has gall stones, and of elderly women perhaps every fourth.'"

As regards malignant disease of the stomach, he thinks that from his own experience rather more than 60 per cent. have been preceded by gastric ulcer.

Of cancer of the stomach he describes two types, "pyloric," the symptoms of which are obstruction from the beginning, and "prepyloric," in which the symptoms individually are vague, "but collectively enable a certain diagnosis to be made. A man beyond middle

life finds by degrees that he takes less interest in his meals; his food loses its relish, and presently becomes distasteful. Life in many of its aspects seems to lose its zest; neither work nor leisure are enjoyed, and depression, increasing anemia, and loss of weight are soon observed. It is not for many weeks, or perhaps many months, that vomiting is noticed; it is then due to the gradual enlargement of a growth which, beginning on the lesser curvature of the stomach, spreads downwards, on one or both surfaces, until it attains such size that the pyloric antrum becomes narrowed, and obstruction results. In several of my cases hemorrhage has been the first symptom. The sudden occurrence of hematemesis in a man previously in good health is to be looked upon as especially significant. We should have our suspicions keenly aroused if, in a patient at or beyond middle life, whose anamnesis tells of the existence at some earlier time of a chronic gastric ulcer, there develop distaste for food, loss of appetite, intolerance and positive refusal of solid food, uneasiness after meals, even the restricted ones taken unwillingly, loss of weight, persisting anemia, and vomiting or hematemesis. Then exploration should be urged, for in the present state of our knowledge of the early symptoms there is no other method by which an early carcinoma of the stomach can be discovered. No one deprecates more strongly than I the haphazard exploration of the abdomen for diagnostic purposes. I think the most sedulous care should be expended on the examination of the patient, and that every detail of the anamnesis should be scrutinized before the abdomen is opened, otherwise we may let slip great opportunities for clinical research." He deplores the continued medical treatment of these cases, the only possible remedy for the condition being surgical intervention.

Then in cancer of the large intestine, while one's attention is often attracted by a sudden and complete obstruction, yet one knows that such must be a later manifestation; upon inquiry one will find that there has been an "Insidious onset of intestinal irregularity. The bowel acts with a certain caprice; there is now slight constipation and now slight diarrhea. These symptoms become, of course, considerably emphasized at a later stage, where there may be intestinal obstruction of three or four days' duration, alternating with a copious and teasing diarrhea. But something much less than this occurs quite early in the disease, and at the same time there is present a symptom which I hold to be of great significance. It is the occurrence of a spasm, slight and transient, in a part of the large intestine. The patient tells us that every now and then there is a feeling of 'gripping' (or he may himself use the word 'spasm') in a certain very limited area of the abdomen, and he points always to the same spot. This is clearly to be explained by the existence of a slight hypertrophy of the

intestinal muscle as a result of the increased effort necessary to pass the contents of the gut through a segment in which stenosis is already beginning to appear." In addition, mucus or occult blood may occur early.

"When, therefore, any or all of these several points are elicited in a patient of middle age or over, and when loss of weight, indifference to food, or positive repugnance to it, or the deliberate avoidance of the more substantial meats, are together observed, there is every probability that serious organic disease is present in the large intestine."

He gives credit to the appendix for having a more varied set of inaugural symptoms than any other abdominal organ. In all cases, however, he lays great stress upon the presence of the initial pain. In this paper, however, he says nothing about the *referred pain* that so often leads the practitioner, unless always on the alert, into serious difficulty.

As to the pancreas, he tells us very frankly that as yet we know but little of the inaugural symptoms. He, however, lays great emphasis upon the value of Gammidge's tests of the urine and feces, as a positive method of determining the presence of a morbid condition of that organ. This is comforting, in view of the positive assurance of some pathologists that these tests are not worth doing.

F. N. G. S.

ASCITES IN TYPHOID FEVER.*

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Peritoneal effusion in typhoid fever, apart from peritonitis, must be of rare occurrence, as there is no reference to it in the literature on the subject. During the last three years six cases presenting signs of such effusion have come under my observation. In all of them the effusion occurred during the course of the illness, persisted for about ten days or two weeks, and disappeared in all but one with convalescence. In all the cases the illness was severe, but in none were there hemorrhages or symptoms of peritonitis, except in one case.

CASE I.—The most marked case was that of a woman, aged thirty years, who was married, had two children, and came from the foothills of the Rocky Mountains in October, 1907. On her arrival she was very ill, her temperature being 104° F. She had severe bronchitis, with loud rales of great variety and some wheezing in all parts of the chest. She had a history of asthmatic attacks extending over some years. The sputum was frothy and copious, but contained no spirils or eosinophiles, nor was the dyspnea paroxysmal. After a few days it became evident that she was suffering from typhoid fever, all the usual symptoms of which were presented later—the rose-colored spots, enlarged spleen, leukopenia, Widal reaction, low blood pressure, etc. The abdomen was not at any time distended, but remained relaxed throughout. The course of the disease was severe and protracted, but otherwise uneventful. She showed marked prostration. In the third week after she was first seen both flanks became full and fluctuating in the dorsal position. The note to light percussion was flat to the mammillary line; on deeper percussion there was slight tympany of an amphoric character. Fluctuation was easily demonstrated. When turned on her side the upper flank became concave and somewhat tympanitic; the dependent one full and rounded with fluctuation and flatness well marked to the parasternal line. That these signs were not due to fluid feces in the colon was shown by the fact that no alteration

*Read at a meeting of the Association of American Physicians, Washington, D.C., May 12 and 13, 1908.

in them resulted from the action of a copious enema. A purgative was then given; it acted freely but without affecting the signs of free fluid effusion. The quantity of fluid varied, diminishing somewhat on one or two occasions, and then increasing again, until toward the end, when it gradually lessened and disappeared, leaving the flanks retracted. At the same time the temperature became normal, and convalescence was soon established.

CASE II.—A laborer, aged twenty-two years, with good personal and family histories, was admitted to the hospital September 22, 1905. He said he had had typhoid fever during the preceding year. However, the symptoms of the present attack were quite marked: the usual temperature, some diarrhea, moderate abdominal distention, rash on the chest and abdomen, enlarged spleen, leukocytes as low as 4500, and wellmarked Widal reaction. The illness was protracted, there being apparently a series of intercurrent relapses. The signs of fluid in the peritoneal cavity became apparent October 23, in the beginning of the fifth week, and were quite marked until December 6, after which they gradually abated, and were not evident ten days later. The abdomen was quite relaxed throughout the illness, and was not tender on deep palpation. His convalescence was satisfactory, and he left the hospital in good condition. The sputum was scanty, but in such as there was obtained no tubercle bacilli were found on repeated examinations.

CASE III.—A man, aged thirty-five years, a clerk, was in the hospital at the same time as Case II. On admission the abdomen was tympanitic in all parts, including the flanks. The rash was profuse and widespread. Two days after admission the flanks were found full, flat on percussion to the mammillary line, and with fluctuation quite distinct. The signs of effusion lasted over three weeks and disappeared with convalescence. His recovery was satisfactory.

CASE IV.—A young man, entered the hospital in January, 1908; the symptoms of typhoid fever were well marked. About the end of the second week of illness signs of moderate peritoneal effusion developed, persisted for two weeks, and then disappeared rather rapidly. The ophthalmotuberculin test was made without any reaction following. After the temperature had been normal three days pleuritis of the left side began, with much pain and moderate fever. The exudate was fairly free, although no fluid was obtained by the aspirating syringe. To determine whether it was due to tuberculous infection, a further test was made with old tuberculin subcutaneously. No reaction resulted.

CASE V.—The patient was a girl, aged fifteen years, whom I saw but once, in consultation with her physician, in the second or third week of her illness. There was a large quantity of fluid in the peritoneal cavity; the signs were first observed on the preceding day,

although the effusion had probably been present for some time. The illness was severe, the temperature being over 104° F. There was no pain or tenderness in the abdomen; its walls were not rigid. Her physician informed me that signs of fluid disappeared a few days later, the patient making a good recovery.

CASE VI.—In this case the effusion was probably due to tuberculous peritonitis. A man, aged twenty-three years, was admitted to the hospital September 24, 1907, with a temperature of 101.8° F.; pulse, 80. He was employed washing in a garage and a fellow worker occupied the next bed, having taken ill at the same time. The symptoms of typhoid fever were well defined in both cases, and the disease ran a rather severe course. In the fourth week there occurred phlebitis of the left saphenous vein, with marked chills, the temperature rising to 108.4° F. after the first chill. A few days later there were signs of some exudate into, first, the left, and then the right pleura. Two weeks later, and seven weeks after admission, there were well-defined signs of peritoneal effusion, the quantity being greater than in any of the preceding cases. The abdominal wall was rather rigid and somewhat tender to firm pressure. The temperature was slightly, but irregularly, elevated, and the leukocytes, which had been below 5,000, rose to 12,000. A tuberculin test was made; there was no reaction to 0.5 milligram given subcutaneously, but 2 milligrams caused a well-marked reaction. Later, there was marked reaction to the ophthalmotuberculin test. His general condition improved, although the peritoneal exudate persisted. He left the hospital January 21, 1908, in good condition, but with a considerable quantity of fluid still in the abdominal cavity.

In at least four of these six cases the effusion, so far as can be determined, was due to pathological conditions resulting from typhoid infection. The immediate cause of the effusion is uncertain. The disease was severe and attended by much prostration. The abdomen was very relaxed and the contents therefore had little support, so that the vessels would easily dilate, permitting considerable stasis, or at least marked slowing of the current of blood, thus favoring serous exudation. It is possible, also, that the mesenteric glands were greatly enlarged, causing slight but sufficient irritation of the peritoneum to excite effusion.

