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MEDICAL MEMOIRS OF BYTOWN.

BY

H. BEAUMONT SMALL, M.D.

Ottawa.

Our city was known as Bytown from its foundation in 1826 until 1854, and this affords a very suitable period for consideration. It embraces a generation unknown to us, as our oldest confrère, Sir James Grant, began his career at its close. It was the era of what we know as the "Old School"; the days of the bolus and lancet; the days prior to chloroform; the days of heroic methods, and, I think I may say, the days of heroic men.

Prior to 1826, the site of Bytown was occupied by two or three settlers. In that year Colonel By commenced the construction of the Rideau Canal, and within twelve months there was a population of over two thousand.

The land was swampy and wet, and although malarial fever is unknown to us, we are not surprised to learn that ague in its most severe form became prevalent. Dow's Swamp was much more extensive than at present, and extended from the Rideau to the Ottawa River, by what is now Preston Street; the land around Patterson's Creek, as far as Concession Street, was a swamp; Slater and Maria Streets were a swamp; what is now the Canal Basin was a wet beaver meadow, and from it, extending across lower town to the Rideau River, was low, wet land.

The laborers engaged in excavating the canal were soon attacked by this disease.

John McTaggart, an engineer upon the canal, in a book describing the year 1826-27-28 in Canada, furnishes us with a description of the disease as it then prevailed. He says:—"This is the most prevalent disorder; sometimes it proves fatal, but not generally so. It leaves, however, dregs of various kinds. In the summer of 1828, this sick-

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An address delivered before the Ottawa Medico-Chirurgical Society, Nov. 5, 1903.

ness, in Upper Canada, raged like a plague. . . . . At the Rideau Canal few could work with fever and ague; doctors and all were down together."

He suffered from an attack himself; and the following description leaves no doubt as to its character. He says:—"It generally comes on with an attack of bilious fever, dreadful vomiting, pain in the back and loins, general debility, loss of appetite (so that one cannot even take tea, a thing that can be endured by the stomach in England when nothing else can be suffered). After being in this state for eight or ten days, the yellow jaundice is like to ensue, and then fits of trembling. They come on in the afternoon, mostly, with all. For two or three hours before they arrive we feel so cold that nothing will warm us; the greatest heat that can be applied is perfectly unfelt; the skin gets dry, and then the shaking begins. Our very bones ache, teeth chatter, and the ribs are sore, continuing thus for about an hour and a half; we then commonly have a vomit, the trembling ends, and a profuse sweat ensues, which lasts for two hours longer. This over, we find the malady has run one of its rounds, and start out of bed in a feeble state sometimes unable to stand."

Although ague is not now known in this district, it was endemic until the sixties, especially throughout lower town and the Chaudiere, each year lessening in extent and severity.

In 1832 Bytown suffered from an epidemic of Asiatic cholera. This was the year of the first invasion of Canada by this fearful disease. It ravaged Quebec, Montreal, Toronto and nearly all places along the St. Lawrence and Ottawa rivers, which were then the highways of travel. Its onset was sudden and severe. On June 3rd an emigrant vessel arrived at Grosse Isle quarantine station and reported forty-four deaths "from some unknown disease." The emigrants continued their course to their destination, throughout Canada, carrying with them the disease and death. Cholera appeared in Quebec on the 7th; in Montreal on the 10th; Lachine the 11th; Cornwall on the 13th; Prescott the 16th; at Kingston on the 20th, and at Toronto on the 21st. It must have reached Bytown about this latter date, as there is an order, dated June 19, directing Dr. Tuthill, the surgeon in charge of the troops here, to proceed from Bytown to Grenville for duty, as cholera had appeared among the men working on the Grenville Canal. The rapidity with which it increased and its fatality were appalling. At the Quebec Hospital on the 8th there were three cases and two deaths; on the 9th, 16 cases and 8 deaths; on the 10th, 26 cases and 19 deaths; on the 11th, 39 cases and 30 deaths; on the 12th, 66 cases and 43 deaths; on

the 15th, 299 cases and 161 deaths. During the three weeks of June there were buried at Quebec 1,421 persons who had died of the disease. This continued into July and gradually declined. In Bytown it was most severe during the month of July, but I cannot find any details nor any definite facts in regard to the disease itself. It, however, continued here for three months, as on the 22nd September there is an official report of Dr. Stratford—who replaced Dr. Tuthill in charge of the military hospital—stating that the disease had disappeared, and asking for a new building for an hospital. The late Mr. W. P. Lett, in his "Recollections of Bytown," refers to this epidemic as follows:—

" July, 1832.

That was the fatal month and year  
When cholera was rampant here:  
Malignant Asiatic type,  
Which from the book of life did wipe  
The name of many a sturdy one  
Twixt rise and setting of the sun.  
Dread terror brooded o'er the land  
While the destroying angel's hand  
Smote here and there each deadly blow  
Which laid in dust, the proudest low!"

Cholera again invaded Canada in 1834, 1849 and 1854, but failed to reach Bytown a second time.

In 1847 Bytown suffered from its second severe epidemic, that of typhoid fever, generally known as the emigrant or ship fever. The severity of this disease is attested to by the monument at Grosse Isle, erected over the graves of 4,532 dead, and another at Montreal, which marked, at Point St. Charles, the burying-place of about 6,000. Bytown again escaped the intensity of the epidemic, but during the six weeks that it prevailed here, from the middle of June to the end of August, there were 314 deaths. During that summer 3,100 emigrants reached Bytown. When we remember that each death represented a large number of cases of fever, sometimes of weeks in duration, we can form some idea of the demands made for medical attendance, and the enormous task of providing accommodation and caring for the sick. The travel was by means of open boats and barges into which these unfortunates were crowded for several days. The landing place and emigrant sheds were at the canal basin, where Bates and Picket's warehouses stand. The papers of that date refer to the helplessness and misery of the new arrivals, and call attention to the

buildings, dirty and damp from leaking roofs. The approach to the sheds is described as "knee deep in mud and filth." The sheds could not provide accommodation, and many had only such shelter as tents, upturned boats and "improvised buildings" could afford.

The first patients were conveyed to the General Hospital and cared for by the nursing sisters. Later, part of the emigrant sheds were utilized as an hospital, with Dr. Hill in charge. This was quickly found to be inadequate, and the citizens generally, both Catholic and Protestant, united to erect large hospital buildings upon the property in which the General Hospital has since been erected. The onset of the epidemic was sudden, as the first public report on the 19th shows that there were nine cases in the hospital, with 50 cases in the sheds and in the city, and that six deaths had taken place. From that time until September the fever raged unceasingly, and the demand upon the medical attendants and nurses was unremitting. Fortunately no deaths took place among either. Among the doctors many were attacked by the fever, and there is in the Bytown Gazette of August 28th a reference to the serious and almost hopeless condition of Dr. Hill.

It is at this point that we find the first record of a Board of Health. As Bytown was not incorporated, its formation had to come from the Government. On the 10th July there is a proclamation by the Governor-in-Council appointing a Board of Health for Bytown, as follows:—

Rev. S. S. Strong, Rev. Wm. Davie, Rev. Thos. Wardeche, Rev. Wm. Telmon, Simon Fraser, Christopher Armstrong, Daniel O'Connor, Joseph Aumond, Edward Smith, John Burrows, Dr. Hill, Dr. Morson, Dr. Van Courtlandt, Dr. Barry, Andrew Drummond, Mr. Bowles, Geo. Paterson, John Sumner. Sheriff Fraser, chairman; Rev. S. S. Strong, secretary.

It will have been noticed that Bytown was favoured by the presence of hospitals from its foundation. Upon the arrival of Colonel By with his little army of soldiers and workmen, a military hospital was at once erected upon Barrack Hill, near the present site of the statue of Queen Victoria. It was a substantial stone building, and continued in use, as a military hospital, as long as the British troops were stationed here. It contained 20 beds, as I find in the preparation of the building a requisition by Colonel By upon the ordnance department for that number, with furnishings. This hospital was not limited to the care of the soldiers, as I noticed in the diary of the late Dr. Hill reference to an amputation of a leg performed by himself upon a private patient.

In 1845 the General Hospital was established by the Grey Nuns, a number of the members of this sisterhood coming from the Hôtel-Dieu, Montreal, for this purpose. The first hospital was a frame building on the north side of St. Patrick Street, near Sussex Street. This building is still to be seen as Nos. 163, 165, 167 and 169. It was occupied until 1847, when the epidemic of typhoid fever necessitated greater accommodation. A new building was then erected on the property of the present hospital on Water Street. This consisted of large frame buildings, which were situated near the present hospital. They were occupied until 1862, when part of the present stone building was erected, that part which we have known as the hospital until the recent large wing was added. No regular staff was organized until 1859. Dr. Van Courtlandt was in charge until 1850; he was succeeded by a Dr. Robillchaud; then followed in 1851 Dr. Lacroix, in 1852 Dr. Lang, and later in the same year Dr. Beaubien. The first regular staff was organized a year or two later, and consisted of Dr. H. Hill, consulting physician, and Drs. Beaubien and Dr. St. Jean, attending physicians.

The County of Carleton General Protestant Hospital was the outcome of the fever epidemic of 1847. The necessity of providing adequate accommodation for the sick poor had been most evident. Many desired a hospital to be supported by public subscriptions and under the control of the public, and their efforts resulted in the establishment of this hospital. The charter was obtained in 1851, and the hospital was opened in the same year. The incorporators were as follows:—John McKinnon, Geo. Patterson, Wm. Stewart, Hamnett Hill, Arch. Foster, Roderick Ross, Robert Hervey, Jr.; Jno. McCracken, Sen.; Francis Abbott, Thos. Langrell, Thos. Hunton, Rich. Stethem, Geo. B. Lyon, Wm. Hart Thompson, Hon. Thos. McKay, John Thomson, Ed. Malloch, James Peacock, Geo. Hay, Alex. McP. Grant, Wm. Paton, Henry McCormac, John Forgie, Ed. Armstrong, Jas. Rochester, Carter H. Burpee, Ed. Sherwood, Dawson Kerr, Thos. G. Burns. The old stone building recently occupied for contagious diseases was the original hospital, and was retained until 1875.

The earliest staff consisted of Drs. Hill and Van Courtlandt, to which Dr. Sewell and Dr., now Sir James Grant, were shortly added, and they constituted the staff in the closing days of Bytown.

The doctors of those days—what do we know of them? They, who on foot or on horseback trod the paths we now so comfortably follow, have passed away, and, with the exception of one or two who reached our generation, are long since forgotten.

They were not inferior men, not wastrels driven from larger centres. They were for the most part men of culture and education—men brought up in the old land under the most favourable surroundings—men of marked individuality and force of character, who came to share in the future of the new land.

A number who resided here were mere birds of passage. Some military surgeons who came and went with their regiments, others after a few years left for pastures new. A few remained throughout their whole career, and their names are associated with all matters of public welfare.

The first general practitioner here was Alexander James Christie. He came with the arrivals in 1826, and lived here until his death in 1843, in his 65th year. He was the first to secure a town lot in upper town, and lived for some years at the north-west corner of Wellington and Victoria Street. This house may still be seen just falling into ruin. Later, he built a large stone house, nearly opposite to Christ Church Cathedral, which still stands in the rear of 399 Sparks Street.

Dr. Christie was born near Aberdeen, Scotland. His father was the Rev. Alexander Christie, dean of Aberdeen, and rector of Fyvie. He graduated Master of Arts at Marchal College, Aberdeen in 1807, and became a licentiate of the College of Physicians and Surgeons, Edinburgh, in 1811. In the war of 1812 he was a naval surgeon, and was wounded in the thigh when on duty, which resulted in a limp for the remainder of his days. He came to Montreal in 1819, and entered upon the practice of his profession. Here he remained until he removed to Bytown. I cannot find any details as to his professional work, but he acquired an extensive practice, and was esteemed as a physician for several years. In McTaggart's work he is frequently referred to in regard to his professional worth. His college note-books also show that he was a thorough student. Dr. Christie's bent, however, was public life, and he gradually withdrew from medicine to the wider field of journalism, and during his later years he appears to have entirely given up practice. His literary tastes led him to edit, when in Montreal, *The Canadian Magazine*, a high-class monthly publication, and later, in Bytown, he established *The Bytown Gazette*, the first newspaper, which he continued to edit to the day of his death. He filled many offices, and among them I noticed a reference to him as the "Dean of the Guild," which odd title was difficult to interpret until I met in McTaggart a reference to the earliest attempt at municipal government. He says, "Bytown is regularly incorporated by a charter, according to an act of the inhabitants themselves, sanctioned by a

J.P. The officers consist of a provost, two baillics, a dean of guild, a treasurer, ten common councillors, surveyor-clerk, two deacons, and a convenor."

Mr. Lett refers to Dr. Christie as follows:—

"What shall I  
Say of this old celebrity?  
An M.D. of exceeding skill,  
Who dealt in lancet, leech and pill  
Cantharides, and lancet, too,  
When milder measures would not do;  
A polished scholar and a sage,  
A thinker far beyond his age,  
A writer of sarcastic vein  
And philosophic depth, whose train  
Of thought was comprehensive, deep,  
Peace to his ashes, let him sleep."

James Stewart resided here from 1827 to 1848, the year of his death. His residence was on Rideau Street, near the site of Dr. Grant's recent residence. Dr. Stewart was born in the parish of Ardshan, County Tyrone, Ireland. He was apprenticed in 1806 to Geo. Rogers, surgeon, of Newtown Stewart, in his native parish. In 1810 he went to Dublin, and completed his studies at Trinity College. He entered the army as surgeon, and in 1825 he retired, and came to Canada. He settled near Richmond, and in 1827 moved to Bytown.

Dr. Stewart had a large practice, he apparently being the leading practitioner in Lower Town. We find his name in many prominent offices. He was a member of the first Board of Health, and appointed a coroner May 19th, 1845. Stewart Street was named after him, by Mr. Besserer, in laying out Sandy Hill. Besserer Street after himself; Daly Avenue after his Dominie Daly; Stewart after his doctor, and Wilbrod and Theodore after his two sons. In 1826 Dr. Stewart married the widow of Captain Lett, the father of the late W. P. Lett, and his daughter is the mother of Mr. J. J. McCracken.

There were others who resided in Bytown prior to 1830, but of whom we have not much information. These were Drs. Tuthill, Rankin, Gillie and McQueen.

Dr. Tuthill, an assistant-ordnance surgeon, came on the staff of Colonel By, in 1826. He remained in charge of the military hospital until 1832, when he was removed to Grenville. In October of the same year he returned to England.

Dr. John Edward Rankin, an army surgeon, was evidently in charge



of the workmen on the canal. Later he served in the British army during the Crimean War. In 1854 he returned to Canada and settled in Picton, Ont., where he died in 1878, aged 81. He received his M.D., St. Andrews, and M.R.C.S., Edinburgh, in 1825, and the license of the Upper Canada Medical Board in 1829. This latter was granted to "J. E. Rankin of the Rideau Canal."

Lett describes him:—

"And Dr. Rankin, there he goes,  
With solemn brow, and turned-out toes,  
Upon his mottled, bob-tailed horse,  
Whose canter said the patients worse  
Or better, as the trusty steed  
Did indicate by passing speed."

Dr. J. D. Gillie, a M.R.C.S., England, lived near the south-west corner of Sparks and Lyon Streets. The building still remains as 342 Sparks Street. He was an intimate friend of Dr. Christie, and Mr. John Christie has in his possession a quaint old silver-mounted snuff-box, which was presented to Dr. Gillie to his friend Dr. Christie. He resided here and continued in active practice up to the time of his death, which took place late in the thirties, but there is nothing to recall his life and work.

Dr. Thomas Fraser McQueen was born at Edwardsburg, Ont., June 5th, 1805. He was the son of Captain McQueen, of the Nova Scotia Fencibles. He graduated at Glasgow, and obtained a license to practice from the Upper Canada Board in 1827. He commenced practice at Ottawa. During the cholera epidemic he was in charge of the cholera sheds from Cornwall to Brockville along with Dr. Scott, of Prescott. Later he settled in Brockville, when he acquired a large practice, and died June 6th, 1860. He married a daughter of Lt.-Col. Fraser, M.P., of Fraserfield, who survives him and resides in Ottawa.

Edward Van Courtlandt commenced practice in 1832, and resided here for 43 years. His father was an officer in the Imperial service. He was born in Newfoundland in 1805, but moved as a child to Quebec. There he was educated at a private school kept by the Rev. D. Wilkie, and at the age of 14 commenced the study of medicine with a Dr. Hackett. He completed his medical course at London, and passed the examination of the Apothecaries Hall and the Royal College of Surgeons in 1827. He was then appointed librarian to the Royal Medical and Chirurgical Society of London, which office he retained for two or three years. He then returned to Canada, and settled at Bytown. He resided in the large stone house which is now 394 Wellington Street.

It was, when erected, much more imposing than the ordinary houses of these days, and was regarded as a mansion, but the quaint old stone steps and other odd architectural designs have been removed during recent years.

Dr. Van, as he was generally known, acquired a large practice, and his reputation spread far and wide. His patients looked upon him as a man of remarkable skill. He was, however, most erratic, and even careless in his care of patients, and many who would not depend upon him as a regular attendant eagerly sought him as a consultant. He was odd and eccentric in his manner and dress—brusque, sharp and even rough in his speech. He had been a student under Abernethy, and was most pleased when likened to that celebrated surgeon. He was impetuous and quick-tempered; ever ready to imagine a slight and equally prepared to resent a fancied grievance. Beneath the rough exterior there was a kind and sympathetic nature, and many instances are recited of his kindness and generosity to the poor. He himself worked hard and long, yet acquired but little of this world's wealth.

He was known to old and young alike, and I doubt if there was any one residing here in his day who was not familiar with the old doctor. My own most distinct recollections are of his rapid and sprightly walk, and his habit of snatching boys' caps as he passed them by. He was called the old doctor, but he never looked old, his clean shaven face and dark hair masking the advance of years.

Dr. Van Courtlandt filled numerous official positions, and took great interest in all that affected his profession. For many years he was the senior doctor, and was always ready to help his confrères when his assistance was required. He was the first surgeon to the General Hospital, and had full charge of that institution for many years. He was consulting surgeon at the Protestant Hospital, and held that position at the time of his death. He was surgeon to the gaol, coroner, and surgeon to the Field Battery.

In addition to his professional reputation, he was known as a geologist of marked ability, and contributed many papers and lectures upon this subject. He studied the mineralogy and palæontology of this district, and accumulated a really valuable collection, for which he had fitted up a room in his residence.

He died in May, 1873, and was buried with military honours in the cemetery at Hull.

In Dr. Hamnett Hill, so recently our confrère, we were brought in contact with this past generation. He lived with the earliest doctors, and a vigorous life brought him to our own times. For fifty-seven

years he lived in this city a loyal member of the profession, and one in whom we can find our ideal. Always dignified and in earnest, when in professional duty, there was no levity or frivolity, but when met with socially, no one was gifted with more life and humour. How vividly we can recall his presence during his last years; his vivacity and wit always added to an evening's recreation, and I can fancy no better wish than that same light-heartedness may follow us into "the sere and yellow leaf." His time and energies were always at the service of the profession. He was never asked in vain to assist in the affairs of medicine—were it hospital questions, a medical society, or a question of public health—he was ever ready with his advice and experience. Dr. Hill eschewed politics and public life. Once only he stepped into the arena, and on the solicitations of friends was a candidate for the mayoralty—and, I think fortunately, was defeated by a few votes.

He was always a busy man, and his recreation was work in another line. When young his spare hours were devoted to amateur mechanics, his workshop and lathe were his amusements, and many of his instruments and appliances were of his own make. In later years he amused himself with painting and sketching, and in his seventies he was an earnest pupil at the Art School.

Dr. Hill was born in London, Eng., December 15th, 1811. His father was John Wilkes Hill, surgeon. His medical studies were pursued at the London Hospital, and he took his M.R.C.S. in 1834. For three years he practiced at Brighton, and in 1837 he came to Canada. He lived in March until 1841, when he took up his residence in Bytown. For many years he lived in the stone house, now 425 Wellington Street, and later removed to his late residence in Wellington Street, since destroyed by fire.

He acquired an extensive and lucrative practice, and was much esteemed as a consultant. He prided himself upon his surgical skill, which partook of the boldness and dexterity of pre-anæsthetic days.

Dr. Hill was one of the incorporators of the Protestant Hospital, and for some years after its foundation was attending physician, and upon the appointment of Dr., now Sir James Grant, he became consulting surgeon. On the organization of the Medical Board he was elected chairman, and retained this office until 1879, when he resigned on account of a family bereavement. He was also consulting surgeon to the General Hospital and to St. Luke's Hospital, which he assisted to establish. He was the first president of this Society on its formation in 1874, and was re-elected in 1875. I also find that he was gazetted surgeon to the Battalion, Carleton in 1847.

Samuel John Stratford, M.R.C.S., Eng., received his medical education at St. George's and Westminster Hospitals, London. He became assistant surgeon to the 72nd Regiment Highlanders. In 1831, he retired, and, obtaining a license in Upper Canada, he settled in Lower Town. In 1832 he was placed in charge of the Military Hospital during the cholera epidemic. He remained here until 1836, when he moved to Woodstock and later to Toronto. He became a member of the Upper Canada Medical Board in 1838. He also was editor of the *Upper Canada Journal of Medical, Surgical and Physical Sciences*, Toronto. He lectured in Rolfe's Medical School, and was a professor in Trinity Medical School. He died in New Zealand. His father was an army surgeon, and on retiring practiced his profession in Brockville.

