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PIONEERS OF MEDICINE IN THE PROVINCE OF QUEBEC.<sup>1</sup>

BY

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MR. PRESIDENT AND GENTLEMEN :

Meeting as we do, here in Quebec, the very cradle of our nationality, the place and the occasion is I think, peculiarly appropriate for recalling to your memory, a few of the old-time worthies of our profession; the men who were first to plant the Æsculapian banner on the soil of Canada. It is difficult to write, or say anything about the ancient city of Quebec, without picturing some of the great events which have occurred in her history, for history surrounds us on every side, from the banks of the St. Charles, where Jacques Cartier held his conference with King Donnacona and erected the sacred emblem of christianity, to the plains of Abraham where fell the gallant Wolfe and chivalrous Montcalm—but I must forbear, and pass on at once to the subject in hand.

It was indeed a motley crew that followed in the train of the French merchants, who were first attracted by visions of the fabulous wealth to be acquired in trading with the aborigines of the New World; warriors fresh from the battle fields of Europe; men of the proudest lineage of France, and who had breathed the atmosphere of courts, missionaries whose souls were fired with zeal at the alluring prospects of evangelization awaiting in the forests of America; and adventurers, daring as ever followed the standard of William of Normandy. Picture to yourselves if possible, the harbour of Port Royal, or what is now Nova Scotia, on the morning of July 27th, 1606. There is unusual bustle and excitement down by the shore

<sup>1</sup> Read before the Canadian Medical Association, Quebec, August, 1898.

where the little ship "Jonas," commanded by Captain Poutrincourt, is engaged in discharging her complement of passengers, mostly hailing from La Rochelle. Among the band of newly arrived immigrants there is one sturdy figure which I want you to study well, for it is the figure of Louis Hébert, the pioneer physician of Nouvelle France.

We can imagine this young fellow fresh and enthusiastic, as he strides along, gazing with curious and occasionally amused eyes, on the strange sights surrounding him on every side, and startled when addressed by some wild looking Coureur de Bois or fur-trader whose semi Indian attire, and savage bearing, seemed so inharmoniously to blend with the language of France.

From what we are told by L'Escarbot, the historian of the expedition, very little if any serious work was done at Port Royal during the succeeding fall and winter. Hunting and feasting, in which doubtless our great grandfather bore his part, were the chief occupations of the little colony, and it was only when the wine and kindred supplies became exhausted, that the associates of the "Jonas" dropped into the current setting towards Quebec, and with them drifted in the following spring, Dr. Louis Hébert.

Quebec at this time and even for some years before, had been merely a fur-trading centre, frequented by roving bands of Frenchmen, who came to barter with the Indians.

Hébert besides practising his profession of physician, seems also to have engaged in ordinary business enterprises, for we are told by Abbé Ferland that he "began in 1617, to grub up, and clear the ground, which forms the site of the present Catholic Cathedral and Seminary, and constructed a house and the first mill erected in the colony," thus becoming not only the premier citizen of Quebec, but also of all Canada—and here it may be well to note that the first time a notary's services were put into requisition in Canada, was at the instance of the heirs of Hébert the physician—thus proving that in this country, the profession of medicine ante-dated that of law.

Contemporary with Hébert was the surgeon Bonnerme, who came with Samuel de Champlain, when the latter founded Quebec, in 1606. Evidently all was not peace in the camp of Champlain, for shortly after his arrival, some of his followers hatched a murderous plot against the life of the great navigator, the scheme, however, leaked out, the ring-leader was arrested, found guilty, and executed. In some way or other, Bonnerme became mixed up in the matter, and suffered imprisonment, but subsequently his innocence being proved, he was honorably acquitted, our profession thereby fortunately avoiding the distinction, of contributing to the first judicial hanging held

in Canada. Dr. Bonnerme's existence in the colony was a comparatively short one, for he died of scurvy, the universal scourge, in less than two years later.

It is difficult to give the exact year in which the well-known Dr. Robert Giffard settled at Quebec, but we do know that 1634 saw the historic Seigniorship of Beauport founded by Giffard, who in becoming the first settler in rural Canada, also became the first Canadian *habitant*. At Beauport he lived to a frosty old age, and many of the leading families of French-speaking Canada proudly recall their descent from Robert Giffard the physician, and first of Canadian Seigneurs.

1639 witnessed at Quebec, the foundation of the Hotel Dieu, under the management of the Sœurs Hospitalières from the convent of St. Augustin in Dieppe, and which was the gift of the Duchess D'Aiguillon, niece of Cardinal Richelieu, and in 1642, a similar building was erected at Ville Marie, the Montreal of the present day, this latter institution being largely due to the benefaction of Mde. de Bouillon, the rich widow of a superintendent of finance. The primary objects of these excellent charities, was the teaching of the children and nursing of the sick, and the faithful manner in which the original intentions have been carried out, even to the present day, entitle the good sisters, to a place among the medical pioneers of this province. In 1690, when Phipps knocked in vain at the gates of the ancient city, the population under the vigorous administration of Frontenac, had increased to 1500, and education had made considerable advance. The Jesuit's College, Séminaire des Missions Etrangères, and Petit Séminaire, were on a firm footing, and we find practising, at Quebec, Drs. Gervase Beaudoin, physician to the Ursuline nuns, Timothé Roussel, physician to the Hotel Dieu, Nicholas Sarrasin, Jean Leger de la Grange, Armand Dumanin, and Pierre du Roy. Of the number Sarrasin was perhaps the most noted. Born in France in 1659, he emigrated to Canada shortly after completing his medical course, and died at Quebec in 1736. He was physician to the King, a member of the Sovereign Council, and published during his long life time, a number of volumes of natural history, botany and medicine, besides discovering the pitcher-plant, which perpetuates his memory in the name of "*Sarracenia purpurea*."

When Peter Kalm, the Swedish Botanist visited Canada in 1749, seven years after the discovery of the Rocky Mountains by La Verendrye a native Canadian, his constant companion during many a woodland ramble, was Dr. Gaultier, himself an accomplished botanist, and from Dr. Gaultier, Kalm acquired most of the informa-

tion which appeared some years later, in the shape of two large volumes illustrated with plates.

A well-known surgeon who figured during the historic period before and following the conquest of Canada by the British in 1759, was the famous Phillippe Badelard—Badelard was present at the battle of Abraham, and seeing that the French troops to which he was attached were giving way, directed his steps to the rear where he met a wounded Highlander named Fraser, who was bleeding profusely. The doctor immediately attended to the soldier's injuries and then gave himself up to Fraser as a prisoner of war. Both Dr. Badelard and John Fraser lived to a very advanced age, and ever maintained for each other the closest ties of kindly friendship. Dr. Badelard was a person of most gentlemanly presence, and constantly wore a sword as was customary with the Bourgeoisie de Paris.

A contemporary of Badelard, Dr. Arnoux, lived for many years in Quebec, and it was in Arnoux's surgery that Montcalm's wounds were dressed while the great soldier was being borne through St. Louis Gate.

Another well-known surgeon of this period, Dr. Lejuste of the French army, came to Quebec after the fall of Louisbourg in 1758, and later among the noted medical men of the province, we find Dr. Francois Blanchet, the father of the first Education bill in Lower Canada.

The cause of education had also in Dr. Jean Baptiste Meilleur, an able and successful advocate. Meilleur who was born in 1796, and died in 1830, had the honor of being the first Superintendent of Public Instruction for Lower Canada, and during his life time, contributed many articles to *Le Journal de Médecine*. He was also a voluminous writer on geology, botany, agriculture, and other scientific subjects, and took a prominent part in the foundation of L'Assumption College.

Dr. Jacques Labrie, born in 1783, and who graduated at Edinburgh, sat for several years in the Lower Canadian Assembly, and besides doing good work as a medical man, also wrote a "History of Canada" which while awaiting purchase by the Government, was unfortunately destroyed by fire at St. Benoit during the rebellion of 1837.

The mention of 1837 will recall to the minds of every student of Canadian history, the names of at least three members of our profession, who were prominent among the agitators of that stormy period, namely Nelson, O'Callaghan and Chenier. Wolfred Nelson although an English-speaking Protestant, warmly espoused what was then termed the national cause, and led the insurgents at the battle of St. Denis, where the British forces were obliged to retreat. Twice he

was elected to the Presidency of the Provincial College of Physicians and Surgeons, and he also sat in the Lower Canadian Assembly. He constantly contributed to the medical press articles on preservation of public hygiene, "Reports on Penitentiary Prisons," etc., and although he suffered for a while political banishment, yet the fact that on his return to Canada, he was elected to the Mayoralty of Montreal, is a proof of the esteem in which he was held by the people of that city.

Dr. Edmund O'Callaghan, a brilliant Irishman, was a member of Parliament, editor of the *Montreal Vindicator*, and author of several historical works. He also was an active participant in the troubles of 1837, after which he took up his abode in the United States, and the gallant Chenier immortalised himself by dying a soldier's death at the battle of St. Eustache.

A man who followed the more peaceful paths of life, was Dr. Andrew Fernando Holmes, born at Cadiz, in 1797. Dr. Holmes who was one of the foremost medical men of his time, collected while a student in Scotland, an extensive herbarium of plants, which later on he presented to McGill University. He was a recognized authority on botany, geology and mineralogy, and contributed many articles on these subjects, as well as writing the history of cholera in Montreal. In 1827 he established with others, The Medical Institution which finally in 1828, merged into that of McGill, of which Dr. Holmes was the Dean, and where he lectured on the Practice of Medicine till the time of his death.

One of the most illustrious names in Canadian medicine, is that of Sir George Duncan Gibb who was born at Montreal in 1821. Sir George founded the St. Lawrence School of Medicine where he held the chair of Institutes of Medicine and Comparative Anatomy, and to which he attracted by his marvellous powers as a lecturer and demonstrator, students from all parts of the country. He assisted in the founding of the Montreal Dispensary, delivered lectures each winter before the Natural History Society, Mercantile Library Association, and Addisonian Literary Society, was Curator and Librarian of the Natural History Society for four years, and devoted much time and attention to the arrangement of the Society's collection, presenting to that body before he left for England, the greater portion of his private museum numbering nearly 1500 specimens in Natural History, and miscellaneous objects of interest and curiosity. A review of Sir George Gibb's contributions to the medical press alone, would form a volume by itself, suffice it to say that during his ten years editorial connection with the *Lancet*, he supplied at least six columns of hospi-

tal matter each week, which is equivalent to 3120 columns for the 520 weeks, or ten volumes of the Journal of 760 pages each. Sir George Gibb might not incorrectly be termed a specialist in any branch of medicine, for there was no department of the science which he did not seem to have thoroughly mastered.

Dr. Archibald Hall, born at Montreal in 1812, and educated at Edinburgh, besides lecturing at McGill successively on materia medica, chemistry and obstetrics, was much devoted to botany, zoology and meteorology. Zoology, however, was his chief delight, as in 1839, we find him presented with the silver medal of the Natural History Society "as a prize for the best essay on the zoology of the district of Montreal."

As a medical writer, Dr. Hall is best known as the editor of the *British American Journal of Medical and Physical Science*, which he established in 1845, and conducted with great ability until its suspension in 1852, and again from 1860 until it finally expired two years later.

Long before "Old Probabilities" were heard of in the United States, Dr. Robert Smallwood, born in 1812, had established at St. Martin, some ten miles from Montreal, a "Meteorological and Electrical Observatory" which was a constant source of wonder to the good people of the parish. Daily from his temple of mystery, Dr. Smallwood telegraphed to Montreal the weather estimates for the ensuing 24 hours and many an anxious St. Martin farmer was stimulated to fresher exertions by the Doctor's prognostications of a rainstorm soon to come, or *vice versa*.

Dr. Smallwood performed some invaluable work, and contributed to the press many interesting articles on the subjects mentioned.

The first medical serial which appeared in Canada namely, *Le Journal de Médecine de Quebec* was published in 1823, by Dr. Francois Xavier Tessier, who was also founder of the Quebec Medical Society.

Dr. Tessier who acquired a wonderful knowledge of several modern languages, studied under Dr. Von Iffland of Quebec, and graduated at New York. *Le Journal de Médecine* which was published in both English and French, received for a while the support of some of the best writers of the province, but finally owing to lack of support of paying subscribers, succumbed to the inevitable, and died the usual death of such journals, three years later.

Dr. Von Iffland founded in 1820, the first anatomical school established in Quebec. He held during his life-time various important positions in connection with his profession under the crown, was for some time Medical Superintendent of Quarantine at Grosse Isle,

wrote a history of the town of Sorel, and also contributed a large number of articles and essays for the medical and general press both in Europe and America.

A public spirited man and good citizen, was Dr. Joseph Morrin, born in Scotland in the early part of this century, and who founded the college bearing his name, which school has been of incalculable benefit, especially to the English-speaking youth of Quebec. Dr. Morrin delivered the inaugural address at the opening of the Quebec School of Medicine, replete with much statistical information concerning the same. Before the incorporation of the old Quebec Medical School with Laval University, Dr. William Marsden, born in 1807, lectured on anatomy, physiology, surgery, materia medica and botany. He was also for a time President of the Provincial College of Physicians and Surgeons and from 1851 to 1854 a member of the *Quebec Mercury* editorial staff.

It was not until the end of the last century, that English-speaking colonies began to spring up in the rural parts of this province, and these colonies were perhaps most numerous in the districts situate on the southern shore of the St. Lawrence and known as the Eastern Townships. The earlier settlers were largely of New England origin, coming for the most part from New Hampshire and Vermont, and among the granite hills and green mountains of their native states, these hardy pioneers had had a training which enabled them successfully to cope with the rugged forces of nature in their new homes. The life of the country practitioner to-day in the Province of Quebec, as many of you know, is a trying and arduous one, but it is an elysium compared to that experienced by our brethern of a century or even fifty years ago, when often the man of medicine, mounted on horseback, had to find his way to a distant patient, without even a blazed tree to mark his path through the forest. Such was the state of the old township of Shipton, when in 1803 Dr. Abraham Perkins Silver settled within its borders. Born in the city of Boston in 1770, Dr. Silver graduated at Harvard in 1795, and eight years later established himself in Shipton, where he practised for over half a century. During most of this period he was the only physician between Sherbrooke and Drummondville, and to-day you will still hear in these localities many a tale of the blunt, but large hearted, Dr. Silver.

The first medical man who made Richmond his home, was William Hollingworth Fowler, an Englishman born in 1808. He graduated at Glasgow, was for some time in the Royal Navy, in which capacity he visited nearly every portion of the globe, and finally settled down at Richmond in 1842. A man of great natural capacity and varied



gifts, he contributed in prose and verse to the journals of the time, and his active habits only terminated with his death in 1860.

Another land-mark of medicine in the Richmond district was Richard Norris Webber. Dr. Webber while at Harvard, witnessed the first operation performed under ether, and a thesis on "Ether as an Anæsthetic" written during 1847, his graduating year at Harvard, gained for Dr. Webber considerable reputation. Shortly afterward he established himself at Richmond, where for the fifty remaining years of his life, he was a constant and busy worker. St. Francis College numbers him among its list of founders, and an honored name remained behind when Dr. Webber passed away in 1897.

The township of Durham welcomed in 1849, the advent of a man who for nearly fifty years ministered faithfully to its medical wants—Dr. White, born in England in 1811, graduated in Edinburgh 21 years later, and then took a subsequent course at Trinity College, Dublin, after which he went to Australia, remaining in that colony for five years, returning to London, he spent two years in the metropolis, and finally emigrated to Canada, settling down in Durham in 1849.

Dr. White who was in every sense a cultured gentleman of the old school, had the distinction of being the first, and for many years the only physician in the county of Drummond, consequently his work extended over a very large area.

Among the hills of Missiquoi. Shefford and Brome, the names of Chamberlin, Brigham, White, Stowe, Shannon, Searles, Cotton, Butler, Pattee, Frary, Foster, and Abbott, are still held in grateful remembrance by the descendants of the pioneers who first settled these districts early in the present century. Among the most noted members of this group were perhaps Drs. Chamberlin, Cotton and Butler.

Joshua Chamberlin was born in Vermont in 1799, an able surgeon, a man of great resource and forceful character, the 56-years of his professional life were almost entirely spent in the vicinity of Frelighsburg.

Dr. Charles E. Cotton, a native of the township of Durham, where he was born in 1816, graduated at Jefferson College in 1837, and practiced nearly the whole of his medical life time at Cowasville. Dr. Cotton was a remarkably skilful surgeon and was once heard to remark after reading the account of a successful ovariectomy "If I had only known forty years ago, that the peritoneal cavity could be safely entered, I too might have had successful ovariectomies." Although frequently tempted to present himself for political honors, Dr. Cotton always remained loyal to his chosen profession, and

literally "died in harness" after 50 years unremitting combat with disease.