Toxemia is another possible cause of the effusion. In hepatic cirrhosis something more than simple obstruction to the portal vessels is required to cause ascites. This may be a toxic substance which affects the hepatic cells so as further to obstruct the portal circulation, or which alters the peritoneal epithelium so as to permit a more rapid escape of serous exudate and possibly also cause obstruction of the peritoneal lymphatic vessels, so that the exudate is less readily removed.

It is probable that in other diseases attended by prostration moderate effusion into the serous cavities may be more frequent than is suspected. Recently in a case of empyema with a bronchial fistula, there were signs of peritoneal effusion for some days during a period of marked prostration and moderate toxemia; they disappeared with the improvement in the general condition. Even in hepatic disease ascites may disappear rapidly, and that, too, without improvement in the patient's general condition. Such was the case in a woman who entered the hospital last winter with marked jaundice and ascites of recent onset. After a few days both the jaundice and ascites rapidly diminished and disappeared, although her general condition was growing worse. She gradually became comatose and died a few days later.

Selected Articles.

IS MEDICATION OF SERVICE IN TUBERCULOSIS?

BY W. H. WALSH,
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Medication, as a means of arresting the progress of tubercular disease of the lungs, is regarded with scepticism by many physicians. In view of the disappointment experienced from serum therapy, the intelligent exhibition of remedies is held by others to be of paramount importance in preventing the further invasion of lung tissue by the tubercle bacillus and other micro-organisms.

Pulmonary tuberculosis is a specific inflammation of pulmonary tissue, caused by the implantation of tubercle bacilli, which cause infiltration, caseation, fibrosis, calcification and ulceration.

According to Sajous, "while the bacillus of Koch is the specific agent necessary for the development of pulmonary tuberculosis, one or more of these general and directly predisposing causes must have prepared a suitable soil for bacillus in order that it may become inimical to the patient. In most inflammatory diseases there is hyperleucocytosis, but in tuberculosis there is a diminution, and this may account for the rapid wasting of tuberculous patients."

Healthy pulmonary tissue is not affected by microbic invasion in normal conditions, for micro-organisms are always with us, even in the most sanitary parts of the earth, and a feeble lung can be developed into a normal healthy lung by the practice of deep breathing, superalimentation, pure air, and avoidance of excess of all kinds.

Predisposition rarely exists in infants; it manifests itself later in life, and with a normal chest development and healthy environment, children of tuberculous stock have a good chance to escape.

Dr. B. H. Detwiler, in *American Medicine,* February 25, 1905, states that:

"The fact that tubercle bacilli cannot develop unless there is a properly prepared nidus, eliminates the danger of infection or contagion, and demonstrates that the cause of hereditary tuberculosis is not the direct transmission of the bacillus itself, but a sequel of heredity. The tubercle bacillus is the primary factor, but it does only enough damage to make possible the entrance of more destructive organisms.

"They cannot attack normal tissue, but they are the combined cause of inflammation of these organs and tissues, and often lead to death; or nature may wall in an entire colony and shut them off from healthy tissue by deposits of lime on the outside of the tuberculous mass. Otherwise the pus coccus, by liquefying the tissues, produces toxine, giving rise to chills, fever, sweats, emaciation, and other known results. When the sputum is thin, viscous, evenly distributed with bacillus and a noticeable reduction of corpuscular elements, failing to stain well, the phagocytes show little resistance to invasion of tissue. Those who are so far advanced in this exhausting disease that the outdoor life does not bring them up to the normal leucocytic defense, will require powerful cell tonics.

A suitable soil, therefore, being essential for the development of the tubercle bacillus, resistance to invasion is what we must look for, and this is best accomplished by sunlight, pure air and outdoor life, assisted by tonics and palliative remedial agents to combat symptoms and stimulate active phagocytosis in order to eliminate by this natural process the bacilli and neutralize their toxins.

Dr. Edmund Gros, of Paris, is of opinion that "many, if not all diseases, are due to an impaired equilibrium in the mineral equations of the body.

"Let too great a loss of some of its normal constituents take place, without a corresponding income of these elements in the food, and the tissues lose their vital resistance and are liable to become a prey to microbic diseases. We too often lose sight of these facts, and have too great a tendency to ascribe all diseases to germs alone; yet we can no more surely attack the germ than by modifying the soil on which it grows."

He recommends for this purpose the glycerophosphates, "wheih increase cellular activity, and indirectly stimulate the appetite, regularize and accelerate digestion, and, therefore, may be looked upon as helps toward the only rational means of treating diseases, viz., by stimulating vitality."

Prof. Albert Robin, in his first communication to the French Academy on the subject of the glycerophosphates, stated that "these salts increase the resistance of the organism in pulmonary phthisis and facilitate calcification of the tubercles."

Williams (*Journal of the American Medical Association,* May 12, 1900) claims that:

"In the glycerophosphates we have preparations so nearly identical with the natural phosphorous compound of nerve substances as to be more readily appropriated by depressed nerve tissue than any other phosphorous preparations."

Dr. Bardus (*Comptes Rendus de l'Academie des Sciences,* April, 1900) found the dynamogenic action of the acid glycerophosphates far superior to the neutral in intensity of action and r id-

ity of absorption. The irregular solubility of the glycerophosphates, and their sometimes apparently weak action, is due to a partial decomposition, which has degraded them into simple phosphates, but it has been found that solution of the "acid" glycerophosphates of lime, soda, potash, manganese, iron and strychnine in glycerine offers the greatest stability and retains all of their active properties.[1]

The logical employment of these glycerophosphates as proplasmic regenerators therefore seems to be established by good authority.

Many so-called antiseptics, such as diatomic phenols (*e.g.*, guaiacol and creosote), eucalyptus, and many essential oils which contain terpines, are found to stimulate the action of the phagocytes and promote the secretion of antitoxins.

This group of so-called leucotactic remedies have long been used empirically, but it is only recently that their indirect antiseptic action has been fully understood. The terpines and other components of many essential oils, as well as creosote and other organic products of this class, have been proved to stimulate a healthy leucocytosis, which increases the number of phagocytes so essential to the defence of the economy from the invasion of the streptococci, staphylococci, and tubercle bacilli.

The first experiments on these lines, showing the effect of the essential oils on the number and vitality of the leucocytes circulating in the blood, were made by Hirt, Binz, and his pupils, Meyer and Grisar, in 1886. The studies of Halle, Marcusson, Koehler, and Bohm, who made blood counts of control animals, were later confirmed and perfected by Winternitz, all of which clearly showed that many natural and synthetic products belonging to the so-called aromatic series in organic chemistry, stimulate an increased leucocytosis of the blood.

Compounds of cinnamic acid, which is a component of some essential oils, have been used hypodermically (Prym, *Munch. Med. Woch.*, No. 44) for this purpose with some measure of success, but there are objections to this method and internal administration of leucotactics is equally efficient, more convenient and rational, although effects are not so rapidly observed.

This explains why symptoms are relieved and the claims made for preparations of creosote, guaiacol, many terpines, balsam of tolu and peru, eucalyptus, etc., have so many advocates.

In prescribing remedies to help the already tuberculous patient we should select those therapeutic agents which increase the potency of the leucocytes, and it is not difficult to select convenient combinations of creosote, eucalyptol, etc., owing to the progress of organic chemistry.

[1] The glycerolé of the acid glycerophosphates (Huxley) contains all the salts of the glycerophosphates, and in the physiologic proportions found in the human economy (*Gazette du Medecin*, Paris, 1904.)

The disagreeable concomitants of beechwood creosote need no longer deter physicians from using this drug, for its escharotic and toxic properties are avoided when in the form of benzoate, which is only acted on in the duodenum, where it is rapidly absorbed and distributed in the blood-stream. The same benzoic combination is possible with eucalyptol, since it is largely excreted by the respiratory organs, and its soothing effects on the mucous membranes are still retained. When these therapeutic agents, whose prophylactic properties are beyond peradventure, are administered in capsules dissolved in almond oil and in conjunction with such a tonic as glycerophosphate of quinine (as first proposed by Dr. Kugler, of Paris), good results may be looked for.

Practically we do with Kugloids exactly what Wright and Douglas claim to do by raising the opsonic index by injections, *i.e.*, so stimulate and prepare the bacilli that the phagocytes are able to dispose of them, but, instead of doing this by injections, with their dangers and objectionable features, we do so automatically by increasing the natural defensive methods of the body. It is not intended to cast any slur on the great work of Sir Wright and his co-workers, but in the treatment of tuberculosis the opsonic method has not been followed by remarkably good results, and the negative stage or actual lowering of the opsonic index prior to the positive stage is done away with. In spite of modern researches, however, we must still rely very largely on the therapeutic remedies with which we are familiar.

Where it is desired to inhibit the development and assist the natural elimination of micro-organisms by stimulating the protective phagocytes of the blood, the following formula will be found a good one:

R Quinine glycero-phosphate .....½ grain
Creosote benzoate .....½ grain
Eucalyptol benzoate .....½ grain
M. ft. capsulae.
Sig.: "Kugloid."

In febrile and other acute symptoms, the dose is one every hour until they subside; and from six to eight Kugloids can be taken to advantage for months at a time, since they are well tolerated by the stomach.

That the benzoates of creosote and eucalyptol are really taken up in the blood-stream can be proved by an examination of the urine, which gives the usual phenol reaction with any ferric salt, as well as by the odor of eucalyptol given off by respiration.