Dr. Alfred Morson was educated at Guy's Hospital, and became M.R.C.S., Eng., in 1834. He came to Bytown in 1836, and was appointed to the medical charge of the garrison at Bytown, which position he retained up to 1852. He removed to Montreal, and then to Hamilton and Toronto.

Dr. Frederick Morson was a brother to Alfred, and came to Bytown in 1839, remaining in practice here for five or six years. He then moved to Montreal, and finally settled in Niagara.

Dr. Stephen Charles Sewell came to Bytown in 1852, and remained here until his death in 1865. He was appointed consulting surgeon to the General Hospital and to the Protestant Hospital. He was a son of Stephen Sewell, of Quebec, Solicitor-General for Canada. He studied at Edinburgh, and obtained the M.D. of the University of Edinburgh and M.R.C.S., Edin. In 1836 he commenced practice in Montreal, and was appointed lecturer at McGill on *Materia Medica*, and later on clinical medicine, and attending physician to the Montreal General Hospital. On account of ill-health, he resigned these positions and removed to Ottawa. He resided in the house formerly occupied by Dr. Hill on Wellington Street, next to the Perley Home for Incurables.

There were many others of which there is little to be learned. Among the earlier were Drs. Barry, Robinson, O'Hare and Holmes; later, Lecroix, Robillechaud and Beaubien. Of Edward Barry Lett says:—

There's Edward Barry,  
Who in his prime did combine  
The medicine and legal line,  
Exhibiting as his degree  
Upon his card, J.P., M.D.

He gave to Bytown's sporting men  
Such fox-hunting as we ne'er again  
Shall see. . . . .

That hunt the public health to save  
Was the best prescription e'er he gave.

Gentlemen, I have to thank you for your attention to these fragmentary sketches. It is to be feared that they may not have proved as interesting to you as they have proved to myself. It might have been better had I selected a single person or an isolated event and treated it fully, but this must be left for the future. The field is new, and the records of these days are scattered far and wide. My purpose has been to prepare a foundation to which others may add. Once begun, other sources of information will appear, and much stronger light will be thrown upon incidents and people of those days. Our Society should be the repository for such matters (and we would do well to gather all we can). We have not yet our faculty building, nor even our meeting room, but it is not too soon to begin a collection of likenesses, not only of those that have passed away, but also of those that are here. I should like to see on our walls, alongside Christie and Van Courtlandt and Hill, the faces of Wright, Church and Klock.

We cannot but respect and think kindly of all who have worked before us. Medical knowledge is advancing year by year, and great changes take place in the treatment of disease; but the old practitioner, visited daily as we do—he brought life into the world and watched it depart—his patients came and his patients went—he won their thanks or gained their frowns—and practice had the same effect on him as it has on us. Some were successful, others failed, and the same old story is repeated generation after generation. It is—

The same old work, the same old skoff, the same old dust and sun;  
The same old chance that laid us out, or winked an' let us through;  
The same old life, the same old death. Good-bye, good luck to you.

### PUERPERAL INFECTION; A REPORT OF SIX CASES ILLUSTRATING ITS VARIED CHARACTER.

BY

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Puerperal infection, in spite of the increase in our knowledge of prophylaxis, is still the cause of the majority of deaths occurring in pregnancy and the puerperium, and remains therefore one of the most

frequently discussed topics in obstetrical literature. Although the pathology of the simpler or so-called "pure" forms of infection has been thoroughly described, the varied manner in which the disease may manifest itself has not been so generally understood. It seems therefore justifiable to add, to a subject of such perennial interest, a report of several cases studied both clinically and pathologically.

Puerperal infection differs from all other bacterial infections in that it occurs in organs whose anatomical relations and blood supply have been altered temporarily. This is of as great importance in determining the extension of the infection as is trauma in favouring the original infection. Auto-infection is to be considered also, not only as infection from organisms existing in some part of the genital canal, but also as infection which may be carried to the genitalia from some pre-existing focus in a remote part of the body. Two cases of auto-infection from foci outside the genitalia are here reported. Intercurrent bacterial disease primarily non-genital must also be considered a factor in the causation of puerperal infection.

A few words concerning terminology may not be out of place, for the obstetrician is notoriously lax in his use of terms, e.g., the frequent use of the term septicæmia when only a toxæmia exists.

In any discussion of infection we must consider, on the one hand, the local lesion, and on the other the secondary manifestations. The local lesion is due to the toxic substances elaborated by micro-organisms at the point of invasion; at the same time, these soluble substances pass into the general circulation and cause constitutional symptoms. The local lesion may be an abscess, a urethritis, or a pneumonia, etc.; in puerperal infection it is usually an endometritis. The constitutional symptoms constitute a toxæmia and not a septicæmia. The latter results only when the micro-organisms themselves enter the blood stream, and are distributed to all parts of the body. Needless to say, an absolute diagnosis between toxæmia and septicæmia can be made during life only by the use of blood cultures. If, with the septicæmia, we have the development of secondary abscesses, the condition then becomes a pyæmia. Pyæmic manifestations must, however, be distinctly separated from lesions of adjacent organs due to direct extension by continuity or contiguity. Thus we may have a streptococcus or other form of endometritis with toxæmia or with septicæmia; in the course of the latter pyæmia may develop; or with either of the three conditions we may have local lesions due to direct extension of the infection. These terms include all possible forms of puerperal infection, but unfortunately, among surgeons and obstetricians, the terms toxæmia and septicæmia do not receive their exact values.

Another stumbling block is the term *sapræmia* so frequently used for *toxæmia*. *Toxæmia* is now usually regarded as an intoxication resulting from the absorption of bacterial products. It is possible that an intoxication may be caused by substances elaborated in the bacteria-free destruction of tissue, but there is little positive evidence to this effect. By *sapræmia*, obstetricians usually mean constitutional disturbances, as rise of temperature, pulse, etc., accompanying the retention of the products of conception. These symptoms are supposed to be due to the decomposition of the dead tissues by saprophytes with the production of the so-called "putrid endometitis." As the bacteriology of the puerperium has been more carefully studied, these cases of putrid endometritis were found to have as a basis infection with those forms of pathogenic bacteria more difficult of isolation. This is shown by the recent investigation of Little, who found the *Bacillus aerogenes capsulatus*, to be not infrequently present in the uterus; and also by the recent studies of gonococcus infection by Stone and the writer at the New York Lying-In Hospital. It was found that the presence of the gonococcus explained a number of cases of *toxæmia* with constitutional symptoms, which would ordinarily have been classed as *sapræmia*. It would seem advisable therefore to drop the old term *sapræmia*, and group these cases as *toxæmia* from bacterial infection.

The cases<sup>1</sup> here collected illustrate some of the more unusual forms of puerperal infection both as regards the variety of causative organisms as well as the pathological lesions.

**CASE I.—Streptococcic endometritis with septicæmia—*B. aerogenes capsulatus* infection.**

Records of New York Lying-In Hospital; Case No. 7099; Primipara; aged 25; Pregnancy of seven months' duration.

*History.*—Vomiting of pregnancy was moderately severe at fourth month; but improved towards the sixth. Two days before admission the patient induced labour by passing a button hook into the uterus, rupturing the membranes. Labour pains began shortly after and the child was partially expelled on the evening of the second day. On entering the hospital the os was dilated and the child delivered. The uterus was irrigated and packed with iodoform gauze. Vomiting was incessant at entrance, and there was slight jaundice. The temperature on admission was 102; pulse 140. On the following day the gauze was removed. Patient was restless and noisy, but rational; vomiting severe; no abdominal tenderness. Third day, slight stupor; vomiting and jaundice increased. Fourth day, profound coma; vomiting severe; vomitus stained with blood. Fifth day, comatose condition continues; incessant vomiting; conjunctivæ deeply bile stained and hemorrhagic. Died.

*Urine.*—Analysis showed high specific gravity, a trace of albumen, a few blood cells, granular and hyaline casts and leucin and tyrosin.

<sup>1</sup> I am indebted to Drs. Lipes, Lochner and Happel for the clinical histories of the cases from the Bender Laboratory, and to Drs. Painter and Stone, late attending Physicians to the New York Lying-In Hospital, for permission to report two cases which occurred during my service under them.

Blood cultures were negative. Blood counts showed 3,950,000 red cells, 75 per cent. hæmoglobin, and 18,000 to 19,000 leucocytes. The latter were divided into small lymphocytes, 7.5 per cent.; large lymphocytes, 6.5 per cent.; polymorphonuclears, 86 per cent.

*Post-mortem Examination*,<sup>1</sup> by Dr. Martha Wollstein. The autopsy was performed six hours after death.

"Body is that of a medium sized woman, fairly well nourished, subcutaneous fat small in amount. There is slightly marked general icterus and a group of small subcutaneous hæmorrhagic spots just below and to the left of the umbilicus.

*Liver*.—Not decreased in size. In the mamillary line it extended to the free border of the ribs. Weight is 1900 grammes. The liver, as a whole, was light yellow in colour and firm in consistency. On the inferior surface of the right lobe there were areas which were softer than the rest of the liver substance, and a brighter yellowish green in colour. The lobules were indistinct everywhere, the central veins being plainly visible, apparently distended, but the lobules around them are not clearly outlined. In the softer areas the lobulation is almost entirely lost. Glisson's capsule is smooth and glistening, with many small hæmorrhages in it and beneath it. The connective tissue septa are apparently not thickened. The branches of the portal veins are, for the most part, empty. Gall-bladder contains green, fluid bile; the ducts are patent. The blood in the portal veins foams, but there are no holes in the liver substance.

*Spleen*.—Weighs 200 grammes. Crackles on pressure. Dark red in colour, soft, almost diffident, and riddled with small holes.

*Stomach*.—Contents dark brown and fluid. The mucous membrane is covered with blood stained mucus and shows punctate hæmorrhages, most numerous on the posterior surface.

*Kidneys*.—Normal in size; capsules free; cortex not thickened; markings blurred. In the boundary zone are many small hæmorrhagic areas, contrasting sharply with the grey cortex and medulla.

*Bladder*.—Punctate hæmorrhages of the mucosa near the trigone.

*Uterus*.—16 cm. in length. Muscle is flabby and emphysematous, and peritoneal surface is normal. The endometrium is greenish black in colour and gangrenous from the fundus to the lower border of the cervical lips. Attached to the mucosa at the fundus, to the left of the median line, is a mass of placental tissue which is gangrenous.

*Anaerobic* cultures were made from the liver, spleen and uterine wall. The bacillus *aerogenes capsulatus* grew from each of these organs.

*Aerobic* cultures from the liver and endometrium, gave growths of streptococci.

Diagnosis of acute yellow atrophy of liver confirmed by histological examination.

*Pathological Diagnosis*.—Puerperal uterus: gangrenous and emphysematous endometritis; general infection with the streptococcus pyogenes; acute yellow atrophy of the liver; pulmonary œdema; chronic pleurisy.

**CASE II.**—Bønder Laboratory Records. Autopsy 0-247. Double pyonephrosis—Pyo-ureter—Staphylococcus pyogenes aureus—Septicæmia.

*Clinical History*.—Primipara. Patient was sent to the Albany Hospital for irrepressible vomiting when 8½ months' pregnant. She was much emaciated and weak. Temperature was 101-102 at night and usually subnormal in the morning. The vomiting, which had persisted for two weeks, was controlled by purgatives, dieting and saline enemata; but the fever persisted. The urine showed a few pus cells, but no albumen. Patient was delivered at term of a dead child. Temperature went higher after delivery, and the patient died on the same day.

*Post-mortem Examination*, by Dr. George Blumer.

*Left Kidney*.—Measures 11 x 5.5 x 4 cm. The capsule strips readily. The surface of the kidney is pale and is dotted with purulent foci, which extend into the kidney substance. On section kidney tissue is exceedingly pale. Occupying

<sup>1</sup> Only those portions of the autopsy protocols pertinent to the subject under discussion are given.



the pyramid in several places are small abscess cavities from 2 mm. to 12 mm. in diameter. These abscess cavities are surrounded by a distinct hæmorrhagic zone. In some of the pyramids near the point can be seen minute pin-point opaque areas extending into the tubules. The pelvis of the kidney contains a small quantity of purulent material, and the surface is somewhat hæmorrhagic. The glomeruli are visible and the cortex measures 8 mm. in thickness. In numerous areas the infection can be seen extending up along the tubules. There is marked cloudy swelling. Left ureter slightly dilated.

*Right Kidney.*—Measures 11 x 6 x 4 cm. Capsule strips readily; surface is pale and is studded with numerous small abscesses. There is one retention cyst, 1 cm. in diameter, on the surface. On section, the tissue of the kidney is very pale and is thickly studded with small abscesses which appear to extend up along the tubules and in places show large areas of necrosis. As in the other kidney the abscesses are surrounded by a hæmorrhagic area. The cortex measures 6 mm. The pelvis of the kidney is much dilated, contains a small quantity of purulent material and its mucosa is markedly hæmorrhagic.

*Bladder.*—Contains about 60 c.c. of turbid straw coloured urine: beyond some congestion, its mucous membrane is of normal appearance. The right ureter, just where it passes over the pelvic brim, becomes markedly dilated and at a point near the kidney measures 2.75 cm. in diameter. Throughout the dilated portion the mucous membrane is dotted with hæmorrhages, and in some places clots have formed. On the left side, 12 cm. above the ureteral orifice, the ureter is dilated and measures .75 cm. in diameter, while near the kidney it measures 1.75 cm. in diameter. The mucous membrane is hæmorrhagic in places. Both ureters in the region of their entrance into the bladder are of normal appearance.

*Uterus.*—Measures 16.5 x 11 x 8 cm. There are lateral lacerations of the cervix most marked upon the right side. The fundus of the uterus contains a considerable amount of clotted blood. The interior is much roughened and the surface is exceedingly irregular. Uterine muscle is of normal appearance. The vagina is much dilated and the mucous membrane shows numerous small hæmorrhages. Ovaries and tubes are normal. Placenta is normal.

*Microscopic Examination.*—*Kidneys.*—The greater portion of the substance shows marked cloudy swelling. Scattered here and there through the organ, usually along the group of tubules, are areas in which the kidney substance is densely infiltrated with cells, both polynuclear and small round cells. Some of these cells are in the lumen of the tubules, others are between the tubules. Associated with these lesions is a certain amount of hæmorrhage between the tubules and a considerable degree of necrosis of the kidney cells. In some places there has been an extensive breaking down of the kidney substance with the formation of abscesses. The vessels, are, in places plugged with bacteria.

*Bacteriological Examination.*—Cultures were taken from heart's blood, liver, spleen, both kidneys, pericardium and a mesenteric gland.

Cultures from heart's blood, liver, spleen and both kidneys showed a coccus in pure culture which liquefied gelatin, coagulated and produced acid reaction in milk and produced a marked yellowish growth on potato, corresponding in all particulars to the staphylococcus pyogenes aureus.

*Pathological Diagnosis.*—Infection of both kidneys with cloudy swelling. Dilatation of both ureters with pyoureter. Slight pyonephrosis. Acute splenic tumour. Cloudy swelling of liver. Swelling of mesenteric glands. Slight arteriosclerosis. Persistent Meckel's diverticulum. Enlarged uterus just after labour. Infection of kidneys with staphylococcus pyogenes aureus, associated with general infection of blood and organs with the same organism.

**CASE III.—Bender Laboratory Records. Autopsy No. 0-554. Peri-uterine thrombophlebitis—Cerebral thrombosis with purulent meningitis—Pulmonary embolism—Streptococcus infection—Pyæmia.**

*Clinical History.*—Patient had an uneventful pregnancy until the seventh month. She then suffered from angina, which was relieved in two days by treatment with gargles and nitrate of silver applications. She still suffered however from headache, photophobia and restlessness; evening temperature elevated from 1 to 2 degrees.

Two weeks later, when seven and one-half months pregnant, premature labour occurred without intervention. At the termination of labour immediately after the placenta had been expelled spontaneously, the patient suddenly complained of breathlessness, became cyanotic and dyspnoic, and died in less than two minutes.

*Post-mortem Examination.*—By Dr. George Blumer.

*Heart.*—Right side contains fluid blood and postmortem clots. Endocardium and valves are normal and the average thickness of muscle of right ventricle is 4 mm. Left side contains postmortem clots; endocardium, valves and coronary arteries are normal. Auricular appendages are empty and foramen ovale patent but is protected by a semilunar flap. Heart muscle is pale and opaque.

*Left lung.*—Is firmly bound down by old adhesions. It is crepitant and, on section slightly œdematous and congested throughout. Two of the larger pulmonary veins contain ante-mortem thrombi. Bronchi show slight congestion of the mucosa.

*Right lung.*—Is slightly adherent to the apex. It is crepitant and, on section the upper and middle lobes are slightly congested and œdematous. The lower lobe is markedly so. Vessels of this lung appear free from clots. Bronchial glands are slightly enlarged and pigmented.

*Left kidney.*—Capsule strips readily, leaving a smooth surface. On section the cortex is markedly swollen and pale, the markings are indistinct and glomeruli are scarcely visible. Veins contain fresh thrombi and a fresh thrombus is present in the main branch of the renal vein.

*Uterus.*—Measures 14 x 10 x 5.5 cm. The musculature is flabby, averaging 1.5 cm. in thickness, and endometrium is rough, a mass of adherent material, with the appearance of blood clot is in the fundus over an area 5 cm. in diameter. The peritoneal surface is smooth. The tubes and ovaries are normal. Vaginal tissue about the cervix is cyanotic and shows a few hæmorrhages. Veins in the broad ligament contain red and mixed thrombi, which are numerous on the left side.

*Brain.*—Shows, on the surface, three distinct areas of softening. The largest is on the right side of the vertex in the region of the first frontal convolution, the second is on the right side in the region of the upper part of the parietal lobule, and the third is on the left side, just anterior to the fissure of Rolando, involving the ascending frontal convolution.

In connection with all these areas beneath the pia-arachnoid there are collections of yellowish green pus. The longitudinal sinus contains parietal ante-mortem clots and lateral sinus is free from clots.

*Bacteriological Examination.*—Cover slips from the uterus show cocci in chains, not decolorizing by Gram, and bacilli decolorizing by Gram.

Cultures from spleen, bile and meninges were sterile. Cultures from uterus and left renal thrombus show the streptococcus pyogenes and the proteus vulgaris.

*Pathological Diagnosis.*—Thrombosis of veins of left broad ligament and left renal veins. Thrombosis of branches of the right pulmonary veins. Thrombosis of the longitudinal sinus. Multiple thromboses of cerebral vessels with areas of softening. Purulent meningitis over these areas. Chronic adhesive pleurisy on left side. Cloudy swelling of heart, liver and kidney. Acute splenic tumour. Puerperal uterine.

**CASE IV.**—Record of 'New York Lying-in Hospital. Case No. 8419. Suppurative salpingitis—Lymphangitis—Septic endometritis—General suppurative peritonitis from infection with the streptococcus, the gonococcus and the colon bacillus—Septicæmia.

*Clinical History.*—Primipara, aged 18.

*Previous History.*—Six days before entering hospital labour pains set in, and patient was delivered of a seven months child by an outside physician. The child lived one hour. Bowels moved with an enema on the second day, and at this time there was "fever" and abdominal pain. On sixth day she was sent to the hospital, having suffered with pain in the lower abdomen and "fever" during this time.

*Condition at entrance on sixth day postpartum.*—Pulse 110, high tension, regular. Temperature 104, no abdominal tenderness. No rigidity. Uterus seems well involuted. Vaginal examination—many, vulvar condylomata, profuse purulent vaginal discharge. The uterus is anteverted, soft, tender and fixed. Os admits one finger, no placental masses are felt. On palpation in the lateral fornices, extreme tenderness is elicited. Left appendage seems negative; but on the right there is a moderate sized fixed mass. No mass or swelling is found in the cul-de-sac. Rectal examination corroborates vaginal.

Smear taken from inside the cervix shows gonococci and streptococci. Culture from the uterus showed streptococci in pure culture. Blood culture on the sixth day was negative. Leucocyte count was 29,000, of which 90.5 per cent. were polymorphonuclears. Urine showed a trace of albumen with hyaline casts. Leucin and tyrosin were absent. The diagnosis at this time was septic endometritis with gonorrhoeal salpingitis.

On the seventh and eighth days her condition was unchanged. Bowels moved freely. Evening temperature was 102 with morning remission. There was slight pain in the hypogastrium. On the eighth day temperature was 103 in the evening and pulse 100. No abdominal rigidity was shown.

On the ninth day, at 4 a.m., after a large bowel movement, patient complained of sudden severe abdominal pain and difficulty in breathing. Pain was referred to the epigastrium and right lumbar region. It was peristaltic in character, intermittent and intense. The tongue was dry, and there was slight vomiting of clear, green fluid. Pulse rose to 120, was thready and of high tension. Abdomen was very markedly rigid and tender. Expression was anxious and patient cried out with pain.