The settlements along the north shore of the Ottawa, have had since their inception, many men of whom the profession may well be proud, and the Churches, Robertsons and Christies, who were among the early medical pioneers of these districts, are still perpetuated in medicine by descendants bearing the same honoured names.

I hope at some future day to go more deeply into the history of our medical forefathers, but for the present, space is too limited to permit of further extension. My purpose for the moment has been fulfilled, if I have only stimulated to a slight degree, your interest in a subject which it seems to me should command our admiration and respect, for not only is it due to the noble dead of our profession, but also due to ourselves, that we should occasionally become retrospective and look back to the heroic men who in our own country, led the van in warfare against the King of Terrors. "Lest we forget, lest we forget."

# ADDRESS IN MEDICINE.<sup>1</sup>

BY

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## THE TOXIC ORIGIN OF DISEASE.

When this Association last met in Edinburgh the Address in Medicine was delivered by the accomplished and universally beloved physician, Dr. Warburton Begbie, and notwithstanding the lapse of time, I can still recall—and there are others here also able to recall—the thesis which formed the subject of the address, expressed in the inquiry, Has the practice of medicine made a single step since the time of Hippocrates?

In dealing with this thesis, Dr. Begbie described the history of medicine from its beginnings, as only could be done by one who had not only carefully studied the writings of the Fathers of medicine, but had also made himself familiar with the work of their successors. The doctrines regarding the nature of disease, which successively replaced each other during the twenty-three centuries dealt with, were clearly described, and, as was to be expected from the practical physician, he fully discussed the bearings of these doctrines upon treatment, and pointed to the more conspicuous acquisition in the healing art which had enriched practical medicine.

He had the opportunity of showing how greatly medical doctrine had been transformed by Harvey's discovery of the circulation of the blood; how the diagnosis of pulmonary and cardiac disease had received an extension and previously unknown definition from Laennec's discovery of auscultation; how the memorable discoveries and courageous applications of nitrous oxide, and chloroform, by Horace Wells, Morton and Simpson, had deprived the knife of the surgeon and the reproduction of animal life of much of their former terrors and anxieties; and how by that vaccination, which will ever be associated with the name of Jenner—the first and still unsurpassed means of restricting the ravages of a fatal infectious disease—an almost incalculable benefit had been conferred upon the human race.

From his elaborate survey of the history of medicine, he concluded that no general doctrine—chemical, physical, humoral or physiological—had been propounded which satisfactorily explained the nature and

<sup>1</sup> Reprint from the British Medical Journal, July 30th, 1898.

production of disease; that therapeutic advancement had been obtained, chiefly by the observation of patients, by adherence to the classic method of rational empiricism; and that by this method such valuable accessions to the means of treating disease had been gained as the administration of turpentine in pulmonary gangrene and bronchitic affections; of quinine in intermittent fever; of iodide of potassium in syphilitic periostitis and thoracic aneurysm; of bromide of potassium in epilepsy; and of cod-liver oil in pulmonary tubercle.

It may not be without interest to consider to-day how far, and in what directions, this great and wide subject of medicine has chiefly advanced since Dr. Begbie delivered his address. The intervening period is the relatively brief one of scarcely a quarter of a century. It has, however, been signalised by a great increase of knowledge regarding the fundamental sciences of chemistry, physiology, and morbid anatomy; by the creation of pharmacology as a science of the action of remedies; by steady advance in symptomatology and diagnosis, and above all by so remarkable a development in our conceptions of the nature and production of many diseases, that we appear almost to have attained a position, vainly sought for during centuries by our predecessors, of being able to formulate a doctrine of disease, founded upon the satisfactory basis of experimental demonstration, and sufficient to explain many of its forms and to already provide us with assured means and principles for its prevention and treatment.

While fully acknowledging the merits of the workers in medical science and practice by whom this gratifying progress has been made, it cannot be forgotten that the necessary pioneer work was undertaken amid difficulties of exploration in dark and unknown regions; and that but for this pioneer work the present generation would not have been able to reap so prolific a harvest of medical discovery.

This indebtedness to our predecessors is nowhere more conspicuously shown than in the advancements that have been made in the diagnosis of disease. Observation, careful and intelligent practised by the Fathers of medicine, had already constructed a nosology sufficient to distinguish the great majority of diseases, and so complete that it is doubtful if much advance could have been made had the methods in use at the commencement of this quarter of a century alone been trusted to. The introduction, however, of physical aids to our senses, and of chemical applications and methods—each rendered possible by the growth of collateral science—has placed us in a position from which we have been able to advance in accuracy of diagnosis, and even in the discovery of new diseases.

By the apparatus now in use for blood determinations the condition

of this fluid in regard to many of its most important constituents can be exactly determined, and information can be obtained valuable for treatment, and previously unattainable by any perfection of intelligent observation by means of the unaided senses. The sphygmograph depicts with precision of detail changes in the pulse which are difficult to apprehend by the unaided finger, even after a long apprenticeship, and above all increases the usefulness of the physician by indicating the characters which, without its use, he should be trained to detect. He is thus enabled to appreciate changes, which are not only of the highest value in prognosis, but are also frequently sufficient, either in themselves unaided by the most superficial of further observation, to justify without auscultation the diagnosis of the cardiac lesion which is present. The ophthalmoscope has increased the certainty of diagnosis of many nervous affections and toxic processes, and some of the difficulties of clinical observation have been overcome by radiography whose capabilities, however, are as yet undeveloped.

By the introduction of chemical processes applied especially to the examination of the stomach contents, and of the urinary and other secretions, diagnosis has also been advanced, and previously unknown precision has been obtained. The agglutinating effects of the blood-serum in certain infective diseases as typhoid, Malta and relapsing fevers, and in cholera and anthrax, upon their respective pathogenic organisms; and the application of chemical pigments to reveal the existence of the microscopically minute organisms of such diseases as pulmonary tubercle, pneumonia, and diphtheria has removed many of the perplexities of diagnosis and rendered identification almost a mechanical art.

While by these and other means the diagnosis of disease—a fundamental work in the art of medicine—has conspicuously advanced during the last quarter of a century, this advancement, however great, does not in itself justify any claim to a nearer approach to the realisation of the highest aims and objects of medicine. Diagnosis, for the most part, deals only with symptoms, it has no immediate concern with the true nature of the malady, and until this has been determined progress in treatment can only be tardy and unsatisfactory. The history of medicine has shown that the advance in these two departments has rarely, if ever, been parallel or equal. The one may reach a position of almost ideal perfection, while the other still remains in the initial stage of vague speculation. This is exemplified by the present state of knowledge of nervous diseases. Minute symptoms have been identified, and have been so arranged in groups as to constitute special diseases, and thus numerous forms of disease associated

with morbid lesions of parts of the spinal cord or brain have been created. The elaboration is a remarkable triumph of painstaking and skillful observation in symptomatology and in morbid anatomy. It presents a field for the training of the powers of observation and reason, probably unsurpassed by any other problems in practical medicine, and the solution of these problems is undoubtedly a cause of satisfaction to the physician, as it frequently also is to the patient. To what extent, however, is the patient a gainer? To what extent is the object of diagnosis and of all medical knowledge fulfilled? It must be admitted that the gain in most cases is disappointing. The natural course of the disease is no doubt often beneficially modified, but usually to only a slight extent, unless surgical treatment be successfully applied, which even the scientific discoveries of Ferrier and Horsley and the surgical skill of Durante, Kocher, Macewan, and others have rendered possible in relatively few cases. Whether the investigation of the condition of the patient leads to the diagnosis of acute ascending paralysis, or anterior cornual degeneration, of spastic paraplegia or locomotor ataxia, of syringomyelia or bulbar paralysis, the methods of treatment are much the same; and while we may have some satisfaction in adopting measures to relieve symptoms or to protect the patient against conditions favourable to the progress of the disease, or to increase the general powers of resistance, we most frequently find ourselves in the mortifying position of being unable to cure the disease. In those cases, on the other hand, where it is possible to advance from diagnosis to the determination of the actual cause of the disease, when remedies are employed which have been proved to be curative as regards that cause, the disease, whatever be its position in the artificial nosology of nerve affections, may in many instances be arrested in its progress, and may even be cured, provided the affected tissues have not already undergone incurable destruction.

At the present epoch in medicine it is especially interesting to recognise that the latter gratifying results are to be obtained when there is reason to believe that the disease has been caused by a toxic substance present in the body, and that according as this substance is the poison of syphilis, or of rheumatism, or of malaria, is the cure effected by remedies which have been proved capable of annulling the toxic effects of these poisons. It is thereby shown that the disease is not truly a product of the structural alterations which are present, but of a hurtful substance or poison capable among other effects of producing these structural alterations. Similar facts are observed with many ordinary poisons, and an association, highly significant in regard to the production of disease, is thus indicated. Many of the

more common poisons also produce changes in structure closely simulating the changes of disease, as the peripheral neuritis, anterior corneal degeneration, granulo-fatty degenerations, and arterial sclerosis of lead; the liver steatosis and yellow atrophy of phosphorus; and the fatty degenerations and diffuse sclerotic hyperplasia of the liver, the peripheral neuritis and the atheromatous changes in blood vessels produced by alcohol.

By such facts, acquisitions of modern pathology, it is strongly suggested that the structural changes found in many diseases may, after all, be mere manifestations, associated with other effects, of a cause which would thus assume the importance of being the essence, the *vera causa*, of the disease, and that this essence is a toxic substance. This idea is rapidly becoming the predominant doctrine of the present-day conception of disease, and as investigation proceeds it is almost daily receiving support from new facts. It has been demonstrated that the body is constantly subjected to the risks of poisons produced within itself, as well as of poisons introduced into it from without. Many of the poisons produced in the body, such as the ptomaines and leucomaines, are of the chemical nature of the previously known alkaloids, and not a few of them rival the vegetable alkaloids in toxic power and reproduce their leading effects. Nervine for instance, is lethal in minute doses, and acts in many respects like pilocarpin; while muscarin finds its analogue in the active principle elaborated by poisonous fungi.

The organism, even in a state of health, is a veritable storehouse of these toxic substances. Many of its normal constituents, such as potash salts and carbonic acid, are well recognised poisons; many of the products of its glands, such as saliva and bile, contain toxic ingredients; many of the substances formed in the processes of disassimilation, and which enter such secretions as the urine and the intestinal canal, are capable of disordering health and even of endangering life; and in disorders of function, even if they amount to little more than mere disturbance of nutrition, poisons not found in the healthy body are generated and produce the symptoms of disease. By such toxic influences the symptoms of cholæmia, gout, rheumatism, uræmia, diabetic coma, stercoræmia, and probably also of chorea, sunstroke, neurasthenia, asthma and the idiopathic anæmias receive a sufficient explanation, even although the toxic substances have not in all cases been identified.

The doctrine of the toxic origin of disease has also been applied to mental affections. Auto-intoxication from poisons produced in the intestinal canal is believed to be an important factor in the causation

of insanity, and already neurologists, such as Nissil and Van Giesen, have expressed the opinion that the toxæmic theory is destined to clear away much of the present vagueness regarding the pathogenesis of mental disease. Further, it is not improbable that in cancer, auto-intoxication by a poison generated in the cancer cells, equally with, and in some instances to a greater extent than, structural degenerations of invaded tissues, accounts for the symptoms and for the fatal termination—a probability which has been strengthened by the separation from cancer of a substance possessing a hyperthermic and powerful lethal action.

The widely acting pathogenic influence of poisonous substances has, however, received its most definite and convincing support from the remarkable discoveries in bacteriology which have signalised this period. The gravity and wide prevalence of infective diseases had rendered them a subject of special study from the earliest period. Rhazes in the seventeenth century propounded the view that the small-pox was essentially a fermentative disease, and thus originated the doctrine of the fermentative nature of all infectious disease. Previously to this time a theory of the parasitic origin of these diseases had been propounded, and its more enthusiastic supporters gave a reality to their views by such statements as that syphilis was caused by a minute worm, and measles, smallpox and plague by infusorial animals or invisibly minute insects. With the introduction of the compound microscope the parasitic theory disappeared in this gross form of it, and the fermentative theory was again adopted. It was not, however, until 1861, when Pasteur's great discovery of the nature of butyric fermentation was made public, that the sufficiency of the theory became revealed. His demonstration of the essential part played by minute living structures in the transformations which constitute the process of fermentation at length removed the process from the mysteries which had previously surrounded it, and opened up applications to the pathogenesis of infective diseases which have revolutionised medicine. He pointed out that the organisms of fermentation are similar to those which had already been discovered by Rayer and Davaine in anthrax. He subsequently demonstrated the virulent nature of the microbes of pyæmia and infected gangrene, and following Kock's work on the cultivation outside of the body of the bacillus of anthrax, he proved also that this bacillus, as well as that of fowl cholera, is able, when grown in suitable media, to reproduce itself almost indefinitely and to retain for many generations its power to cause the symptoms of the original disease when inoculated into animals.



The way was thus opened up for important additions to the knowledge of the etiology of infective diseases, and in rapid succession, the pathogenic micro-organisms of swine fever, glanders, tubercle, Asiatic cholera, septicæmia, erysipelas, pneumonia, and numerous other infective diseases were discovered.

The pathogenic action of the microbes was at first attributed either to mechanical obstruction of the blood vessels, caused by their accumulation in them, which resulted in asphyxia of organs essential to life ; or to a biological action which enabled them to appropriate nutritive materials destined for the tissues of the body, and thus to deprive these tissues of life. While in the case of a few of them, both of these actions may to a slight extent explain their effects, it was subsequently proved that these effects are mainly caused by the poisons which they produce. The poisons are of complex composition ; some are alkaloids, and others modified proteids, and others, again, have altogether unknown chemical composition. Many of them are of extreme and almost indefinitely great activity ; one milligramme, for instance, of the dry poisonous constituents of tetanus toxin is sufficient to kill a horse, or 600 million times its weight of living tissue ; while the hyperthermal effects of tubercle toxin are appreciable when the dry toxin in doses of from one to two-tenths of a milligramme, is injected, representing a strong reaction on 60 trillions of its weight of living human substance. Like other poisons, further, they are capable of producing structural changes, exemplified in the skin eruptions produced by many infectious diseases ; the local necrosis of peripheral nerves produced by the diphtheria poison ; the fatty changes and longitudinal fibrillation of the heart muscle produced by this poison, and also by that of anthrax ; the cerebro-spinal meningitis produced by the poison of influenza ; the anterior corneal and muscle degenerations and the neuritis produced by the poisons of tetanus and diphtheria ; the acute parenchymatous and hæmorrhagic nephritis produced by serpents' venom ; and in the production of nodules in the lungs, reproducing the characteristics of pulmonary tuberculosis, by dead tubercle bacilli.

The demonstration of the toxic origin of infectious diseases has thus added greatly to the number of diseases which are caused by poisons, and has thereby been largely instrumental in establishing the doctrine of the toxic origin of disease. Unlike the older doctrines of the iatrochemists, humoralists, and physiologists, this doctrine is supported by an abundance of convincing facts ; and it may confidently be anticipated that it will have an endurance which former systems of medicine have not possessed.

Large numbers of disease-producing poisons are thus ever present in the body, created by the normal processes of life, and abundantly produced by departures, even in themselves unimportant, from these processes. Many substances well known to have poisonous properties are intentionally introduced into the body, such as alcohol, tobacco, tea and opium, while others, such as lead, accidentally find their way into it. The respiratory passages and intestinal canal are crowded with micro-organisms, and they teem in the soil, air and articles of food. Many of them are producers of virulent poisons, and when they effect a lodgment in the body and find conditions congenial to development, they proliferate with so great rapidity that a single bacterium may in twenty-four hours have multiplied itself into many millions of separate toxin-creating organisms,

In these circumstances, it is of interest to inquire what defence man and other animals can oppose to the disease and death-producing poisons by which they are so constantly endangered? Instances have long been known of the possession of defensive powers against the ordinary poisons, organic or inorganic. Certain animals are by hereditary endowment able to receive with impunity large quantities of poison, which in minute quantities are hurtful to other animals, well exemplified in the enormous quantities of belladonna and opium which may be administered without injury to herbivora. It is also notorious that man and other animals may become so habituated to the action of several toxic substances that in the course of time, doses greatly in excess of the minimum lethal are no longer able to cause death or even much inconvenience. Such acquired powers of defence are produced against arsenic, opium, alcohol, and tobacco, and they are also illustrated in the effects of nitrite-ethers.

Explanations for these exceptional powers of defence have been found in the special activity of the processes of elimination, and particularly of elimination by the kidneys, whereby the quantity of poison requisite to cause injury is prevented from being present in the blood; in an unusual power of producing decomposition, probably dependent on special chemical conditions of the blood, by which, for example, herbivorous animals are enabled to convert very large quantities of atropine into relatively inert tropine substances; and on the property which certain organs, and especially the liver, possess of absorbing and retaining toxic substances and of thus preventing their access to the structures on which they act in quantity sufficient to be hurtful. In the case, further, of many organic poisons, absorption and diffusion are impeded by the walls of cells, as in the instance of the slow absorption of strychnine through the

stomach walls and of many albuminoid poisons through the intestinal epidermis.