As a prophylactic and palliative, Kugloids, as these capsules are called, after the author of the formula, Dr. Kugler, are also

useful, especially in coryza and the early stages of influenza, in bronchial catarrh, and in all inflammatory conditions of the mucous membranes of the air passages.

The theories concerning the correct treatment of pulmonary tuberculosis change with every decade; it was thought at one time that the Koch tuberculin had settled the question, and before that again it was thought necessary to find a germicide which would directly attack the germs.

The fact is, however, that while all may have some element of the truth, we do not yet know the whole truth, but experience and the investigations which are being carried on in sanitaria prove that medication cannot be altogether ignored; not only for the relief of symptoms, but because administration of such remedies as creosote and eucalyptus, while they cannot act directly on the tubercle and other bacilli, interfere with proliferation of the micro-organisms which give rise to toxins. With hygiene, superalimentation, and appropriate medication, therefore, we can do much for our consumptives, although we have no specific remedy for the disease itself.

Raw eggs and milk (if the patient can tolerate them) have, in the writer's experience, been found to be the best of foods, plenty of both and as often as possible. If raw eggs are not tolerated, they may be given soft boiled.

The symptomatic treatment can generally be controlled with tonics such as the compound syrup acid glycerophosphates (Huxley), Kugloids to stimulate leucotaxis, and, where it is necessary to relieve severe cough, such soothing remedies as tolu syrup, paregoric, or benzo-kinone and heroin, with hypnotics to help sleeplessness.

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"MR. DOOLEY" ON PSYCHOTHERAPEUTICS.

Chicago, Oct. 16, 1908.

MR. EDITOR: "Have ye read of this new thing they call syco-therapewticks that's privalint in Boston?" asked Mr. Dooley, as he laid aside the daily paper and turned to Mr. Hennessy.

"No. Is it ketchin'?" demanded Hennessy, anxiously.

"Sure, it's not a disa-ase at all," replied Mr. Dooley in his most professorial manner. "It's a new rimidy."

"Glory be!" exclaimed Mr. Hennessy. "Is it ha-ard ter swally?"

"Faith, it isn't like Father John's midicine or anny iv thim things," went on Mr. Dooley. "It's this way: Boston is a sthate

iv moind, an' whin anny wan sickens there it's th' moind that gits attintion. F'r insthance, whin little Indicutt begins ter pine away an' th' nosepiece iv his specs has ter be thrimmed with fur ter keep th' metal fr'm pressin' on his poor little brain, an' he spinds his nights huntin' th' snark an' ither man-a-a-tein' game in th' heart iv darkest A-africa with Teddy Rosenfelt, thin he's ripe fer sycotherapewticks."

"It's like easther ile, thin?" ventured Mr. Hennessy.

"Ye talk like an omadhaun!" snapped Mr. Dooley, impatiently "It's nawthin' iv the koind. No, they call in th' pasther iv th' church. 'Ah, me little man, it's obsissed ye are,' sez he. 'It's a bad case iv th' dissoshiashun iv th' persona-ality ye have,' sez he, an' be a quick pass iv th' hands he lands little Indicutt inter a sthate iv hipno-osis, which is th' thrade name f'r a kind iv near-slape. In this condition the poor little divil is completely at th' good man's mercy, an' th' secret wurrukin' iv his moind is as clear ter th' pasther as th' spring waters ye see advertised in th' magazines—if ye believe th' advertoisements. In less time than it takes ye ter impty a can iv beer, Hinnissy, th' boy's moind is spiritooly dhry-clinsed iv its obsissions and th' boy comes back ter airth or as near ther as they iver get in Boston. 'Lave him take an exthry coorse in thransindintal ferlosofy,' says th' good man in partin' fr'm th' overjiyed parents. 'It'll kape his attintion off iv himsilf. But be careful how ye expose him ter th' frish air.'"

"It bates th' divil what leps science is makin'!" exclaimed Hennessy, when his powers of speech returned.

"An' they threat th' grown-ups th' silf-same way," went on Mr. Dooley, full of his subject and unmindful of his friend's comment. "Whin wurruk is slac' at th' foundhry and th' father iv th' fam'ly doesn't know where th' price iv th' next pot iv baked beans is comin' fr'm, ter say nawthin' iv th' rint an' th' other lux'ries iv life, he begins ter recognize th' simthims iv a refracthry subconshus—such as cowld feet, an' an inability ter look th' landlord an' th' bo-otcher straight in th' face—an' dhrops in ter th' sycotherapewtick clinic fer afthernoon tea and ither threatmint."

"An' how does that hilp him on th' rint an' th' bo-otcher questions?" asked Mr. Hennessy, critically.

"That's simple," replied Mr. Dooley. "He goes away full of tea, angel cake, an' be-yewtiful sintimints that inable him ter rise above his throubles, and whin th' graspin' landlord an' th' bo-otcher with th' Armour-clad hea-art begin ter do sintry duty before his dhoor in comp'ny with th' ither wolves, th' poor man retires inter th' subcellar iv conshusniss an' puts up th' amnashia shutters, which is a sure proteeshun agin painful mim'ries."

"Wunderful! wunderful!" ejaculated Mr. Hennessy.

"Th' same threatmint applies ter all th' ither human ills,"

continued Mr. Dooley. "If th' hear-art gets inter a frolicksome mood and takes ter skippin' beats up an' down th' spine; if th' stummick contrac's th' playful habit iv telescopin' itself inter th' dhudeenum; if th' rest iv th' organs refuse ter wurruk undher union rules, it's sycotherapewticks that's needed.

"But what does sycotherapewticks ra-ally mane?" asked Hennessy, with a dazed expression.

"That's what no wan seems ter clearly undherstan'," replied Mr. Dooley. "As near as I can make out, it's a spacies iv spiritool flim-flam. We are all born in orig'nal sin, Hinnissy, an' th' divil's in iv'ry wan iv us. Ye may think ter dhrive him out be baptism, but don't fool yersilf. He's still with ye in as manny dif'r'nt forms as ye have fingers an' toes. That's why ye suffer fr'm a mooltiplica-ation iv' th' persona-ality. Whin th' ould boy gets inter yer liver, ye're wan feller, an' whin he sthrikes yer big toe in th' shape iv th' gout ye're another. Ye know yersilf, Hinnissy, that whin ye go home an' swear at th' ould woman an' caress th' childer with th' wooden ind iv the broom, ye're not th' same ja-anial spirit ye are whin ye're sthandin' up ter th' bar an' somewan else is orderin'. It's th' divil that's at th' bottom iv all our sufferin', an' it takes th' pasther an' his sycotherapewticks ter dhrive him out."

"An' are there no more reg'lar docthers in Boston like ould Doc Sullivan here?" asked Hennessy.

"Very few, I hear," replied Mr. Dooley. "Them as haven't made their forchun be thrimmin' off the appendix are now sellin' fairy stories written be spiritool sycollargists."

"But even sthill I don't clearly undherstan' th' meanin' iv sycotherapewtic[illegible]" protested Hennessy.

"That's just [illegible]e *crooks* iv th' situashun, as they say in argymints. Ye are in the same box as th' pasthers, Hinnissy."

"An' ye say that Boston is on'y a sthate iv moind?" queried Mr. Hennessy.

"I do," affirmed Mr. Dooley.

"Thin it must be an awful bad sthate ter be in," finished Hennessy, sententiously.

Very throoly yours, J. W. C.

—*Boston Medical and Surgical Journal.*

CONTRIBUTION TO THE USE OF HEART TONICS.

Dr. G. S. Haynes, of the Pharmacological Institute of the University of Cambridge, writes that the galenical preparations of digitalis and strophanthus vary considerably in their action, and continuously undergo changes. It must, therefore, be regarded as a decided advantage that such uniform chemical bodies as digi-

toxin and strophanthin have been placed upon the market. Even minute doses of strophanthin (0.00001 gm.) will show a pronounced action upon the isolated rabbit heart transfused with Ringer-Locke's solution. After intravenous injection, strophanthin will act almost immediately.

Most heart tonics give rise to a peripheral contraction of the vessels, which must be kept in mind in case of arterial disease and rise of blood pressure.

Where digitalis is indicated, but a dilatation of the vessels is desired (as in dilatation of the heart), the drug is preferably combined with purin derivatives (caffeine, theobromine, theophyllin). The most satisfactory member of this group is diuretin (theobromine-sodium and sodium salicylate). It strengthens the apex beat, similar to caffeine.

The coronary vessels will dilate considerably if the isolated rabbit heart be transfused with Ringer-Locke's solution containing diuretin.

By combining a heart tonic with a vaso-dilator, such as diuretin, the heart-beat will become slower and stronger, and the blood will pass more freely through the arteries.

The action of heart tonics upon the vagus is in part overcome by the vasomotor action of diuretin. Diuretin at the same time acts as a heart stimulant. Since it renders the pulse stronger and at the same time dilates the coronary vessels, it is indicated in combination with digitalis, since the greatest disadvantage of the latter drug in the treatment of heart disease is the vaso-constriction which it induces.

Besides dilating the coronary vessels, diuretin will also widen the peripheral arteries, but the blood-pressure will not fall below normal since the heart is more active. The large amount of urine passed after giving diuretin is always secondary to the larger amounts of blood which the kidneys receive. A primary, specific action of diuretin upon the renal epithelium has never been discovered.

The combination of digitalis with diuretin is particularly promising in cases of cardiac hydrops, heart weakness, and in affection of the coronary vessels.