Vaginal examination showed slight fullness in the cul-de-sac with marked tenderness, otherwise was as before. Leucocytosis at this time was 11,000, of which 89.2 per cent. were polymorphonuclears.

Patient was put on the operating table four and one-half hours after onset of acute pain and rigidity. Laparotomy was done by Dr. Stone under ether anaesthesia, in Trendelenberg position, with median incision.

On opening the peritoneum large quantities of sero-purulent fluid escaped. Severe general peritonitis was present with marked congestion of the visceral blood vessels. Peritonitis was most intense in the pelvic region. Appendix was adherent to right tube and ovary. Right tube was large, much thickened and inflamed, and covered with tags of adhesions. Pus exuded from the fimbriated end. There were the remain of many recent adhesions in the region of the right tube and in the right side of the pelvis. Sero-purulent fluid had penetrated to all the interstices of the intestines. Right tube and ovary were removed with the uterus, leaving the left tube and ovary and stump of cervix. Pus exuded from the cut surface of the broad ligament. The entire peritoneal cavity was flushed with hot saline. Iodoform gauze drain was passed through the cervix and abdomen closed by through and through silk work gut sutures, as patient's condition was poor. Death occurred after 4 hours without rally.

Blood taken from vein just before operation and placed on serum agar and ascitic agar yielded no growth.

Cultures taken at operation from the peritoneal pus, and from the fimbriated end of the tube showed *B. coli* and streptococci; from the inner end of the tube, no growth; from the uterine cavity, no growth.

**CASE V.**—Records of the Bender Laboratory. Autopsy, 0-756. Acute suppurative endometritis—Puerperal infection (post-abortive) with pneumococcus—Pyæmia.

*Clinical History.*—Aged 20. Para II. 4 months pregnant. Abortion was induced by a midwife by means of a catheter. Infection resulted. She was admitted to the Albany Hospital and the uterus was curetted and packed; but she died three days afterwards. Temperature was 102 at admission and ran from 102-103 until death from peritonitis.

*Post-mortem Examination.*—By Dr. Stanton.

*“Abdominal Cavity.”*—All peritoneal surfaces are covered with a sticky greyish yellow purulent exudate which is thin between adherent surfaces of peri-

toneum, but reaches 1 to 4 mm. in thickness over the peritoneal surfaces held apart by collections of fluids. Omentum completely covers intestines, its free border reaching down into the pelvis where it is covered with a thick layer of fibrino-purulent exudate. The pelvis and dependent portions of the abdomen are filled with a yellowish turbid fibrino-purulent exudate. The subperitoneal blood vessels are everywhere deeply injected. The urinary bladder is distended reaching 3 cm. above the pubis. Appendix measures 8.5 cm. in length, has a free meso-appendix, extends downward and inward over the brim of the pelvis and is negative, except for exudate on the peritoneal surface.

*Uterus and appendages.*—Are covered with a thick layer of fibrino-purulent exudate. The fimbriated extremity of the left tube is turned upward, is deeply congested and exudes a thick creamy pus when the tube is compressed. Right tube extends downward, backward and outward, the fimbriated extremity lying behind and below the ovary, and is embedded in a thick layer of the fibrino-purulent exudate. Both tubes are deeply congested, somewhat swollen and on pressure a thick cream coloured pus can be forced from both abdominal and uterine ends. Mucosa of the tubes is deep red in colour and is covered with cream coloured pus, ovaries are deeply injected and covered with a fibrino-purulent exudate.

*Uterus.*—Is enlarged, globular in shape, extending upward to the level of the promontory of the sacrum, is distinctly retroflexed. Cervix measures 2.5 cm. in diameter and projects 1 cm. into the vagina. Cervical canal is dilated, easily admits one finger and measures 3 cm. in length; external os is deeply congested and covered with a yellow purulent material. Uterine cavity above the internal os measures 7.5 cm. in length; the muscle is firm; the inner surface of the uterus presents a greyish granular surface mottled by areas of bluish black and deep red discoloration. There is no evidence of endometrium.

*Vagina.*—Is negative, except for congestion and bluish discoloration in the region of the cervix. This is especially marked in the posterior fornix.

Right common iliac vein contains several greyish granular masses 3 to 5 mm. in diameter, the remains of softened thrombus.

*Bacteriological Examination.*—Smears from the peritoneum show numerous cocci in pairs and short chains with numerous bacilli of varying morphology.

Cultures from peritoneum, liver, spleen and kidney show numerous minute translucent slightly raised colonies on agar from which are obtained lanceolate diplococci staining by Gram's method. Sub-cultures from these minute colonies sterile after 48 hours. On original cultures were also moist, semitranslucent colonies 1 to 3 mm. in diameter, from sub-cultures which was obtained a gas-producing bacillus which coagulated milk with acid reaction.

Cultures from the uterus showed a large number of organisms which were not worked out.

*Microscopic Description.*—Uterus—Mucosa has been removed. Muscular walls show narrow zones of necrosis adjacent to uterine cavity. Small blood vessels near cavity are thrombosed. Considerable leucocytic infiltration of all tissues with scattered masses of bacteria.

Tube is markedly congested and lumen is filled with pus. Serous surface is covered with an exudate of fibrin and leucocytes. All coats are infiltrated with polynuclear leucocytes and lymphocytes. Fibroblasts with a few new-formed blood vessels are found beneath the exudate on the peritoneal surface. Gram-Weigert stains show numerous cocci in pairs and short chains, and long rod shaped bacilli.

*Pathological Diagnosis.*—Acute suppurative salpingitis and endometritis. Acute fibrino-purulent peritonitis. Mural thrombus of right heart. Congestion and œdema of the lung with hæmorrhages. Slight cloudy swelling of liver and kidneys.

**CASE VI.**—Bender Laboratory Records. Autopsy, 6-198. Acute hæmorrhagic endometritis.—Acute suppurative peritonitis and pericarditis—Septic pneumonia with pleuritis—Staphylococcus pyogenes aureus infection—Pyæmia.

*Clinical History.*—After an apparently normal pregnancy patient was delivered by a midwife and entered the hospital on the 8th day post-partum, very

profoundly infected. Death occurred 36 hours after, her condition being so bad, that nothing could be attempted in the way of operative measures.

*Post-mortem Examination.*—By Dr. Blumer.

“Peritoneal cavity contains about 300 c.c. of turbid purulent fluid. Both layers are dull, injected and covered with a small amount of fibrin. Intestinal coils and omentum are adherent to one another by fresh delicate adhesions. Appendix is normal. Retrosternal glands are not enlarged.

*Pericardial Cavity.*—Is distended, with 250 c.c. of turbid yellow fluid. Both layers are dull and slightly injected.

*Left Pleural Cavity.*—Contains about 1,000 c.c. of turbid serous fluid. Right pleural cavity also contains turbid fluid.

*Left Lung.*—Pleura is covered by layers of fibrin and lymph. Both lobes are crepitant and on section are congested and œdematous. Bronchi are congested and covered with muco-purulent fluid. Blood vessels are normal.

*Right Lung.*—Is bound down by fresh adhesions on all its surfaces. Pleura is also covered by layers of fibrin and lymph. Lung is less crepitant than normal and lower lobe feels quite solid. On section lower lobe shows broncho-pneumonic areas and elsewhere lung is congested and œdematous.

Uterus is enlarged, sub-involuted and measures 12 x 8 x 5 cm. Peritoneal covering is injected and covered with a plastic fibrinous exudate. Consistency is soft, os is patulous and escaping from it is a large amount of sticky blood stained material. Tubes and ovaries are apparently normal. The endometrium is markedly congested and shows a few discrete sub-mucous hæmorrhages, the mucosa is covered with tenacious foul mucoid fluid. Uterine walls are 2 cm. in thickness. Mucous membrane of the vagina is congested and shows a few hæmorrhagic points.

*Bacteriological Examination.*—Smears from fluid of pleura, pericardium and peritoneum contain many polynuclear leucocytes with round cocci generally single which do not discolourize by Gram's.

Cultures from spleen and gall-bladder are negative. *Staphylococcus pyogenes aureus* is obtained in pure culture from liver, pleura and uterine cavity.

Cultures from the broncho-pneumonic areas of lung and from peritoneum show colon bacillus as well as *staphylococcus pyogenes aureus*. Kidneys give a pure culture of colon bacillus.

*Pathological Diagnosis.*—General infection with *staphylococcus pyogenes aureus*. Infection of kidney, lung, and peritoneum with *B. coli commun.* Broncho-pneumonia with œdema of the lungs. Acute bronchitis. Fibrino-purulent peritonitis, pericarditis and pleurisy. Acute splenic tumour. Cloudy swelling of kidney. Sub-involuted uterus with acute hæmorrhagic endometritis.

### Discussion of Cases.

*Case I.*—Legg's statistics show that 69 of 100 cases of acute yellow atrophy occurred in females and in 25 there was the association of pregnancy. Thierfelder collected 143 cases, of which 88 occurred in females and in 33 instances it was associated with pregnancy. However, acute yellow atrophy is also found in association with many other conditions and with bacterial infections. Among the bacterial diseases may be mentioned typhoid fever, diphtheria, erysipelas, osteomyelitis and puerperal infection. Richter has collected 41 cases of acute yellow atrophy in association with syphilis. Babes has reported five cases following streptococcus infection and Ballin has collected ten cases following chloroform anæsthesia.

Richter, *Chirur. Annalen*, 1898, Vol. XXIII.

Babes, *Arch. f. path. Anat. u. Physiol.*, 1894, 136.

Ballin, *Annals of Surgery*, 1903, 37, 362.

Hyperemesis gravidarum is a not infrequent association with acute yellow atrophy. Stone reports one case of acute yellow atrophy with this association and collects a large number of others. Meyer-Wirz, among other degenerative changes in the liver of patients dying from eclampsia, found one case of acute yellow atrophy, not associated with puerperal infection. The frequent occurrence of infection in association with eclamptic and other toxæmias of pregnancy is well known. Schrieber, in a statistical study, reports that out of twenty-nine deaths with eclampsia seven died of sepsis, and Meyer-Wirz, in 117 cases of eclampsia, had thirty-five deaths in which puerperal infection had supervened in three, and in an additional case there was septic pneumonia. However, the toxic symptoms, as shown by the vomiting, were not severe in the case reported here; but it seems that the association of infection and pregnancy is a factor of some significance in the production of acute yellow atrophy of the liver. Strictly speaking, this should perhaps be considered a complication of pregnancy rather than an example of puerperal infection. In view, however, of the probability of the infection beginning in the genitalia, it may justly be considered here.

*Case II.*—Pyonephrosis is a rather uncommon complication of pregnancy, but hydronephrosis and dilatation of the ureters does not appear to be so. Olshausen has reported sixteen cases of dilatation of the ureter; in twelve of which the condition was unilateral, and in ten of these on the right side. This distribution is supposed to be due to the greater frequency with which the foetal head lies in the right oblique diameter of the pelvis. In this case the position was L.O.A., but the measurements of the pelvis were not noted. It may be possible that a generally contracted pelvis, with an obliterated promontory, would permit pressure to come upon both ureters at the pelvic brim and cause such dilatation of the ureters as occurred in this case.

<sup>1</sup> Cragin, in a study of ten cases of pyelitis complicating pregnancy, states that, according to Vinay,<sup>2</sup> this condition depends upon two etiological factors: (1) Pressure of the ureter by the pregnant uterus; (2) Infection of the urinary tract above the point of compression. Cragin states that in his cases the clinical course was marked by right sided

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Stone, American Gynecology, 1903.

Meyer-Wirz Archiv. f. Gynak. Berl., 1904, LXXI., No. 1.

Schrieber, Archiv. f. Gynak., 1896, LI., 335.

Meyer-Wirz, Loc. cit.

Olshausen, Samml., Klinische Vorträge f. Gynak., 1892, XXXIX., 15.

Cragin, Med. Record, 1904, LXVI., 3.

Vinay, L'Obstetrique, 1899, IV., p. 230.

pain, sometimes elicited only by palpation or sudden motion. A rise of temperature usually occurred. He states that irritability of the bladder, with frequent micturition, is common; but that "the infection is a descending one and cystitis when it does occur, is usually secondary to the pyelitis and ureteritis."

The experiments of Rebraud and Bonneau upon animals are quoted in support of this view. These investigators produced pyonephrosis by aseptic ligation of the ureter, and the injection into a distant part of the body of streptococci or colon bacilli.

The case here reported, because of the exemption of the bladder and the lower part of the ureter, seems to have been a descending infection. Staphylococcus infection in such cases is rare; colon infection is by far the most frequent cause according to the collected cases of Cragin. One instance of streptococcus infection has been reported by Vinay and one of gonococcus by Loy.

It is interesting to note, in view of the recently advanced theory of the common origin of eclamptic toxæmia and toxæmia of pregnancy with vomiting, that this case was admitted to the hospital for pernicious vomiting, and that Meyer-Wirz, in his 35 post-mortems for eclampsia, noted bilateral hydronephrosis and dilatation of the ureters in one case.

Rochard reports a case of severe bilateral pyelonephritis in advanced pregnancy with immediate recovery after delivery of twins. He quotes Kendirdjy's statistics of 62 cases, amongst which there were only two deaths, and advises expectant medical treatment; but states that if interference is necessary premature delivery should be the rule rather than an operation on the kidney. Cova has reported 21 cases in which nephrectomy was done with resulting abortion in only five. The danger of involvement of the second kidney is so great that it would seem preferable to remove the cause of compression of the ureter rather than to remove the kidney.

Fournier has reported two cases of this condition with varied course. In one there was gradual onset in the early months of pregnancy, premature labour and birth of a dead child at seven months. In the other there was an acute attack, nephrotomy and labour at term. Schwab also reports two cases, in one there was a history of gonorrhœa and the infection was severe, but patient went to term. The second case was one of hydramnios and ran an apyretic course. The colon bacillus was

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Rochard, *Presse Médicale Par.*, 1904, No. 92.

Cova, *Boll. a Soc. tosc. de ostet. e. Gynec.*, Firenze, 1903, II., 203.

Fournier, *Proc. Soc. Obstétrique de Par.*, *L'Obstétrique*, 1905, No. 2, p. 160.

Schwab, *ibid.*

the infecting organism, and a live child was born at eight months of pregnancy. Schwab draws attention to the difficulty of diagnosis and of the difficulty of differentiating from appendicitis.

Cathala, in a clinical and pathological study of pyelonephritis in pregnancy, states that there are two main causes: (1) Predisposing cause, the lessened resistance of the pregnant woman to bacterial infection and the retention of urine from compression with its associated congestion; (2) Determining cause, the penetration of the infecting organism to the kidney. He divides the clinical course in two periods: that of onset, in which there are symptoms of general infection, and that of attack, in which there are symptoms of chronic suppurative pyelonephritis. He concludes that the prognosis for the child is bad for, if pregnancy does go to term, the infant not infrequently is of small size and and weak.

*Case III.*—Peri-uterine thrombo-phlebitis is a most serious condition and is the most frequent predisposing cause of pulmonary embolism and sudden death in pregnancy. Grossman, in a study of 51 post-mortem examinations upon puerperal women, dying from infection found peri-uterine thrombo-phlebitis alone in fourteen instances and associated with lymphangitis in thirteen other instances. Other veins in addition to the hypogastric and ovarian were involved in all cases save one; in three instances the vena cava was also included.

Richter lays stress upon Mahlers sign ("Kletter-symptom") the rapid beat of the heart due to extra work and slight degeneration. He has collected results from 16,000 cases, and found 78 cases of thrombosis and twenty cases of embolism; of the last 60 per cent. were fatal. Mahler's sign was found in 98 per cent. of these cases.

The thrombosis may be due to mechanical causes, but is more frequently associated with infection. The initial lesion in the case reported here would appear to be the infectious process in the throat. This case is possibly therefore one of auto-infection as is the case of pyonephrosis.

*Case IV.*—Gonorrhœal infection in the puerperium has been much discussed amongst obstetricians and widely divergent opinions are held in regard to its incidence and its influence upon tissues altered by pregnancy.

Kronig's study of 179 cases of puerperal fever showed that M. gonorrhœae was found in fifty cases, while Williams found the organism

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Richter, *Archiv. f. Gynak.*, Bd. 74.

Cathala, *L'Obstetrique*, 1905, No. 2, p. 165.

Kronig and Menge—*Bakteriologie Weib. Genital Kanalen*, Berlin, 1897.

Whitridge Williams, *Text-book of Obstetrics*, 1903.



in eight of 150 cases of puerperal fever. Vogel, in twenty-four cases of puerperal fever, found gonococci four times, twice in pure culture and twice in association with streptococci. Foulerton and Bonney examined 54 cases with negative results. Stone and the writer, in a study of 53 selected cases of pregnancy, found the gonococcus in 17. In three cases labour was premature.

Martin kept under observation thirteen cases of chronic gonorrhoea during labour and the puerperium, and in none of these cases were any symptoms observed which could be attributed directly to the venereal disease. There were no abortions, although in one case labour was hastened by an acute exacerbation of the disease. In four cases the puerperium was practically normal and in the remainder there was a rise of temperature coming on rather late. This, the author considers characteristic of the disease.

Lea taking acute purulent conjunctivitis in the infant as a proof of gonorrhoeal infection of the mother has collected fifty cases. In 60 per cent., there was an uneventful puerperium, while 40 per cent. had more or less acute inflammation of the pelvic organs. Acute purulent endometritis with pyrexia was the most common condition, while, in 10 per cent., acute pelvic peritonitis existed. All recovered save three cases infected also with the streptococcus. In institutions, however, acute purulent conjunctivitis in the child is not a just criterion of the frequency of gonorrhoeal infection of the mother, for Holt has noted the frequent transmission of gonococcus infection amongst infants who are segregated in hospitals.

The presence of a mixed infection of the gonococcus and some other organism is said to add greatly to the severity of the infection, and many cases have been reported to sustain this view. However, the severity of the constitutional symptoms seems to depend more upon the extent of the anatomical lesion than upon the character of the infection.

*Case V.*—Pneumococcic puerperal infection is an extremely rare condition and is usually an infection from without. Weichselbaum, as well as Bar and Tissier, have met with this condition, and Cohn has described a case very similar to the one here reported. His patient after abortion developed a pneumococcic endometritis and later a fatal meningitis.

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Vogel, Quoted by Foulerton. Practitioner, 1904, LXXIV., No. 3.

Foulerton and Bonney, Trans. London Obstet. Soc., 1904.

Martin, Berl. Klin. Woch., 1904, March 28th.

Lea, Trans. North of Eng. Gyn. Soc., 1898.

Holt, Trans. New York Academy of Medicine, Jour. Ped., 1905, 5.

Weichselbaum, Wien. Klin. Woch., 1888, 28.

Bar and Tissier, L'Obstetrique, 1896, p. 97.

Foulerton and Bonney also report a similar post-abortive infection from pneumococcus with five other cases of pneumococcus infection following full term pregnancies. They conclude that the grade of infection is, as a rule, not severe and that their series of cases cannot be taken as a just indication of the frequency of this form of infection.

*Case VI.*—General septicæmia is not an infrequent termination of puerperal infection. The clinical course is usually that of a rapidly progressive acute infection and follows the same course as other septicæmias not of puerperal origin. Streptococcus infection is the most frequent and severe type of infection after labour. If the number of cases studied by Czerniewski, Kronig, Williams, Vogel, and Foulerton and Bonney be collected, it is found that of 498 cases in which the contents of the uterus was examined bacteriologically, streptococci were present in 200 (40 per cent.). While streptococcus is so frequent, staphylococcus pyogenes aureus is most infrequent. Foulerton and Bonney found this organism but once in 54 cases, and it is but infrequently mentioned by other writers. Staphylococcus pyogenes aureus was found in two of the six cases in this study; in one the infection was of the kidney and in the other an acute general infection of all the organs.

#### *Conclusions.*

A consideration of these six cases teaches many things in regard to the diagnosis and management of puerperal infection in the more advanced stages of the disease. It may be seen that while streptococcus infection is usually the most common and severe type of infection, other organisms, which usually produce clinically mild symptoms, may run a severe course and cause death.

Auto-infection must be considered to include not only infection from foci of bacterial disease in distant parts of the body. Pregnant women suffering from such distant infection require most watchful care. Auto-infection from the genital canal is probably more common than is generally supposed. This is indicated in a study by Bumm and Sigwart of the bacteriology of the secretions of women in the later months of pregnancy. The streptococcus was found to be present in more than 38 per cent. of the cases, and they conclude that with very careful examination aerobic streptococci may be found in the secretions of at least 75 per cent. of all women during pregnancy and the puerperium. Of the women having streptococci, 20.4 per cent. had fever.

From this fact it may be seen that the presence of pathogenic micro-organisms in the genital canal is by no means sufficient evidence upon which to base a diagnosis of puerperal infection, and even when combined with constitutional disturbances the first step only has been taken towards the proper diagnosis of the condition. The term puerperal infection should be broadened to include infection elsewhere than in the uterus, and the location and nature of such lesions should be recognized before any operative measures are undertaken. This can only be done by exact physical examination, examination of urine, blood, etc., and a proper knowledge of the varied anatomical manifestations of infection. The frequency with which pain is right sided in hydro-nephrosis and pyelitis should be remembered in differentiating the diagnosis from appendicitis.