These explanations, however, do not account for all the observed phenomena, and it must in the meantime be assumed that tissues may gradually become accustomed, possibly by exhaustion, to the perturbations produced by substances which modify their normal condition, so that by-and-by a tolerance is induced.

Anticipating some statements which will afterwards be made, a fundamental difference exists between both congenital and acquired defence against ordinary poisons and that resulting from the action of disease toxins, venoms, and such-like poisons, in so far that in the former there is not produced in the blood any substance which plays the part of an efficient counter-poison or antitoxin.

The subject has, however, gained a new importance from the remarkable facts discovered in connection with the poisons generated by pathogenic micro-organisms, and in connection also with other poisons of very similar chemical composition, represented especially by the venom of serpents and by the vegetable products abrin and ricin.

It had long been known that many infectious diseases conferred upon those who had suffered from them a power of resistance against subsequent attacks of the same disease. After the discovery had been made—and to this I have already alluded—of the microbial origin of infective diseases, it was experimentally shown that if the microbes constituting the cause of any infective disease were inoculated into animals, not only were symptoms of the disease produced, but also that the animal, if it survived, reproduced still further the events of an infectious illness, by acquiring a power of successfully resisting the morbid influence of the same microbes subsequently inoculated. It has likewise been found that each of these events could be reproduced by the filtered, and therefore microbe-free, solution, in which the pathogenic microbes had been cultivated, and thus it was demonstrated that neither the original disease nor the subsequently acquired production was actually due to the microbe, but to toxic substances produced by it.

From this position the further great advance was made that the blood serum of protected animals, itself destitute of poisonous properties, when introduced into non-protected animals conferred upon them a resisting power which might be so great that even large lethal doses of the virulent micro-organism and of its toxin no longer produced death or even symptoms of poisoning.

These remarkable results of experiments deservedly claim much attention. They irrefutably demonstrate that infectious diseases are

in their essence poisonings; they throw much light on the mystery, previously shrouded in metaphysical phrases, of the nature of the protection acquired by attacks of infectious disease or conferred by vaccination; and they have not only at once led to valuable therapeutic results, but they indicate further applications, both in the prevention and treatment of disease, exceeding in their possibilities any expectations that had previously been originated by discovery in medical science.

Inquiry into the nature and cause of this protection has thereby been removed from the position of speculation long occupied by it to one in which experimental methods could be pursued with some hope of solving the problems. Many of the results, however, are yet difficult to explain, and considering that new facts bearing upon them are almost daily being obtained, it is not to be expected that altogether satisfactory solutions had been found or unanimity of opinion obtained. More especially does this apply to the nature of the process whereby protection or immunisation is obtained, to the origin of the protection-producing substances or antitoxins, and to the manner in which they act as curative or therapeutic agents.

As in the case of some of the ordinary poisons, mineral and vegetable, it may be admitted that a portion of the acquired protection is due to the tolerance brought about by the accustoming of the structures of the body to the action of the poison, but this tolerance could not continue for the long periods during which acquired immunity sometimes persists after the infected disease has been recovered from. It may also be admitted that pathogenic micro-organisms absorb and thus remove from the body certain constituents necessary for their growth and vitality, whose removal may, to some slight extent, render the body unsuited for the further growth of these organisms; but, apart from other objections that might be advanced, it is inconceivable that this cause could operate in the bodies of animals which so rapidly change the composition of all their constituent parts, and that therefore the substances which have been removed would not very soon be again restored to the body, and thus render it vulnerable to fresh infections. The doctrine of phagocytosis, enunciated and ably and strenuously supported by Metchnikoff, in which protection is attributed to the power possessed by leucocytes of absorbing and destroying microbes, may to a limiting extent account for the destruction of living microbes, but it probably accounts to a greater extent for their disappearance after life is extinct; while it can have but little influence upon the soluble toxins which, since the introduction of the theory of phagocytosis, have been proved to be in most cases the true cause of the disease symptoms.

The frequent persistency of immunity, not only exemplified in the after-history of patients who have recovered from certain of the infectious diseases, but also in vaccination against small-pox, as it alone serves to disprove each explanation yet advanced of the essential nature of acquired protection, must be taken into account in formulating explanations. The micro-organism of an infected disease introduced into the body produces the characteristic symptoms of the disease, and, if the animal recover, subsequent inoculations of this micro-organism no longer produce any injury. The animal has become protected against the disease, and there is abundant clinical evidence to show that in the case of the majority of infectious diseases the immunity lasts for many years. The pathogenic organism of the same disease cultivated outside the body produces a toxin which when administered to an animal likewise reproduces the symptoms of the disease, and if the animal recover, and further quantities of the toxin are successfully administered, an immunity may be acquired so great that the animal suffers but little inconvenience when 50 times the minimum-lethal dose, or even a larger quantity, of this toxin is now administered to it. The immunity acquired in the latter case is, however, only of short duration. I do not know if the duration of it has been defined with any of the toxins of disease, except with the toxin of diphtheria, and Roux and Klein have shown that with this toxin it lasts only from five to seven days. Enough, at least, has been done to show that it is brief when compared with the immunity produced by the microbes from which the toxins had originated, and Klein remarks that a serum which may be relied on to afford any durable protection is still a desideratum. It is also interesting to note that Monckton Copeman has found that lymph filtered so as to remove from it all solid particles, and therefore presumably all micro-organisms, can produce only a briefly lasting protection against unfiltered vaccine lymph of normal potency. In the case of the venoms of serpents—which in composition, and in other important respects, are analogous to the toxins of disease—the duration of immunity has, however, been defined; and experiments have shown that if an animal be protected so as to survive the minimum-lethal dose of the cobra venom, the protection produced against the same dose of venom does not last longer than a few hours; and even when the process of the immunisation has been carried so far that the animal can survive four times the minimum lethal, the protection against this dose of venom exists for only thirty days.

The protecting substance, antitoxin or antivenin, which appears in the blood after inoculation with pathogenic microbes, or after the

injection of toxins or venoms, is chemically unstable, and is subject also to the general processes of elimination. Its presence in the body, even when the quantity of toxic substance to which it owes its origin is greatly above the quantity of toxin which has been elaborated in a case of infectious disease by the pathogenic organisms of that disease, is to be measured by days only; and, nevertheless, the protection produced in a patient by an infectious disease may apparently endure for a lifetime, and the immunity from small-pox gained by vaccination for at least seven years. It appears to me impossible to explain these contrasting facts on any other supposition than that, in the instances of prolonged immunity, successive supplies of the antitoxin of the disease, or of small-pox, must be furnished to the body during the time that protection continues. It is not possible, however, that these supplies could emanate from the pathogenic organism itself, for the life of the host would not endure were it retained in the body in its condition of original virulence. Jenner himself believed that vaccinia is a modified small-pox. The microbe of small-pox, like all other microbes, is greatly influenced by its surroundings. When transferred from man to the calf, it is now known that it may gradually acquire the characteristics of vaccinia, and elaborate substances which reproduce in man the protective effects of inoculation with human vaccine. The microbe of small-pox, therefore, has obviously become so modified that, while it can no longer produce a virulent toxin, it still retains the power of elaborating a protective antitoxin, and also retains sufficient vitality to reproduce its like through many generations in the human body.

Evidence pointing in the same direction has been obtained with other pathogenic microbes. Pasteur found that the microbes of fowl cholera, when treated in a certain manner, can have its virulence greatly lessened, and if it be then injected into the tissues of fowls, only slight poisoning is produced. From fowls thus treated, microbes are obtained also capable of producing only slight poisoning, and inoculations can be carried through a successive series of fowls with a like result. Each of these fowls had by this inoculation with a weakened or attenuated microbe become protected against the original and virulent microbe.

In the case of the pathogenic micro-organism of anthrax, this great pioneer in the field of the microbial etiology of disease discovered similar facts. If grown outside of the body at a temperature of  $42.5^{\circ}\text{C}$ . for eight days, this microbe could no longer produce the disease in susceptible animals, but, notwithstanding, it endowed them with a certain degree of protection against the original virulent

microbe. Similar results were obtained with the microbe of hog fever, and it is important to note that a duration of immunity exceeding that known to be produced by any toxin was obtained, for the protection following inoculation of the attenuated microbe lasted for at least one year.

These instances are sufficient to show that immunity equally with poisoning is dependent upon a soluble substance produced by the micro-organisms; that the duration of even a high degree of immunity resulting from the introduction into the body of the immunising substance as distinguished from the microbe is only of brief duration; and, accordingly, with the existing evidence, it is impossible to account for the prolonged immunity following upon the recovery from many infective diseases, or from inoculation with vaccine lymph, otherwise than by assuming that so long as immunity continues the microbial sources of infective disease continue to exist in an attenuated and otherwise modified form in the protected body.

Attenuation for the purposes of protection would therefore appear to be essentially a process in which the condition of life of the microbe is so altered that its capacity for manufacturing poisons is weakened or destroyed, while its disease-preventing properties are retained. Unless by education we can so tame and civilise a pathogenic microbe as to subdue its virulent and hostile disposition, while at the same time its beneficial and protective properties are left unimpaired, the hope of obtaining—as for plague, cholera and tubercle—immunising vaccines equal in efficiency to the lymph of vaccinia will probably never be realised.

The theory which I have suggested implies that long-enduring protection from infective diseases cannot be obtained by the introduction into the body of either the poisonous or the immunising products of microbes—the toxins or antitoxins—but only by inoculation of such microbes, as are capable in the body of assuming a non-virulent form, or of microbes already converted into this form.

I would here point out that, however highly we may value the objects and success in some important directions of the experiments of Dr. Monckton Copeman and others on the effects of glycerine upon vaccine lymph, it must not be overlooked that the powerful microbicidal action of glycerine upon the contaminating organisms of this lymph may, in the course of time, weaken or even destroy the activity of the specific organism by which the long-lasting protection against smallpox is produced.

In the case of some diseases it is possible that the modification of the pathogenic power of the micro-organism necessary to convert it from

a poison-producing to an antidote-producing agent cannot be accomplished in the body. Thus may be explained the failure of certain diseases to protect the body from subsequent attacks of the same disease, well recognised in the instances of pneumonia, influenza, diphtheria, rheumatic fever, erysipelas and tubercle. On the other hand the microbes of other diseases may, in small numbers, and attenuated both in virulence and in power of conferring protection, persist in the body after convalescence has been established and actually rendered it not only more susceptible to fresh infection but also to a recurrence of the disease by auto-infection. Results obtained by experiments with toxin and venom support the former possibility, for owing to some as yet unexplained individual peculiarity, an animal which had received a number of successive doses of toxin or venom, each considerably below the minimum lethal, instead of having thereby acquired protection, may unexpectedly exhibit serious symptoms of poisoning, and may even die when it receives a dose considerably below that required to produce death in an animal which had not previously received any toxin or venom. The probability of the second event is supported by the well-known effects upon the life and pathogenic power of microbes of changes, even although slight, in the conditions to which they are subjected. A change in temperature, the addition to, or removal from the fluid in which they are grown of a minute quantity of a chemical substance, may convert a non-virulent form of a pathogenic organism into a virulent form. Similar causes may, outside the body, also render moderately or intensely virulent a previously non-virulent microbe, and thus may be explained variations in the severity of epidemics, as well as the occurrence of outbreaks of infectious disease not originated by infection from any previously existing case.

The dependence of microbial existence upon the composition of nutrient media may also partly account for the age liability which forms so conspicuous a feature in the history of such infectious diseases as scarlet fever, measles and whooping-cough. Further, pathogenic microbes, attenuated as to their virulence, but not as to their protective power, may enter the body and render it immune by a process of accidental vaccination; and thus may be explained, without recourse to such unsatisfactory phrases as individual or racial peculiarities, well-authenticated examples known to all of us, of repeated exposure to infection without the production of disease, and of the immunity enjoyed by the inhabitants of towns and districts subjected to the virus of typhoid fever, malaria, or yellow fever.

These are not mere hypotheses, unsupported by experimental data.



Describing the results of his experiments on anthrax, Pasteur states that when fowls are inoculated with the virulent microbes of this disease, they remain well until they have been cooled down to sub-normal temperature; and in the earlier stages of the poisoning thus induced, if the temperature be again raised, the symptoms of anthrax disappear and the fowls recover. Anthrax microbes, as well as those of fowl cholera, if cultivated at a temperature between  $42^{\circ}$  and  $43^{\circ}\text{C}$ ., acquire varied degrees of lethality according to the age of the culture, and the microbes of each variety of lethality can be almost indefinitely reproduced by maintaining certain conditions of cultivation. If microbes so grown as to be no longer able to produce anthrax in rabbits are first inoculated in a successive series of experiments in young, and, for that reason, extremely susceptible rabbits, and if the microbes obtained from the last of the series are then inoculated into somewhat older and finally into adult rabbits, the original virulence of the microbe is found to have been regained. "The work in my laboratories," he states, "has established that pathogenic microbes are not morbid entities. They can assume various forms of physiological activity, depending on the media in which they live and multiply. As a consequence, one can modify their virulence. It can be exalted or enfeebled, and each state can be fixed." Impressed by the far-reaching possibilities suggested by these and other fruits of his fertile imagination, it is not astonishing that the great discoverer, whose divining rod of science had thus thrown a clear light on the mysteries of centuries, should exclaim, "The hour has now arrived when we may enter the enchanted grotto full of priceless treasures."

Passing now to consider the origin of the protection-producing substances—antitoxins or antivenins—it is important to bear in mind that the symptoms of a pathogenic disease, the toxic phenomena by which it is characterised, are, with a few doubtful exceptions, directly caused by the poisons generated by micro-organisms, and not by the micro-organisms themselves. The production of microbicidal agents does not, therefore, in connection with this question, require consideration, but it may be pointed out that there is evidence of the production, both by toxins and micro-organisms, of substances specially unfavourable to the vitality of the micro-organisms themselves.

The production of antitoxin in the body, whether following the introduction of virulent microbes or of toxins entirely free from microbes, has generally been explained by a reaction occurring in the tissues of the body, whereby either a proliferation of leucocytes and the production by them of the protecting substances is excited, or the normal cells of the body are stimulated in such a way that they secrete the protective substance.

I have, to some extent, already discussed the question of phagocytosis, which is involved in the first explanation. To the objections that have been stated there are others which can be derived from the results of observation and experiment. In many instances, when immunity to a high degree has been produced by venom, no increase can be found in the number of leucocytes immediately, or at varying periods, after the subcutaneous injection of large, though, in the circumstances, easily tolerated doses of venom. Further, when one-half more than the minimum-lethal dose of venom is mixed outside of the body with antivenin, and the mixture injected into an animal, the quantity of antivenin required to prevent this lethal dose from producing death is only the quarter of a cubic centimeter; whereas if the antivenin be administered half an hour before the same dose of venom, as much as 3 cubic centimeters are required. That is to say, in conditions which are the more favourable for the proliferation of leucocytes, or for the production by them of protecting substances, the antivenin is less efficient as a protecting agent than when the conditions are much less favourable.

As to the second theory, often termed the reaction theory, it is also opposed by the experiments I have just mentioned, but equally so by the fact that a high degree of immunity can be produced by an appropriate adjustment of doses without any observable reaction occurring. Even when a distinct reaction, such as an elevation of temperature, is produced during the process of immunisation, the production of the reaction is in itself of no other significance than a dose of an active substance, sufficiently large to cause an observable effect, had been administered.

The subject, however, is surrounded by difficulties, not a few of which have arisen from the attempt to obtain an explanation without separating the influence of the microbe from that of the toxin, with the result that biological conceptions have perhaps been introduced unnecessarily into the consideration and discussion of the subject. As a contribution to the solution of the problem I would advance the following facts: Although searched for, no proteolytic or fermentative action has been discovered in the case of any toxin or venom; by subjection to certain external influences, such as elevation of temperature, and the influence of electric currents and of certain chemical reagents, toxins and venoms may have their poisonous action destroyed, while the immunising or protective action is retained; and toxins have been found actually to contain protective or remedial substances along with their toxic ingredients, as shown, for instance, by Hunter in the case of the toxin of tubercle.

These considerations suggest that the protecting substance originates directly from the toxin, or is indeed an ingredient in its complex composition. The suggestion is supported by experiments which show that the degree of protection artificially produced in an animal—for it is, perhaps, not unnecessary to state that protection and immunisation are only relative and not absolute—is proportional to the total quantity of toxin or venom introduced, rather than to the amount of reaction produced in the animal by any of the several administrations. The remarkable facts which have been described in connection with the stomach administration of venom, obtained also by Ehrlich and Kobert with the somewhat similar bodies abrin and ricin, and by Valli with the virus of hydrophobia, seem likewise to receive their most satisfactory solution on this supposition. A dose of venom, several hundred times greater than is requisite to produce death by subcutaneous injection, fails when introduced into the stomach to produce any poisonous symptom whatever, but still so protects the animal that considerably more than the minimum-lethal dose may now be subcutaneously administered without producing death.