A cumulative action is seen particularly with digitalis and scilla, less so with strophanthus. A cumulative action is hardly to be feared after the intravenous use of strophanthin.—*Folia Therapeutica.*

In Insomnia Due to Habit, and without pain, the administration for a few nights a half-hour before retiring of veronal and trional, of each 5 to 7½ grains, will generally restore sleep balance and break the habit of sleeplessness.—*South. Med. and Surgery.*

USES OF CREOLIN-PEARSON IN CAMPING OUT OR "ROUGHING IT."

"DURING the months of June to September, inclusive, I carried out a series of investigations, at a colony of tents and bungalows at Rockaway Beach, L. I., and used a very large quantity of creolin-Pearson (saponified coal-tar creosote). I wished to test its reported effectiveness as a deodorant and disinfectant, as well as antiseptic, and at the summer encampment many opportunities were presented for its use as an antiseptic in dressing cuts, etc., and in taking prophylactic measures, and in keeping the tents in which my family and friends lived sanitary. I was rather sceptical as to the results to be obtained, but I was soon convinced that creolin-Pearson effectively fulfilled the purposes for which I used it.

"The sanitary condition of summer camps depends entirely upon the precautions taken to prevent disease. It is not sufficient to sweep and dust; one must scrub and disinfect besides.

"I made up my mind that I would take it upon myself to keep things at the camp as they should be, and, accordingly, I obtained quite a quantity of creolin-Pearson and distributed it among the campers, with suggestions for use. I directed that all utensils used should be scrubbed with a solution of creolin-Pearson, one teaspoonful to the quart, and then washed with boiling water; that all commodes, cuspidors, etc., should contain a solution of creolin-Pearson, one dessertspoonful to enough water to cover bottom, and allowed to remain so for the day, and then renewed. The floor was scrubbed or mopped by a solution of creolin-Pearson, one tablespoonful to the quart, and the carpets or rugs were swept with a broom dampened with the same strength solution. The garbage and waste, placed in receptacles designated for the purpose, were well sprinkled with a 25 per cent. solution. It was gratifying to note that, with these directions followed, everything was clean and sweet, and there was not one word of complaint.

"The tents we occupied were on the seashore, and whenever one came from bathing, a solution of creolin (one tablespoonful to the quart) was used to bathe the feet—thus to prevent contamination from the debris on the shore.

"Many times I was called upon to dress incised wounds of the feet and hands, and I always used creolin-Pearson as the one antiseptic, and in every case but one the result was gratifying—the one exception being due to uncleanliness and disobedience to instructions.

"In conclusion, I wish to state briefly and most emphatically my faith in the judicious use of creolin-Pearson and to recommend particularly that all who contemplate camping out or "roughing it" in the vacation period, include in their equipment a liberal supply of creolin-Pearson.—Edgar C. Joyce, M.D., of Brooklyn, N.Y.

FIBROLYSIN IN THE TREATMENT OF SCARS AND CONTRACTIONS.

BECKER (*Deutch. Med. Woch.*) recommends fibrolysin, and praises very highly its action in Dupuytren's contraction and in the after-treatment of injuries. Stiff joints only respond partially to the treatment, and if inflammatory conditions are present, complete mobilization of the joint must not be expected.

Mendel (Berliner Klinik) discusses at some length the theoretical and practical aspect of this preparation. In therapeutic doses he finds it non-toxic. After intra-venous injection the substance is split up into its constituent parts and a garlic-like odor is noted in the expired air. Intra-muscular injection is preferred to subcutaneous injection, and at times even to intra-venous injection. It is painless, active and easy to carry out. After discussing the selective action on scar tissue which has been determined by microscopical examination, he turns to the method of application and dosage. Scrupulous aseptic precautions must accompany the intra-venous administration. It should be proven that the needle has entered the vein by a column of blood following the withdrawal of the piston. For adults, 0.2 of thiosinamine—that is 2.3 cc. of fibrolysin—is injected at a dose. Children one-half this dose. The injection should be repeated every two or three days, according to the severity of the case. Headache, sleepiness, and malaise are met with in cases of individual susceptibility. He has found results satisfactory where active dilatation can be applied. It would thus be useless in pyloric stenosis, unless the muscular wall is still in a good condition.

Lang (*Deutch. Med. Woch.*) has obtained good results in urethral stricture. He was able to follow two cases closely, one a traumatic stricture of fifty-three years' standing, was softened and dilated by this means, and in both cases no tendency to recontract has been observed. The cure has lasted in one case fourteen and in the other seventeen weeks.

Thiosinamine was introduced by Hebra in 1892 for the treatment of lupus. Chemically, it is ally-sulpho-urea. It was found to have a peculiar action on scar tissue, causing it to swell, stretch and become soft. Thiosinamine was objected to because inactive when taken internally, but little soluble in water, and very painful when injected in alcoholic solutions. Fibrolysin, a chemical composition of thiosinamine and sodium salicylate, was introduced recently. It is freely soluble in hot or cold water, but the solution undergoes oxidation when exposed to the air or light. It is put up in sealed vials, in which the solution seems to be indefinitely stable. Each vial contains 2.3 cc. of solution, corresponding to 0.2 gm. of thiosinamine.—*Mobile Med. and Surg. Jour.*, Oct., 1908

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Editorials.

LITHEMIA OR NEURASTHENIA ?

IN giving the satisfactory outcome of forty cases of neurasthenia, treated with urotropine, Dr. Langheld, (*The Therapist*, October 15, '08), claims that neurasthenia is a gouty neurosis. If we accept this view of the etiology of neurasthenia, Dr. Langheld's treatment of

the disease is reasonable, for urotropine is said to increase the secretion of urine and the excretion of uric acid.

It is possible, however, to interpret Dr. Langheld's cases differently; to consider them as cases of lithemia rather than neurasthenia.

Case 1.—Mr. C. F., fifty-four years of age. Subjectively—Reduced energy, insomnia, dreams, depression, appetite small, constipation. After leaving train, feeling of dizziness. Twinkling of the eyes. When turning the head, he noticed a cracking noise in the neck. Absolute loss of sexual feeling. Objectively—Tachycardia, nicotinism, hyperhidrosis, reflex of the sinews increased. Urine, dark yellow, cloudy, strongly acid; uric acid, 0.058 per cent. Kidney and bladder epithelia, uric acid and oxalic acid crystals.

Case 2.—Mr. G. H., thirty-four years of age. Subjectively, tinnitus, twinkling of the eyes, great sensitiveness of the whole head. Suffered from vomiting when travelling in train. Pain in the back, anesthetic feeling in hands and feet; constant fear of commercial failure. Insomnia. Objectively—Reflexes normal, slight salivation; non-smoker and teetotaller; signs of passed rachitis, especially at teeth. Patient had a somewhat suspicious expression in his face and told his sufferings like a man who read aloud an announcement of death. Urine cloudy, heavy sediment (reddish brown), strongly acid. Uric acid, 0.068 per cent. Many uric acid crystals in all forms, also oxalic acid crystals; kidney epithelia and cylindroids; indican increased.

Case 3.—Mr. A. C., forty-eight years of age. Subjectively—Since about six years had noticed that he could not continue his old style of living. The after-effect of drinking in the evening was severe. One day attack of dizziness, with very short but total unconsciousness. Patient, though well-to-do, feared failure, and suffered from melancholia. He sat for hours quite indolent, and caused his family much anxiety. His greatest fear was sudden death through apoplexy. Objectively—Tall, well-built man, with slight acne on face. Heart on the right side enlarged; liver and spleen normal. Constipation. Patellar reflex increased, Achilles' reflex lacking; joints crack at every movement. Some knots on the fingers. On the right big toe, exostosis. Urine dark yellow, very acid; became first cloudy, then slimy; thick, red, granular sediment. Uric acid, 0.09 per cent. Surface covered with uric and

oxalic acid crystals in all variations, mixed with cylinders, cylindroids, epithelia and lixiviated erythrocytes.

Of these cases, the two first might be classed under lithemia, the third as lithemia with a marked tendency to gout. If lithemia is sufficient to explain the psychic and physical array of signs and symptoms present in these cases, why ascribe them to neurasthenia? Osler associates neurasthenia and lithemia, saying: "In all forms of neurasthenia, the condition of the urine is important. Many cases are complicated with the symptoms of the condition known as lithemia, and so marked may this be, that some have, indeed, made a special form of lithemic neurasthenia." Savill (Lectures on Neurasthenia) differentiates lithemia from neurasthenia. He says: "Take lithemia, for instance, one of the commonest of toxic blood states. Many of the symptoms of neurasthenia have so strong a resemblance to those of lithemia that there is sometimes considerable difficulty in the diagnosis between the two conditions." Reference is here made, no doubt, to nervous irritability of temper, which is a striking symptom of lithemia, while dizziness and headaches are also among its most annoying symptoms. Depression of spirits is inveterate and unpleasant in lithemia, the patient imagining he is the subject of every known disease, and frequently thinking of suicide.

Beard says (Practical Treatise on Neurasthenia) that one of the most marked differences between neurasthenia from fatigue and lithemia from auto-intoxication is the mental confusion of the latter, and he holds that confusion of thought is almost universally the result of auto-intoxication and peculiar to it. Another marked difference between lithemia and neurasthenia is irritability of disposition and outbursts of bad temper in lithemia; in non-toxic neurasthenia, irritability is not so great, although depression and a deep sense of misery are noted.

A patient who is mentally depressed and confused, sleepless, constipated, who has noises in the ears and passes considerable quantities of uric acid, is lithemic. The cause of his varied symptoms is the use of unsuitable food and drink, associated with indolent habits of life. The employment of a treatment which common sense and observation would suggest, and the result of it will justify the diagnosis of lithemia. If the patient will give up, or considerably reduce, his meat ration, totally renounce alcoholic

stimulants, walk five miles a day, or do its equivalent of work or play, the action of his bowels will become free and regular, his melancholy and ill-temper will disappear, and his neurasthenia will fly away like "the baseless fabric of a dream."