The utter futility, and even harmfulness, of curettage, if attempted in such cases as those here reported, is readily seen; and when the varied character and oftentimes widespread distribution of puerperal infection is considered, the explanation for the high mortality (over 70 per cent.) of hysterectomy in that condition is obvious.

### A THIRD CASE OF TRANSPOSITION OF VISCERA AND OTHER AUTOPSY FINDINGS.

BY

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Among the last 50 cases which have come to autopsy from the Foundling Hospital are several which are worthy of passing recognition. The case of transposition of viscera shown here is the third which I have seen post-mortem, the two others having been reported to this Society within the past year. Twice, in addition, it has been my fortune to see cases of dextrocardia, which evidently were due to transposition, one of them being Dr. Fry's case presented here one or two years ago.

This case (F. 51) was a female child aged nine days, who died of broncho-pneumonia. The condition was one of complete transposition. The left lung had three lobes, the right two. There were three pulmonary veins on the left, two on the right. The heart lay to the right. There was a large patency of 8 mm. diameter in the interauricular septum, and one of 6 mm. in the undefended space of the inter-ventricular septum. The heart chambers were completely transposed; the aorta lay in front, and gave off the innominate artery and the left carotid and subclavian in the normal way. The aorta ran down the

left side, as usual. The stomach, spleen and pancreas lay to the right, the larger lobe of the liver and the gall bladder to the left, and the colon and appendix to the left; the right kidney was higher than the left, and the rectum lay in dextroposition.

The other cases of interest, to which brief reference is made, are as follows:—

*General Peritonitis*:—F. 24.—Female, 54 days old, general septic peritonitis, streptococcus infection, pure culture. No cause or place of entry of the infection could be found, though all the usual sources were examined with care.

F. 5.—Female, 27 days old, died of the same condition, streptococcus infection, pure culture. The navel was scabbed over, and there was septic thrombosis of the hypogastric arteries and veins of both sides.

F. 42.—Male, 49 days old, general septic peritonitis, cultures mixed, bacilli and cocci. There was ulceration and necrosis of the umbilicus and the abdominal wall.

It will be noted that two of these cases died through sepsis gaining entrance through the cord. Another case showed a small abscess in the abdominal wall on the course of the left hypogastric vessels, but peritoneal sepsis had not occurred.

*Abscess of the Lung*.—Two cases showed abscess following pneumonia.

F. 26.—Female, 45 days old. The lower lobe, left lung, was consolidated, and an abscess, 1.5 cm. diameter, bulged on the axillary and diaphragmatic surfaces. It contained pneumococci and other diplococci.

F. 31.—Male, 23 days old, with bilateral broncho-pneumonia, showed a similar abscess encroaching on two lung surfaces, with reddish pus, which contained different forms of bacilli and cocci. Icterus also existed, without any cause therefor being found in the liver or gall bladder.

*Birth Injuries*:—F. 30.—Female, 168 days old, had scabs on each side of the head, probably from forceps. The scalp was thick and œdematous, adherent strongly over an area 2.5 cm. diameter, infection staphylococcus. Death occurred from broncho-pneumonia.

F. 40.—Female, 19 days, died of septicaemia. There were scabs on the bridge of the nose, left upper lip and left parietal bone. The posterior half of the scalp was œdematous and thickened, and an abscess containing half a drachm of pus, streptococcus infection, was present. The left parietal bone was depressed and fixed in the depressed condition, but no injury to the brain was evident.

F. 36.—Female, 40 days old, had a caput succedaneum, raised 2 cm. in the left frontal region. It was 4 cm. in diameter; the bone was

depressed and eroded, but the brain was not damaged. No bacteria were found in the hæmatoma, though the contents appears disintegrated.

*Meningitis*:—F. 27.—Female, 47 days, died of acute cerebo-spinal meningitis, the purulent exudate being distributed over all parts of the brain and cord; pneumococci were present in it. The lungs were healthy, the ears and mastoids were clear, and no focus of suppuration was found elsewhere. There was muco-pus, dried, at the nostrils.

*Foramen Ovale and Ductus Arteriosus*.—Of 34 infants, aged from 15 to 60 days, the foramen ovale was patent, directly or obliquely, in 20 (nearly 59 per cent.); the ductus arteriosus was entirely closed in all but two cases.

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## THE IMPORTANCE OF CHEMISTRY IN MEDICINE.

BY

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Medicine is above all a practical science, dealing strictly with things of utilitarian value. Hence, any matter which has not a strict sphere of usefulness is unlikely to find a place in a medical curriculum.

That those who have had to do with the working out of a course of medical study have for some reason seen fit to place chemistry in the front rank of importance is evident from the amount of time allotted at the present day to its study.

It is my purpose to discuss with you this afternoon some of the reasons for this step, and if possible without any attempted apology, to show you the correctness of this view.

First of all, I should like to compare the status of chemistry as taught in the medical schools of to-day with that of twenty-five to thirty years ago.

About 1875 there were three medical schools in New York City. The College of Physicians and Surgeons, the Medical College of the University of New York, and Bellevue Medical College. At the College of Physicians and Surgeons chemistry was taught by Professor St. John. Professor Draper was at the College of the City of New York, and Professor Dorcenus was at Bellevue Medical College.

The entire course of medical study in those days was finished in two years, the terms being of five months duration. Hence, ten months was the time in which a man obtained his degree. This was instead of the twenty-eight months which is now requisite.

No recitations or examinations of any kind were required till the end of the course, and a man failed or passed on the entire examination.

The instruction in chemistry was limited to three lectures a week, and attendance was in no sense compulsory. The lectures were repeated each term, so that the men heard the same lectures in the second term that were given in the first. The ground covered in these lectures comprised both chemistry and physics, with a large preponderance of what would now be designated as high school physics.

A point of great interest in comparing the conditions at that time, and at the present, is that here was absolutely no attempt at laboratory instruction. The student heard with his ears, but he did not see with his eyes, and far less did he handle with his hands.

It was not until about 1874 that a laboratory course was given at the University of the City of New York. This was of the nature of a private speculation by the Professor of Chemistry. Fees for the same were extra, and of course attendance was entirely voluntary.

The first attempt at real and systematic laboratory instruction was after the removal of the College of Physicians and Surgeons from 23rd street to 59th street, and the building of the Loomis Laboratory in 1884.

Between 1884 and 1885 the University of New York started recitations as an integral part of a laboratory course; then came graded instruction, and recitations were obligatory in every branch of medicine.

You will note the conditions in the fifteen years of which I have spoken. First of all, an incomplete course; secondly, no particular obligation as to attendance; and thirdly and very importantly, no practical laboratory work pursued systematically.

Is it any wonder that students in those days with rare exception lost interest in their work before they had fairly begun, and that by the end of the course they were anxious and ready to forget all they had learnt. The whole thing resolved itself into a dreary memorizing of a mass of data not joined to one another, and leading nowhere. Particularly is it the case that no attempt was made to show the fundamental relations between the facts of chemistry and the processes with which the medical man is daily brought face to face. In this non-correlation of subjects was the greatest lack in the whole system of teaching.

We will now advert to the condition of teaching at the present day, and before I touch on this point, I wish to impress upon you the great advantage, I might almost say the absolute necessity of a preliminary training in chemistry before entering the study of medicine.

Osler, who has devoted much thought to the teaching of medicine, says in one of his addresses:—

“No one should be permitted to register as a medical student who has not had a good preliminary training in chemistry. It is an anomaly that our schools should continue to teach general chemistry to the great

detriment of medical chemistry, which alone belongs to a medical curriculum."

The medical student now entering the first year is made acquainted with the fundamentals of chemistry in the lecture room. The laws of chemical action are taken up step by step, and it is seen that chemistry, instead of being a mass of heterogeneous facts is a connected whole. It is also at once shown that these facts are intimately connected with the everyday occurrences of medicine, and that the laws of mass action, of dissociation, and the laws of the conservation of energy and matter hold just as closely when applied to the human body as they do in the test-tube.

From the lecture room the student is taken to the recitation room where a chance is given to him to discuss the problems enunciated in the lecture hall, and the intimate intercourse exists between teacher and student which is so necessary to an interested conception of the subject is furthered.

It is in the laboratory however, that the student sees under his very eyes processes taking place in the test-tube, the retort and the beaker which until now have been to him little else than words. It is in the opportunity for accurate observation and conscientious note-taking that he derives a benefit which will follow him into the clinic, the hospital and the sick-room.

The great advances in medicine in the nineteenth century were vaccination, anaesthesia and the introduction of antiseptics. Vaccination, because it led to the stamping out of that disease, small-pox, which had played havoc with so many countries is of perhaps the most importance, for following up the results obtained with vaccine we have been led to antiseptics, with which it is closely related, as you shall see.

I think it will be generally conceded that the great sub-advance in medicine in the last 100 years, is in the opening up of the great field of bacteriology, and from a popular stand-point this is pretty evident, for nowadays no child is unfamiliar with the words germ, sterilization, bacillus and infection.

Not only have we found the cause of many diseases which were at one time so mysterious, but more than all we have been able to find means of combatting them both in a preventive and a curative manner as sure as the extinguishing of fire by water.

One has only to go back to such historical events as the great plague of London in 1666 or to the fearful scourges of yellow fever or small-pox to see that there is a difference between then and now. A total lack of preventive precaution, a total lack of remedial measures of any value struck at the very roots of commerce and of domestic life.

One has only to read the accounts of Florence Nightingale's service in the great Crimean campaign to realize what hospital fever meant no longer than fifty years ago.

Gangrene which carried off thousands and thousands of wounded men in war time has entirely disappeared, and puerperal fever that dreaded infection which has killed millions of women is no longer heard of as an epidemic.

In order to show you how this wonderful change has come about in as interesting a manner as I can, I am going to take you back for a few moments to the year 1822 to the little village of Dôle in France. Here was born the son of a tanner, Louis Pasteur.

Pasteur began his studies at the college of Arbois and at Besançon, and then went to the Ecole Normale at Paris. Here it was, that, full of enthusiasm for chemistry he listened to the lectures of the great Dumas and Ballard. Through the influence of these teachers he decided to devote himself entirely to the scientific investigation of problems in chemistry. That this required no small amount of courage in those days is evident from the description of the laboratories and equipment. The great masters of the science either worked in a cellar or were relegated to the corners of a garret. There were no marble tiled laboratories in those days.

Having completed his curriculum at the Ecole Normale, Pasteur became assistant to Professor Ballard, and while with him his attention was directed by Delafosse to the study of the polariscopic properties of crystals. Having the idea that the polarimetric behaviour of crystals might be connected with the crystalline form he proceeded to examine a large number of crystals.

Amongst those which he examined were the double tartrate of ammonium and sodium. These crystals were not like some of the others which he had examined, for their solution rotated the plane of polarized light in a constant direction.

Now at the same time there was an acid of the identical composition with tartaric acid which had the remarkable property that neither it nor its salts had any effect on polarized light. This acid was known as racemic acid. It was optically inactive.

The crystalline form of the salts of these acids had been studied many years before by Mitschelich, who was unable to detect any difference between them. Under the keen eye of Pasteur were detected small faces or facets which had escaped the observation of Mitscherlich. On close examination he found that the solution of the racemic salt deposited crystals which were of two kinds, to be distinguished on close examination by the difference in the position of the small faces of which



I have spoken. For, while one kind had faces on the left-hand side, the others had faces on the right; in other words, the crystals were the mirror image of each other.

On separating these two types of crystals, he found that the right-handed crystals turned the plane of polarized light to the right, while the left-handed crystals turned the plane to the left.

You may think that I am wandering far afield from my subject of the Importance of Chemistry in Medicine, but as I shall show you, this chemical experiment was the starting point, which logically carried out by Pasteur, a chemist, has led to modern surgery, diphtheria antitoxin, the pure milk of cities, which saves thousands of young children every summer from death, and to a host of other advances in medicine with which is familiar every schoolboy.

It was in endeavouring to separate out the two kinds of crystals by means other than the comparatively clumsy one of picking them out by means of a lens and a pair of forceps that Pasteur came upon an important fact.

The solution of the double salt is prone to fermentation with the formation of mould. On allowing the solution of the sodium ammonium racemate to stand during the hot days in summer, Pasteur noted that the contents of the flask had become mouldy or as one would familiarly say, "gone bad."

As Professor Frankland remarks, most chemists would have poured the contents of the flask down the sink disgusted that the material had been spoiled. Not so Pasteur. He at once thought of how interesting it would be to investigate the properties of the solution which had been attacked by the mould.

To his astonishment the solution which had originally been inactive as the racemate is, was now optically active. In other words, the mould has acted upon the solution and in its growth had consumed one part of the inactive acid leaving the other half which was optically active.

This as you see was purely chemical work, but was verging to fields with which the chemist of that day was unfamiliar, namely living material.

It was in the year 1854 that Pasteur having dealt with moulds and such things in a purely chemical way took up the study of fermentation in itself, and showed among other things of importance, that it was not necessary to have organic matter in order to propagate life, that such a living thing as yeast did not need albumin in order that it might grow. He showed conclusively that ammonium salts might replace organic material with ease, and might be used just as readily for the purpose of making the plant grow.

In the course of this investigation, he showed that not only were albumins non-essential in the growth of certain plants, but that in some cases oxygen itself was not only unnecessary but positively harmful.

You will note here two very important facts, chemical in origin, which had a very far reaching influence on Physiology. First, the non-essential character of organic matter for the propagation of forms of life, and second, the non-essential character of oxygen for its maintenance.

At this point, and we are now reaching the mere medical side of Pasteur's work, he overthrew what was at the time a dogma, and the cause of the bitterest controversy, but which to-day would be the jest of any primary school-room. That was the doctrine of spontaneous generation.

The doctrine of spontaneous generation taught that it was possible for living things to be formed from absolutely non-living material, that germs might be produced in a medium which was absolutely devoid of living things to start with.

This was a theory almost as old as science itself. Aristotle taught it, Virgil, Pliny and Ovid discussed it, and in later times, in the sixteenth century, van Helmont had advanced the theory to such an extent that he affirmed that he could produce mice, and gave a celebrated recipe which required only a little soiled linen, a few grains of wheat and a piece of cheese.

Although of great interest it would be impossible to enter into the details of the fierce discussion which raged over the question, which has now been relegated to the shelves of superstition along with sea-serpents and ghosts.

It was following these experiments that Lord Lister, the greatest of the English surgeons of the nineteenth century took up the matter of wound infection, and showed that here also, as in the Pasteur flask one could have no infection without the initial presence of bacteria. All one had to do was to keep the wound perfectly free in the first instance from bacteria, or if these were present to kill them by means of chemicals, to absolutely prevent the formation of pus. When one compares this result with the hospitals of the Crimean war where the putrefaction due to the ignorance of this fact was so great that the stench from the wounds could be recognized for hundreds of yards around the hospital ward, where men died by tens of thousands from wound infection we can recognize the importance of Pasteur's chemical experiments with the sodium ammonium racemate.

I will quote the estimate of Roux upon Pasteur's influence on the work of Lord Lister.

“Illuminated by the investigations of Pasteur, Lister understood that the complications in surgical wounds were due to microbial origin, which came from without. He conceived the idea of antiseptic dressings to kill the bacteria. With antiseptics began a new epoch in surgery.”

“Thus it is, that Pasteur who never in his life held a scalpel or made a surgical dressing has saved more lives than all the masters of surgery.”

I should like to go on to show you how, advancing from the overthrow of the doctrine of spontaneous generation, Pasteur took up the diseases of plants, the propagation of the vinegar plant, and the diseases to which yeast is subject. From there he investigated the diseases of the silk-worm, which were costing the silk growers of France hundreds of thousands of dollars every year. As the result of these experiments he went on to the disease known as anthrax, which threatened to exterminate the cattle-growing industry in France, and through the experiments which he made, carried out with that precision which his chemical training had bestowed upon him, he was able to reduce the death rate in sheep to 1% and in cattle to 3 per 1,000.

The saving to France from these experiments alone in the ten years following was \$1,400,000.

From anthrax, he passed to the investigation of rabies, the terrible affliction which follows the bite of a mad dog. It would be interesting and instructive to be able to tell you of the character of his experiments. It would show you here again the chemical precision with which he worked, but time will not permit. But, employing the same careful methods which he had used in his examination of the double tartrates of sodium and ammonium, and the same experimental skill with which he exposed the fallacy of spontaneous generation, he was able to prepare an antitoxin which in the year 1897 had been used in 20,000 cases with a death rate of less than 5 per 1,000.

Thus I hope I have shown you what a single man, a chemist, not a doctor of medicine, following out the exact methods of chemical investigation, pursuing the close reasoning employed in chemical research has been able to accomplish by his own unaided efforts.

Of some of the sequence of his work carried out by those who have so ably striven to hold up the undying flame since his death, I shall now have an opportunity to speak.

You are all aware that if an animal be given morphin or strychnin or hydrocyanic acid in a sufficient dose it will die.

These poisons do not act violently on the tissues of the body. Practically no trace is left of their effect if the animal be examined after

death. If, on the other hand, an animal be given such a corrosive substance as strong caustic soda or sulphuric acid the effect will be apparent to the most casual observer in the eating away of the tissues. Yet in the case of the former compounds the effect must have been profound, else the animal would not die with such rapidity and with such certainty.

There is yet again a third class of substances such as the poison extracted from the common castor oil bean of such power that an amount which would lie on the top of a ten-cent piece would cause the death of a million rabbits. It is to this class of substances that I wish to refer, and to show you of what importance they are in medicine at the present day, and how very closely they are connected with chemistry.

You will also see that they are very intimately related to much of the work of Pasteur, and it is only since his death that the knowledge of them has made very substantial advance.

There is also a curious property of these substances which is shared to a less degree by some well known poisons such as morphine. The study of this feature was commenced by Pasteur and has continued to engage the attention of hundreds of investigators since, and is still being actively pursued. It is this. If one administer an amount of the poison not sufficient to cause death, and continue these small doses for some time, it will be found that the animal is now capable of withstanding amounts of the poison which would be sufficient to kill many animals which had not had the treatment.

Moreover, if we inject the blood of the treated animal into another animal, that animal, too, acquires the property of withstanding the toxic substance. In the technical language of medicine, that animal is *immune*.

We will now inquire what bearing this has on the process of disease.

It is perfectly familiar to all of you that such diseases as pneumonia, diphtheria or typhoid fever are caused by bacteria. Those bacteria may enter the system from contact with a person afflicted with the disease, or through the dust we inhale in the streets or through a wound.

How is it that these minute organisms, many millions of whom might lie on the head of a pin, can produce such profound effects? They do not devour their host, nor do they multiply in such numbers as to block up the arteries and veins, and so interfere with the circulation.

It is because in their growth they produce poisons, just as the castor oil plant produces its poison in its growth.

These poisons are definite chemical entities which act in much the same way as strychnine or morphine. Thus they produce their effect. In other words the effects of diphtheria or lock-jaw are just as much

chemical phenomena as the production of alcohol from sugar through the agency of yeast or the production of vinegar from alcohol through the agency of the vinegar plant.

Now what is the process which takes place when an animal is attacked by diphtheria? We know that the bacteria enter the organism by the nose and throat, and are even in the height of the disease to be found almost exclusively at the back of the throat. They are made evident by the patches of white which one sees there. They grow, and in the process of growth they secrete poisons of great strength which cause the high temperature, the paralysis and all the other symptoms which are associated with diphtheria.

It is, therefore, not the bacteria themselves which do the damage, but the poisons which they secrete. These poisons exert their effect by combining with the cells of the organism. We thus see that both in the process of production and in the effects they produce the matter is one of chemical combination.

Is there any way of preventing this combination of poison with the cell?

I want you to bear with me a moment while we go over a simple chemical experiment which all of you have done many times.

Sulphuric acid and its solutions have an acid reaction. Sodium hydroxid has an alkaline reaction. They combine with one another according to the law of definite proportions to form sodium sulphate, which is neutral.

Ammonium hydroxid also has an alkaline reaction and combines with sulphuric acid to produce ammonium sulphate which is also neutral in reaction.

Suppose now that we take sulphuric acid and treat it with sodium hydroxid. We form sodium sulphate. If we now add to the mixture ammonium hydroxid no ammonium sulphate is formed. Suppose now that we consider ammonium hydroxid as the cell, the poison as the sulphuric acid, can we interpose a substance which will act as does the sodium hydroxid in preventing the poison from reaching the cell?

You have all heard of diphtheria antitoxin, and many of you, I dare say, have seen it used in your own families or in that of your friends. What is it? How is it formed, and what relation does it bear to our sodium hydroxid?

Diphtheria antitoxin is made by inoculating a large animal like the horse, which is in itself resistant to the action of diphtheria poison, with the poisons of this disease, first in small amounts and then in larger doses from time to time till the animal is receiving doses which would kill if they had been administered at the outset. This is, as you see,

quite like the experiment with the poison from the castor oil bean which we have already discussed.

And now we come to a most remarkable property which the animal itself has and which you have perhaps thought of in connexion with the castor oil poison experiment. It is the property which the animal has of producing itself an anti-poison. It is thus that the animal has the only chance of protecting itself.

This counter-poison produced from the cells of the animal's body, corresponds to our sodium hydroxid. Its formation is stimulated by the introduction of the poison, and fortunately it is formed in many times the amount which is necessary to neutralize the poison itself.