It is difficult to account for these facts otherwise than by assuming that the venom while in the alimentary canal had been subjected to a process of analysis, as the result of which its toxic constituents had been separated from those that are antitoxic or protective; and while the former had either been destroyed or had failed to be absorbed, the latter had passed into the blood in sufficient quantity to protect the animal against otherwise lethal administration of venom.

There are, undoubtedly, many facts still required before a convincing explanation can be formulated of the origin of the antitoxic substances that appear in the body after the reception of pathogenic or other similar toxins; but the facts already ascertained appear to indicate that the antitoxic or immunising substances originate not from vital reactions upon constituents of the body, but from the toxins themselves, being produced by chemical changes in them, or being actually among their normal ingredients.

The question is not only of scientific interest but it has also a practical bearing. The manufacture of the immunising substance is attended with much difficulty. A satisfactory antitoxin can rarely be obtained until a tedious process, extending over several months, has been followed. Antipneumococcus serum requires as long a time as six months, the immunising serum of yellow fever from twelve to eighteen months, and the nearest approximation yet obtained to a satisfactory protecting serum for tubercle the almost impractical period of several years. Were it recognized that the antitoxin originates

directly from the toxin, the preparation of it would be freed from existing difficulties and mysteries, and, after some necessary chemical research, it could be produced in the laboratory and thus brought into closer relationship with ordinary medicinal substances.

Any generalisation in medicine, while it may serve the useful purpose of emphasising advancement in knowledge, must remain barren of practical result unless it also supplies general principles as well as specific indications for treatment. It may with some confidence be stated that the doctrine of the toxic origin of disease does not fail in these respects.

In the case of ordinary poisons it has been well established that recovery is largely promoted by hastening the removal of the poison from the body, especially by means which it is the province of pharmacology to indicate; and the eliminative treatment which has long been followed in many diseases thus finds in their now definitely established toxic origin a sufficient explanation and justification. Clinical and experimental evidence, not restricted to ordinary poisons, but gained also from the study of the effects of toxins and venoms, has taught us that treatment should also include the adoption of measures for increasing the resistance afforded by the body to toxic and morbid processes. If a dose of venom below the minimum lethal be administered to an animal, and, after all obvious symptoms of poisoning have disappeared, this dose be followed by a second, also considerably below the minimum lethal, the animal may die, although each dose was in itself insufficiently large to cause death. If an animal has been inoculated by a non-lethal quantity of a virus of a recognised disease such as anthrax, and, after recovery has apparently been established, if a non-lethal dose of the virus of another disease be inoculated, death will follow the inoculation of the second dose, although that dose is quite insufficient of itself to produce death in an animal which has not previously been thus treated. In both cases the power of resistance has been so weakened by the first and apparently recovered-from administration that a quantity of virus in itself insufficient to cause death now succeeds in doing so. From such examples the explanation is found of the widely prevalent employment of means to increase the strength or resistance of a patient, of the value of tonics and foods and of fresh air and light, not only in promoting recovery from illness, but also in actually preventing a fatal termination. Expressed in another form, they constitute means for slightly increasing for any given degree of disease the minimum quantity of the disease-producing influence or substance required to produce that degree of disease.

These as well as other methods of treatment that might be referred to do not, however, directly affect the true cause of the malady. Hitherto this cause could be counteracted or opposed only in the instances of the well-known poisons which are dealt with by toxicology, and of a very few diseases such as ague and syphilis, in which the cause was surmised, without being proved, to be a poisonous substance; and in substances fitted to antagonise these poisons by chemical combination, or, though only to a limited extent, to counteract their effects by physiological processes, therapeutics has possessed satisfactory resources. By the demonstration of the production of many diseases by toxins generated by micro-organisms, the opportunities for the application of these principles has been greatly extended. Diseases whose treatment had previously rested on an uncertain basis have now been brought into the range of rational therapeutics; and it has been shown that morbid processes which had already become so definitely established as to display serious symptoms can be entirely arrested, and, above all, that illnesses which would otherwise inevitably terminate in death may be so perfectly controlled that the fatal termination can be prevented and recovery ensured.

A dose considerably above the minimum lethal of the toxin of tetanus is administered to an animal. Several hours after the administration, when symptoms of tetanus had manifested themselves, the antitoxin of tetanus, derived from an animal which had been immunised against the virus, is injected under the skin, and in a short time afterwards the symptoms of the disease disappear and the animal recovers.

A dose of cobra venom sufficient to cause death in two or three hours is administered to an animal; the venom illness is developed, and while it is quickly advancing to apparently an early death, a dose of antivenin—the blood serum of an animal highly immunised against this venom—is administered, and by-and-by the symptoms become mitigated, and in a few hours the animal, which otherwise would certainly have died, is restored to a perfectly normal condition.

By this antidotal treatment, further, not only is disease arrested and even death conquered, but the structural alterations in the muscle fibre and elsewhere that the tetanus toxin produces, and also the acute and rapid changes in the parenchyma of the kidney characterising the poisonous action of serpent's venom, are altogether prevented from occurring.

How are these marvellous therapeutic or curative effects to be explained? The explanations that have been advanced are essentially the same as those applied to the production of immunity, and they have already been disposed of in the discussion of that subject. Specially bearing on the therapeutic aspect of the question are the

further considerations that antitoxins are destitute of any distinct physiological action, and founding on Declory's recent work on antivenin, antitetanin, and the antitoxin of diphtheria, they have even no influence on the processes of ultimate nutrition. Their curative action cannot therefore depend on physiological antagonism, and it is highly improbable that it has any biological basis whatever.

Referring again to experiments made with serpents venom, when this venom in lethal quantity is mixed in a test tube with a small quantity of antivenin, the venom almost instantly loses its toxic power. Further, if the smallest quantity of antivenin required to produce this change after contact for a definite time with a lethal quantity of venom be determined, it will be found that if the time of contact is lessened this quantity of antivenin is no longer able to remove the toxicity of so large a quantity of venom. When again, venom is injected under the skin of an animal at the same time as, but in a different position from the antivenin, the quantity of the latter required to prevent death is for the same dose of venom about twelve times larger than when the two substances had been mixed together before they were injected. Such distinctions are difficult of explanation otherwise than by supposing that a combination, chemical or mechanical, is effected between the antivenin and the venom, for they indicate that when the conditions are the more favourable for ensuring contact between the antitoxin and the toxin, the antidotal action is more powerful than when the conditions are less favourable for this contact.

This view is also supported by the fact that if the antivenin be administered after the venom, the dose of the former required to prevent death is enormously larger than when the two substances are simultaneously administered after they have been mixed together outside of the body. In the case of antivenin and venom the difference is as great as 1 to 1,200.

This experimental result, harmonising altogether with a physical as distinguished from a biological explanation of the antidotal action of antitoxins, emphasises the lesson, gradually receiving acceptance in practice, that for the effective treatment of an infectious disease the quantity of antitoxin must be a very large one, and at least 1,000 times greater than is indicated by the *in vitro* experiments by which their antidotal power has usually been determined and standardised.

For this reason the antitoxic serums frequently in use at the present time must be regarded as too dilute solutions. It is indeed probable that the process of immunisation, even when carried to its utmost limits, is incapable of producing antitoxic serums sufficiently powerful, in doses which can be administered, to cure a patient suffering from

the effects of a large lethal quantity of toxin. Chemistry, however, has as yet left almost untouched the investigation of antitoxic serums, and it may confidently be expected that, when more knowledge has been obtained of their chemical composition, this difficulty will be overcome by the separation of the curative from the worthless ingredients.

By such results as are exemplified in the experiments that I have described a new era has been originated in practical medicine. Considering how limited were the means—if, indeed, they previously had existed—of actually preventing death when the fatal disease conditions were already present, a special fascination attaches itself to the subject of the antidotal treatment of disease, the newly created serumtherapeutics. It has merely entered the first stages of its development, and has had to contend in its applications to human beings with the difficulties presented by the presence of undiscoverable amounts of disease toxins, diffused by living generators, which are present in the body in unknown quantities and in varying toxic potentialities. The results already obtained are, however, of much value. Diphtheria has had its case mortality reduced from 70 per cent. to 26 per cent., or, according to another estimation, from 40 per cent. to 8 per cent.; hydrophobia has been so far brought under therapeutic control, by means which have not as yet been developed to their full efficiency, that the mortality has shrunk at least from 16 to 1 per cent.; the prognosis of tetanus has been deprived of much of its gloomy forebodings; the cure of pneumonia, of tubercle, of erysipelas, and of septicæmia is on the eve of being realised: a complete demonstration has been obtained of the power of antivenins to prevent the toxic and lethal effects of venoms; and the experimental data are being surely accumulated for completing the greatest triumph of preventive medicine by the discovery of an antitoxic serum for the cure of smallpox.

These, however, are to be regarded as merely the first fruits—in some cases requiring further maturing by the light of science—of the ample harvest which is ripening. Their acquisition, at the same time, has been sufficient to supply materials for constructing, in perfect outline, the doctrine of the toxic origin of disease to which I have ventured to ask your attention. This doctrine has at least the merit of being able to bind together in one harmonious unity the conception of the actual nature or essence of a large number of diseases, including those which most urgently demand consideration. It supplies a simple and intelligible basis for treatment. Under its directing influence it may confidently be anticipated that Medicine will reach a position of definiteness previously unattainable; and, above all, that the healers of disease will have their resources in this beneficent function rendered more effective and valuable for mankind.

# RETROSPECT OF CURRENT LITERATURE.

## Surgery.

UNDER THE CHARGE OF GEORGE E. ARMSTRONG.

### **The Immediate Correction of the Deformities Resulting from Pott's Disease.**

GOLDTHWAITE. "The immediate correction of the deformities resulting from Pott's disease."—*Boston Medical and Surgical Journal*, July 28th, 1898.

Somewhat startling were the proposals of Chipault in 1895, and Calot in 1896, to forcibly straighten, by extension and pressure upon the hump, the angular deformities resulting from Pott's disease. In their earlier work these surgeons not only straightened but wired the spinous and in some cases the transverse processes together. It appears, however, that at present they have given up the cutting part of the operation and rest satisfied with simply correcting the deformity by force, and immediately applying a retaining apparatus, made as a rule, of plaster-of-Paris.

It now transpires that Chipault and Calot were really not the first to adopt this method of treatment. In Adam's "Genuine Works of Hippocrates" we read that the forcible removal of "gibbosities" by succussion and extension was already an old method of treatment, five hundred years before Christ. In those days, the patient was carefully extended on a ladder, the legs and hips being made fast and the ladder with the patient suspended head down was fastened to the gable of a house or to a mast set in the ground and steadied by its ropes. Extension was then made.

Again Ambrose Paré writing in 1647, in an article entitled "How to Restore the Spine Outwardly Dislocated," describes a method which closely resembles that followed by Calot and the French school at the present time.

Yet as truly stated by Goldthwaite, however much the operation



may have been performed in the distant past, certain it is that for many years or generations the treatment has consisted in fixation of the spine in the deformed position and in limiting the deformity as much as possible. To Chipault and Calot must be given the credit of this present radical departure from the conservative methods so long in use.

The exact operation, as commonly performed both in England and on the continent, is described by Jones as follows: "Having determined to forcibly reduce the deformity in a case of Pott's disease, it is necessary to carefully prepare our patient, more especially if the plaster corset recommended by Calot be applied. For two or three days previously the patient should be dieted with a view to supplying nourishment and avoiding waste concretions. The bowels should be thoroughly opened so that if necessary abdominal pressure may be applied by the hand without risk; and for the same reason the bladder should be empty. It is hardly necessary to state that the skin should be deodorized and disinfected, and the head should be shaved. In order to avoid insect life, the scalp should be treated for a sufficient time. An assistant should now prepare the traction bandage. This consists of two linen bands a yard long. The centre of one piece is placed around the occiput, the centre of the other around the chin. They must meet beneath the ear on each side, and at this point be firmly fixed by safety pins. The free ends are knotted and an assistant takes a loop in each hand, or, more convenient still, the loop may be attached to a cross-bar of wood or other material. The linen bands must be of equal length, otherwise the head is not pulled in line with the spine. They should be fully a yard long in order that the assistant who controls the head may be well out of the way of the anæsthetist. This traction is quite essential as one cannot act upon the spine by manual grasp upon the head for any length of time. In addition to the assistant who controls the head, six others are needed: Two for the arms, two for the legs, one for the chloroform, and one to directly assist the operating surgeon.

Chloroform having been administered, at a given signal traction must be exercised. If the patient be small he need not be supported by chest or pelvis rack. A child of two and a half years requires a pull of 220 kilos, before the neck is dislocated. Traction, therefore, measured if necessary by a dynamometer, should be well within that strength. Roughly speaking, five men pulling with a force that soon tires, rarely exceed 70 kilos, so that the danger of dislocation is very slight. All, however, should pull together, and there should be no jerk. This applies more especially to the assistant who controls the

head. Simple traction will reduce the deformity in a large number of cases, particularly in curvature situated high up. If it does not, direct pressure must be applied to the hump. An assistant places his hand upon the abdomen, with sufficient power to feel the bodies of the vertebræ, and it is to anticipate this pressure that I have advised a careful diet and an empty bowel. This pressure on the vertebræ on the front is a check to the surgeon who presses directly upon the hump, and who uses sufficient force to reduce the deformity, if he can do so with safety."

Goldthwaite was surprised at the ease with which the deformity was in the great majority of cases overcome, and also at the difficulty of preventing a recurrence of the malposition. When the plaster corset was applied the spine was straight, when removed considerable recurrence of deformity found. He then tried the plan of turning the patient on the back and allowing the weight of the trunk to rest upon a small upright placed immediately beneath the most prominent point of the kyphosis. This plan gave much more satisfactory results, in fact this position was, in many cases, all that was required to overcome the deformity in the first instance.

In his earlier cases ether was administered but he found that it was not by any means always necessary, as in cases of not over one or two years duration the spine could be straightened without any anæsthetic and with little or no pain to the patient.

The plaster should include the pelvis and perhaps limit the motion of the hips, and should be carried high enough to hold the shoulders well back. He found it unnecessary to apply the helmet unless the disease extended above the fourth dorsal vertebra.

As a matter of experience, it has been found advisable to practically always cut a small window over the point of greatest deformity, as otherwise when the body settles down, as is inevitable, a slough will form even though a liberal amount of padding has been used.

In some, two or three sittings are necessary to obtain a satisfactory position.

Dr. Gibney showed two boys before the Section in Orthopædic Surgery of the New York Academy of Medicine, held on March 18th, whose backs he had straightened by forcible extension and manipulations. No fever or other untoward results followed the straightening. He thought there need be no fear that forcible correction would set up tuberculous action in the meninges or elsewhere; it was exceedingly rare, he said, for dissemination of the bacilli to follow the forcible correction of deformities of the hip, as had been found by years of experience.

It is too early to pronounce upon the wisdom of this treatment. It has been thought by many that the process of repair after straightening would be insufficient in quantity and quality to maintain the bodies in the corrected position. In at least two autopsies, performed in England, some months after forcible correction, very little repair had taken place. Nevertheless, the reports of cases in America, England and the Continent are so favourable, that one feels it almost a duty to adopt this plan in suitable cases.

*Geo. E. Armstrong.*

# Ophthalmology.

UNDER THE CHARGE OF J. W. STIRLING.

## Protargol in Eye Disease.

A. DARIER. *La Clinique Ophthalmologique*, March 25th, 1898.

FUERST. *Fortschritte in der Medicin*, No. 4, 1898.

PERGENS. *Klin. Monatsblätter f. Augenheilkunde*, April, 1898.

This drug is finding considerable favour among European ophthalmologists for affections of the conjunctiva attended with mucopurulent discharge.

Darier dilates on the value of protargol in purulent conjunctivitis, and in these cases uses a solution of a strength of from twenty to fifty per cent. He considers there is no danger in the employment of even the fifty per cent. solution, and that the action is practically painless. The bactericidal action of protargol is equal to and indeed better than the other salts of silver. As a prophylactic in children born of mothers who have a vaginal discharge, it may be used in a ten to fifteen per cent. solution.

Fuerst highly recommends protargol, and holds that it is preferable to nitrate of silver in that it is less easily decomposed, less irritant and does not stain the clothing.

Fuerst prefers a solution of ten per cent. strength, made by rubbing 10.0 of protargol, and 10.0 of glycerine into a paste, and dissolving this in 90.0 of water.

Pergens says that protargol does not irritate healthy eyes. He uses a two to five per cent. solution—but in dacryocystitis and blennorrhœa a ten per cent. solution. He instils it into the eye six times daily in catarrhal conjunctivitis, but in mild cases thrice daily suffices. In ophthalmia neonatorum, Pergens uses a twelve per cent. solution every hour, resulting in "rapid" cure. In chronic cases the results were not very favourable.