Not so in pure neurasthenia. Beard says it is caused by worry and work and nervous strain. The remedies suggested for its relief are as numerous as the symptoms which it presents, and their enumeration alone would fill a page. No single medicine is able to *cure* neurasthenia; few remedies are required in lithemia.

J. J. C.

THE DISCIPLINE COMMITTEE SHOULD ACT ON INFORMATION.

THE following circular letter was issued (Oct. 27, '08) to County Attorneys throughout Ontario by Mr. Charles Rose, official prosecutor of the Ontario College of Physicians and Surgeons:

"*Dear Sir,*—The Council of the College of Physicians and Surgeons are anxious that any infractions of the law which would render any of their registered members liable to criminal prosecution, or which would in any way reflect upon their professional character, should come to their knowledge, so they have instructed the undersigned to communicate with you, in order that you may be placed in a position to advise them of any matters which may come to your knowledge, and which should, in your opinion, be attended to by the Discipline Committee of the Council.

"The Council of the College feel assured that infractions of the law and unprofessional conduct are the exception and not the rule; but they are anxious that the members of the College, and of the medical profession, should live up to the highest ideals of the profession, and with that end in view they are taking this course."

The opinion expressed in the concluding paragraph of this letter is true enough; few physicians in Ontario do break the criminal law, or are guilty of unprofessional conduct. All the more, it is expedient that, when the Discipline Committee of the Council do get a culprit before them, they should advise the Council of the College of Physicians and Surgeons to inhibit his professional movements, thus placing the honor and dignity of the physicians of Ontario on an unassailable basis.

J. J. C.

MATRICULATION REQUIRED BY THE COLLEGE OF PHYSICIANS AND SURGEONS OF ONTARIO.

English Composition, English Literature, English Grammar.
British and Canadian History, Ancient History.
Algebra, Geometry, Arithmetic, Mensuration.
Physics, Chemistry, Latin Authors, etc.
Latin Composition.
With either of the following as optional subjects:
French Authors, etc., French Composition.
German Authors, etc., German Composition.
Greek Authors, etc., Greek Composition.

The College of Physicians and Surgeons require fifty per cent. on each group and fifty per cent. on the whole.

According to the last published announcement of the College (1908), it was stated that forty per cent. was required on each group; this has now been changed to fifty per cent. on each group. The junior matriculation examination has, therefore, been made more difficult. No change has been made in the senior matriculation standard, which is the senior matriculation examination in the Faculty of Arts of the University of Toronto.

J. J. C.

THE PRESENT STATE OF IMPERIAL AND INTER-PROVINCIAL MEDICAL REGISTRATION IN ONTARIO.

We do not think it necessary to premise by an explanation of what is meant by the terms Imperial and Interprovincial Medical Registration, taking it for granted that our readers are quite conversant with their meaning. It will be interesting and instructive, however, to briefly glance over the status of these questions at the beginning of the present year. The College of Physicians and Surgeons of Ontario, judging from a discussion on the report of the Committee of Education, submitted at the last meeting, is opposed to medical registration between the United Kingdom and Ontario.

Besides, if Ontario were to adopt imperial medical registration, graduates from Quebec could, after practising for five years in some part of the United Kingdom, offer themselves for registration

in Ontario, without examination. A similar objection would, also, apply to the registration of graduates from Nova Scotia, and might, later on, be made to apply to graduates from New Brunswick and Prince Edward Island, should either of these Eastern Provinces adopt imperial medical registration.

Ontario and Manitoba may, in the near future, adopt interprovincial medical registration between themselves; Saskatchewan, Alberta and British Columbia are not asking for interprovincial registration with Ontario. The last-mentioned Western Provinces have no medical colleges of their own, and oblige graduates from Ontario, any other Province of Canada, or any other country, to pass a medical examination and pay the sum of one hundred dollars, in order to obtain the license to practise.

As matters stand, imperial medical registration with Ontario may be regarded as a dead issue; interprovincial medical registration a privilege, which may be exchanged between Ontario and Manitoba. For the benefit of the medical colleges of Ontario, it is to be hoped that arrangements will be made to establish interprovincial registration between Ontario and all the Western Provinces of Canada.

In future, Ontario graduates in medicine might be allowed to spend the fifth year of their apprenticeship in the office of a practitioner in a Western Province. There is a business aspect to this suggestion, which merits some consideration. A practitioner in a Western Province might object to act as a preceptor to a graduate, who, after securing the license, might start practice, in opposition to himself. A similar objection would, however, apply, if an Ontario practitioner were asked to play the part of incubator to the medical chick. No rule for settling such cases exists, and each case would have to be considered separately. Our suggestion is thrown out as a means of smoothing the road of the medical graduate from Ontario, who may be willing to place himself at the service of a Western physician, for one year, in order to acquire a practical acquaintance with the requirements of medical practice in Western Canada. The whole subject should be fully discussed at the next meetings of the Ontario Medical Association and the Canadian Medical Association. If deemed advisable, committees of these bodies might be appointed to confer with the College of Physicians and Surgeons of Ontario, or other Provincial medical

colleges, so as to reach a basis of action for the solution of the question of interprovincial medical registration in Canada.

J. J. C.

EDITORIAL NOTES.

Bad Ventilation Causes Broncho-Pneumonia.—All influences depressing to life, such as overwork, fatigue, the air of badly ventilated and crowded houses, insufficient food, and defects of hygiene, predispose to broncho-pneumonia. Bad or imperfect ventilation is, therefore, to be studiously corrected, for broncho-pneumonia is a common, serious, and fatal disease, causing more deaths among children under five years of age than any other disease except infantile diarrhea. In old people, it occurs during influenza, erysipelas, typhoid fever, Bright's disease and organic disease of the heart. The inhalation variety of the disease occurs in comatose states, and there are other forms of it, such as miners' broncho-pneumonia, steel-grinders' broncho-pneumonia, tubercular broncho-pneumonia. In the young, it is sometimes idiopathic; but it is frequently a complication of infectious diseases, such as measles, diphtheria, scarlet fever, whooping-cough, and smallpox. One wonders if an infectious disease may be directly causative of broncho-pneumonia, or if the complication may be brought about by a draughty sick-room, insufficient covering of the patient at night, or some other effective means of chilling the surface of the patient's body. In the Bulletin of the Chicago School of Sanitary Instruction, a notable increase of pneumonia in Chicago (November, 1908) is credited to foul air caused by closed windows; to prevent the danger, people are advised to open windows, and keep them open day and night all the year. The advice is sound, but requires some qualification. An open window is beneficial to the health of the occupants of a room; but to sit at an open window may prove dangerous to children convalescing from measles, diphtheria or whooping-cough. To expose such patients, with uncovered heads, at open doors and windows, or to let them play in draughty corridors, may prove the starting-point of broncho-pneumonia.

Ice Cream in Canada.—Bulletin No. 162 (Laboratory of the Inland Revenue Department, Ottawa) contains some interesting

data on ice-cream in Canada. All the inspectoral districts were represented, and the samples were collected in July and August, 1908. Of the 145 samples obtained, eighty were in good enough condition to permit of the determination of the fat. Forty samples contained above 14 per cent. of fat, and forty contained less than that amount. Of these, twelve samples contained less than 10 per cent. In Canada there is no standard for ice-cream. The United States standard requires 14 per cent. of fat. Fruit ice-cream and nut ice-cream are required to contain a minimum of 12 per cent. of fat. Ordinary ice-cream is flavored either by natural or artificial extracts of various fruits, vanilla, etc. The addition of these extracts to cream, together with the sugar, reduces the percentage of fat. Coal tar dyes were discovered in two samples from the Toronto district. "Gelatine and gelatinized starch are used as stiffeners, thus enabling the manufacturer to use a poor cream, and yet produce an ice-cream of apparently good quality."

Diphtheritic Genital Infection, Simulating Puerperal Fever. —In the section on Obstetrics and Diseases of Women, of the American Medical Association, at the fifty-ninth annual session, held at Chicago, June, 1908, Dr. Cuthbertson, attending gynecologist, St. Luke's Hospital, Chicago, reported a case of primary diphtheritic genital infection, simulating puerperal fever. Before coming under his care, the patient had received a good deal of instrumental treatment. She was edematous, and had nephritis; the forceps had been fruitlessly applied; craniotomy had to be performed. However, four days after delivery the patient felt much improved. Nine days after delivery there was a slight chill, followed by emesis. Two days later, a slight membrane was visible in the vagina. Four days after the first chill cultures were made from the patient's vagina on Löeffler's medium. In twenty-four hours colonies of diphtheria had appeared. Antitoxin was given on four occasions (10,000 units), the patient's temperature falling to normal on the eleventh day after the administration of antitoxin had been begun. A vaginal examination made under anesthesia on the sixth day after the beginning of the attack, revealed " a dull-grey membrane, with slightly elevated margins, just inside the introitus. It extends upwards towards the cervix. The membrane is in the form of scattered patches, the largest of which lies to the right of the anterior column; the mucous membrane at the margins

of each patch has an angry appearance; at one point near the vulva is an irregular gangrenous area. There is a dense membranous patch, one centimeter (2/5 in.) in diameter, on the anterior vaginal wall. When this is removed, there is some oozing of blood from the denuded surface. Around the cervix is a dense membrane, and here, at the site of a recent cervical laceration, is also found a markedly gangrenous area." Two days later, eight days from the beginning of the attack, three days after the first administration of antitoxin, the condition of the vagina was much improved. The membrane was fast disappearing, and the marginal mucous membrane had lost its angry appearance. The diphtheria bacilli had disappeared from the vagina thirteen days after the beginning of the attack and eight days after the first administration of antitoxin. Cultures of the Klebs-Löeffler bacilli from the patient proved fatal to a guinea-pig, and pure cultures of the germ were then made from the animal, showing the nature of the infection. No explanation is offered as to the source from which the primary infection of the genitalia of a puerperal woman was derived. Apparently healthy subjects, who have been exposed to infection, not forgetting doctors and nurses, may have diphtheria bacilli in the throat and nose for some time, which can only be detected by systematic bacteriological examination. The isolation of such persons is desirable, until the organisms have entirely disappeared.