Therefore, at the end of the experiment with the horse, without doing the animal any injury we have produced from the cells of its body large amounts of anti-poison. If we draw off the blood of this animal, and allow the blood cells to settle we have in the clear serum a solution of the anti-poison to diphtheria, which if injected into the body of a child attacked with diphtheria will neutralize the poison produced by the micro-organisms as fast as it is formed and so save the life of the child.

You can see from this, and from the analogy which the action bears to the experiment with the ammonium and sodium hydroxids, the absolute necessity of giving the anti-poison as soon as possible. For once the poison has had a chance to attack the cell no amount of anti-poison is of any value. But if the anti-toxin be administered first there will be in the blood of the child sufficient anti-toxin present to combine with the poison and so it never gets a chance to reach the cell.

The action of toxin and antitoxin in their relation to the cells of the body is therefore a purely chemical one. The whole of modern serum therapy or curing disease by means of antitoxins is a chemical process.

We can see how important it is to have a sound knowledge of chemistry in order to understand the most marvellous of the discoveries since the first time a man stretched out his hand to help his fellow man in sickness and disease.

I could go on at great length to give you many other reasons why this process is a chemical one. I could cite you the experiments of Ehrlich, of Arrhenius and Madsen, to show that these substances obey the laws of definite and multiple proportion, of mass action and of reaction velocity; in other words behave as simple chemical individuals do, and do so with an accuracy which is surprising considering how complicated must be the structure of these compounds.

The mistakes which have been made in the investigation of these substances have been made by observers who have not borne in mind sufficiently the laws of chemistry with which they were dealing. They

have thrown mystery and doubt around a subject which, handled in a chemical way, is becoming clear.

The subject of serum therapy is only in its infancy. It ramifies throughout the whole field of medicine. It has not only to do with bacteria, but with the poisons secreted by the body in morbid states, and with such things as the poisons of serpents.

The great advances in curative medicine in the next hundred years are likely to be along the lines which I have indicated.

The advance which is being made to-day is being made by men with a sound knowledge of chemistry, and the advance will be made by the men who have received thorough training in the chemical laboratory, and will put that training to practical use.

I have spoken to you of the results which have followed the application of chemical methods to investigation in medicine. There is another field in which chemistry makes itself of daily use to the physician. This is the field of diagnosis.

Hippocrates, the father of medicine, in speaking of the difficulties with which the physician is beset, gave expression to the memorable words: "Art is long; life is short; opportunity is fleeting; experience is fallacious and judgment difficult."

The medical man who keeps these aphorisms always before his eyes will avoid many of the pit-falls into which the practitioner often runs.

It is the last two of these aphorisms to which I wish to call your attention, the matter of experience, and the matter of judgment, for these two are as closely interwoven with success in medicine as the thousands of threads of a silk scarf.

It has been also truly said that a disease recognized is a disease half mastered. Does our laboratory training help us to recognize the symptoms of disease. What relation does our work with test tubes bear to the bed-side of the patient? Do the hours we spend in the laboratory at work on chemical problems help us to become skilful physicians? They do, and very directly too, but it is in a line which you have never completely considered.

Of all the habits most difficult of acquirement and most essential to the physician that of accuracy of observation is the greatest. It is the quality which distinguishes the master of medicine from the man who works hap-hazard, and who at length, leaving a line of unrelieved suffering humanity behind him, sinks into a well-merited oblivion. It is this, and this only, which differentiates the two types of men.

The memorizing of thick volumes of medical lore will avail little; skill with the hands does not count for much, it is the skill of the artisan;

fine instruments and equipment are nothing, these can be bought with money. But the man who has cultivated his five senses so that with accurate and quick perception he can by sight, by hearing, by smell, or by touch, recognize the small differences which separate one disease from another will rise above his fellow practitioners, and gain name and fame while his colleagues wander aimlessly in the broad fields whose boundaries are nothing.

We saw it in the case of Pasteur with the little facets on his crystals. We see it every day in the brilliant work of the masters of medicine. Accuracy of observation is the thing.

It is said of Liebig, that in order to cultivate this accuracy of observation, he performed the precipitation of a salt like sodium chloride with silver nitrate, hundreds of times, so that without knowing what the substance was, he could instantly tell its composition from its external appearance.

He was able, in a thousand bottles all containing white substances to name each substance without looking at the signature. He had cultivated the faculty to such an extraordinary degree, that the minute differences which would escape the observation of the ordinary observer were sufficient to enable him to differentiate these substances from one another.

It is this very thing, which you learn in the painstaking work which you do in the laboratory, and nowhere else do I believe have you an opportunity of cultivating it to such an extent.

You deal with substances of definite composition. You are in perfect control of the conditions of dilution, of temperature, of light. You are able under a definite set of conditions always to reproduce the same results. If you do not, you are dealing with another set of conditions, and all your faculties are brought to bear to either reproduce the condition, or else to find out what factor in the experiment has been varied.

It is therefore a case of the utmost accuracy in all the work you do if you would achieve the highest result.

The body is nothing more nor less than a complicated test-tube. The results which we obtain under one set of conditions we call health. If we have disease, one or more of the factors of the experiment have been varied. It is your duty as the physician to find out that factor, and having found it out to change it so that you reproduce the conditions which we recognize as normal.

I can assure you that the man who has taken a simple reaction and has studied it completely till the possibilities of learning anything further from that particular reaction are exhausted, has done more to fur-



ther his success in medicine than learning by rote ten books of anatomy, of physiology or the practice of medicine.

The habits which he learns in the laboratory of closely observing a small thing, and of noting carefully all the conditions which influence a given result, will stick to him through life and influence his work only in the direction of the highest things.

Do not wonder therefore why you should spend precious hours over your test-tubes and your beakers, when you might be occupying your time in the hospital wards examining lungs or listening to heart sounds.

You cannot observe accurately so complex a system as the human body till you have mastered the observation of simple phenomena under control. The place to do this is the laboratory.

In conclusion, I will quote to you what the great chemist Ostwald says of the importance of chemistry in physiology, and what Sir Michael Foster states of the relation of physiology to medicine.

In an address, a résumé of which appeared in the *Zeitschrift für Physikalische Chemie* in 1897, in speaking of physiology, Ostwald said:

“Of all the departments of chemistry, physiological chemistry is about to yield the most important and pregnant results. The physiologist who brings to bear to his subject a knowledge of chemistry as it is known to-day will perform a service to his science not less important than that rendered to chemistry by Liebig.”

And Sir Michael Foster, in his delightful essay on Vesalius, says:

“I may go so far as to say that the knowledge of the laws which govern the phenomena of all living things are so essentially the basis of all attempts to succour and to watch over the welfare of one set of human beings, that the history of physiology cannot be regarded in any other light than as the heart and kernel of the History of Medicine.”

If these two statements of two of the masters of chemistry and physiology be true, and I believe they are, can there be a doubt in the mind of anyone as to the importance of chemistry in the study of Medicine?

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## AN INTERESTING FAMILY HISTORY OF EPILEPSY.

C. A. PETERS, M.D.

Montreal.

When in camp, at Laprairie, with the militia last week, one of the troopers paraded for treatment was an epileptic. His family history seemed to me so interesting that I jotted down the following notes. The case is also worthy of note from the fact that a fright was the direct cause of his first attack.

Tpr. R. M., aged 22, farmer.

*Personal History*:—Up to age of 10 had always been healthy, not having even the ordinary diseases of childhood. At this time the family moved from one village to another. Their new home was situated quite near the railway track. At midnight of their first day, the "Express" whistled immediately opposite their house and not 20 yards distant. This partially wakened the lad out of a sound sleep and immediately he took a convulsion which, from the description given, was one of genuine epilepsy. For several years he had one nearly every night, and sometimes two in a night. Under treatment they became less frequent until one in a week or fortnight was the average. During this time, however, if he became very excited during the day he would be sure to have an attack at night. For the year and a half previous to his coming to camp, he had no fits. For the first four nights in camp he had a fit each night, then two nights without any, and the following night two attacks. He has never had a fit during the day. He has no aura, but in the morning he can tell that he has had an attack, because his head aches severely for the whole forenoon and he feels dull and heavy. He never wakens during the attack, but goes from the convulsion stage into a heavy sleep. Patient has always slept with a brother some ten years older than himself, so there is not much likelihood of his ever having had an attack previous to the one noted at the age of 10.

*Family History*:—Does not know anything about grandparents. Father, æt. 63, alive and well; never had any fits. Mother, æt. 62, alive and well; previous to age of 21 had numerous fits; none since. Brothers, five alive and well; 4 dead; two cause unknown; 1 infant of summer diarrhoea and one accidentally shot. Paternally, uncles and aunts never had any fits. Maternally, uncle, died at age of 35, of epilepsy; had numerous attacks, diurnal and nocturnal; the day he died had status epilepticus. Maternal aunts, two in number, never had any attacks. One maternal aunt's children, a boy and a girl, both suffer from attacks, and one daughter of the other maternal aunt also has epilepsy.

As far as the patient knows there is no insanity or other neurotic taint in family.

THE

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## THE CLOSER UNION OF THE MEDICAL FACULTY AND THE UNIVERSITY.

To renounce prerogatives long established, long respected, and to yield these of free will, is one of the hardest acts that any corporate body can bring itself to perform; but there are times when to yield gracefully is the best policy, and it may be laid down that a Corporation which by its free act can bring itself to give up what it has long treasured shows that it is progressive. Such a body therefore proves that it is not living upon its past, but has confidence regarding its future.

It is an old story in Montreal that the Medical Institution saved and made McGill University by consenting early in the last century to be the Medical Faculty of that University, and the first graduate of that University was a student in medicine. So it was that the Medical Faculty was able at the beginning to dictate terms to the University, and among these was, what up to the present time has distinguished the Medical from all the other Faculties of the University—the privilege of managing its own financial matters. And on the whole, it

has managed them most ably; indeed, members of the Faculty have themselves time and again contributed to the building fund, and stinted themselves personally that the school might prosper.

Although thus the present members may point with pride to what has been accomplished in the past, we nevertheless believe that their recent action in seeking complete union to the rest of the University is that best fitted to ensure the future interests of the school.

For times have changed. Medical education is a far different matter nowadays to what it was even 20 years ago. A Faculty, small in numbers, could in the past both conscientiously and comfortably give all the needed education, and the students' fees much more than repaid each individual member of that Faculty for his efforts. Where once the didactic lectures sufficed for the needs of the students of two years combined, to-day the practical class demands one teacher for every 15 students, and the necessary apparatus and material consume large sums. Such education as that afforded nowadays costs much more than the students' fees brings in, and thus, even apart from endowments, the members of the teaching staff receive what can only be regarded as honoraria.

The time is passed, therefore, when the Medical Faculty by its own means can contribute all that is needed to make a school successful. Our profession, it is true, is accustomed to much charitable service, but that does not make it right that it should bleed itself for the public benefit.

The time has come when the laymen should recognize the advisability and advantage of supporting all medical schools if the country is to be supplied with practitioners of high grade, and the best way to interest laymen in the wellbeing of the Medical Faculty is to give them an interest in the affairs of the same. Thus it is that everywhere throughout the States, from Harvard downwards, the Medical Faculties are becoming portions of universities, and in general the results of complete union are most beneficial.

We feel sure that the same good results will be experienced here in Montreal.

There has been, we need not say, a higher ground for this fusion that seems to be politic, viz., that a student gains the greatest good and becomes the most all-round man who regards his University, not merely as supplying him with a degree, but as the place where he has studied and got to know his fellow man and his means of life and thought. There can be no question that to live only with those having like aims and like pursuits is narrowing, and that the student gets the most out of his University who freely mingles with and becomes acquainted with men of different types—the developing theologian, the budding engineer,

the would-be philosopher, and those who cultivate the law. It has to be admitted that, while the Medical Faculty of McGill has regarded itself as apart from the rest of the University, medical students have somewhat rejoiced in their aloofness from the rest of the student body. It is to the students own good and benefit that this feeling of separation be done away with.

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### THE TORONTO GENERAL HOSPITAL.

The City of Toronto is now facing the problem of a new general hospital; the facts, briefly, seem to be these: representatives of the present hospital board, the Provincial Government, the City and Toronto University have met, and favoured the proposal. The present trust would be surrendered, together with, we understand, \$25,000 a year derived from the present endowment. The University promises \$50,000, the Provincial Government \$250,000, Mr. Cawthra Mulock and another \$100,000 each; the City of Toronto has had legislation granted to give \$200,000, which leaves \$300,000 to be raised to bring the amount up to the \$1,000,000 desired. The site chosen is on the southeast corner of College Street and University Avenue. Severe opposition at once arises from the smaller hospitals of the city, declaring that if the City has \$200,000 to give it should divide it among existing hospitals; though we appreciate the point of view of those who oppose the project, it is evident to everyone that unless the new scheme is approved and undertaken the City will not give \$200,000; and it is doubtful whether private citizens who undertake to give \$600,000 in all should have ulterior motives imputed to them: when men give so much money for a charitable object, there is little likelihood that they are doing it to further the interest of a clique or even a number of cliques. The probable outcome will be that the private wards of the new hospital will be open to all practitioners of the City, and, if the staff of the hospital do not see fit to oppose this, the matter might end there. The opponents of the new hospital say that there are enough hospital beds to accommodate all the patients of the city; they surely can have but little faith in the progress of Toronto, of which we hear so much. In a growing city and a growing country, surely such arguments are mere trifling.

There is a wider view, we think, to be taken of the whole matter. With such a hospital and equipment, medical science will be advanced, and the status of medicine in Canada heightened; it is not to be argued against this that some of the best work of medicine has been done in adverse surroundings; elsewhere in this number reference is made to Pasteur, and we think we will scarcely be contradicted if we say that the Pasteur

Institute greatly increased his ability to do good work, although he made his name in humbler surroundings. Toronto has probably by this time realized that dispersion of energy in medical lines has not led to as great advance as might have been made; we say this, as speaking for Canada, and not in a spirit of criticism. Now that an opportunity for a really great hospital is in sight, we sincerely hope that it will lead to a result worthy of it; and when the Toronto General Hospital is built on the scale proposed, we shall feel proud of it, and wish it as well as if it were in our own city.

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### INFANT MORTALITY.

At this season of the year there is a great deal said and written about infant mortality, some of it of the sensible and some of the Hob-house variety, and there are few subjects in which figures can be made to take a more horrid guise. The medical profession may need to know more about the subject, but the laity certainly do so; and there are two facts which can never be too strongly reiterated. The first is that of the children of the poor who are not suckled by the mother many—we might say the most—will die, and this depends in no sense upon the physician, but upon the mother. The food supply of the world at large will not do for infants, and Providence has placed the mother between the infant and the food supply. If the mother for any reason whatever, cannot take this responsibility, the infant and the food supply come directly in contact, and the infant generally dies.

The second point is that if the infant and the food supply are to come in contact, the food supply must be made as suitable as possible for the infant: that is, the milk supply must be the purest that can be obtained. However good may be the intention of the milk vendor or supplier, we venture to say that not one in ten, perhaps not one in a hundred, really know what is to be done in the care of their cows and the work of their attendants, and the care and preparation of their utensils to enable them to put milk on the market in first-class condition. Rigid inspection, tedious and painstaking teaching of dairymen, prevention of the sale of milk by grocery stores, and other such measures will in time bring about the desired result. If statistics are to be trusted, there are some cities in America that have solved the difficulty, and many in Europe that have not. At the lever of this machine must be a specially trained man, for, with deference, the average physician is not much better qualified to be a milk inspector than to drive a locomotive. He must know every trick of cleanliness that exists, and he must be so much of an enthusiast that he will

never rest until every dairyman knows as much as he. Ordinary cleanliness will never produce first class milk, and the present writer knows at least one dairyman in Montreal who has expressed a desire for this knowledge of the higher part of his business. The knowledge should be ready at hand to give to him who asks it; this costs money which will come back in time, but which, even now, can buy lives.

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The Government, in adopting the report of the Tuberculosis Committee, refuses to make payments to provinces for the help of dispensaries, sanitarium, etc., because of the possible establishment of a precedent. Those who are interested in the tuberculosis question will feel that the Government has lost an opportunity for showing its immediate interest in a subject that needs every helping hand it can get. Apart from political views entirely, this is a question where a parliamentary error might please the country more than a timorous safeguarding of the public pocket-book, and a grant to provinces in aid of this battle of to-day would, we venture to say, please the enemies of the Government more than pensions to ex-Cabinet Ministers please its friends.

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The Counties of Perth, Wellington, Oxford, Waterloo and Brant, in Ontario, are taking active steps towards the erection of a joint sanitarium for consumptives. If a proper sum of money is voted for such an object, the building will be an acquisition to the county in which it is established, and the representatives of the counties other than the one selected must show a spirit of generosity which will look only to the site best fitted for the interests of the patients.

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The Orangemen of Campbellton, N.B., have offered to contribute \$4,000 in cash and value if the citizens will subscribe \$3,000; the third story of the building is to be used as an Orange Hall, if the scheme is approved. We can already foresee a host of comment upon this from the jokers, but a hospital is generally a good thing, however it is built; but what will the patients do on the 12th of July?

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At the annual meeting of the Council of the College of Physicians and Surgeons, held at Toronto on July 4th, the following were elected officers for the ensuing year:—Dr. A. A. Macdonald, of Toronto, President; Dr. W. H. Moorehouse, of London, Vice-President; Dr. R. A. Pyne, Registrar; Dr. H. Wilberforce Aikins, Treasurer; Dr. J. C. Patton, Auditor; Mr. Christopher Robinson, K.C., Solicitor.

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With reference to the meeting of the Canadian Medical Association in Halifax, August 22nd to 25th, those who wish to secure accommoda-

tion in advance should communicate with C. Dickie Murray, M.B., 60 Queen Street, Halifax, who is the chairman of the Information and Logging Committee.

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Dr. Arthur R. Reynolds has retired from his position as Commissioner of Health, Chicago, after ten years' service. To whomever belongs the credit, during his term of office, the health of Chicago has greatly improved. Speaking without personal knowledge, it is yet safe to say that an efficient department in all probability has an efficient head.

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Messrs. William Wood and Company announce a new edition of Cunningham's Text-Book of Anatomy, which is amplified, and will contain additional illustrations. The first edition was a thoroughly first class text-book.

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St. Michael's Hospital, Toronto, is to have a new wing built, which it is estimated will increase the capacity of the hospital by 150 beds, and will cost \$50,000. The hospital at present has accommodation for about 200 patients.

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Grace Hospital, Winnipeg, under the management of the Salvation Army, will be opened shortly, in commodious buildings, which will be devoted partly to maternity work and partly to wards for children, besides having a part to be used for the rescue work of the organization.

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The British Medical Association is invited to Toronto next year. Preparations have already been made in view of the acceptance of the invitation.

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#### JOTTINGS BY A COUNTRY DOCTOR.

Accompanying the manuscript of this article we received the following letter from a *confrère*, and while we wholly agree with the writer that the article explains itself, the letter so exactly expresses the editorial opinion and judgment, that we publish it as a preface.—[The EDITORS.]

To the Editors:

After undue deliberation I send you the enclosed for the JOURNAL. You will know that I am not an authority on therapeutics, and can perhaps understand that I am inclined to regard therapeutics as a science, and hold that this should be pursued as such, even if at times we are as hard pressed to justify ourselves as your friend the theologian must be at times to reconcile science and revealed religion. My good old correspondent, who subscribes himself "John Brandon, Ancaster, Ontario," I confess, has shocked me more than once by the cheerful and



vigorous way in which he worships strange gods in therapeutics. After all, as your theological studies may have impressed upon you, there is an interesting parallelism between medical practice and religion. The faith of the savage in his particular god, and the faith of the practitioner in any one particular medicine, has its basis, time and again, on no more powerful reason than, that, in some previous strait, invocation of that particular god, or the use of that particular medicine, has been followed in the one case by fulfilment of desire, and in the other by the wished-for improvement. The faith of those higher than savages, and the practice of the University Professor or specialist is too often established on a like basal confusion between *post hoc* and *propter hoc*. It is not because the good old doctor seems apt to follow after strange gods that these jottings of his are of value, so much as it is that they present a pleasant picture of the country doctor; cheery, enthusiastic, keenly observant, anxious to do his best, ready to do anything that may possibly be helpful to his patient. Indeed, on re-reading the letters I do not know that they need any introduction: they amply explain themselves; it is merely that I feel it necessary to explain my position as to an introduction.

I would add that in sending this material to you I have supplied headings, and to some extent re-arranged the order in which it has reached me.

A.

Ancaster, Ontario, November 27th, 1904.

Dear Sir and Brother:

I believe that you were guilty of breaking the ice between us, therefore, if I say anything that is not fit, blame yourself. I send you these notes of practice containing, some of them at least, something that is new, or at least, if not new, I have not heard about these matters or seen them in print. What I now write is thought out on the spur of the moment. I would like very much, however, to have your opinion of them—freely expressed; and if there is anything good in them, they are yours to make use of; if not, the fire is handy this weather. I am too old now ever to go to see you, much as I would like to see McGill once more before the end comes. Give my kindest regards to Alma Mater, and tell her that if I had money she should share it; but after all these years, when all is summed up, there remains little that I can call mine own, save the house and lot. What I had is gone; I trust well spent in bringing my family up and out,—but these matters won't interest you; forgive me.