## Cocaine in Ophthalmology.

GERMAIX. *Recuril d'Ophthalmologie*, April, 1898.

There is but little new or startling in Germaix' contribution to the voluminous literature already published on cocaine, yet his paper is of

value as a remembrancer of sinister possibilities in these days of constant and sometimes careless use of cocaine.

Germaix specially refers to the use of cocaine in plastic operations, and reports two cases of severe depression resulting from the use of it. His deductions are that if several areas are to be operated on, cocaine should be injected into but one at a time, and the operation forthwith performed to allow of the rapid elimination of the drug. Much caution should be observed in emaciated patients or those suffering from cardiac disease, but even here the action of cocaine is not so dangerous as the general anæsthesia of chloroform. If any symptoms of collapse appear the patient should be placed in the dorsal position, with the head inclined downwards, and caffeine administered. This treatment has, in Germaix's experience, been invariably successful.

### The Pupil.

SCHIRMER,—"Experiments upon the pathology of the pupillary diameter and centripetal fibres."—*Arch. f. Ophl.*, XLIV., 2.

BACH—"The ciliary ganglion and the centre for the pupillary reaction."—*Ophthalm. Klinik.*, March 5, 1898.

WOLFF—"Pupillary paralysis in carcinoma of spinal cord."—*Oph. Klinik.*, March, 1808.

Whereas there is still some uncertainty in regard to the central connections of the pupil, the appearance of any article which may be the result of research or of any report of pathological conditions which may throw light on this subject, is hailed with pleasure.

Schirmer's article is very elaborate and exhaustive, but the following are briefly the results of his labours. The centripetal pupillary fibres in the retina are distinct from the visual. They do not end in the rods and cones layer of the retina, but in the inner layer. They are most abundantly distributed to the macula, and to a lesser degree to the periphery of the retina. They are distinct from the visual fibres in the optic nerve, and are less exposed to mechanical pressure in this region than the visual fibres, but on the other hand are more exposed to inflammatory processes—hence the size of the pupil is of diagnostic value in differentiating retrobulbar compression from retrobulbar inflammation.

Their terminal organs being situated in the inner retinal layer; any retinal lesion must have extended to this layer before the centripetal pupillary fibres can be effected, hence the retina can be extensively destroyed in its outer layers and yet the pupillary fibres escape. In the optic nerve, pupillary and visual fibres from the same areas of the

retina lie close together. Hysterical, congenital and squint amblyopias do not affect the pupillary fibres.

Bach gives the results of a most extensive series of experiments, and concludes that the reflex centre of the pupil is in the upper part of the cervical region of the spinal cord.

Wolff reports a case of pupillary paralysis in which there was destruction of the posterior columns of the cord as far down as the third and fourth cervical vertebræ.

Wolff also found after examining a number of cases of paralysis and tabes, that where there was pupillary paralysis there were changes in the cervical region of the spinal cord, and where there was no pupillary paralysis, there were no changes in this region.

### Amaurosis.

BORSCH. "Transient amblyopia following hæmorrhage and recent binocular amaurosis following hematemeses."—*Annals d'Oculistique*, April, 1898.

HAMBURGER. "Amaurosis after Pneumonia"—*Ophth. Klinik*. March, 15th, 1898.

ELSCHNIG. "Amaurosis from lead poisoning."—*Die Oph. Klinik*, May 5th, 1898.

SILEX. "Amblyopia and amaurosis in pregnancy, labor, and childbed."—*Monatschrift f. Geburtshilfe*, 1898.

Borsch's first case was that of a man who received a kick in the chest from a cow. Leeches were applied to the ecchymosis and allowed to come away of themselves. Severe hæmorrhage followed during the night and in the morning the vision was indistinct, and rapidly got worse until it was only one tenth in the right eye and one fifteenth of the normal in the left eye, the pupils were dilated and inactive. The fundi of the eyes were pale, the arteries contracted and the veins dilated and the edges of the discs indistinct. Examination of the blood showed marked anhematism. Tonics and iron effected a complete cure in fifteen days.

The second case was that of a man forty-two years old who had repeated attacks of hematemeses at very short intervals, of a day or so. After the third attack failure of vision was noticed, then followed a very severe attack from which he recovered completely blind. The pupils were dilated and inactive, the discs were atrophied and the vessels contracted and the left external rectus was paralysed. Sub-

cutaneous injections of strychnine for a month resulted in the recovery of light perception.

Borsch considers that the hæmorrhage drained the sheaths of the optic nerves, and this was followed by serous effusion into them which produced pressure on the nerves. Added to this was the possible influence of toxins.

Hamburger's case was a man twenty-years old who a few weeks after pneumonia lost the vision completely of the left eye and to a great extent of the right eye in a few months. The left optic disc was atrophied and the right one in the stage of choked disc. Diagnosis was made of a tumour of the optic chiasm.

Elschnig's paper is an able *résumé* of our knowledge so far of the ocular symptoms and pathology of lead poisoning. Most rarely are the external ocular muscles affected and the prognosis is generally unfavourable in these cases.

Paralysis of the sphincter pupillæ has been observed, and in one case the post-mortem showed sclerosis of the posterior columns of the cord.

The visual affections are multiple and not pathognomonic. Saturnine amblyopia is an early symptom, and is associated with interstitial nephritis. Retinitis and optic neuritis occur, and in simultaneous encephalopathic saturnina, the symptoms may simulate those of brain tumour as in a case of Westphal, where bitemporal hemianopsia was present. Except in very mild cases the result is generally optic atrophy.

Retrobulbar neuritis is not at all uncommon, and may begin with a central scotoma or a general contraction of the field of vision. The prognosis here is grave except in relatively recent cases.

Saturnine amaurosis of varying duration without fundal change, and with retained pupillary reaction has been noted and here the cause was supposed to be reflex. The explanation of the origin of lead intoxication is still "in nubibus." In the muscle paralysis it has been shown to be due to a neuritis, and also due to a pressure paralysis caused by the œdematous swollen brain on the nerves at the base of the skull.

Central affections, the isolated sphincter paralysis, and the appearance of typical tabes dorsalis, are to be explained by these effects of the lead upon the base of the brain. The seat of the pathological process in retrobulbar neuritis is principally in the canalis opticus, where the disease in the nerve bundles shuts up the large arteries.

Hemiplegic symptoms are due to spastic ischemia which explains the negative fundus found by Westphal in encephalopathic saturnina.

Elschnig advises massage of the eyeball and where improvement occurs, paracentesis of the anterior chamber.

Silex has never observed pure amblyopia due to pregnancy, and considers all reported cases as open to doubt. The amaurosis of pregnancy is generally due to uræmia and if it persists, is due to changes occurring in the retina, it is here then a toxic symptom due to kidney changes. The pupils generally are active and the arteries are not narrowed.

### Thiosinamine in Eye Diseases.

SUKER. "Thiosinamine in eye disease."—*Ophthalmic Record*, May, 1898.

The writer details the results he has obtained by the use of this drug in cases of corneal opacities, choroiditis exudativa, and catarrhal deafness. Suker administers  $\frac{1}{2}$  grain twice daily by the mouth increasing the dose each day after by  $\frac{1}{4}$  grain until a maximum dose of three grains daily is reached. It is best given in capsule form and never in the evening otherwise excessive dreaming will result during sleep. After six or eight weeks, the administration is stopped for ten days, then begun over again, or else diminished to  $\frac{1}{4}$  grain doses for the ten days and then increased again.

In choroiditis, the best results are obtained during the exudative stage; the thiosinamine is given on account of the fibrous and cicatricial changes which take place in any form of exudative choroiditis. Of course these cases are not of syphilitic origin. The improvement in the cases quoted was very marked, but the treatment extended over some months.

In corneal opacities the result was marked; here the drug kept up a mild form of conjunctival vascularity when the full doses were reached.

J. W. Stirling



# Dermatology.

UNDER THE CHARGE OF G. GORDON CAMPBELL.

## A Case of Monilithrix.

GILCHRIST, "A case of monilithrix with an unusual distribution."—  
*Journal of Cutaneous and Genito-Urinary Diseases*, April, 1898.

This is a rare disease in which the hairs, more especially of the scalp, becoming altered in shape, present a nodose condition. In the case reported, the subject was a young physician, aged 28 years and the disease had lasted eleven years, appearing first on the anterior surfaces of both legs below the knee. Patches also appeared from time to time on the thighs and calves. The head or other parts of the body were not affected. The diseased patches were nearly devoid of hair, a few loosely set lanugo hairs and a number of stumps alone being left. At the periphery of the patch large numbers of the characteristic hairs were seen. These under the microscope were seen to present a well marked nodular appearance. They were easily pulled out, but also very brittle, and when breaking off the fracture was always at the internodal portion of the shaft, and generally the end of the stump was split up and resembled a brush. The points of interest in the case, as summed up by Gilchrist, are as follows:

1. The perfect healthy condition of the patient whose habits are particularly cleanly (bath every morning) and whose physique and intelligence are much above the average.

2. The disease commenced at about seventeen years of age, which is much later than in the majority of the previously recorded cases. Crocker says that most cases are probably congenital.

3. The perfectly symmetrical distribution was something remarkable. No case has thus far been recorded which presented such symmetry on other regions than the scalp.

4. The presence of only a slight keratosis pilaris (its mildness being probably due to the daily bath).

5. Fracture of the hair was either clean or fibrous, the latter implicating only the cuticle.

6. When traction was made on the hairs the breakage occurred at constriction, never at the node, and left a brush-like ending.

7. There appeared to be relatively more pigment at the constriction than in the nodes. This observation appears to be directly

contrary to that of previous writers, if we except Lesser's case, in which the lighter colour of the nodules was due to the presence of air.

8. The nodes are numerous and are very regular, but are not always of the same length.

9. The absence of the evidence of contagion and of any history of any one in the same family having had a similar affection.

10. There was evidence of spontaneous cure, for the hair all returned on the right thigh after the baldness had existed for almost nine years. No history of any spontaneous cure has been recorded before.

11. There were no signs of any baldness or even thinning of the hair of the scalp.

12. No cause for the disease could be discovered.

It was proved that the bacillus of trichorrhæxis nodosa (Hodara's) was not present.

Appended to the paper is a list of the sixty other cases so far reported. These show the remarkable tendency of the disease to run in families, McCall Anderson recording 14 cases in 5 generations and Sabourand 17 cases in 5 generations.

#### **What are we to Understand by Eczema ?**

" A discussion on the question, What are we to understand by eczema ?"  
—*British Medical Journal*, September 10th, 1898.

This formed one of the set discussions at the Edinburgh meeting of the British Medical Association in the Section of Dermatology.

Mr. Malcolm Morris introduced the subject and in endeavouring to offer a definition of the term, remarked that he agreed with John Hunter that " definitions are most damnable things." He defined eczema as a catarrhal inflammation of the skin, originating without visible external irritation, and characterised in some stages of its evolution by serous exudations. This excludes all forms of artificial dermatitis, the difference between the latter and a true eczema being the tendency of the one to disappear when the cause ceases to act, and of the other to be continued indefinitely. On reviewing the various opinions held at different periods as to the cause of the disease the following are enumerated. Bateman's, that it is a vesicular eruption caused by various forms of irritations ; Bazin's, that it was a constitutional disturbance depending upon some dyscrasia—the eczematous diathesis. These in turn gave place to Hebra's doctrine that it was nothing more than superficial inflammation of the skin due to some external cause, while at the present day Unna's teaching that it is a parasitic disease is steadily gaining ground, although many dermatologists support the

view that the disease has its origin in some disordered action of the nervous system.

With regard to the parasitic theory, Unna has found parasites which he regards as specific for both vesicular and seborrhœic eczema. These are a form of cocci which he calls "morococci" on account of their being clustered together in little masses resembling mulberries. The micro-organisms are found in the cellular protoplasm of the elements of the vesicle and the congestion and œdema of the deeper layers which is also present, is supposed to be due to the action of the toxins arising from the growth of the cocci. Unna has also cultivated the morococci, and by inoculation of the cultures produced an acute eczema. Added to these arguments in favour of the parasitic theory, is the fact that the disease has been proved in numerous instances to be auto-inoculable; and seborrhœic eczema to be contagious. Leredde, however, considers the latter disease to be due to a mixed infection.

Morris thinks that we are justified in concluding that parasites are capable of causing eczema, and that it is highly probable that it is a parasitic disease, both from the fact that the most effective remedies are of the parasiticide class and of its tendency to spread locally. He does not consider the morococcus to be conclusively proved to be the cause, but the well-known fact that most parasites must have a suitable soil to grow upon, explains the undoubted association between many of the causes already referred to and eczema. Thus, certain conditions of the integument, such as ichthyosis, seborrhœa, varicose veins, artificial dermatitis, and irritating secretions among others, may form the determining cause in many instances. When, however, eczema develops upon skin, which is to all appearance perfectly healthy, some agency is at work which lessens the resistance to the attack of the parasite, and this may be some disturbance of the nervous mechanism.

With regard to heredity, Morris believes that eczema is inherited in the same way as consumption is; that is, that the conditions which predispose to it are inherited, and if the disease exists in one member of a family the others are favourably placed for receiving infection. The old idea that eczema is to be looked upon in the nature of a safety valve "that it is dangerous to cure it by driving it in" has no basis in fact.

Morris sums up his views in the following conclusions: "It is a disease, the striking clinical character of which is the infinite variety of lesion by which it displays itself; originating in the action of parasites on a skin, the resistance of which has been enfeebled by pre-existing disease or structural abnormality or by disordered inner-

vation ; sometimes made more intractable by gout and other constitutional states, but having no direct relation to the general health."

Dr. Wallace Beatty, in continuing the discussion, pointed out the necessity, considering the polymorphous character of the disease, of determining the general features which are common to every form and how the different modifications arise. This is rendered more difficult on account of our inability to determine what the real cause is. Anatomically, he considers that all the various grades depend upon differences in the intensity of the inflammation, whether we regard the disease as parasitic or constitutional. Clinically, serous, or sero-fibrinous sticky exudation, and scaling and itching are the three essential symptoms and yet we do not invariably get all these. He considered Unna's view that eczema is a parasitic disease a most fascinating one, and one that is almost convincing. It, however, carries some difficulties with it, and these are, that it is not infectious and is, in some cases, kept up by constitutional conditions ; and again, that the specific organism is also found in psoriasis which must then be considered a form of eczema.

#### **Treatment of Lupus Erythematosus.**

G. P. UNNA (Hamburg). "The treatment of lupus erythematosus."—*British Medical Journal*, September 10th, 1898.

At the recent discussion in the Dermatological Section of the British Medical Association on the "Nature and Treatment of Lupus Erythematosus," Unna discussed the treatment of this disease. He does not think that there is any direct connection between lupus erythematosus and tuberculosis, and believes that a study of the histology of the disease offers the best guide to treatment. He says :

"The histology of lupus erythematosus is governed by a striking contrast between the processes going on in the epithelial layer and the subjacent cutis. The epidermis is dry, hyperkeratotic, and shows horny processes penetrating downwards, which were for a long time mistaken for comedones. The cutis, on the other hand, shows dilatations of the lymph spaces and lymph channels, cedema of the papillary body, with development of larger lymph pools and a peculiar moist channelling of the cellular territories, which is produced by the atrophy of the collagenous tissue, and the breaking down of the feebly rooted cells which are carried away by the lymphatics. The outward appearance of the dry, centrally depressed patches gives no indication that beneath these is situated an cedematous softened, rarefied, readily yielding cutis. We are, therefore, always surprised when upon very slight irritation, such as the use of a simple soothing oint-

ment, very marked inflammatory œdema appears, and the patches rise and spread peripherally in a highly unpleasant manner."

Dessicating agents then are indicated in spite of the outward appearance of dryness, and all remedies tending to produce inflammatory œdema or hyperæmia are contra-indicated. Inwardly, also, such drugs are required as are known to exercise a favourable influence upon the injurious vaso-motor paresis of the face. Carbonate of ammonia, ichthyol, and salicylate of soda are the only ones that have proved beneficial in Unna's hands, and he believes that in no case has the disease ever been cured by the use of interval remedies alone.

Externally, Unna divides the remedies of use into six categories. "Three of these include mild remedies, which may be recommended in all cases: (1) The drying; (2) the compressing; and (3) those remedies which tend to reduce hyperæmia. Next we have two categories of much more doubtful value: (4) The necrotising; and (5) the inflammatory; and to these we may add (6) the specific remedies still to be marked with a point of interrogation." As a mild flesh-coloured powder for use during the day the following is recommended: Oxide of zinc, boli rubræ, boli albæ aa 2.0, carbonate of magnesium 3.0 amyli oryzæ 10.0, M. f. pulvis cuticolor, or the following paste: Past. zinci sulphuratæ 20.0, rescorcini, ichthyoli aa 1.0, M. f. Pasta. Mild forms of the disease will require nothing more than the latter and for severer forms they are suitable as a preparation for the more vigorous remedies.