A Chronic Typhoid Bacillus Carrier.—In a thesis published at Lyons, France, 1904, Dr. Mahaut announced that he had found Eberth's bacillus in the urine of typhoid patients during convalescence, as well as the febrile period of the disease, in 38.5 per cent. of the cases. This bacilluria is explained by the presence of the Eberth bacillus in the blood of the general circulation, and the ease with which this bacillus vegetates in the bladder of the patient. Other observers have noticed the presence of this Eberth bacillus in the urine for years after an attack of typhoid fever (Gwyn, Studies, III.; Practice of Medicine, Osler). The Chicago Department of Health reported (October 31, '08) that an individual in Chicago, who had not had typhoid for years, continued to void Eberth bacilli in the urine and feces. The blood also gave a slight Widal reaction. The discovery of this bacillus-carrier arose through an endeavor to ascertain the source of a case of

typhoid brought to the notice of the Chicago Health Department. The patient, who was four years old, had consumed nothing but boiled milk and distilled water, had not eaten raw vegetables or other food that would be likely to be contaminated with Eberth bacilli. The exact route by which the virulent bacilli were communicated from the bacillus-carrier to the child is not mentioned in the Chicago report, and can only be conjectured. It is said that carelessness in the disposition of the alvine discharges, as the result of which they are allowed to dry on linen, whence the bacilli pass into the air of the room, does sometimes occasion the infection of nurses, physicians and others brought into contact with typhoid cases. House flies might have deposited samples of the bacillus-carrier's urine in the child's milk.

Dental Decay in Children.—If, owing to constitutional vice, the teeth of children are defective; if pits, fissures, irregularities are present, a dentist should be promptly consulted. Besides, however, an enumeration might be made of some defects in the teeth of children which produce dental decay, or intensify existing decay of the teeth. Nowadays, foodstuffs are so prepared, that the teeth are not cleansed when eating them, and food particles lodge on and about the teeth. The cellulose of foods is cooked, softened, or extracted from the food given to children, and its detergent effects on their teeth are completely lost. When cooked or boiled, starch becomes pasty and is quickly changed in the mouth into sugar, which is rapidly fermentable. Sugar forms a gummy substance, clinging to the teeth and tending to entangle other substances. It also hampers the action of the saliva, which does not act on sugar, and has itself an irritating action on mucous membranes. Ice-cream is much used by children, particularly in summer. Pure ice-cream consists of frozen cream, sugar and flavoring extract, and has a considerable nutritive value. The objection to its use as a food by the young is its low temperature. Savill says, in Lectures on Neurasthenia, "Nothing can be more damaging to the teeth of children than the application of ice-cold fluids. It causes the enamel and even the dentine to split, and thus numerous microbes find access to the interior and decay speedily ensues. From these conclusions, one might say that a diet which calls for energetic jaw-action is useful in preventing dental decay in children. Energetic mastication cleans the teeth from mucous products and food

particles, prevents the lodgement of fermentable carbohydrates and acid-forming micro-organisms, and preserves the teeth in a vigorous state, by determining towards them a free circulation of arterial blood. Articles of food which require vigorous mastication, such as toast, biscuits of all kinds, rusks, bacon, fresh fruit, etc., should be added to the diet of young children.

J. J. C.

PERSONALS.

DR. CHARLES M. STEWART, 142 Carlton Street, Toronto, late Senior Resident Surgeon, the Throat Hospital, Golden Square, London, will confine his practice entirely to diseases of the Ear, Nose and Throat.

DR. C. D. PARFITT, who was for six years physician-in-charge of the Muskoka Free Hospital for Consumptives at Gravenhurst, Ont., and has been for the last seven months resident consultant to that institution and the Muskoka Cottage Sanatorium, has resigned his position. Dr. Parfitt will remain in Gravenhurst and continue practice in pulmonary and laryngeal tuberculosis.

News of the Month.

A DOUBLE JUBILEE IN THE HOUSE OF MERCK.

SEPTEMBER 1 was a red-letter day in the annals of the House of E. Merck, Darmstadt, for on that day two of the four principals of the firm, Dr. Louis Merck, Honorary Doctor of Medicine and Engineering, Life Member of the Hessian First Chamber, and his cousin, Dr. E. A. Merck, owner of the historic pharmacy, celebrated the 25th anniversary of their entry into the business.

Jubilees of long service are by no means rare occurrences at E. Merck's, and there are several employes still in harness who have even witnessed the 40th return of the day they entered the firm.

The principals themselves wished to celebrate it quietly, but such an event in one of Germany's leading chemical establishments was not allowed to pass unnoticed by the outer world, and it shows the admirable spirit existing between principals and employes that the whole of the official staff and workmen enthusiastically joined together to mark this occasion as it deserved.

All work was suspended for the day, and the whole of the staff and workers, male and female, met at 11 a.m. in one of the buildings, which had been specially cleared for this purpose. The building was most tastefully decorated with evergreens, flowers and flags. The senior members of the staff, in a few words, retraced the course of the tremendous strides made by the firm in the past 25 years, which had also witnessed the erection of the present new works and the foundation of an independent house in the United States. The presentation from the staff took the form of an album of photographs of its members. Then followed an illuminated address from the workmen, presented by one who has seen 40 years' service in the firm, as well as a flower arrangement.

The Grand Ducal Government was represented by the Minister of the Interior, who, in the name of the Grand Duke of Hesse, handed the insignia of the Cross of Honor of a high order to Dr. E. A. Merck. Congratulations followed from the representatives of the firm, many of whom were present from all parts of the world, succeeded by speeches from the Lord Mayor of Darmstadt, representatives of the technical industry, the medical and pharmaceutical professions, the Technical High School and the Chamber of Commerce, several illuminated addresses being presented.

Needless to add, the telegraph boys were busy bringing in countless congratulatory messages from friends all over the world.

After these proceedings had ended, the whole company adjourned to a large marquee erected on an open space in the factory, where, to the strains of a military band, interspersed by choruses by the factory's Singing Club, a cold collation was served.

In the evening all the principals accepted the invitation of the staff to that truly German institution, a "kommers." Besides the usual student songs, a theatrical performance was given by members of the staff. Various solos and musical productions by the employes contributed to make the evening an entire success, and to justify the words spoken by a director of a rival firm, present as a guest, that the perfect bond of union existing between principals and employes of Merck's would be hard to beat, and embodied the realization of the ideal conditions which all should strive to attain in such relationships.

MEDICAL APPOINTMENTS TO MUSKOKA SANATORIA.

At the meeting of the Board of Trustees of the National Sanitarium Association, held at the Head Office, 347 King Street West, on Monday afternoon, two important appointments were made in connection with the Muskoka Cottage Sanatorium and Muskoka Free Hospital for Consumptives.

Hon. W. A. Charlton occupied the chair, and among others present were W. J. Gage, J. J. Crabbe, T. H. Bull, Ambrose Kent, Thomas Long, Dr. W. P. Caven and Dr. N. A. Powell. The resignation of Dr. C. D. Parfitt as Resident Consultant was accepted. Dr. Alfred H. Caulfield, of the Toronto General Hospital, was appointed Resident Pathologist, and Dr. W. S. Lemon was added to the Resident Staff of the Muskoka institutions. Dr. W. B. Kendall continues in his position as Medical Superintendent of the two institutions. These appointments very greatly strengthen the medical position of the sanatoria, the two new appointees holding prominent positions in the profession.

Dr. Alfred H. Caulfield graduated in medicine in 1904. After graduating he became Assistant Bacteriologist to the Provincial Board of Health, and Demonstrator of Bacteriology in the University of Toronto. Later, he accepted the position of Interne in Pathology at the Toronto General Hospital, and was subsequently made the First Resident Pathologist of that institution. Spending a year abroad, he entered the laboratory as an assistant to Sir A. E. Wright, London, England. This was followed by a period in the laboratories of Dresden and Berlin.

Dr. Caulfield, not only from his excellent work done in the laboratories of the Toronto General Hospital, but through papers published, has gained a reputation not only in Canada, but beyond, and is recognized to-day as one of the foremost pathologists in Canada or the United States.

Dr. W. S. Lemon took first scholarship on entering his medical course in Toronto, and finally carried off the Gold Medal, Brown's Scholarship and Clark's Scholarship. After graduating, he took up a course in research work in the University, and was also for a time Resident Physician in the Toronto General Hospital, and has spent some time in general practice in Toronto.

CANADIAN MEDICAL ASSOCIATION MEETING AT WINNIPEG, AUGUST 23, 24, 25, 1909.

Dr. Blanchard, President, has appointed the following Committees. The first two names are the Chairman and Secretary, respectively.

Committee on Transportation—Drs. Blanchard (Chairman), Vrooman (Secretary), Charles Mackenzie, Moorhead, Rogers and Leney.