I have arrived at that age—see your Calendar—known as the anec-

dotage, so if my ideas take the form of a story please ascribe this to my failing powers, and if you can give me assistance in answering my queries, do so.

*On Taking Advantage of Exuberant Granulations.*

Some years ago our Township Treasurer was murdered for the cash that he was supposed to have in his house—shot through the arch of the aorta. I was called to the case, by his man—after he was dead—and I went, as Coroner of the district. The man was frightened greatly, and so was his horse. Before he could get into the saddle the horse gave him a severe kick in the face, completely removing one of the nasal bones. There was no trouble with the nose except that the hole was in a region where it was not wanted. I need not tell you that the village or country doctor is not provided with a hospital outfit, and as to rhinoplasty, except to a very slight extent, I have not practised it. Of course I knew all about cutting out a piece of skin from over the forehead, leaving a stem, turning it over, and stitching fast—a great deal easier said than done—and leaving another hole higher up, like the Irishman mending a hole in his hedge fence. I dressed the hole in the nose with tartar emetic ointment—double strength—and made granulations spring up in great abundance and of great size. Finally the granulations closed the hole completely. I then dressed with some oxide of zinc ointment, and it healed over. Of course the bone is gone, and I might have made a better fix of it—or worse. The man, a German, 25 years of age, had before the accident an Irish pug nose; how come by it is not for me to explain; but when all was well it was a straight feature after the Grecian type. I have since used the ointment in several different cases: hare-lip, with unqualified success; diagonal amputation of the thumb across the nail in a boy—success qualified; the thumb grew out to full length after a lot of trouble, but the ball was wanting, and it is wedge-shaped. Still, I intend using this to fill up any hiatus, lacerated perineum, and so on.

As a student I remember seeing Dr. McCallum operate upon the evil results of exuberant granulations. One case I recall of fingers grown together after scalding with hot water, another of axillary adhesions of several inches. Did it, I wonder, occur to him, or to others, to utilize these pathological overgrowths as a therapeutic measure? As to the agent to be employed to bring about exuberant granulations it makes little difference, convenience only being consulted.

*On the Active Treatment of Lumbago.*

In your last you rather hinted that you were not an authority upon

medicines, and, where possible, favoured treatment other than by drugs. If you are still of the same opinion then this story will suit you.

My respected father had the same weakness of intellect with regard to medicine to which I think you confessed—and as fortune favours a certain class of people—he had this experience. He had an attack of lumbago—no gentle one either. I need not tell you that he went to no doctor—for two reasons: First, there was none to go to, and, second, he would not had there been one next door. He lived in the county of Lambton, when it was fresh from its Maker's hands. The disease bent him double, but otherwise he was well. He went to see an old Irish friend, and together they discussed all the woes of Ireland from King Solomon down to Daniel O'Connell—we had no Redmond or O'Brien in those days. The settlement of the Irish question took a good long time, would that it had stayed settled! However, he had to go home, and had to traverse a large piece of bush between the two clearings. He also had to cross a stream on a log which acted as bridge. When he had got well started upon the log, he started the second time on hearing a snort before him. He looked up as well as he could, and there, also using the log for a bridge, was a big black bear, rearing himself upon his hind legs and getting ready for a fight generally. My father was not armed and could not run, or at least he thought so, so the two stood and surveyed each other as well as the failing light would permit.

At last the bear became impatient and jumped off the log into the water and waded through. My father improved the opening for escape and strategized, as the Yankees used to say, towards his base of supplies. When they both had crossed the stream, they had one more look at each other, and then separated. Oh, shades of Sherifmuir! why did both sides run away? But they did, and the following was my father's version of the story, as nearly as I can remember it after 50 years:

The retreat began at once, but was retarded by an immense tree that had fallen across the blazed track through the woods. He cautiously laid his chest upon the log and rolled over it—rolled more easily than he had expected. The next log he put his hand on and sprang over lightly. The next and the next he never touched at all, and when he got home he was quite well; though he did not wish to be cured in the same manner a second time. As for the bear he made a seizure or two after some delay, and it was resented. He caught Harry Chalk's sow, and scratched both her sides with his finger nails, but for some reason had to let her go. The bear next scratched an acquaintance with Jim Crysler's pig, and had a real good breakfast. Soon after he called

on Jack Shepherd, upset a bee hive, took out a big handful of honeycomb, and was eating it with enjoyment, when Jack was mean enough to give him a charge of buckshot.

*On the Treatment of Puerperal Convulsions.*

Some years ago I was called to a confinement: nothing unusual, some slight difficulty in the last stage; gave chloroform and applied forceps; all well. Soon after, the severest puerperal convulsions set in that I have ever seen show themselves and the patient survive. I gave her pot brom. chloral hydrate and tr. hyoseyami in suitable doses, all in one mixture—8 oz. Soon after the first seizure came a second and a third. The jaws were firmly set, so it was useless to administer medicine that way. I therefore gave her the whole bottleful as an enema.

She went to sleep and slept for three days. I drew off the water twice a day, and did nothing else. She woke up safe and sound and remained well.

I have used the same treatment since in a case in which lockjaw was brought on by walking on a rusty nail, which pierced the foot. That boy—an English emigrant—could throw himself sideways from the sofa for three or four feet. He only slept until morning.

Did you ever try tartar emetic and tr. of iron in small doses in puerperal fever?—tartar emetic one-half grain, tr. ferri mur. guttæ xx, aqua ad four ounces—one teaspoonful every hour. Change it after 24 hours, as it is an unstable compound. I do not know its chemistry, but it soon becomes inert. Of course cleansing injections of potash permanganate are in order.

*Static Electricity and Acute Endocarditis.*

I want some information. I have had two cases of mitral valve disease. Of course I don't want you to understand that I never had but two, but I have had two lately; one due to rheumatism, the other associated with a phlebitis. These last two I have tried to cure with what is called electrical massage.\* I cannot talk electricity any more than I can talk naval matters, but if the vegetations that are deposited on the cardiac valves are simply produced or rather eliminated from the blood by whipping it, the same as might be done *extra corpus* by a bundle of twigs, then the electricity with which the body becomes so highly charged, if it does not dissolve the fibrin matter, it seems to me, very possibly, causes it to lose its cohesiveness so that it breaks up,

\* I take it that this electrical massage, from the doctor's description, must be of the nature of static electricity.

Having no life in itself, and not being a parasite proper, it has not vigour enough to resist an attack such as I have attempted to describe. Whatever the cause in about a fortnight after the treatment—there was but one—the first patient was suddenly freed from his apnoea, the swelling in the lower limbs became very much less, and a general improvement took place. He could lie and sleep on his left side, and several medical men pronounced it a cure without being informed of the means employed.

*Case No. 2.*—A young girl, of 14 or so, was seized with acute rheumatism. Her heart was affected early and nearly all the joints. The disease flitted from ankles to wrists, from wrists to knees, and even it seemed to me to the membranes of the brain. Wherever there was business to be done there it put in an appearance. Treatment: opium, fly-blisters and alkalis, with bromides to relieve the head symptoms. All went well, but the disease left her with vegetations upon the mitral valve. She is now undergoing electrical treatment at my recommendation and is greatly benefitted, but I imagine the valves have shrunken leaving a button-hole slit. Still there is very great improvement, with, I admit, plenty of room for more.

I want your opinion upon these cases to help me with a third. The patient is a woman of 45 or 50—I dare not enquire too closely—in which fibrin has been deposited in the pupil of one eye, filling up the anterior chamber, with fibrinous inflammation, also, of the cornea and external deposit; how far it extends inwards I cannot tell. The other eye is pretty nearly destroyed. At most with it she can discern light from darkness. My query is, would electricity be any use in this case? I have dissolved all the outer layers of it; that is to say, I have brought about resolution of the keratitis by dropping a grain of calomel into the eye once a week. A solution of cocaine saves the eye from the irritating effects of the calomel; but this amount was all she could endure, and lately I have given her one grain of calomel by the mouth at the same time, and I think the results have been beneficial. She can see in a bright light, as you or I can see in a dark room; that is all. I have tried atropine, but that has had no effect whatever upon the pupil; the iris must be bound down. The atropine used produced its other effects upon the throat, etc. How about electricity? If electrolysis can dissolve fibrin in one case, it also should in another. I should very much like your opinion—freely expressed.

As for calomel; I believe in it. I have removed a clot of fibrin from the eye of a man nearly 70 years of age. I would have had complete success but the calomel is only put in when I do it, and, as he

lived nearly ten miles away it is not often done. But even with this the result is excellent.

December 7th, 1904.

Your letter of a late date came duly to hand, and I feel duly grateful for the information which it contained regarding fibrin.

I admit that my pathology has become hazy with the years, and I had forgotten that in organization the inflammatory exudate gains a proper blood supply. I had regarded vegetations and so on as a semi-alive tissue living like Epiphytes, or something like a class of plants that Dr. Dawson used to tell us about—God bless his old soul—that lived on the predigested fluids of another plant. I see all our therapeutists are sending me literature about predigested foods for infants and sick people. Well, when it comes to that, that a man cannot eat his own victuals, he had better emigrate to a better land—unless, of course, he has plenty money. So I shall not yet try electrolysis upon this case of inflammation of the anterior chamber of the eye. I would only report to you that the fibrin appears to be breaking up, and the patient to be improving. After I put the calomel into the eye, she can see a blood vessel, she says, shaped something like a fern springing from the inner canthus; she assures me that she can see it, and I am obliged to believe her. I am very obliging with regard to some stories, but I want to believe this woman. She can describe its location and size as well as I can, and I read and write without glasses. I continue to give her internally one grain of calomel per week, for I believe that this has a tendency to break down half-alive tissues, and also wholly alive ones, but the lesser alive go first.

*On the Antagonism of Ague and other Conditions.*

There are a few cases within my recollection that make me ruminate occasionally and regarding which a little light from you will do good.

*Case 1.*

A young woman of about 15, who had not menstruated, had consumption. She was Irish, and lived in Dundas, three miles distant as the crow flies, which it does often. She lived on Coot's Paradise, as an arm of Lake Ontario is called. This arm is really the outlet of a former river—antedating Niagara—which came from the West, washing and grinding out with ice hummocks the soil to a depth of 500 feet, and leaving the debris in the lake in the form of a spit all the way across that is called "Burlington Beach," a strip of sand 200 yards wide forming the boundary to the northeast of Burlington Bay.

Coot's Paradise is filling up with alluvial matter and decaying weeds, and is the breeding ground of fish, birds, turtles, insects to no end.

You will understand that the shores of the creek are unhealthy in some seasons.

The case was one of consumption pure and simple at first. I was doomed to defeat and I knew it. She took the advice of a friend and went daily to the slaughter-house and drank bullock's blood fresh from the animal—and liked it. I didn't. However, this stopped as she had a severe attack of the ague and could not go for her favourite tippie. During the time that her ague proceeded, all the signs of the consumption not only abated but actually left her. I was convinced that, after all, my diagnosis was at fault so far as the consumption was concerned; not a trace of it was left. Auscultation and percussion gave no indications; she ceased to have night sweats and diarrhœa; in short, not to be tedious, I said to myself—I like to talk to myself, it is always confidential—“Old man, you were mistaken for once; what you have to do now is to make a quinine mixture and all will go well.”

She took her quinine and the ague left her very easily. Now I know something about ague. I had it in my own proper person for 18 months, and the only exercise I took during that time was the shake of the ague. The form varied a little. What I remember best was a double tertian, a shake to-day at 11 a.m. and to-morrow another at 2.30 p.m. When I tell you that Kate Hurly had the ague there was no mistake.

As soon as I had cured the ague all the symptoms of the consumption returned, with greatly increased virulence. It seemed to me that it must have been going on all the time contemporaneous with the ague. And she died.

#### Case 2.

William McCormick, Irish, Sawmill owner, aged 38-40, married, with family.

He had consulted two or three medical men for an ulcer of the stomach. There was no improvement, and I was called to see him. Without doubt there was an ulcer of the stomach; also his lungs were rattling all over, and were half filled with mucus. I put him on hypophosphites, gave him bismuth trisnit with pulv. kino co., 5 grs. *aa ter in die*, and under this he seemed slowly to improve. But soon the ague developed, and it was a severe case. Here again the lungs cleared up as if by magic, the stomach ulcers healed over, and all was well. I left him to shake it off as best he could. His saw mill was located in the “Big Swamp,” a hole in the course of the extinct river which I have mentioned. But here I may say that the extinction was brought about by two causes: one was the wearing away of the cataract at the Gallops Rapids, I think, and consequent draining of an immense fresh water

sea; the second was and is, that geologically we are rising. Still the dirty hole is left. I told him to leave his place, and to take nothing at all for the ague. He went down the Lake to his father's place, stayed out of doors, and got well and hearty. Some little time later called upon me. The ague, epigastric and chest trouble were all gone. Shortly afterwards I was told he had been removed to a Hamilton Hospital under the care of a so-called specialist, and that he rapidly became worse and died.

What I want to know is, how do these things happen? How in these cases did ague abolish for a time, or at least mask completely, all the symptoms of consumption? I once heard the late Professor Howard note the fact, but, if I remember aright, he laid it down, that when it does occur in the case of consumption it does good. In my cases the good seems only to be apparent, and the after effects quite the reverse. I don't want another such case.

I have at present a case of Colles' fracture—nothing unusual about the fracture. I reduced it under chloroform. It is uniting nicely. But about the 8th day the patient complained of a chill: no signs of fever of any sort. This occurred nightly at 6 p.m. three or four times in succession. The pain in the fracture after the chill was frightful, and once I had to give a subcutaneous injection of morphia. After two hours of suffering the pain left as suddenly and as mysteriously as it came. When these attacks had recurred three or four times their periodicity struck me. I thought there was something wrong with the fracture, but there was not a sign of inflammation or of disturbance of any kind. I gave her quinine powders and in 48 hours all was nearly well, at least greatly improved.

This particular form of ague showing itself after a fracture and associated with pain at the site of the fracture I had not previously come across in a patient. But it brought to my memory what happened to me when a young man. Lifting a heavy log I broke off one of the spines of one of my lumbar vertebræ. I did not know this at the time. Some days later I took the ague and it always began in that spot where the process was broken. The fracture healed without treatment, and I was unaware of it until it got well, when I found a thick ferrule of bone around the injured part. Can you suggest to me why these things should be?

*On the Toxicity of Human Milk in Febrile States.*

Some time ago I attended a young married woman in her first confinement. All went well until a few weeks later when my patient had a smart attack of some ephemeral fever—I forget now what it was or the cause of it. After examination duly made, I prescribed and dis-



pensed the treatment—for a country doctor must do both. I explained that the patient's breasts must be attended to, so I told her husband that he could either come to my office for a breast pump, or if it were possible to obtain a pup to suck the breasts it would do as well. He at once announced that the pup idea exactly suited him, as he had at that time a litter of four or five pups in the drive house, and he promised to attend to the directions. On my next visit I found all well; the mother had done famously; the child all right. The whole family including the grandparents and certain maiden relatives were all assembled and all seemed to be peculiarly happy, not to say hilarious, more so than could be reasonably expected. I looked over my personal equipment to see if any defect existed to cause mirth, but no, there was nothing there; being still in the dark, I began to seek an explanation. I asked the father how he had stood the ordeal; he said very well indeed, but if possible looked a little more pleasant than before, and this stirred me up to ask directly the cause of the mirth.

"You have not asked after the poop," was the answer I received.

"Well," said I, "how did it fare?"

"You are too late," I was informed, "the poop is dead."

"Dead," I exclaimed, "how did it happen?"

"O, pulled well at one breast, and then pulled at the other, and then stretched itself out and was dead, and that is all there is to it."

Now, sir, in a country practice a pup is a very useful animal: it pulls famously and has no teeth. But this has not happened to me before. I think that I have read of a somewhat similar occurrence in an old edition of Carpenter's physiology, but that does not explain the matter. What changes took place in that breast milk enough to kill the pup? In Carpenter's case the disturbance was due to mental emotion, but there was no mentality in my case. Could the poison that caused the fever be eliminated through the mammae, aided by a purge and a little aconite, and did the pup come in for the concentrated dose? What can it be that should destroy life so soon without a struggle? I can only say with the old maids present: "A good thing it was not the baby."

February 11th, 1905.

By the way yesterday I saw a photo of the man whose nose I reconstructed. In the photo it is impossible to see the patch with the naked eye, and I have no microscope. I did not find the bone on my first visit, but it came out of the nostril and was not kept. My operation is not liable to the objection urged in "Hudibras" to the operation known as Tagliacotian. This man was healed by his own flesh. I believe that I can get you a photograph of the man if you are interested in a case of this kind.

## Reviews and Notices of Books.

A TEXT-BOOK OF OBSTETRICS. By ADAM H. WRIGHT, Toronto. Illus. Svo. Published by D. Appleton & Co. Cloth, \$4.50.

This book is full of the author's personality, and calls to mind the style of Denman's *Obstetrics*, first published in 1815, and for many years a most popular work both in England and America.

Dr. Wright has produced an interesting book upon the *art* of obstetrics as distinguished from its science, though in the few places where reference is made to science no particular fault is to be found. On the whole, in this scientific age, such a work comes as a surprise, though perhaps it loses none of its charm by this deficit to many readers.

The reviewer has perused its pages with interest and not without profit, for it impresses one with the sincerity and earnestness of its author, who is evidently well read and thoughtful, and a good type of the careful, competent practitioner.

The work opens with a quotation from Longfellow's *Hyperion*, dealing with the fatuity of speculative knowledge, which, taken along with the following sentence on page 28, fully expresses the author's central idea in producing this work:—"It appears to me that there is at the present time considerable danger that we are cultivating science at the expense of art in our profession."

Hence, one is not surprised to find scant reference to the etiology of many conditions of the highest interest to the scientific obstetrician. For example, the part dealing with embryology is weak, and the author's remarks in reference to the embedding of the ovum and development of the placenta is antiquated and incorrect.

Having pointed out these few defects, it is a pleasure to dwell on the many good qualities of this latest contribution to the literature of obstetrics.

Of special interest on account of clearness, accuracy and often original presentation are the chapters on mechanism, the third stage of labour, the treatment of vomiting of pregnancy, the relation of appendicitis to pregnancy, and also, the most valuable of all, the chapter on tuberculosis.

In many instances the author illustrates his point by reference to cases he has encountered, and gives careful and interesting reports when so doing.

The author has very strong views on the subject of milk diet whether in typhoid or in the toxæmia of pregnancy. He hesitates about denouncing it completely, but concedes its value in the case of young infants and calves, though he does state frankly that, in his opinion, it is unsuitable for adult human beings.

The general arrangement of the work is about as usual, being divided

into parts, physiological and pathological. The style, as has been said, is good, and the book will be found extremely interesting reading by the physician, and will no doubt be a very popular work among students.

The illustrations have been well done, and not, as in many recent books, overdone. The publisher's work leaves little to be desired, and is quite up to the usual good style of the Appleton publications.

**DIAGNOSIS OF DISEASES OF WOMEN.** A Treatise for Students and Practitioners. By PALMER FINDLEY, B.S., M.D., Assistant Professor of Gynecology and Obstetrics, Rush Medical College, in affiliation with the University of Chicago; Assistant Attending Gynecologist to the Presbyterian Hospital, Chicago. Second Edition. Lea Brothers & Co., Philadelphia and New York. 1905.

This is the second edition of Findley's book, "Gynecological Diagnosis," which appeared two years ago.

The title has been changed, and changed for the better. Ninety-four pages and twenty-six illustrations have been added in this new edition. These additions constitute two new chapters; one on the Blood, the other on Bacteriological Examinations, while much has been added to the chapters on Disease of the Urinary System. It is manifest that there is ample room for a work of this description, for, as Findley himself says in the preface of the earlier edition, there is no other text-book of the kind in English. Moreover we agree that there is need of such a book, so cumbersome and page-burdened has the adequate general text-book already become, and we may truthfully add that this first "Treatise" justifies its place, and answers the requisition in a thoroughly able and satisfactory way.

While the book is barren of literary quality, the text is always clear and is generously illumined by engravings and plates. The weakest chapter is the one on "Bacteriological Examinations," the very chapter in which we anticipated strength. No adequate description of the flora of the genital tract is given, and methods of examination are not even mentioned. The work here in no way compares with the corresponding chapters in the general text-books of Dudley or Hart and Barbour.

The chapter on Blood Examination is specially good, as are also those in Hydatiform Mole, Chorio-Epithelioma and Carcinoma of the Uterus.

Plate XXII, where the foetal remains in a tubal pregnancy are represented as occupying the centre of the lumen of the Fallopian tube, is surely incorrect, for even in Fürth's two and a half week's tubal pregnancy, the earliest described, the ovum was found entirely outside the lumen of the tube, entirely submucous.

The book will appeal more strongly perhaps to the student, for, speaking generally, the pathological aspect is its strong feature. The

work here is first-hand, excellent and extremely valuable, especially the microscopic descriptions and drawings. For this very reason Findley's work is deserving of the warmest welcome.

**MANUAL OF DISEASES OF CHILDREN.** By JAMES BURNET, M.A., M.B., M.R.C.P. (Edin.), Registrar and Assistant to the Extra-Physicians, Royal Hospital for Sick Children, etc., etc., Edinburgh. Edinburgh: E. and S. Livingstone. 1905.