The compressing agents are collodion, gelanthum, zinc gelatine, and elastic rubber bands, which latter unfortunately cannot be used on the face. Collodion is the strongest, but gelanthum often the most suitable, in that it can be applied at night and washed off during the day. Collodion 20.0, sapo viridis 2.0-4.0, with or without the addition of salicylic acid 2.0, does well for indolent cases and in irritable ones ichthyol can replace the green soap.

The third group of mild remedies which produce hyperæmia includes pyraloxin, chrysarobinum oxidatum, ichthyolsulfon, mercury, pyoktanin, and lastly, the soaps and alkalies. The two latter, when properly applied approach the ideal remedy from an anatomical point of view as they reduce not only the hyperkeratotic surface but also the hyperæmia and inflammation of the cutis at the same time. They should be applied in watery solutions in wet bandages, covered with some impermeable coating to prevent drying. Day by day as tolerance becomes greater, the duration of the treatment can be lengthened and improvement is often very rapid.

In necrosing remedies we endeavour to at once destroy the diseased

tissue by chemical or mechanical means. Salicylated collodion and salicylic-cannabis-plaster mull are the best.

Ulcerative remedies consist of the strong cauterics such as pyrogallol, chloride of antimony, and carbolic acid, and the inflammatory comprise tincture of iodine, iodine and glycerine, perchloride of iron, etc. The latest addition to the list, Fowler's solution, is to be considered the safest of the lot. Unna, however, is not in favour of any of the last three groups, preferring to trust a milder application except in exceptionally sluggish cases.

In conclusion, he presents a short scheme of treatment for the practical physician. The first point to decide is whether we have to do with an irritable or an indolent case. This is in part indicated by the site of the lesion, irritable cases being those on the cheeks, nose, eye-lids, ears, backs of hands, especially if the part is only slightly hyperkeratotic, swollen, and of dark red colour. The personal factor also plays an important part but this can only be determined by experiment so it is best to begin with the milder remedies and work upwards.

*G. Gordon Campbell.*

# Pathology.

UNDER THE CHARGE OF J. G. ADAMI.

## Bubonic Plague.

CHOKSY, Khan Bahadur N. H. "Report on Bubonic Plague."—Being a report based upon observations of 939 cases of bubonic plague treated at the Municipal Hospital for Infectious Diseases at Arthur Road, Bombay, from Sept. 24th, 1896, to Feb. 28th, 1897. Pp. 58, with numerous charts. Bombay, 1897.

For the last two years we have been receiving accounts in the press, both lay and medical, of the progress of the plague in the East and these accounts have told us of the horrible mortality and of the heroic efforts of members of our profession as of the Indian Government, to arrest the progress of this most dire disease. It is, however, essential to read the official reports emanating from the affected areas to realise thoroughly the terrible ravages of the plague and the almost overwhelming difficulties which European administrators have to face in attempting to stem the progress of infection and to instil into the hordes of ignorant natives the first principles of personal and public hygiene.

In previous numbers of this JOURNAL I have referred at some little length to the work of Hankin, Haffkine and others upon the prevention of cholera and typhoid in India, and the purification of water supplies, as again to the observations made by Kitasato, Aoyama, Yersin and Lawson<sup>1</sup> upon the plague at Hong Kong.

In this remarkable report of Dr. Choksy, the aridity natural to official reports is counteracted by what we may term a personal note and the details given, at times pathetic, at times repulsive, make this report almost as interesting as that old and classical account of Daniel Defoe of the plague in London in 1665.

Evidently the Arthur Road Hospital in Bombay was not an ideal hospital for infectious diseases; indeed, from what we read, its one advantage was its site and the free ventilation gained from the sea breezes. The first plague patient was admitted on Sept. 24th, 1896, two more followed before the end of the month, and in October there were 85 admissions. Then the number increased until in February, 1897, cases were entered in very large numbers, the admission rate fluctuat-

<sup>1</sup> Vol. XXIV, pp. 450 and 995 etc., this JOURNAL.

ing between 10 and 22 daily. Unfortunately, the report does not continue beyond this date, although we know that the disease is still affecting Bombay. But this large amount of material, (close upon 1000 cases,) has given Dr. Choksy ample material for describing the disease.

The mortality was appalling; out of 939 patients, 688 died, or 73.26 per cent. Hospital treatment would thus seem to have been of little avail; nevertheless the further study of the subject gives one a different impression. According to Lowson's statistics at Hong Kong, more than 2,600 persons were admitted to the hospitals there, of whom 2,468 died, a mortality of more than 93 per cent., so that in this the Bombay figures are better than those at Hong Kong. On the other hand the difference may mean that the Hindoos are not so susceptible as are the Chinese. Then, too, the hospital had to contend against the ignorance and prejudices of the people. Time and again the patients entered in a moribund condition, past all help, sent at the last moment in order to relieve the friends. Nearly one-third of the admissions during the six months died in less than 24 hours after admission, by far the greater number of these dying within a few hours and some even within a few minutes. If these cases be subtracted, the mortality is lowered to a little over 60 per cent. Again, the treatment was misconstrued; subcutaneous injections and other means of resuscitation and support were regarded in Bombay as a means employed by the doctors to kill the patients in order to stop the further spread of the epidemic; while, further, it was freely stated that patients were killed and their hearts taken out to send them to the Queen so that her wrath, kindled by the disfigurement of her statue at Bombay in the beginning of the epidemic, might be appeased. Private letters from the Delta of the Ganges tell me the same story. The natives there regard inoculation with preventive serum as a means employed by the officials to bring about the patients' deaths. It is little wonder that such news spreading through the native population, should eventually have led to a raid upon the hospital—from 800 to 1000 natives broke open the gates and scaled the walls, stoning the staff and attempting to kill the members of the same; fortunately the police was soon notified and no one was seriously hurt.

Following Hindoo custom, the friends and sometimes the whole of the families of the patients had to be admitted to sit around the beds, and there they sat, not under any consideration for the patients but with the sole object of eliciting information from the sick as regards their belongings, property, etc. In other cases they simply came to relieve the patients of all the valuables on their persons and never appeared again; in fact, no less than 338 dead



bodies of plague patients had to be buried or otherwise disposed of at the charge of the municipality.

Over and above the friends came the hosts of pseudo-specialists, tramway conductors, railway guards, engineers, postal inspectors, clerks and so on, pestering the health and medical officers, and the small staff, which at the worst period only consisted of two medical officers, four hospital assistants, twelve ward boys, three ayahs, three cooks and six sweepers, had their hands more than full. One of the medical officers, Dr. Davla and three of the ward boys were attacked with the disease and the doctor died.

The population of Bombay is mixed and the different races showed varying susceptibility, thus the mortality among the Hindoos was 75 per cent., among the Mussalmans 66 per cent.; the number of native Christians, Parsees and "Israels" was so small that perhaps no very great weight can be laid upon the statistics. With regard to occupations, the mortality appears to have been lowest among domestic servants, policemen, shopkeepers, coolies and cooks, the highest, as might be expected, among the beggars, coachmen, tailors, milkmen, etc. Evidently those better fed had a greater chance of recovery.

Dr. Choksy divides the forms which the disease may present into six groups, namely :

1. *Pestis Minor*.—Of this scarcely any cases were seen in the hospital; there is but slight febrile reaction, while one or two glands, femoral or inguinal are painful and a little enlarged. Rest in bed is all that is needed for the patient's recovery and he is up and about within three or four days.

2. *Pestis Ambulans*.—In this form the patient has tenderness of the glands and general malaise but does not feel himself sufficiently ill to consult a medical man; in most cases the glands suppurate slowly and slough, and the patient makes a tardy convalescence.

3 and 4. *The Simple Bubonic and Septic Forms*.—The differentiation between these two is one of degree rather than of kind; so long as the bacilli are confined to the lymphatic system alone the case may be called simple bubonic, but once the blood becomes infected and the glands in general become enlarged and infiltrated the case becomes septic; thus the latter of the two is the more fatal.

5. *Pestis Pulmonalis*.—Apparently at Bombay, a not inconsiderable number of cases of this form were recognised in which infection appears to be primarily through the respiratory tract. This form is the most insidious and the most fatal and has been also a most fruitful means of spreading the infection, the sputum being loaded with plague bacilli. Intense dyspnoea is soon followed by hæmorrhagic expectoration and gradually failure of the heart's action manifests itself.

6. *Non-typical Forms*—Dr. Choksy notes that when the epidemic was subsiding, (at a period not comprised in this report), a number of cases were observed in which there was slight fever and diffuse swelling with infiltration of the parotid and cervical glands, with absence of the pain accompanying the more usual glandular enlargement. These cases came from infected districts and the general aspect, speech and state of the pulse of the patients led to their being diagnosed as non-typical cases: almost all recovered. There was also a certain number of cases in which the symptoms of the plague were followed by fever of the relapsing type, at a time when relapsing fever made its appearance in the city; evidently here were a cases of mixed infection.

Dr. Choksy has nothing new to say concerning the mode of infection. In about half a dozen cases he notes that small pimples were observed on the dorsum of the foot and, their contents having been evacuated and strong carbolic injected into them, the result was very striking, for within a few hours the buboes became less painful and definitely smaller, and all these cases recovered. But as to the cause of these small pustules he has nothing to urge, indeed he regards the theory of infection by the bites of insects as appealing more to the imagination than to reason and common sense, but why he holds this view he does not say. A mere *ipse dicit* such as this is valueless.

While the size of the bubo did not appear to determine the gravity of the case, the position exerted a great influence, multiple buboes situated in various parts of the body always indicating general systemic infection. Mortality in axillary buboes was higher than was the case with any other set of glands. As noted elsewhere the most frequent glands primarily affected were the femoral, femoro-inguinal (together 475 cases) followed by the axillary 140, and the inguinal 106; the next most frequent were the cervical, (5.25 per cent. of the cases.)

Dr. Choksy then takes up carefully the various systems, nervous, circulatory, respiratory, digestive and so on, and discusses the affections associated with each, but space forbids that we should here follow him. He notes that the most frequent immediate cause of death is failure of the heart's action, either sudden, following any sudden exertion, or gradual and accompanied by cedema of the lungs and pneumonia. He notes that in only one instance did the patient return to hospital with symptoms indicating possible relapse, also that those patients who left the hospital alive may more fitly be described as recovered, than cured.

The only two drugs that he regards as being useful are morphine

and strychnine, while as to sero-therapy he is evidently opposed to it. Haffkine's serum was employed in 15 cases, nine were cured and six died; Yersin's serum was tried only in three very early cases and the mildest of these only recovered and that after a very long and protracted convalescence. Professor Lewin, of the Royal Military Academy of St. Petersburg, tried a serum prepared according to Yersin's method, and all the cases treated thereby died. More favourable results were obtained with the serum of Prof. Lustig; this was employed in six very serious cases and all recovered. As Choksy says, the cent. per cent. rate of recovery was remarkable and remembering the ordinary mortality of the disease it seems to show that this serum had a most favourable influence.

With regard to post-mortem appearances, Dr. Choksy has nothing to add to what has already been stated by Aoyama and Lowson. The autopsies were made by members of the Austrian plague commission. Suffice it to say that the principal post-mortem sign is the existence of hæmorrhages, as Choksy says "in every conceivable and inconceivable part of the body."

*J. G. Adami.*

# Canadian Medical Literature.

UNDER THE CHARGE OF KENNETH CAMERON.

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[The editors will be glad to receive any reprints, monographs, etc., by Canadian writers, on medical or allied subjects (including Canadian work published in other countries) for notice in this department of the JOURNAL. Such reprints should preferably be addressed to Dr. Kenneth Cameron 903 Dorchester street, Montreal.]

## The Canadian Practitioner.

July, 1898.

1. On the Stages and Forms of Syphilis, with more Especial Reference to the Hepatic Manifestations of the Disease. J. G. ADAMI.
2. Vicarious Urination (?) A. T. RICE.

1. Published in the June number of this JOURNAL.

2. RICE relates the history of a case, which for want of a better name, he has called vicarious urination. The patient, a woman aged 30, was of a nervous temperament, and of rather a weak intellect. She had for three years been subject to attacks of cystitis, and occasional involuntary spasms and twitchings, and her health suffered severely. In August last, her feet began to swell slightly, and the secretion from the bladder gradually diminished, but was compensated for by an exudation of fluid from the anterior portions of the lower limbs between the knee and ankle. The fluid was voided regularly three times a day, the amount gradually increasing, the average being about thirty or forty ounces a day. It simply oozed from the skin without there being any abrasion, discolouration, or oedema present. The fluid stood all the tests for urine, it was of amber colour, sp. gr., 1010, strong smell of urine on boiling, and became ammoniacal on standing, uric acid was found, but no sugar or albumen. This condition lasted until October when suddenly it ceased and urine again began to pass through the urethra. After that the natural condition gradually became established, but she again became ill, spasms reappeared accompanied by headache and swelling of the face and feet. These symptoms, however, gradually disappeared and she soon regained her usual health.

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## The Canadian Journal of Medicine and Surgery.

July, 1898.

1. Mental Capacity in Will-making. ARTHUR JUKES JOHNSON.
2. Hip-Disease—A Clinical Lecture. B. E. MCKENZIE.

3. Epithelioma of the External Ear. F. N. G. STARR.
4. The Summer and Health Resort Areas of Ontario. E. HERBERT ADAMS
5. The Boot as an Orthopædic Appliance. H. P. H. GALLOWAY.

1. JOHNSON says that a medical man should never consent to make a will for a patient, and he should remember that if he signs his name as a witness, he not merely acknowledges that the testator did sign the will, but that he was in a fit and proper condition to do so. If a medical man is asked to decide whether a dying person is or is not in a fit state of mind to make a will, it is as a rule only necessary to ascertain whether the sick person can clearly and rationally answer a few questions put to him or can repeat unaided the provisions of the will he wishes to make. In the case of feeble minded persons a private interview should be insisted on, when the patient may disclose the existence of any undue influence. He discusses the wills of insane persons as well as wills of persons incapacitated by drunkenness, delirium, the stupor induced by narcotics, and similar conditions.

3. STARR describes three cases of epithelioma of the external ear. In the first there was a mass of thickening about the middle of the edge of the helix, and extending across the antihelix down into the bottom of the concha. The surface was vascular and ulcerating. A V-shaped incision was made wide of the disease and union took place rapidly. A year later there was no sign of recurrence. In the second case the growth affected the base of the lobule, extending into the fossa of the antihelix and involving the antitragus. It was completely removed. The third case was a cauliflower-like fungating mass, about the size of a pigeon's egg, presenting at the external auditory meatus. It apparently had commenced in the concha and completely filled that part. The man refused operation, but died of an intercurrent affection.

4. ADAMS makes a very strong plea for the development of the health resorts, mineral springs and watering places in Canada. He deprecates the habit of Canadian physicians sending patients on long journeys to well-advertized health resorts, when there are many far better localities close at hand. He also points out the enormous financial gain it would be to the country to have the various summer resorts well known. A comparative practical study of the climatic resources is one of the first and fundamental measures which should be adopted for the encouragement of immigration.

5. GALLOWAY considers that the subject of boot construction has not received as much attention as its importance deserves, and doubts whether the power of variously modified boots to serve some purpose

in orthopædic practice has been as fully appreciated as it ought to be. A design for a boot for flat-foot is described, the last differs from an ordinary one chiefly in having a straighter inner border, in a greater width, and especially in having a very broad and flat sole. The heel of the boot is much lower and larger than usual, and its inner side widens out laterally as it approaches the floor, while its inner border is not only built up higher than the outer, but is continued further forward beneath the shank; the inner side of the sole just beyond the shank is correspondingly raised and projected inward. By this plan of construction the same mechanical effect is secured as if the whole inner side of the sole, shank and heel were a solid mass of leather as in the ordinary form of flat-foot boot; while at the same time the boot is not only lighter than it could be if the arch were filled up with leather, but the departure from the conventional appearance is relatively so slight that it is very exceptional to meet with patients of any class who refuse to wear it. On the inside of the boot there is a strong counter of leather, of about the same size and shape, and occupying the same position in relation to the foot as the inner flange of a Whitman flat-foot brace. It gives some support to the foot at its weakest part, and, which is still more important, by exerting pressure in this situation, it serves to remind the patient of the necessity of holding up the inner side of the foot by muscular effort.

The mechanical principle involved in the construction of the flat-foot boot may with great advantage be applied in the making of boots to be used with or without braces in cases of valgus resulting from infantile paralysis.