Ophthalmology and Otology—Drs. Prouse, Turnbull, Smith, Good, Raymond, Brown and Williams.

Entertainment—Drs. Rogers, Field, Devine, Milroy, Young and Fletcher.

Finance—Drs. Patterson, Simpson, Pope, Brandson, Popham, Moody, and Douglas.

Pathology—Drs. Bell, Pierce, Vrooman, Webster and Leeming.

Credentials—Drs. S. Campbell, Kenny and Mitchell.

Exhibit and Accommodation Committee—Drs. Munroe, Coulter, Davidson, W. G. Campbell, A. M. Campbell, Hiebert, Dubue and Burridge.

Medicine—Drs. J. R. Jones, Hunter, MacDonnell, Rorke, Bjornson, E. W. Montgomery, Chestnut, McCalman.

Executive—Drs. Chown, Smith, Blanchard, Milroy, Devine, McLean, J. R. Jones, Halpenny, Vincent and Hughes.

Surgery—Drs. Nichols, McLean, Blanchard, Todd, Lehmann, Galloway, D. S. Mackay and J. McKenty.

Advertising and Publication—Drs. Hugh Mackay, Hughes, D. Stewart and D. Macdonald.

Those desiring accommodation during the above meeting should apply without delay, as the Conference of the British Society takes place on the same dates.

SPECIAL INSURANCE FOR PHYSICIANS.

THE attention of our readers is called to page xiii of this issue of *The Canadian Journal of Medicine and Surgery,* where they will see an important announcement as made by The General Accident Assurance Co. of Canada. This company are issuing this month a new policy, entitled The Utopia Policy for Physicians. After looking over a specimen policy, it seems to us that this is about the most liberal insurance policy to be procured in this country. Medical practitioners are exposed daily to both accident and disease, and it is a very important matter that they should be properly protected from such for both personal and family reasons. The chief features of the Utopia Policy include the payment of double indemnity for septicemia and private vehicle accident; beneficiary insurance, 10% accumulation for five years to principal amounts and weekly indemnity; hospital expenses or surgeon's fees for operations on the insured or the beneficiary; the payment of surgeons' fees for non-disabling injuries, and liberal fixed indemnity for fractures, dislocations, etc. All that a policy, including all the chief features, costs is but $2.00 per thousand more than an ordinary policy, so that physicians will at once see that such insurance as they can now receive from the General Accident Assurance Company is worth looking after. We think that it will pay any of our readers who have not already secured insurance to call at the Continental Life Building, corner Bay and Richmond Streets, Toronto, and talk the matter over with one of the managers.

THE NEW EMERGENCY HOSPITAL.

AT a recent meeting of the Board of Trustees of the Toronto General Hospital, Dr. N. A. Powell, Professor of Medical Jurisprudence and Associate Professor of Clinical Surgery, was appointed Senior Assistant Surgeon in connection with the Emergency Department of the new General Hospital. A completely equipped modern building for the care of accident cases and an auto-ambulance service are features of the scheme which he has been called upon to work out.

The Physician's Library.

BOOK REVIEWS.

The Medical Record Visiting List or Physicians' Diary for 1909. New revised edition. New York: William Wood & Co., Medical Publishers.

The Medical Record Visiting List for 1909 has reached us. For some years this list has been looked upon by physicians as one of the most useful published. There are a considerable number of improvements in this year's volume, it having "been revised so as to increase the amount of matter calculated to be useful in emergencies and eliminate such as might better be referred to in the physician's library." Perhaps the most important change is in the list of remedies and their maximum doses, apothecaries' and decimal systems, and the indication of such as are official in the United States. Among the contents we notice a table of equivalents of temperature, weight, capacity, measure, etc.; a table of maximum adult doses by the mouth in apothecaries' and decimal measures; solutions for subcutaneous injection; solutions in water for atomization and inhalation; the treatment of poisoning and other emergencies; artificial respiration, signs of death, etc., etc.

The Medical Record Visiting List will be found exceedingly useful to practitioners who desire to carry round with them a record of their daily work.

Proceedings of the Royal Society of Medicine. Vol II., No. 1. November, 1908. London, New York, Calcutta, Bombay: Longmans, Green & Co., 39 Paternoster Row. All rights reserved. Price, 7s. 6d. net.

We have just received the November issue of The Proceedings of the Royal Society of Medicine.

As a rule, after a volume has been published for a year or so, its readers somewhat lose interest. After looking carefully over Vol. II., No. 1, we can state that such is not likely to be the case with The Proceedings of the Royal Society of Medicine. The November issue is full of material that is highly scientific. Among its contributors we find such names as Drs. F. W. Higgs, J. Porter Parkinson, Chas. W. Chapman, J. Walter Carr, F. J. Poynton, Edmund Cautley, Duncan C. L. FitzWilliams, F.R.C.S., Geo. Car-

penter, W. Sampson Handley, Owen H. Peters, Gordon Holmes, Sir Malcolm Morris, K.C.V.O., F.R.C.S., Herbert Tilley, F.R.C.S., and Paul L. Giuseppi, F.R.C.S.

As already stated by us in our columns on a previous occasion, the volume issued by the Royal Society of Medicine undoubtedly is the cream of medical literature. W. A. Y.

Subcutaneous Hydrocarbon Protheses. By F. Strange Kolle, M.D., author of "The Recent Röentgen Discovery," etc. New York: The Grafton Press, Publishers.

This is a short and practical work on the subcutaneous employment of paraffine and other hydrocarbons for the correction of defects and some other deformities about the face, neck and shoulders.

This method of cosmetic surgery was introduced about eight years ago. The results have not always been satisfactory, but the failures in most cases have been due to defective or improper technic. The methods used at present are carefully described by the author, together with the results of his own practical experience in several thousand operations.

The difficulties connected with the work are described and explained, and methods for avoiding and overcoming these difficulties are given in detail. The practical technic, in all its minor details, is made plain, and by following these good results in cosmetic surgery should be obtained without great difficulty. A. E.

Vaccine Therapy and the Opsonic Method of Treatment. By R. W. Allen, M.D., B.S. (Lond.). Second edition. Pages xii—244 Demy 8vo. Price, 7s 6d. net. London: H. K. Lewis, Publisher, 136 Gower St., W.C. 1908.

That a second edition of this handbook is required within a year speaks well for the reception accorded it by the profession. Much has been re-written and much added. The technique of the determination of the index and of the preparation of the various vaccines in use is described in detail; for this part we think a few explanatory illustrations would add to the value of the work. Nearly one-quarter of the book is devoted to infections by the tubercle bacillus, and in those Portenger's recent book on pulmonary tuberculosis is freely referred to. In the directions for the cutaneous reaction, it would be better to follow von Pirquet's method of making the control abrasion, or rather stab, before making the test stabs. Spryler's differentiation of bovine and human bacilli is given at length, and there is a good discussion of the question of what tuberculin should be used in a given case. The subject of auto-inoculations by graduated exercise is dismissed with a ref-

erence to the work of Paterson and Inman. The dosage of tuberculin when not controlled by opsonic index is given in detail. A. is using at present mixed bovine and human T.R.'s for all cases Where toxemia is an important factor he adds small doses of Deny's tuberculin.

Infections with staphylococcus, streptococcus, pneumococcus, gonococcus, are given six to ten pages each, rather less than the first two deserve in comparison with the prominence given to the tubercle bacillus. A number of other infections are dealt with, and there is a chapter on vaccines in diseases of the eye.

We recommend the work to those not familiar with the possibilities of vaccine therapy, though we feel that with index estimation so impossible to the vast majority of cases seen in practice the work would be of even greater service to the general practitioner if the method of administration without the index were given more prominence. J. H. E.

An Alabama Student, and other Biographical Essays. By WILLIAM OSLER, M.D., F.R.S., Regius Professor of Medicine, Oxford; Honorary Professor of Medicine, Johns Hopkins University, Baltimore. London: Henry Frowde. Toronto: Oxford University Press, Canadian Branch, 25 and 27 Richmond Street West. 1908.

We have read with more than usual interest Dr. Osler's most recent work, "An Alabama Student."

The book is biographical, and gives the reader a most interesting account of some of the leading lights in medicine who lived in the earlier centuries. Amongst the biographies appear those of Drs. John Basset, Thomas Dover, John Keats, Oliver Wendell Holmes, John Locke, Elisha Bartlett, Louis William Pepper, Alfred Stille, Sir Thomas Browne, and the renowned Harvey.

There is no doubt that a work such as "An Alabama Student" is not only thoroughly interesting, but also educational in character, and to any of our readers who have not secured a copy we heartily recommend them to purchase it without delay, as it will be the means of affording them from time to time an hour of the keenest interest.

Our only regret is that the biographies contained in the work very largely deal with the lives of physicians in the United States.

After reading this book we cannot but come to the conclusion that there was a very great deal in the sincerity of the lives of those great men of our profession, from which we can learn many lessons. Many of them could certainly be taken as models in the present day and generation, for, as the author states in his preface, "In no age and in no land have the Hippocratic ideals been more fully realized than in some of the lives herein portrayed." W. A. Y.

Green's Encyclopedia and Dictionary of Medicine and Surgery. Vol. IX., Rhinoliths-Thermotaxis. Edinburgh and London: William Green & Sons.