This small book of 400 pages aims at giving but a brief outline of pædiatrics for the use of practitioners and students who are beginning the study of this subject. While the utility of such a work may be questioned, one cannot but feel that the author has accomplished his task well in regard to brevity. With the space at his disposal, much of the subject matter is of necessity too condensed to be of practical use. Of eighteen chapters, three are descriptive of diseases of the skin, and special sense organs. These, we think, would better have been omitted. It is hardly reasonable to expect a student beginning the subject of pædiatrics to profit by or even understand the very meagre description of skin diseases which can be crowded into a few pages, and the same can be said for the other special subjects. There are in the book many small errors which show want of care in its preparation, but these, no doubt, will be eliminated in a later edition.

**A SYLLABUS OF MATERIA MEDICA.** Compiled by WARREN COLEMAN, M.D., Professor of Clinical Medicine and Instructor in Materia Medica and Therapeutics in Cornell University Medical College; Assistant Visiting Physician to Bellevue Hospital. Second Edition. New York: William Wood & Company. 1905.

This useful little book is intended as a supplementary pocket volume to text-books, and not as a text-book. The main difference in the second edition from the first is the amplification of that part of the work dealing with minor toxic actions and toxicology. The book is a very good pocket consultant for use in a hurry.

### Medical News.

CANADIAN MEDICAL ASSOCIATION, HALIFAX, N.S.,  
AUGUST 22ND TO 25TH, 1905.

PRELIMINARY PROGRAMME.

President's Address—Dr. John Stewart, Halifax.

Address in Surgery—Mr. Francis M. Caird, Edinburgh, Scotland.

Address in Medicine—Dr. D. A. Campbell, Halifax.

Address in Gynæcology—Dr. Howard A. Kelly, Baltimore.

Address in Ophthalmology—Dr. J. W. Stirling, Montreal.

Discussion—Renal and Ureteral Surgery. Introduced by Dr. A. Primrose, Toronto.

Two Cases of Retro-Ocular Neuritis—Dr. Geo. H. Burnham, Toronto.  
Paper, title to be announced—Dr. H. A. Bruce, Toronto.

The Symptoms, Diagnosis, Prognosis and Treatment of Neoplasms Affecting the Central Nervous System—Dr. D. A. Shirres, Montreal.

Chorea, with an Analysis of 130 Cases—Dr. Robert King, Halifax.

Rare Forms of Aneurysm—Dr. Maude E. Abbott, Montreal.

The Buried Suture—Dr. J. M. Elder, Montreal.

Dentigerous Cysts, and the Removal of the Inferior Dental Nerve for Tic—Dr. M. C. Smith, Lynn, Mass.

Combination Operation for the Radical Cure of Inguinal Hernia—Dr. F. N. G. Starr, Toronto.

Two Case Reports : (1) A Case of Chylo-Thorax; (2) Further Notes on a Case of Myelogenous Leukaemia, with Disappearance of the Splenomegaly and Myelocytes—Dr. D. G. J. Campbell, Halifax.

Physical and Clinical Researches on Radium—Dr. Myron Metzbaum, Cleveland, Ohio.

Prostatectomy—Dr. E. W. Cushing, Boston, Mass.

The Surgery of the Stomach in Non-Malignant Conditions—Dr. Geo. E. Armstrong, Montreal.

Dislocations (with lantern demonstration)—Dr. J. Alex. Hutchison, Montreal.

The Fever of Late Syphilis—Dr. Arthur Birt, Berwick, N.S.

Postural Albuminuria of Children—Dr. W. H. Eager, Halifax.

The Prodromata of Insanity—Dr. W. H. Hattie, Halifax.

The Treatment of Smallpox without Pitting—Dr. Archibald Leitch, St. Thomas, Ont.

Tracheotomy as a Remedy in Severe Whooping Cough—Dr. A. B. Atherton, Fredericton, N.B.

Recent Fracture of the Clavicle, with Operative Treatment—Dr. J. W. T. Patton, Truro, N.S.

In addition to the foregoing, several have promised papers, but have not yet decided upon the title of same.

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The annual meeting of the council of the College of Physicians and Surgeons of Ontario began on July 4th. The following officers were elected: President, Dr. A. A. MacDonald, Toronto; vice-president, Dr. W. H. Moorehouse, London; Dr. R. A. Pyne, registrar; Dr. H. Wilber-

force Aikens, treasurer; Christopher Robinson, K.C., counsel; Dr. J. C. Patton, auditor; Charles Rose, prosecutor, and John Downey, reporter.

The death of Prof. von Mikulicz-Radecki, of Breslau, which occurred a few weeks ago, removes from scientific circles a man who can be ill-spared; his death resulted from cancer of the stomach; some time ago he was operated upon, and the disease could not then be eradicated. Recovering from the operation, he went back to work, awaiting the end. Members of the profession here, among whom he numbered some intimate friends, will recall his visit to Montreal a couple of years ago.

Dr. Johnston, Member of Parliament for West Lambton, Ont., died on July 4th, at Ottawa, of septicaemia, following erysipelas. He graduated from the medical department of McGill University, in 1871, since which time he has practised in Sarnia. He devoted considerable attention to public affairs, was Mayor of Sarnia, and sat in the Dominion House from 1898 to the time of his death. He was 56 years of age.

Professor Hermann Nothnagel died early in July, in Vienna. Apart from his fame as a clinician and a teacher his name will be known in the medical world for long time to come by reason of the magnificent system of medicine which has been collaborated under his direction.

Dr. D. L. Philip died at Brantford, Ont., on the 11th July, at the age of 66. He was a graduate of McGill Medical College in 1861, when he obtained the Holmes' Prize, and the first prize in clinical medicine. He practiced in Woodstock, Plattsville and Brantford.

Dr. J. C. E. Roberts, uncle of Charles G. D. Roberts, the author, died June 15th, at Rimby, Alberta, aged 66 years.

Dr. Morin, of St. Agapit, Que., died on the 8th July, aged 69.

Dr. C. G. Lange, of Sinclair, died in Brandon Hospital, on July 4th.

## Retrospect of Current Literature.

### SURGERY.

UNDER THE CHARGE OF GEORGE E. ARMSTRONG.

WILLIAM K. OTIS, M.D. "A New Electro-Cystoscope." *Lancet*, June 10, 1905.

Over twenty-five years have passed since the invention of the electro-cystoscope by Nitze, and, although many modifications of it have been presented during this period, no one has succeeded in improving the ocular apparatus, so that the cystoscopes of to-day are no better than those manufactured by Hartwig or Leiter in 1887. The real optical difficulty which prevents an enlargement of the field, or an increase in

illumination in the Nitze instrument is due to the use of the prism as a means of diverting the light rays in order to obtain a rectangular view. The present instrument resembles in general the cystoscope of Nitze, but in place of the prism the writer has substituted for it a hemispherical lens, the plane surface of which is silvered, a portion of the circumference filling and closing the window in the outlet tube of the instrument. Other important modifications are the lamp and the device for insulating the second pole of the lamp. The lamp is so prepared that it has such a low amperage that it emits almost no heat. It is situated at the extreme point of the beak, which latter is but one-half of an inch long and set at an obtuse angle. As a result, the light unimpeded by any metallic hood, illuminates the whole interior of the bladder. The advantages claimed are a much more brilliant light, the field of view is four times the area of the instruments now in use, and is rendered clearer and brighter on account of the more powerful illumination of its lamp, the greater calibre of the telescopic tube (20 F.), and the arrangement of the lens system. The lens is so arranged as to render it impossible to be soiled by blood, pus, or lubricant. The instrument can be used with a liquid or air medium. The telescopic part can be removed completely and this gives a much larger calibre for irrigation, the outer tube remaining in situ. The short beak and absence of the flat top and sharp angular sides of the prism render it easy of introduction and less liable to cause bleeding.

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F. C. BOTTOMLEY, M.D., B.C. "The Causes of Appendicitis." *The Practitioner*, June, 1905.

The causes of appendicitis are considered under the three following heads: First, as to the varieties of micro-organisms found associated with the disease; secondly, why this part of the bowel is more liable to inflammation than other parts, and what conditions of the appendix itself prepare the way for attacks; and third, what are the predisposing causes in the individual himself. The article may be described as a concise statement of the generally accepted views on the subject, nothing new being added to our knowledge regarding the causes of appendicitis.

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L. KENDIRDJY and V. BURGAUD. "149 Cases of Medullary Anæsthesia by Stovaine." *La Presse Médicale*, May 31, 1905.

During the last two years the attention of the profession has been called to a new substitute for cocaine, stovaine by name, which is said to be only half as tonic as cocaine, just as effective—and somewhat cheaper! The drug having been discovered by a Frenchman, the

literature is so far mainly French. To judge from this literature, it would seem that the most promising future for stovaine lies in spinal anæsthesia. The toxicity of cocaine gave to Bier's spinal-cocainization the *quictus* it deserved; but now comes stovaine, and the keen Parisian, ever eager and perhaps a trifle over-enthusiastic in new lines, is quick to assure us that he has subjected so and so many cases to spinal "stovainization" without the least ill-result.

The author of the present article, Kendirdjy, of the Hôpital Cochin, in Paris, reports 140 cases of spinal stovainization; which, with 64 previously published, make a total of over 200 cases. About as many more have been reported by several other Parisian surgeons, notably Chaput, Reclus and Puffier. Such names demand for the procedure at least the benefit of careful consideration.

Kendirdjy claims a total absence of any serious symptom. In two cases, during operation, there was vomiting, in three relaxation of the anal sphincter, in one profuse sweating. The general condition as regards pulse, respiration, colour of the face, etc., was perfect in all cases.

After operation, headache, usually slight and transitory, was noted only in 12 cases; fever above 100° was always absent; vomiting occurred in five cases, but was very slight. The net results, therefore, appear to be extremely good. Sonnenburg, of Berlin, hails stovaine as a drug "destined to revolutionize the question of anæsthesia." Bier himself, according to the author, who had given up spinal cocainization, has lately resumed the procedure with stovaine.

In conclusion, the reviewer would note that, in a previous article by Chaput, one death had to be reported, following the use of a rather high dose of the drug, 8 centigrammes; still it was found at post-mortem that the case presented an extensive patchy pachymeningitis of the cord, which probably contributed to the fatal issue. For all operations below the pelvis, a dose of 3-5 centigrammes appears to be both safe and efficient.

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OTTO SIMON. "The Operative Treatment of Complete Bowel Obstruction." *Beiträge z. Kl. Chir.* May, 1905.

It is no long time since the internists came round to the point of considering all cases of bowel obstruction as belonging to the surgeon. So recently as 1889, Goltdammer advised strongly a routine preliminary treatment of large doses of opium; those that did not improve—or die—the surgeon might have a try at. Perhaps in no other line of therapy has Billroth's mot, "Die innere medicin müsse mehr chirurgisch werden," been realized more fully.



Simon in the present article reviews all the cases, in number 51, of complete bowel obstruction occurring in Czerny's clinic during the period 1890-1903. Of the 51, 30 died. Only four came to operation in the first 48 hours, and of these three recovered. The value of early interference is therefore insisted upon, and emphasis is laid upon Kocher's dictum that the chief cause of death in obstruction cases is delay. When the bowel is gangrenous, simple enterostomy is preferable to the more serious resection. Primary resections of obstructing tumours are to be avoided. Preliminary stomach washing is strongly advised. If peritonitis is already present at operation, an enterostomy is advisable.

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HERMANN KUMMELL. "Observations in 1,000 Cases of Appendicitis." *Deutsche Med. Woch.* April 20, 1905.

The author's figures are briefly as follows:—

1. 695 interval cases, 4 deaths (57 per cent.), one dying of peritonitis, two of pulmonary embolus, one of pneumonia.
2. 49 early operation in acute cases, 3 deaths, 6 per cent.
3. 178 walled-off abscesses, 18 deaths, 10 per cent.
4. 82 diffuse peritonitis, 73 deaths, 89 per cent.

With reference to the case of peritonitis, the remark is made, almost pathetically, "An infection from without, entered through us; its cause remains unknown to me." In interval cases, his rule is to wait four to six weeks after the disappearance of signs of acute disease.

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BUSQUET and BICHELONNE. "A Case of General Infection by Gonococcus with Secondary Localization." *Revue de Med.* 1904, p. 433.

The case was that of a soldier, who had had six months before operation a hamatoma on his leg. Fourteen days after the onset of a gonorrhoeal attack, this because the site of a purulent swelling, and gonococci in pure culture were found in it.

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## MEDICINE.

UNDER THE CHARGE OF JAMES STEWART, F. G. FINLEY, H. A. LAFLEUR AND  
W. F. HAMILTON.

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PROF. A. FRAENKEL. "Cardiac Asthma and Anginia Pectoris." *Deut. Med. Woch.*, April 13, 1905.

Cardiac asthma and angina pectoris are amongst the most frequent symptoms of organic heart disease. Although not infrequently associated or occurring in alternating paroxysms in the same patient, they are distinctly different, both in their etiology and symptomatology.

Disturbances of the respiratory functions present certain variations according to the nature of the cardiac affection. It is well recognized that cases of aortic insufficiency often last for years without marked respiratory difficulties, whilst in initial disease dyspnoea on exertion, or even at rest, is a prominent symptom. In the latter case the pulmonary circulation is continuously overfilled, and this is only rectified by hypertrophy of the right ventricle. Most cases of arterio-sclerosis and cardiac hypertrophy resemble aortic disease in a long period of freedom from breathlessness, and failing compensation often shows itself by paroxysmal or asthmatic attacks of dyspnoea.

The attack of cardiac asthma frequently occurs after some strain thrown on the heart, such as muscular exertion, mental strain or excitement or overloading of the stomach. The onset is commonly at night, within a few hours after falling asleep. It soon becomes necessary for the patient to assume the sitting posture or to leave his bed; cyanosis of the face, cold extremities, a feeling of oppression and sweating are observed, whilst rales are heard at a distance and there is a tough brownish sputum. The character of the pulse varies during the attack. Not infrequently it is of high tension and perfectly regular; in others irregular, and in a third class a low tension and irregularity indicate a high degree of cardiac weakness. In severe and oft repeated attacks, signs of venous stasis, such as œdema, lymphatic enlargement and albuminuria ensue.

Such attacks well deserve the term "Cardiac Asthma," and are frequently seen in arterio-sclerosis and interstitial nephritis. Although occurring in valvular affections they are seldom so unexpected and are more an exacerbation of a preceding dyspnoea.

Both types of dyspnoea owe their origin to congestion in the pulmonary circuits. Traube regarded the congestion of the lung capillaries and consequent encroachment on the lumens of the alveoli as the chief factor in the dyspnoea. All portions of the lung, however, share in the congestion and overfilling of the capillaries and veins, including those of the bronchial mucosa, and consequently in the smallest tubes this swelling must offer a considerable obstacle to the entry of air, altogether apart from the increased secretion in the tubes.

It is not clear why typical asthmatic attacks occur more frequently in arterio sclerosis and in nephritis than in valvular lesions. Apart from cases where constant venous hyperæmia is present, such as mitral stenosis, the chief cause of cardiac dyspnoea must be sought in the anatomical condition of the heart muscle. When fatty or fibroid changes set in the period of dyspnoea soon follows.

Attacks like those of cardiac asthma may also arise from reflex causes, such as overloading of the stomach, even with intact heart and vessels. The syndrome known as peptic asthma falls in this class.

The pulse is usually quickened, and sometimes the tachycardia may be so violent as to induce a cardiac dilatation.

In the treatment blood-letting is very efficacious where the blood tension is high. Spontaneous hemorrhage, such as epistaxis, is often followed by relief, often lasting for a considerable time. Small repeated blood-lettings, either by leeching or by opening a small vein, are commended, and preferably before an attack should any warning shortness of breath present itself. In sudden attacks digitalis, caffeine or strophanthus, combined with a hypodermic of morphia, prove most efficacious. Cases with high arterial pressure and regular pulse respond better than those with a feeble and irregular pulse. In the latter case degenerative changes are frequently present in the muscle, and the drug is therefore ineffectual. The observation has often been made that the pulse becomes softer after the administration of digitalis, owing to lessening of the congestion in the lungs and the better aerated condition of the blood. Morphia hypodermically is, however, the best remedy to cut short such attacks, and the writer points out that its action is a tonic to the heart. Chloral or chloralamid, camphor and inhalation of oxygen are also useful, whilst the various hypnotics are of much less value.

The second portion of the article is devoted to an excellent account of this malady, but contains nothing remarkably new.

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SCHLESINGER. "On Periodically Appearing or Paroxysmal Paralysis."  
*Wien. Klin. Woch.*, March 30, 1905.

This condition, first described by Westphal, is now recognized as a well defined clinical picture.

Oddo and Audibert describe the malady as being frequently, but by no means always, an hereditary affection, characterized by a temporary, more or less generalized loss of voluntary movement, with loss of tendon reflexes and marked disturbances of electric irritability, but without defects of sensation or of the intellect.

In the case reported by Schlesinger a muscular man of 26, without hereditary or family neuropathic tendencies, suffered from his 16th year from periodic attacks of slight paralysis of the greater number of his voluntary muscles, those of the head and neck, however, always escaping. The tendon reflexes and faradic irritability were lessened or lost, but the direct mechanical irritability of the muscles was in-

creased. Slowing and irregularity of the pulse occurred during the attack and passed off at its conclusion. Acetone, albumen and casts appeared occasionally during the attacks. Apart from the paræsthesiæ and pains there was no disturbance of sensation. The attacks commonly occurred on Mondays, being present on waking and accompanied by profuse sweating. In the intervals the patient remained perfectly well and without disturbance of the tendon reflexes, faradic or direct mechanical irritability of the muscles.

The appearance of the attacks on certain days has been noted by other writers. On one occasion the author observed increase of tendon reflexes and spasm toward the end of an attack, and, as it passed off rapidly, he thinks it possible that such phenomena must occur and be overlooked.

Anomalies of cardiac action frequently occur, usually arrhythmia with evidence of dilatation of the right ventricle. Bradycardia present in this case has not been noted previously. The writer regards this slowing as due to vagus stimulation and depending on the same causes as that inducing paralysis of the voluntary muscles.

Different theories of the origin of this remarkable form of paralysis have been put forward, and the author leans to that of an auto-intoxication. The presence of acetone, of evidences of renal irritation and of profuse sweating during the attack support this view.

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DR. O. KURPJUWEIT. "On Fatal Anæmia in Old Age." *Deut. Arch. Klin. Med. Bd.* 82.

In a series of 80 cases of pernicious anæmia, Kurpjuweit describes two instances in elderly men, which presented unusual features. There were in both cases features suggestive of pernicious anæmia: a considerable grade of anæmia, weakness, loss of flesh, hæmorrhages, fever and splenic enlargement were present in both instances. Both ran a fatal course in a few months, and the autopsies showed pallor and hæmorrhages, a flabby and cloudy state of the heart muscle, and an increase in the amount of iron in the internal organs.

The blood and bone marrow lacked certain distinctive characters of pernicious anæmia. A considerable grade of anæmia was present, the amount of hæmoglobin corresponding to the corpuscles in one instance and showing a slight relative deficiency in the other. The white cells were diminished and the lymphocytes increased. Poikilocytosis was only slight, whilst cells derived from the bone marrow were extremely scanty, a single normoblast being found in one and a few myelocytes in the other.

The bone marrow largely disappeared and showed areas of necrosis and hæmorrhage not seen in typical cases of pernicious anæmia. The writer sums up his conclusions by stating that in old people there is a primary chronic anæmia of moderate grade, with splenic tumour, trifling poikilocytosis and excessive leucopenia and without the essential bone marrow elements. There is a moderate or high temperature and a fatal termination. The signs of a hæmorrhagic deathesis appear late and only to a trifling degree. The bone marrow shows complete atrophy or the signs of acute destruction.

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DR. J. RUIEMANN. "Ueber die Filatow-Dukessche Krankheit." *Diet Med. Woch.*, January 19, 1905.

The writer records briefly a series of cases of this malady. It derives its importance from its resemblance to scarlatina. The incubation period is from 9 to 21 days, and the malady exhibits its infectious character by frequently attacking two or more members of a family.

The disease is distinguished from scarlatina by the absence of vomiting at the onset, the moderate and rapid fall of temperature, the relatively good condition and trifling subjective discomfort, the absence of desquamation and of complications. A history of previous scarlatina is sometimes present and greatly assists the diagnosis.

The eruption resembles scarlatina but disappears in two or three days without desquamations. The tonsils are reddened, but there is no severe throat infection. It is apparent that a disease with such characters may readily be confused with scarlatina; the most important features in the diagnosis are a previous history of scarlatina and an absence of desquamation.

F. G. F.

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## PATHOLOGY.

UNDER THE CHARGE OF J. G. ADAMI.

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MUSZKAT. "A case of 'Bronchial Kolik'; the result of broncholithiasis." *Berl. Klin. Woch.*, June 19, 1905.