A boot is also described for the treatment of club-foot after the foot has been fully corrected or over-corrected by operative means. He emphasized the necessity of people wearing properly fitting boots and quotes Dr. Lovett's summary, in Park's Surgery, of the essentials of a good boot. In the manufacture of the special forms of boots it is necessary to keep a watchful supervision of the work to prevent slight departures from original models, and to guard against the introduction of unauthorized "improvements" by the workmen. To send a patient to the shoemaker with instructions to get a particular kind of boot is to court certain disappointment. The patient will almost surely suggest slight modifications with a view of improving the appearance, etc., and these wishes are obligingly met as far as possible; and if the patient is pleased with the result the shoemaker will gradually introduce more and more of his own conception of what is required, until in a few months he is turning out boots which bear little resemblance to the original pattern.

**The Canadian Medical Review***July, 1898.*

1. Vicarious Urination (?) A. T. RICE.
2. Abstract from Dr. Britton's Address.
  1. Noted above.

**The Canada Lancet.***July, 1898.*

1. Some Points in Abdominal Surgery Relating to Intestinal Obstruction. H. HOWITT.
2. Ontario Medical Association. THE PRESIDENT'S ADDRESS.

1. In an article dealing with abdominal surgery, and especially that of intestinal obstruction, HOWITT lays stress upon complete emptying of the stomach beforehand, by means of a syphon tube, making the incision sufficiently extensive to permit the operator to reach any part of the cavity, turning out the intestines and emptying the distended intestines through one or more incisions. Two desperate cases are cited in which his technique proved successful.

**The Dominion Medical Monthly and Ontario Medical Journal.***July, 1898.*

1. Electrolysis in the Treatment of Nævus. CHARLES R. DICKSON.
2. A Method of Making X-ray Observations on Hollow Organs. MORLEY CURRY.
3. Gynæcological Notes from Paris. A. LAPHORN SMITH.

1. DICKSON describes the technique followed for the removal of the various forms of nævus by means of electrolysis.

2. CURRY describes an experiment of mapping out hollow organs by means of the X-ray. A piece of chain was drawn through a stomach tube until the eye was reached. Thus the rubber, which is itself partially impermeable to the X-rays, was reinforced by the metal chain which is completely impermeable. The tube was then swallowed by a subject and observations were made by means of the X-rays and fluorescent screen. Looking through the body transversely the chain could be very distinctly seen in the pharynx, and in the œsophagus to a point a little below the clavicle. As the tube was pushed in and withdrawn its point could be easily followed. In the neck each link of the chain was very distinct.

The experiment furnishes an accurate method of marking the lower border of the stomach. By gradually filling the stomach through the tube its surface marking could be determined for any degree of dis-

tension. The possibility of watching the tip of the tube as it glides along the surface of the stomach suggests a method of observing irregularities of the organ due to congenital conditions, constrictions, tumours within or without the organ, etc. The extent of movement of the tube furnishes a means of determining the extent of the rise and fall of the diaphragm under different conditions. The facility with which the chain and tube are observed in the pharynx, and a large portion of the œsophagus should prove useful. Dilatations of the œsophagus could be examined by noting the various directions in which the point of the tube could be made to travel. The rectum, colon, urethra, bladder, vagina, uterus, nose and all cavities accessible from the outside could be examined in a similar way. The chain used in examination of the stomach could be seen from behind when placed in the anterior abdominal wall. It should, therefore, be easily seen if introduced into the colon.

A probe introduced into the nose can be clearly seen throughout the whole extent of the nasal cavities, as the surrounding bones are so thin that they are permeable by the X-rays. By means of the X-rays it would be possible, under the guidance of sight, to grasp with metal instruments impermeable foreign bodies placed deep in the nasal cavity.

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#### **The Maritime Medical News.**

*July, 1898.*

1. Seborrhœic Dermatitis. JAS. ROSS.

I. ROSS deals with the nomenclature, symptomatology, etiology and treatment of this disease.

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#### **Canada Medical Record.**

*July, 1898.*

1. What Classes of Injuries to the Human Body depending on Violence are caused by Alcoholic Excesses. THOMAS H. MANLEY.
2. Some Leading European Gynæcologists and their Work. A. LAPTORN SMITH.

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Note on Sudan III. a New Selective Stain for Fat. ARTHUR G. NICHOLLS, Montreal. *The Philadelphia Medical Journal*, July 2nd, 1898.



## Reviews and Notices of Books.

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**Procedures Recommended for the Study of Bacteria, with Special Reference to Greater Uniformity in Description and Differentiation of Species.** Being the report of a committee of American Bacteriologists to the committee on the pollution of water supply, American Board of Health Association. Concord, N. H., 1898.

We have a peculiar pleasure in drawing attention to this very remarkable report, inasmuch as the movement which resulted in its production, originated in Montreal.

All who have interested themselves in bacteriological research, have for years been hindered in their work by the fact that upon turning to the literature, in order to discover whether a form studied by them had been already described, they have found that the descriptions given are so vague and so imperfect that further research along many lines has been hindered because of the uncertainty lest the observer should be wrongly adding yet one more to the hosts of descriptions of species already upon record.

To remedy this state of affairs, at the instigation of Dr. Wyatt Johnston, Dr. Adami wrote to the several laboratories on this continent to see whether any scheme could be arranged for collective investigation as it may be termed, upon the more common forms of bacteria, so as to obtain well worked out and standard descriptions of the same, and in 1894, when the meeting of the American Public Health Association met at Montreal, Major Smart, (now Deputy-Surgeon General, U.S.A.), chairman of the committee upon the pollution of water supplies of that Association, became actively interested in the matter, and in his report suggested that there should be a co-operative investigation into the bacteriology of water supplies, as a means of bringing order out of chaos of the literature of water bacteria, and of throwing light upon the bacteriological side of questions of practical sanitation.

This suggestion originating from Dr. Wyatt Johnston, was approved at the association, and Dr. Smart was authorised to build up a committee for this purpose. As a first step, Dr. Smart appointed a sub-committee consisting of himself, Mr. Geo. W. Fuller, (a leading authority upon the bacteriology of water) Prof. Adami and Dr. Wyatt Johnston, to determine the methods of laboratory procedure to be

adopted by the committee in the practical work in the investigation. This sub-committee immediately found that it would be impossible to proceed any further until something authoritative could be laid down as to what might be termed, standard bacteriological technique. So great is the need for a clear and authoritative pronouncement upon bacteriological methods, that when it was suggested that a meeting be called to discuss this subject, the suggestion met with a most hearty response, and in June, 1895, most of the prominent bacteriologists of North America came together at the Academy of Medicine in New York, and for two days a most fruitful discussion was carried on under the chairmanship of Professor Welch, upon such subjects as the reaction of media, the composition of media, the synthesis of media, and the methods of determining pathogenesis, morphological characters, and so on; in fact upon many of the basal problems which confront the practical bacteriologist.

The proceedings of that convention form a mass of some 170 pages of small print, in the *Journal of American Public Health Association* for October, 1895, and as a result of that meeting, a committee was appointed consisting of Drs. Abbott, Cheesman, Smart, Theobald Smith and Welch, Prof. W. T. Sedgwick and Mr. Geo. W. Fuller with Dr. Adami as chairman. To this committee power was given to draw up a report upon bacteriological technique and procedure, in conformity with the recommendations accepted by the convention.

The present report is a result of that resolution. Simple as might seem the work of placing this matter of bacteriological technique in an orderly and useful form, the difficulties before this committee were very great, and the amount of time and trouble determining what is best and most to be recommended, and of reaching conclusions upon minute details which should gain general acceptance, has been extraordinary, for practically the committee was breaking new ground. Previously each man had been a law unto himself, and according to his training and the traditions of his laboratory, so did his technique vary from that of other workers. The first framework of the report was drawn up by Dr. Adami and submitted at a meeting of the members of the committee, then circulated in manuscript and the criticisms, generally upon minute details, which, however, are of importance in a science which strives to be exact, were discussed at a meeting of the committee in New York. The final drafting of the report was given to Dr. T. M. Cheesman of Columbia College. He again, in the determination of minute points has given a year's work to the subject.

Naturally bacteriology being an advancing subject, and new methods being constantly devised, not a few of the recommendations

of the committee may prove to be of but temporary value, nevertheless we cannot but believe that in the publication of this report, an enormous and, it may be an epoch-making stride forward has been made; for now at length there is in the hands of bacteriologists, an authoritative recommendation of what is necessary in the study of species of bacteria for publication, and henceforth there will be no excuse for imperfect descriptions. At the same time the report will necessarily afford abundant work for younger bacteriologists to review previous descriptions and to publish standard descriptions of bacteria, pathogenic and non-pathogenic. In fact, a remarkable impetus will be given to exact bacteriological research. J. G. A.

**Conservative Gynæcology and Electro-Therapeutics.** By G. BETTON MASSEY, M.D. Third Edition. Philadelphia, New York, Chicago: The F. A. Davis Company, Publishers.

This book is an enlargement of a former treatise which dealt with the use of electricity in fibroid tumours and certain other affections. In its present shape the author claims that it is "A Treatise on the Medical and Surgical Diseases of Women, with special reference to the therapeutic use of electricity."

In reviewing this work it is necessary to regard it from two standpoints, viz., as a guide to the technique of electrical applications, and as a manual dealing with the treatment of gynæcological affections.

As regards the first of these, it must be freely conceded that the book deals freely and minutely with electrical appliances and the method of using them.

Considered in relation to the practice of gynæcology, however, the work can only be regarded as highly unsatisfactory.

It is an elaborate plea for the employment of electricity as a therapeutic agent, the consideration which is given to other forms of treatment being scanty and extremely ill-balanced. Indeed, from the point of view of the scientific study of gynæcology, the book fails sadly in the direction of giving to things their proper proportional values.

Its fantastic advocacy of the value of electricity smacks too strongly of the extravagantly praised and highly advertised universal panacea or healing elixir.

The author has a special animus against the gynæcologist who flourishes the bloody knife, and, in his effort to overthrow this horrid man, with his electric buttons and needles, only succeeds in illustrating that "vaulting ambition which o'erleaps itself and falls to the other." "Conservative Gynæcology," forsooth! The very name is an unwarrantable one. As if conservatism and electrification were synonymous terms. The *rationale* of conservatism in medicine lies in the wise endeavour to understand the meaning and application of the "*vis medicatrix*

*natura.*" The attainment of scientific therapeutic precision can only proceed *pari passu* with the retrogression of empirical procedure and can most surely follow the strenuous study of physiology and pathology.

It is not a question of pills or knives or electricity—but rather of interference and non-interference with nature's processes; the correct adjustment of the delicate relationship between these two habits should be the aim of the judicious therapist.

As regards the application of these principles to the treatment of diseases of women, it is necessary that the procedure must be subject to modification on account of the peculiar nature of the field of work. A very important objection to the use of electricity is the frequency with which applications require to be made.

It is decidedly objectionable to make twenty or thirty applications of electricity to a woman's genitalia, when the same results can be obtained by other means. The reviewer condemns all therapeutic treatment which involves frequent examination of the pelvis, and he considers just as reprehensible the pernicious habit of subjecting women to long courses of local tinkering, whether of the nature of electrical or digital touches, tamponings or swabbings.

In many cases, therefore, the knife may prove to be the true conservator; though, in making this statement, the reviewer by no means desires to condone the excessive use of this instrument prevalent in many quarters.

Were electricity as potent as its advocates claim it to be, there might be some excuse for allowing to it extra license in gynaecology. But it has failed to take rank in the opinion of the majority of scientific gynaecologists. In Great Britain, surgically the most conservative among the leading nations, it has scarcely taken a foothold. Not even the great name of Thomas Keith could suffice to establish its claims. His advocacy of electricity was received in amazement by the whole gynaecological world, and though several, through his influence, were led for a time to give an extended trial to Apostoli's methods there was afterwards an extensive abandonment of them.

It is interesting to note, also, that, at a recent meeting of the American Gynaecological Society, in which a discussion on this subject took place, very scant recommendation was given to electricity as an important therapeutic agent in gynaecology, and even its most pronounced advocates placed limitations to its employment far below those accorded to it by the Apostoli school.

The attitude of the leading German gynaecologists is a matter of notoriety.

In criticising Dr. Massey's book, the reviewer has endeavoured to express his honest opinion, believing that its influence can only be prejudicial to the development of rational therapeutics in the department of diseases of women.

J. C. W.

**A Manual of Instruction in the Principles of Prompt Aid to the Injured.** By ALVAN H. DOTY, M.D., Health Officer of the Port of New York, late Major and Surgeon, Ninth Regiment N. G. S. N. Y.; late Attending Surgeon to Bellevue Hospital Dispensary New York. Second edition, revised and enlarged. New York: D. Appleton & Company. 1898.

In this manual of over 300 pages is compressed a great deal of useful information, and the letter-press and illustrations are quite worthy of the high reputation of the publishers. The first seven chapters are devoted to the anatomy and physiology of the human body. Much more of both subjects is given than is afterwards utilized in the text; and this is, I think, a fair test as to how far these technical subjects should be introduced in a popular manual. In another chapter we get a copy of the Rules of the Health Department of New York City, together with the proper method of sterilizing milk for infants, and the best methods of disinfecting houses and clothing after exposure to infectious diseases. One scarcely expects this in a manual on "Prompt Aid to the Injured." The same remark applies to the chapter on hygiene. But leaving out this superfluous material, interesting though it may be, the book is a thoroughly practical one, and well fulfils its object. The chapters on bandaging and dressings; asphyxia and drowning, and poisons and poisonings are particularly good. The last 80 pages of the work is devoted to military surgery and ambulance drill, including the drill regulations of the U.S. Army Hospital Corps, and will be of special interest to volunteer militia surgeons. It is well illustrated, and much of it will be of interest to the general reader, especially in view of the late lamentable breakdown of the U.S. army medical service in Cuba. J. M. E.

**Diseases of Women.** By J. C. WEBSTER, B.A., M.D., (Edin.), F.R.C.P., Ed. Pp. 688. Illustrated by 241 figures. Edinburgh and London: Young J. Pentland. Montreal: Wm. Drysdale. 1898.

As might be expected in a book written by Dr. Webster, the scientific aspect of each subject treated is well to the fore. The chapters on the anatomy of the female pelvis are well written and clearly illustrated, and may be taken as typical of the whole book. One is rather surprised, however, to find that the subject of ectopic gestation is not included in the work, as it is a question to which the author has paid so much attention from the scientific standpoint. Surely it ought to be included in a work upon gynæcology, when it is the gynæcologist who is usually called upon to treat the condition, and also when the book is particularly intended for students.

A most excellent appendix, devoted to the consideration of the questions of menstruation, evolution, etc., and their relation to one another, is included in the work and contains the latest views concerning them. F. L.

**Johns Hopkins Hospital Reports, Vol. VII., Nos. 1 and 2. Report in Gynæcology.** Johns Hopkins Press, Baltimore. 1898.

The excellence of the reports published by the above hospital press is so well established that one need say little of the Report in Gynæcology for 1898, except that it is up to the usual standard. It contains two excellent articles; one upon the question of intraperitoneal drainage, judged from a review of 1,700 cases of abdominal section, written by J. G. Clark, M.D., and a second devoted to the consideration of the "Etiology and Structure of True Vaginal Cysts," by J. E. Stokes, M.D. Both articles are well worth reading and will be of service to the practitioner and scientist.

F. L.

## Society Proceedings.

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### THE THIRTY-FIRST ANNUAL MEETING OF THE CANADIAN MEDICAL ASSOCIATION.

(Special Correspondence.)

It was fitting that the 31st meeting of this Association should this year be held in the historic city of Quebec, where thirty one years ago it had its birth.

While it is regrettable that the meetings were poorly attended, and the papers as a rule trivial, the session will go on record as one in which good honest work was done in the cause of medical reform in the Dominion. The meetings were held in the Laval University on Aug. 17th, 18th and 19th, and the arrangements were under the able direction of a local committee of which Dr. C. S. Parke was President and Dr. A. Marois, Secretary. To these gentlemen many thanks are due for their unremitting labours to promote the welfare of the meeting and the happiness of the delegates. Unfortunately the *Salle de Promotions* where the sessions were held was up at the top of the building a fact which was of some importance to the heavy-weights of the party.

The meetings were under the presidency of Dr. J. M. Beausoleil, of Montreal, and the following American visitors were present, Drs. Gibney, Valentine and Foster, New York; Laplace, Philadelphia.

The chairman of the local committee, Dr. Parke welcomed the delegates to Quebec, and Alderman Foley, in the absence of Mayor Parent, also read a formal address of greeting.

The members then adjourned to visit the laboratories and museum of Laval University, and returned at 4.30 p.m., to begin business.

In his presidential address Dr. Beausoleil restricted his remarks to the subject of Interprovincial Registration. Among other things he said:—"It is now almost thirty-one years since our Association sprang into existence in this hospitable and picturesque city of Quebec. Professional brotherhood then received recognition in all quarters of this country. The Canadian medical family was then formed. Now it may march onward to the accomplishment of the object for which it was given life: The promotion of science; the protection of professional interests. A distinguished man, one of the Fathers of Confederation, Dr. Tupper—Sir Charles Tupper—was our first President.