Volume IX. of Green's Encyclopedia covers practically everything from the word rhinoliths to thermotaxis. It is certainly a worthy follower to the volumes that have preceded it. It makes what is practically a complete dictionary from the letters Rhi-The. We recently had occasion to refer to a subject for information. We looked up two of the most recent medical dictionaries, and it was not until we referred to Volume IX. of Green's Encyclopedia and Dictionary of Medicine and Surgery that we secured the necessary information. Volume IX. has a large list of sub-authors. Among them we find such names as those of Drs. Norman Walker, Sir Patrick Masson, A. E. Garrod, T. R. Bradshaw, James Galloway, W. Leslie MacKenzie, Clement Dukes, J. R. Gilmour, J. M. H. MacLeod, Edmund Owen, J. Bland-Sutton, James Cantlie, Sir W. H. Allchin, Sir John Sibbald, G. L. Cheatle, E. Treacher Collins, Edwin Bramwell, J. W. Ballantyne and A. H. Tubby.

A chapter which interested us very keenly is that devoted to syphilis, its cause and the serum diagnosis of this disease. The longest chapter is that devoted to the stomach. This latter is divided into two sections—medical and surgical. The subject of the skin and its diseases is dealt with in six sub-divisions.

It would be a difficult matter to go into much detail regarding this work, as it is so comprehensive. It will suffice to say that Green's Encyclopedia is well worth owning, as it is not only a dictionary, but a work that almost replaces many volumes devoted to special subjects.

Principes Fondamentaux D'Obstétrique Vérifiés ou Établis à l'aide de l'expérimentation sur le mannequin naturel et de l'observation sur la parturiente. Introduction à l'étude clinique et à la pratique des accouchments, Anatomie, Présentations et Positions, Mécanisme, Toucher, Manœuvres Extraction du Siège, Version, Forceps, par LE PROFESSEUR L. H. FARABEUF et le DOCTEUR HENRI VARNIER. Préface du PROFESSEUR A. PINARD. Dessins démonstratifs de L. H. F. donnant, avec les répétitions nécessaires, 375 Figures dont pleusieurs nouvelles. Nouvelle édition Révue et augmentée. Paris: Georges Steinheil, Éditeur, 2 Rue Casimir Delavigne. Prix, 15 francs.

The Introduction to the Clinical Study and Practice of Obstetrics, by Farabeuf and Varnier, is a work which should be well known in English medical literature. We notice that cuts, showing four presentations of the vertex, four presentations of the face, four presentations of the breech, and four presentations of the shoulder, have been taken, with acknowledgments, from this work,

and appear, on a reduced scale, in the twenty-third edition of Dunglison's Medical Dictionary. The book is not a manual of obstetrics, nor a complete treatise of obstetrics; its specialty lies in the description and illustration of the anatomy and functions of the pelvic canal. On these studies is based a closely reasoned, and in many respects a novel, account of the mechanism of any kind of presentation occurring in natural or artificial labor. The management of breech presentations is taught in a detailed, complete manner. Version and the application of the forceps are described and illustrated with minute correctness and extraordinary fullness and completeness. A student of midwifery who cannot avail himself of the operative advantages of an obstetrical service, or an accoucheur, who wants to know what he should do, when called on to manage any kind of a presentation, should study these life-like cuts. They are not fancy pictures; but, as the learned Adolphe Pinard says, "are mathematically proportioned, anatomically exact, drawn with no pretence to effect, and they do not represent the nearly correct."

These cuts appear on almost every page, and are in themselves more than worth the small price of the book. We are going to have our copy, which is bound in paper, rebound substantially, for the book is well worth keeping. J. J. C.

Report on the Prevention of Malaria in Mauritius. By RONALD ROSS, D.P.H., F.R.C.S., D.Sc., LL.D., F.R.S., C.B., Nobel Laureate, Professor of Tropical Medicine, University of Liverpool, etc.; Major I.M.S. London: Waterlow & Sons, Limited, London Wall. 1908.

We have received from the Secretary of State for the Colonies a copy of Major Ronald Ross' report on malaria in Mauritius. This report was made at the instance of the Government of Mauritius and the Colonial Secretary. Rarely does one find a government report so readable and so full of valuable information written in such a pleasing manner. It is a most interesting account of the visit to the island and of the measures recommended as a result of the studies made while there. The first part gives a summary of our present knowledge of the epidermology of malaria, which is splendid. Conditions in Mauritius are then dealt with. We learn that Mauritius has a population of 384,676, total deaths 14,139, or 37.4 per 1,000 population; deaths from fever, 5,384, or 14 per 1,000, fever being responsible for about 31 per cent. of all deaths One-quarter of the admissions to hospitals were for malarial diseases. Out of 31,022 children examined, more than one-third had enlargement of the spleen, and it is inferred that at the beginning of the last malaria season 42.7 per cent. of all the children on the island were infected with malaria.

There is a valuable historical summary of the appearance of malaria on the island in 1866 and of the fatal epidemics following this. In 1867 the malaria death rate was 90 per thousand. In Port Louis, with a population of 87,000, there died in the month of April alone 6,224, and on one day 234.

The Government are apparently anxious to undertake the work of prevention of the disease along the lines laid down by Ross, and, though it is a much more extensive undertaking than that at Ismailia, Port Swettenham and elsewhere, there is every reason to expect that the results will be quite as satisfactory. The measures recommended by Ross may be thus summarized: (1) a periodical spleen census of children in schools and on estates; (2) treatment of those found with enlarged spleens; (3) a certain amount of quinine distribution; (4) house protection from mosquitoes; (5) mosquito reduction by various minor and major works of drainage of pools, keeping ponds and edges of streams clear of weeds, canalizing streams, draining marshes, etc.; (6) suitable organization and an annual report. J. H. E.

Gynecology and Abdominal Surgery. In two large octavos. Edited by HOWARD A. KELLY, M.D., Professor of Gynecologic Surgery at Johns Hopkins University, and CHARLES P. NOBLE, M.D. Clinical Professor of Gynecology at the Woman's Medical College, Philadelphia. Large octavo volume of 862 pages, with 475 original illustrations by Mr. Herman Becker and Mr. Max Brodel. Per volume: cloth, $8.00 net; half morocco, $9.50 net. Philadelphia and London: W. B. Saunders Company. 1908. Canadian agents: J. A. Carveth & Co., Limited, Toronto.

Any work having on its title page the name of Howard Kelly bears with it a reputation of no mean order. This volume, edited by Drs. Kelly and Noble, is no exception, and it makes a welcome addition to our library.

Amongst the authors of Volume II. we find such names as those of Drs. J. M. T. Finney, Barton Cook Hirst, Joseph C. Bloodgood, Geo. Ben. Johnston, B. G. A. Moynihan, John B. Murphy, Albert J. Ochsner, and our confrere, J. F. W. Ross, of Toronto. Volume II. consists of, in all, forty chapters, covering about eight hundred pages. Amongst the subjects considered are: Complications Following Operations; Operations Upon the Gall Bladder, Bile-Ducts and Liver; Pyloroplasty; Intestinal Surgery; Operations for Diseases of the Vermiform Appendix; Operations Upon the Stomach; Operations Upon the Spleen; Hernia; Surgery of the Ureter; Surgery of the Kidney; Tuberculosis of the Peritoneum; and last, but not least Chapter XXVII., Cesarean Section and Porro-Cesarean Section, by Dr. J. F. W. Ross. The work is gotten up in the very best of style, is illustrated very largely with some splendid half-

tone work, and contains quite a number of colored plates which have been executed with the most delicate hand. This book should undoubtedly find a place in the library of every physician, not alone the specialist. We question whether it will not be a matter of years before any literature in advance of Dr. Kelly's most recent work will be published.

Quain's Elements of Anatomy. Editors, EDWARD ALBERT SCHAFER LL.D., Sc.D., F.R.S., Professor of Physiology and Histology in the University of Edinburgh; JOHNSON SYMINGTON, M.D., F.R.S., Professor of Anatomy in Queen's College, Belfast; THOMAS HASTIE BRYCE, M.A., M.D., Lecturer in Anatomy, University of Glasgow. In four volumes. Vol. III. Neurology. By E. A. SCHAFER and J. SYMINGTON. Part I. Containing the General Structure of the Nervous System and the Structure of the Brain and Spinal Cord. With numerous illustrations, many of which are colored. Eleventh edition. London, New York, Bombay and Calcutta: Longmans, Green & Co., 39 Paternoster Row. 1908.

This, the eleventh edition of Quain's Anatomy, embraces the General Structure and Mode of Development of the Elements of the Nervous System and the Special Structure of the Spinal Cord and Brain. It is a volume of about four hundred pages, and goes very thoroughly into the subjects named. The first eighteen pages are devoted to the General Structure and Mode of Development of the Nervous System, and the following thirty-five pages to the Structural Elements of the Nervous System. The Cerebro-Spinal Axis is very fully considered and takes up the balance of the book, the Internal Structure of the Spinal Cords, its Microscopic Structure, the Origin of the Spinal Nerves, etc., being fully considered.

Quain's Anatomy has for many years been looked upon as one of the best published. This volume is certainly no exception to the rule, and anyone desiring to purchase a work on the elements of anatomy cannot do better than communicate with the publishers, Messrs. Longmans, Green & Co., 39 Paternoster Row, London, Eng.

AN UP-TO-DATE PUBLISHING HOUSE.—We would refer our readers to the announcement each month of the well-known firm of P. Blakiston's Son & Co., 1012 Walnut St., Philadelphia, Pa. This house are publishing each month a very attractive list of medical books, the most recent ones being Sluss' Manual of Emergency Surgery, Meller's Ophthalmic Surgery, Tyrode's Pharmacology, Gordon's Diseases of the Nervous System, Rodman's Diseases of the Breast, Maylard's Abdominal Tuberculosis, and their 1909 Physicians' Visiting List. It will more than repay our readers to send for Blakiston's recent list, from which they will reap considerable literary benefit.