Stern reported in the *Deut. Med. Woch.*, No. 39, 1904, three cases of "lung-stones" and the author's case is an additional one. Poulalion differentiates these, according to place of formation, into parenchymatous and intracanalicular. The former can occur in the bronchi, the lung tissue, the pleura and the bronchial glands; in the bronchi it may be due to a calcification of the cartilage or of the mucosa itself, and occurs in cases of "chalk-diathesis." The intracanalicular stones are from stagnating secretion in a bronchus or a cavity. As general causes Muszkat considers that great production of calcium phosphate

and carbonate in the body are most important; the local cause is generally a calcareous change of necro-biotic tissue or new-formed fibrous tissue; if in the bronchi, fibrin or blood clot, bacteria or foreign body may give rise to the stone. Diagnosis will generally depend upon the appearance of the stone after coughing, though fluoroscopic examination may reveal it.

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WESTENHOEFFER. "Pathological Anatomy and Route of Infection in Cerebro Spinal Meningitis." *Berl. Klin. Woch.*, June 12th, 1905.

The author's conclusions from a study of considerable length are briefly that the mode of entry is chiefly by way of the nasal cavity, especially by way of the lymphoid tissue therein; the meningitis is generally basal, and in the region of the hypophysis; it rarely occurs secondary to ethmoidal disease, is essentially a disease of children and growing adults of lymphatic constitution; the combating of the disease is a question of hygienic surroundings, and the author thinks that while the meningococcus of Weichselbaum is found in the majority of cases, it cannot be considered the only excitant. Sometimes other bacteria, alone or in combination with the meningococcus, are found, and this, he thinks, points in the direction of the true cause being yet undiscovered, in which case, the meningococcus, as well as the others, plays a rôle analogous to that of streptococci in scarlet fever.

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GRAWITZ. "Observations on the Cases of Meningitis of the Present Year. *Ibid.*"

This author proposes that we substitute the term "contagious" for "epidemic" in our terminology, as he says, truly enough, that there is often no true epidemic.

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v. LINGELSHHEIM. "Statistics of Bacteriological Examinations in Epidemic Cerebro-Spinal Meningitis. *Deut. Med. Woch.*, June 29th, 1905.

Contrary to the ideas of Westenhoeffer, v. Lingelshheim considers it proven beyond doubt that the meningococcus is the cause of this disease. In 243 lumbar punctures, the organism of Weichselbaum was found in 138 cases, though most of these required both microscopic examinations (smears) and cultures to prove its presence; 76 times it was in pure culture, 62 times mixed with other germs. In 139 autopsies it was obtained pure in 68. Of 430 examinations of blood for agglutination, 146 were positive. A later series of 57 cases gave 26 positive results; 37 autopsies gave but 8 positive results. His observations in

the nasal cavities in healthy persons, as a whole, did not indicate the frequent presence of the organism.

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HERXHEIMER and HUBNER. "Observations upon Spirochæte Pallida in Lues." *Deuts. Med. Woch.*, June 29th, 1905.

These observers find spirochæte pallida in the secretion from the local manifestations of secondary lues in 16 cases; this spirochæte, if we mistake not, was described first by Schaudinn, and frequent observations of late indicate that it is a very constant factor.

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QUADRONE. "Clinical and Experimental Investigation on the Effect of Röntgen Rays." *Zentralblatt f. Innere Medizin*, June 17th, 1905.

The author sounds a note of warning against the abuse of radio-therapy. He says that exposure must be made with due care as to duration and frequency, on account of the ability of the rays to injure organic tissues, especially in patients who are no longer young or who are weakened by disease, because as a result of the insufficiency of their excretory organs they are predisposed to auto-intoxication. His experiments were made in vitro upon leucocytes and active sera.

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GRÜNBERGER. "Upon the Finding of Diacetic Acid in the Cerebro-Spinal Fluid in Diabetic Coma." *Zentralblatt f. Innere Medizin*, June 24th, 1905.

Grünberger, in the Clinic of v. Jaksch at Prague, found diacetic acid in the fluid obtained by lumbar puncture from a 16-year old diabetic, who was in coma. This was shortly after the appearance of diacetic acid and B-oxybutyric acid in the urine. Acetone had been present in the urine for some time.

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### Society Proceedings.

#### MONTREAL MEDICO-CHIRURGICAL SOCIETY.

The eighteenth meeting of the Society was held Friday evening, June the 16th, Dr. J. A. Macdonald, president, in the chair. This being the last meeting of the year, the following office-bearers were elected for the session 1905-06:—

President—Dr. F. R. England.

Vice-President—Dr. F. G. Finley.

Secretary—Dr. A. H. Gordon (re-elected).

Treasurer—Dr. A. T. Bazin (re-elected).

Trustee—Dr. H. S. Birkett.

## GANGRENOUS INTUSSUSCEPTION OF SMALL INTESTINES:

JAMES BELL, M.D.—“Gangrenous intussusception of Small Intestines.”—G. S., aged 18, was suddenly seized with colicky pain over the abdomen on the morning of Thursday, May 25th, 1905, which compelled him to take to his bed. After a couple of hours vomiting occurred, but no bowel movement nor passage of flatus took place after the onset of this attack. On the 29th of May, at ten a.m., the abdomen was opened in the middle line below the umbilicus, and an intussusception of small intestine into small intestine was found. There was free fluid in the abdomen and the intussusceptum was gangrenous in places. After an ineffectual attempt to invert the mass still further into the healthy bowel, after Maunsell's method, the whole mass was excised, and the ends united with a Murphy button. In all, sixteen inches were excised, and the abdomen closed.

This patient never fully rallied, and died at twelve o'clock at night.

M. St. J., age 12, was admitted to the Hospital on 28th May, 1905, with evidence of intestinal obstruction. Her illness had begun on the Monday previously, the 22nd. During that day she had had slight colicky pains in the abdomen, mostly in the lower right quadrant. In the evening she took a purgative and vomited. She had had no vomiting during the last two days. On the Thursday, she had an enema, which was moderately effectual. Neither stool nor flatus was passed from that time. At 10 p.m., an hour after admission, the abdomen was opened and intussusception of small intestine into small intestine was discovered. Sixteen inches were removed. The bowel ends were united by Murphy button and the abdominal wound closed. The lower section of the intestine was about ten inches from the ileocecal valve.

This patient had made an uneventful recovery, and passed the Murphy button on the 4th of June, just seven days after operation.

## CEREBELLAR TUMOUR:

JAMES BELL, M.D.—“Cerebellar Tumor.”—C. McI., aged 26, was referred to me by Doctor Hamilton, on the 25th May, 1905, with symptoms of cerebellar tumor. His illness began about the new year (January, 1905), with headache and vomiting. He was admitted to the Hospital, about the end of March, and was carefully examined. No ataxic, ocular or other localized signs were then discoverable. On the 7th of April the first signs of optic neuritis were discovered, and on the 16th of April ataxia was discovered. His symptoms were progressive. He lost flesh. He had on one occasion definitely, and on



another, perhaps doubtfully, a few moments of an aphasic condition. There were no other regular localizing symptoms, and there was no fever. From the facts that the ataxia and optic neuritis were marked signs, the tumor was thought to be cerebellar. On account of the history of the aphasic condition and the general tendency to refer his pain more to the left side, it was thought to be left sided. These were practically the only definite localizing signs, and the skull was opened below the curved lines of the occipital bone on the left side, and the tumour discovered and removed from the inner border of the left cerebellum.

The tumor has been shown to be of tubercular origin.

The patient rallied well from the operation and so far has done extremely well. He has not vomited since the operation, nor has he had any of the old headache, from which he suffered for five months.

An examination of the eyes one week after operation showed no discernible difference from the previous examination on the day of operation.

The patient sleeps well, eats well, and does not suffer at all, except sometimes from "pain in the eyes," as he expresses it. His vision is about the same, or perhaps a little better than before operation, but there has been no very decided change in this respect.

#### EXCISION OF LARYNX AND PORTION OF PHARYNX AND ŒSOPHAGUS:

JAMES BELL, M.D.—"Excision of Larynx and Portion of Pharynx and Œsophagus."—M. B., female, age 29, came under my care May 18th, 1905, with a diagnosis of pharyngeal cancer, invading the larynx posteriorly.

She had had a painful throat for three or four years past, at every change of weather, but these attacks lasted only three or four days at a time and then disappeared. Since the beginning of the past winter, her throat had become painful and continued so without much change until six weeks ago, when it became worse. She had great difficulty in swallowing on account of the pain produced by the effort. A portion of the growth was removed by Dr. Birkett, and examined by the pathologist, and pronounced to be epithelioma.

On the 7th of June a mass consisting of the larynx, uppermost three quarters of an inch or an inch of the œsophagus and pharynx up to the hyoid bone was removed. The patient was placed in a semi-inverted position. Chloroform was used as the anæsthetic, and the larynx was separated from the surrounding tissues, cut off from the trachea, just below the cricoid cartilage, and the end of the trachea drawn through a transverse wound in the skin below the thyroid gland. The mass, in-

cluding the larynx, pharynx, and upper end of the œsophagus was then dissected upwards and removed. The serious problem of the case then presented itself, namely, how to provide a pharyngeal connection between the mouth and the œsophagus. There was a space of three inches devoid of mucous membrane. Several propositions suggested themselves, but, in the end, I brought up as far as I could the posterior wall of the œsophagus and attached it to the prevertebral tissue, and in the same suture included the remnant of pharyngeal tissues from above, which was also anchored to the prevertebral tissues. In this way I was able to approximate the mucous membrane of the pharynx and the œsophagus, so that on the posterior wall only about an inch remained between them. I then closed the skin over the space, and attached the œsophagus to the skin with a couple of stitches. My hope is that in this space between the skin and the prevertebral tissues cicatrized tissue will ultimately be covered by epithelium growing upwards and downwards from the œsophagus and the pharynx.

The patient so far is doing as well as possible. She is being fed regularly by a tube inserted into the end of the œsophagus in the neck.

C. B. KEENAN, M.D.—With regard to the brain tumor, I may say that on examination I found it to be composed of tubercular tissue. The mass was made up of necrotic material, a little different from the tubercular mass, but in most parts very many tubercle bacilli could be demonstrated, at least so far as one could judge from their staining reactions and morphology.

D. A. SHIRRES, M.D.—I would like to ask whether there was any increased blood pressure in this tumor case, and if there were any symptoms anywhere else of tuberculosis? Tuberculosis is very rare indeed in the nervous system, primarily, and a single tubercular tumor of this nature is indeed a rarity. From the history of the symptoms alone in this case there were sufficient signs to locate the growth, and Dr. Bell is to be congratulated on the success of his operation so far.

G. E. ARMSTRONG, M.D.—This operation on the larynx and œsophagus is one of great interest and some rarity; it is a very severe operation, and not, as a rule, commended by English-speaking surgeons, though the Germans have had very considerable success. Prof. Gluck has been most successful. I recently had a case under my care, which, however, was not so fortunate as the one just reported, having died on the 15th day after operation. The woman had complained of dysphagia for more than two years, and for three months before coming to me had been unable to swallow any solid food at all. At the time she entered the hospital, even fluids could not be passed. The whole passage seemed to be almost completely occluded. Specimens taken from the larynx

and also from the end of the œsophagus by Dr. Birkett were pronounced to be epitheliomatous. It was after some considerable hesitation that I undertook the operation. After consultation with Dr. Birkett, and having read Prof. Gluck's paper, I determined to remove the disease as far as possible. On April 3rd, I did a gastrostomy, a Witzel gastrostomy, which was not, however, altogether satisfactory, though Mikulicz strongly recommends it; indeed, I attribute the failure of recovery very largely to the condition which later developed in the tissue around the opening in the stomach. I removed half the larynx in this case, which seemed to be all that was required, and a little less than half the epiglottis, and then I removed the lower part of the pharynx and a considerable portion of the œsophagus. The mucous membrane was so extensively involved that it was not wise to leave any portion of it. I depended for feeding entirely upon the gastrostomy opening. The operation itself was not difficult; the woman recovered, without any shock; there was no trouble with the breathing and no trouble with the chest. She died from inanition from the failure of the gastrostomy wound to retain food properly. I think had I done the Frank operation she probably would have recovered. These are terrible operations, but I think from what Prof. Gluck has done that, with a little more experience, and a little more technique, we can save these cases for a very considerable time. Prof. Gluck has shown eight of these cases, and I think there is a future for such operations.

H. S. BIRKETT, M.D.—These two cases, in my mind, serve to emphasize the fact that one should always carefully investigate the question of dysphagia in any individual. In both of these cases the symptoms had been lightly treated and regarded more as neurotic than due to actual organic disease. If they had been investigated, especially by means of the œsophageal sound, the local conditions would have been discovered earlier. These cases begin very often just below that portion of the œsophagus which is not visible by the laryngoscope by the ordinary method of examination, and is very often necessary, in order to get a glance at the condition lower down, to make the patient retch. Another result these cases show, especially as regards the larynx, is the interference with the mobility of the vocal cords. In Dr. Armstrong's case we found definite immobility of one cord, while in the case of Dr. Bell, with a more extensive condition, it was extraordinary to find that the cords were absolutely perfect in their movements. I would emphasize again the fact which these two cases bring out very strongly, namely, that cases of dysphagia should always be investigated with a proper bougie, as they are not always neurotic in nature.

F. R. ENGLAND, M.D.—I would like to ask Dr. Bell if, in the brain

case, there was any polyuria? I have seen one case of cerebral tumor where that was a very marked symptom. I think the case of intussusception, which recovered, was certainly a very fortunate termination after six days and with gangrene.

JAMES BELL, M.D.—Regarding the brain tumor, I would say that there was some increase of blood pressure. There was no evidence of tuberculosis anywhere else in the patient nor any hereditary history. There was no polyuria. With regard to the larynx case, the fact is that no individual surgeon acquires, until after a great many years at least, a sufficiently large experience to generalize from these operations. Of course, a good many of my colleagues, who have seen this patient, or heard of the case, have ventured the opinion that it would have been better to have cut her throat. But that does not concern us surgically. The question which here comes before us, is what can you do with a patient with cancer in this situation? Here the main problem was, after the removal of the disease, the establishment of the communication between the mouth and the œsophagus. It is well known that even very large areas, which have been deprived of skin, become covered over with epithelium, and in line with this experience why should not even comparatively large areas become covered with mucous membrane, and it seems possible here that something of this nature may occur. With regard to the operation itself, I have come to think that the less one does of preliminary operations the better. Either preliminary tracheotomy, or preliminary gastrostomy, I think, are mistakes in all probability. Of course, I speak with all due deference, because I have not had sufficient experience to be anything like dogmatic on this point; but in the general experiences of life I think it is usually a mistake to compromise, and when we come to deal with cancer we only deal with it surgically while we still believe that it is a localized disease, and any attempts to compromise to save deformity or mutilation are mistakes. In spite of the experience of such men as Sir Felix Semon and others, I believe we ought to face these cancerous conditions in the same spirit as we do elsewhere, with the same regard to the simple and complete removal of the localized diseased condition. My belief is strengthened by the fact that I think that experience shows that the larger general operations are safer operations in their immediate results than any partial operations. Of course, this patient has only been operated on one week and it is too soon yet to draw conclusions. I have had patients die of septic pneumonia after longer periods than this, and while I think her condition indicates recovery, and the probabilities are that she will recover, it is too soon to count on this. What we have yet to consider is, will she recover so that food, saliva, mucus, and fluids

taken by the mouth will pass through, naturally, to the stomach, or will she have to pass the rest of her life with a fistula and be fed through the opening in the neck?

DR. G. P. GIRDWOOD:—The case which I have the honour of presenting to you this evening is that of a young woman who came under my care two years ago. She had been suffering for the previous 28 years with these extensive areas of disease, as shown in photographs presented, which will enable you to compare her previous condition with the results of our treatment, as shown in her present condition. The case was determined as one of hypertrophic tubercular lupus, one large patch extended from the inner canthus of the right eye along the lower eyelid and past the temporal region extending around the right ear, the whole of which was involved, passing down the neck under the jaw up the left side, involving the left ear, down again under the jaw and up the face to the angle of the mouth on the right side along the side of the nose to the starting point. The area included in such a line was all involved in the disease, the thickening above the surface of adjoining skin amounting to nearly three-quarters of an inch; a round spot of the same elevation and one inch in diameter occupied the upper lip just below left nostril, and a large area about four inches by five extending from upper part of forehead into the scalp. She had also one patch in the bend of the right elbow, another just above internal condyle of humerus, on right arm, another on the back of the same arm a little above the elbow, and one more a little higher up on the inside of arm—and two others, each about one inch in diameter and circular, on the chest—the larger area around the face and ears was treated with X-Rays only; the spots on her arm were treated one with X-Rays, one with high frequency current, applied with a Geissler tube, and two others with Finsen light. The application without any internal remedies were applied continuously for some time, when a dermatitis ensued, which necessitated stopping the treatment for a time; when the dermatitis had subsided a very considerable improvement in all the spots treated was seen and treatment was again continued, with the result of taking off the hair over the temples, and producing a further dermatitis, which again healed leaving a still more marked improvement. She was now unable to attend again for some months, indeed, for the last nine months she has not been able to attend, but now she has returned again, and I hope to complete her cure. I have brought her here to show you to-night what we have been able to do so far, and because it is so very extensive a case, and of such long duration, and I hope to be able to show her to you again when the last patch has disappeared.

In this case I have not used any internal agents. This was proposed

some year or more ago, and I tried quinine but so far have not satisfactorily come to the conclusion that I gained any benefit by it. It may be that one does get some benefit, but I have not been able to satisfy myself on this point. In our treatment the question is after all, I believe one of vibration. We know that every atom has its own peculiar vibrations, and when two or more atoms are combined together, then we have a molecule which has its own peculiar vibrations and movements, a mean between the atomic vibrations, and now comes the questions whether these agencies may not start vibrations in the body in rhythm with the healthy molecular vibrations, just as goes on in normal health, or the stimulation of either the tubercle or other bacilli in this instance, or some of the products of their development so as to bring about health.

DR. ROBERT WILSON read a preliminary paper upon the use of the less active radio-active substances in medicine and gave a demonstration of apparatus.

G. P. GIRDWOOD, M.D.: Dr. Wilson is to be congratulated on the ingenuity of his apparatus. All these questions are problems which seem to me to be a little unworked out yet, and I confess that I have not had time to go into them at all. It is being done by other workers in the field, and Prof. Rutherford is one of them. We know that those rays, whatever they may be, coming from the X-Ray tube, are capable of producing certain effects and we find with a low tube we have certain effects, with a high tube others. In the low tubes we also get heat rays which with the higher vacuum tube do not seem to give the same effects. And here it is that we have the vibratory rays which are stopped by fluorescent substances and the rapidity of vibrations reduced. I am inclined to think that the general effects of these X-Rays are due more to mechanical vibration than to anything else. But this requires the test of time to prove.

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The following figures show the prevalence of quackery in the German Empire. In Prussia the number of persons who practise medicine without a legal qualification is 4,104, being in the proportion of 22.8 quacks to every hundred legitimate practitioner. From 1897 to 1902 while the population of Berlin increased by 30 per cent., the number of quacks increased by 57 per cent. There are in Germany 835 "nature healing" associations with a total membership of 111,887. In the course of three years 392,000 pamphlets setting forth the excellence of that system of quackery were distributed, and in 1902, 3,056 public addresses in praise of it were delivered. One of the journals devoted to the propagation of nature healing has a circulation of 112,000 copies.

The best informed members of the medical profession are watching in a conservative state of mind the efforts in progress in various parts of the world to ascertain with some approach to precision the effects of the Röntgen ray and certain other rays upon malignant growths. But the newspapers are not hampered with any such conservatism; even now they are proclaiming as an accomplished fact the cure of a distinguished man whose case had recently been submitted to ray treatment. We should all feel glad if what they are so ready to take for granted were really confirmed, but we cannot for the present avoid the reflection that false hopes are probably being raised in the hearts of many credulous persons. When a cure for cancer is discovered, it will certainly be announced, but false announcement can do nothing but harm.—*N.Y. Med. Jour and Phila. Med. Journal.*

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An answer to the following is invited by the *Practitioner*:—A male, aged 50, labourer, was admitted to hospital. The following history was obtained. His previous history was good, and there was no evidence of syphilis. One year ago he complained of frontal headache, then he had severe pain in the right temporal region, and his right upper lip dropped. In two months he discovered the right side of his face was numbed, his headaches were worse. Later he suddenly lost consciousness, and fell and injured his head. When he recovered it was discovered that he was blind in the right eye, and he gradually became blind in the left eye. On admission he was thin and sallow, his memory was bad, his right upper lip was completely dropped, and the right eyeball looked straight, and could not be moved. The left upper lip was weak, movements of the left eyeball were normal, except the eye could not be moved outwards. The pupils were unequal, the right being larger. Both optic discs showed consecutive atrophy. Sense of smell was absent on the right side, the right conjunctiva was insensitive and injected, on the right side of the face sensation was impaired, mastication was difficult, hearing was defective on both sides. The patient could swallow, all four limbs seemed fairly strong. Knee-jerks were normal. No morbid condition was detected in the chest or abdomen. The urine was normal. Later it was noted that the uvula was deflected to the left, and the right half of the soft palate was paralysed, the teeth became tightly clenched, the elbow and knee-joints flexed and rigid, the legs adducted, and the knee-jerks increased. The patient became semi-comatose, respirations were 42 and noisy. The temperature rose to 102, mucous râles were heard over the chest, the pulse became weak, coma deepened, and the patient died. What morbid condition was found on post-mortem examination which produced those symptoms?