Since that time, a great number of distinguished physicians have succeeded him in this chair. Indeed, I am greatly confused and moved, though profoundly grateful, when I consider the honour done me by calling me to preside at your meetings. There could have been no question of personal merit; your kindness, gentlemen, directed your choice. I am an admirer and sincere friend of my predecessors, and I desire to follow in their footsteps. I ask you, therefore, to allow me for a few moments, to dwell upon that part of our programme, which touches upon: Unity in the Canadian Medical Profession. Gentlemen,—If there is a profession that requires liberty of practice in any country, it is certainly the profession of the physician. French civil law not being recognized in all the Provinces of the Dominion, it is easy to understand why a lawyer from Quebec may not practice his profession in Ontario; but there is only, and can only be, the same anatomy and the same physiology for all the Provinces; the physician is the same everywhere. Why, therefore, this anomaly, that a Canadian physician may not practice in every quarter of the nation's territory? This country, which is so dear to us, can she not nourish her children without dividing them into castes? Why should a practitioner of Ottawa cease to be a practitioner in Hull? Because the British North America Act reserved to the Provincial Parliaments the right, the exclusive right, to legislate in educational matters. Consequently, instead of one Medical Council for the entire nation, we have as many Medical Corporations as there are federated Provinces; and everywhere, of course, as many different legislative enactments. This lack of uniformity has delayed the accomplishment of our professional unity. The considerations that have prevented a great number of physicians from working energetically for the adoption of only one license, which would be recognized throughout all Canada, are:—1. Restrictive legislation granted to each Province by Federal agreement. 2. The fear of destroying Provincial autonomy created by this agreement. To the first objection, I answer that it is true the Federal Parliament cannot legislate in educational matters, belonging to the Provinces, but a question, that interests two or more Provinces, or better still all the Provinces of our Dominion, ceases *ipso facto*, to be a Provincial question; it becomes Federal by the coalition of all the local forces. Who can prevent all the Provinces, united, from obtaining from the Federal Parliament the approbation of their union? Moreover, without adopting this means, the Provinces of Manitoba, Quebec and New Brunswick have already enjoyed reciprocity in regard to their licenses; and nobody cried out at the illegality. To the second objection, we may answer that there is no



question of destroying Provincial autonomy. In fact there is nothing to prevent the maintenance of the local organization whilst, at the same time, allowing it to delegate its powers to some of its members, who would be charged to form a general commission for the whole Dominion. You all know the old saying: "Where there is a will there is a way." Let us understand one another, and it will be easy to make the competent authority understand us. Gentlemen, when we shall have obtained for the whole of British North America a central bureau of admission to study, a board of medical examination for the conferring of a uniform license to practice medicine, then, I say, we shall have come upon an era of progress in the annals of Canadian medicine. Our diploma of practice shall be recognized throughout the whole of the British Empire and will meet with the respect of the scientific world, and the Canadian Medical Association will have deserved well of the country. And your humble President will be happy to find that he had helped, ever so little, in the solution of that great national question: Unity of rights and the freedom of practice of our profession."

A treatise on "The Treatment of Pauper Inebriates," by A. M. Rosebrugh (Toronto), was read by title, and the following committee named to study and report upon the matter, Drs. J. G. Adami, Thorburn and Muir.

Dr. G. STERLING RYERSON, of Toronto, then read a paper on "Monocular Diplopia," a subject which, he said, deserved more attention, being only very inadequately referred to in the text-books. It is much more common, he thought, than was suspected. The overlapping of images was present in monocular astigmatism. He recognized three classes of cases: (1) those dependent upon diseases of the refractive media, such as astigmatisms, facets on the cornea, opacities in the humors, punctures or dislocations of the lens; (2) those with traumatism about the zonule of Zinn, or disease of the ciliary body and iris; partial persistence of pupillary membrane is not often a cause; (3) disorders of the central nervous system. Dr. Ryerson recorded two cases. In the first, which he regarded as hysterical in character, there was diplopia of the right side, associated with right facial neuralgia, tinnitus aurium, augmentation and reduplication of the sounds heard. There was also hyperopic astigmatism. A course of potassium bromide and valerian relieved but did not cure. The second case was one of injury to the left side of the head, the patient remaining unconscious for several days. There was diplopia of the right eye and blurring of the discs. There was probably some protrusion of the posterior portion of the eye forward.

Dr. D. MARCIL then read a paper in French upon "Septic Peritonitis Consecutive to Appendicitis, and its Surgical Treatment." He reviewed the history of operative interference and made the somewhat startling claim that the first operation was done in Paris in 1893. He thought that some patients might be saved by operation even after general peritonitis had set in.

Dr. SMITH then showed pathological specimens, among which was a gall-stone removed from a portion of intestine contained in an umbilical hernia; also a melanotic sarcoma from the leg of a horse. The latter in the horse usually occurs along the course of the short saphena vein and oftenest in grey horses.

Dr. FRED. C. VALENTINE, of New York, next read a paper on "The Genito-urinary Instruments Required by the General Practitioner."

Dr. JAMES THORBURN, of Toronto, presented an interesting paper on "The Physician and Life-Insurance." He alluded to the phenomenal growth of insurance-companies in the past two or three years. The subject had, indeed, become so important that a special section had been made for it at the recent meeting of the British Medical Association in Edinburgh. In Canada and England, the amount of the policies was \$244,314,448, while in the United States it reached the fabulous sum of \$5,183,694,250. When such vast amounts are at stake, the utmost care and skill on the part of the physician should be exacted. Dr. Thorburn very vigorously protested against physicians permitting either Insurance Companies or candidates to influence them in their examinations and reports. He directed the attention of the younger practitioners to the following points in filling out a question-blank: All the questions asked should be answered completely and with discrimination. If a patient has had some disease mentioned, full particulars of this should be given, with dates, duration and probable effects. With reference to the health of relatives, the physician should not answer "don't know," but should take pains by careful questioning to get some idea of the state of the case. A history of pulmonary tuberculosis, syphilis, or insanity in the relatives, demanded particular care in the examination. His whole advice may be summed up in the statement that a full and careful examination should be made in every case, and no part of it slurred over.

Drs. Mullin, Muir, Dickson, Gauthier and Valentine took part in the discussion,

Dr. DICKSON advocated an attempt on the part of insurance companies to bring their question forms into uniformity,

Dr. GAUTHIER made an extremely warm attack on those doctors who indulge in lodge practice, and claimed that they were prostituting the

profession by accepting fees of \$1 and even 50 cents for examinations. Some of them, however, did even worse than that, as there was for instance one society he could name in which the candidate did not have to pay if not accepted. He wanted to know, too, how such things could be stopped when the presidents of colleges and medical councils acted in this very manner and threw out some very broad hints which created quite a sensation. He was in favor of a minimum fee of say \$5 being established, even if the insurance applied for be only \$1,000.

*Second Day, Aug. 18th.*

Dr. JAMES BELL, of Montreal, read a paper entitled "A Series of Cases of Calculous Obstruction of the Common Bile-duct, Treated by Incision and Removal of the Calculi." This will be published in the next number of the JOURNAL.

Dr. C. F. MARTIN, of Montreal, exhibited a series of forms in use in the Royal Victoria Hospital of Montreal for the accurate record of the particulars of disease for statistical purposes.

Dr. V. P. GIBNEY, of New York, then read a paper on "The Treatment of Convalescent Club-foot." He remarked that there is no more interesting condition in orthopedics than club-foot and none more difficult to bring to a successful issue, although knowledge of the anatomy and pathology of the part is indispensable to the orthopedist. The reduction of the deformity and the preservation of the induced condition in permanency are two different things, and the latter is often more difficult than the former. Relapses occur from various reasons. Among them is the failure of the surgeon to effect perfect reposition of the parts, or the corrected position may not be maintained for sufficient length of time. Sometimes the neglect of exercising the atrophic muscles or the use of too complicated boots is responsible. In operating Dr. Gibney aims at the production of an over-corrected position, but he thought it unwise to maintain this too long. He felt that it is best to endeavour to enlist the intelligent co-operation of the patient and friends and frankly tell them that the trouble is tedious and much depended on their effort. The child should be taught to walk properly, as this will correct the tendency to pigeon-toes. After operative procedures the foot should be put up in plaster for from three to six months. If there is obstinate projection of the cuboid, and head of the fifth metatarsal, a cuneiform incision should be made in the neck of the os calcis. If the foot still rolled, Dr. Gibney advocated supra-malleolar osteotomy, placing the foot in the position of over-correction. He thought that the surgeon

should himself supervise the construction of all appliances and should occasionally see the patient for months.

Dr. T. G. RODDICK, of Montreal, asked if Dr. Gibney had any method of developing the stunted limb outside of those mentioned in the books, as massage, etc.

Sir WILLIAM HINGSTON said that the cases are often very puzzling, *e.g.*, whether to do tenotomy or osteotomy, what tendons to cut, or which to choose, the open or the subcutaneous method. In his experience subluxation is not common, but he asked Dr. Gibney's experience on this point.

Dr. GIBNEY, in reply, said that he did not know of any other methods to improve a stunted limb, than massage, selected movements, and properly guided exercise. He advised the employment of an experienced masseur. In his experience subluxation is not common.

A discussion on "The Surgical Treatment of Empyema," was opened by Dr. ELDER, of Montreal. He asked: Was any other treatment to be advocated than purely surgical? In his experience children and strong adults in the country sometimes get well spontaneously or upon repeated aspiration. On the whole he thought that the old surgical rule was a good one, that where there is pus the surgeon should cut down and evacuate it. With regard to the operation, resection of one or more ribs is much preferable to simple incision. Only in children is it justifiable to make a simple incision. With regard to the point of incision he thought that the rule of the text-books could not always be followed, but he advised when there is a localized pus collection, incision over the centre of the region and drainage. He recommended also not placing the patient on the sound side, but to draw him somewhat over the edge of the table and operate from below. With regard to the anæsthetic, chloroform or the A. C. E. mixture should be used. As to washing out the cavity most authorities discountenance this now. In slow, prolonged cases in which an external opening occurs spontaneously or there is rupture into a bronchus, should one operate? Dr. Elder thought, as a rule, not, and never in tuberculous cases. In cases in which the general health is obviously suffering, a second lower opening should be made, with an attempt at drainage, except in amyloid cases; or Eslander's operation might be tried.

Sir Wm. HINGSTON said that each case is to be treated on its merits, as no two cases are alike. Having been prejudiced for years against the operation of resection, he had been converted to it by experience. He is in the habit of washing out the cavity, using weak carbolic solution or plain boiled water. He thought that pneumonia is

generally the result of empyema, rather than the cause, as is usually taught.

Dr. RODDICK preferred a dependent drain. With regard to washing out the cavity he held a mediate position. If the pus is very fetid, he always washes out. In those cases that hung fire for months he injected into the cavity weak iodine-solution or zinc sulphate, which, by their stimulating action, he thought, hastened a cure. If the pus has broken into the air-passages, he would still operate and would do a radical operation. He preferred a metal tube to a rubber-drain.

Dr. MUIR thought that 99 per cent. of the cases were tuberculous. He preferred operation always in adults, and made his incision as near the backbone and as high up as possible. He also liked a metal drain, using a piece of flanged gas-pipe for the purpose.

Dr. DICKSON said that if he obtained more than twenty ounces of pus on aspiration, he concluded that the case would not be cured by this means alone. He would also wash out in fetid cases.

Dr. W. H. DRUMMOND, of Montreal, then read an interesting historical paper on "The Pioneers of Medicine in the Province of Quebec." (See page 645.)

Dr. ERNEST LAPLACE (Philadelphia) described an ingenious forceps that he had contrived to replace the Murphy button in the operation of intestinal anastomosis. By its use the gut is held in position and can be readily sutured and the instrument be then removed in halves. He stated that the instrument is simple and possesses none of the disadvantages of the Murphy button or Senn's plates.

SURG.-COL. NEILSON, the medical head of the Canadian Militia Service, then addressed the Association, asking for their support and counsel in the reforms that it was proposed to introduce in this service. In consequence of the reorganization of the medical service in the Imperial Army, something of the same kind is needed in the Canadian service, as the present system is antiquated. He had been desired by the Canadian Minister of Militia to bring the matter to the notice of the Association.

*Third Day, Aug. 19th.*

Dr. T. D. REED addressed the meeting on the British Pharmacopœia. He said that it was periodically revised, but that at the last revision in 1885, there were few changes. In that of 1898, however, 180 medicines are omitted, 80 new remedies are added and 180 changes are made. All of this necessitates the very greatest care and attention on the part of the practitioner, it is manifestly important that there should be absolute uniformity in the writing and filling of prescriptions. He further pointed out that as each province has its

own medical and pharmaceutical associations it was difficult to get concerted action upon the subject, which was a very important one. While the British Pharmacopœia was generally accepted throughout Canada it was not truly authoritative or official, and he thought it time that the Canadian Medical Association as representing the profession of the Dominion should make a pronouncement upon it. By an arrangement between the Montreal Medico-Chirurgical Society and the Province of Quebec Pharmaceutical Association, October 1st, had been agreed upon as the date for the coming into force of the new book and he thought that this date might be well adopted by the Dominion Medical Association.

He therefore moved, seconded by Dr. Mullin:—That “whereas a revised edition of the British Pharmacopœia has been issued containing numerous and important changes, and whereas uncertainty exists as to the date when the British Pharmacopœia, 1898, is to be considered in force; *Resolved*,—That the Canadian Medical Association in annual meeting assembled, recommends that October 1st, 1898, be taken as the date on and after which in the absence of instructions otherwise, physicians’ prescriptions should be compounded with the British Pharmacopœia, 1898.”

Dr. T. G. RODDICK (Montreal) stated that he had received a letter from Dr. D. J. Leech, the Chairman of the British Committee for the Revision of the Pharmacopœia in which he stated that the adoption of the British Pharmacopœia appeared to be an act of grace on the part of the various provinces and Canada as a whole did not act authoritatively in the matter. He thought this should be remedied.

The following committee was appointed to bring the matter to the notice of the Federal authorities with a view to officially appointing the British Pharmacopœia as the standard for the Dominion of Canada;—Drs. T. D. Reed and A. D. Blackader, Montreal; H. B. Small, Ottawa; Marois, Quebec; H. J. Cameron, F. N. G. Starr, and J. A. McCallum, Toronto.

Dr. A. DEMARTIGNY (Montreal) reported two cases of severe furunculosis in which he had used Marmorek’s antistreptococcus serum with good effect. He used injections of 20 c.cm. He advocated a further trial.

Dr. C. R. DICKSON (Toronto) contributed a paper on Goitre.

He had had an opportunity of seeing some 300 cases of various forms, and had tried most of the usual forms of treatment advocated. Swelling of the thyroid gland was an expression of various pathological conditions. In exophthalmic goitre, he had found the best treatment to be absolute rest in bed, a rigid milk diet and calomel. In fibrosis, after ordinary methods had failed, he employed electro-

puncture. When suppuration resulted, he incised the abscess cavity and drained. In cystic cases he inserted an insulated canula, evacuated the contents and then filled up the cyst with saline solution. He then passed in a current of electricity sufficiently strong to destroy the lining membrane, trusting to the resulting inflammation to obliterate the cavity. Removal is only indicated in malignant growths.

Dr. MUIR (Truro) in discussion pointed out that exophthalmic goitre was very common in Nova Scotia particularly in young girls of blonde complexion. He thought the overstrain of schooling had something to do with it. He advocated intestinal antiseptics.

Dr. F. X. DEMARTIGNY read an interesting paper on "Genital Prolapse and its Treatment" contributed by Prof. Delaunay, of Paris.

Dr. W. J. GIBSON (Belleville) detailed a case in which a bicornate uterus had been mistaken for ectopic gestation.

Dr. D. CAMPBELL MYERS (Toronto) read a paper on "Neurasthenia." He confined his remarks to spinal irritation and the relation of neurasthenia to insanity. Spinal irritation was not due to local disease but was psychic. In neurasthenia early treatment was important. He advocated seclusion and a modified Weir Mitchell course.

The Committee on Interprovincial Registration, consisting of representatives of all the provinces excepting British Columbia, reported that they had come to a unanimous decision, and presented the following report, being a basis for a uniform rule for the whole Dominion.

I. There shall be accepted for matriculation: B.A. From any recognised university, or in lieu thereof, first-class or grade A, Provincial certificate in any of the Provinces for teachers' licenses, or an examination of the following branches, which shall be compulsory and conducted by the various councils of the educational departments of each province, viz.:

1. English grammar, composition, literature and rhetoric.
2. Arithmetic, including vulgar and decimal fractions, and extractions of the square and cube root and mensuration.
3. Algebra to the end of quadratic equations.
4. Geometry. First three books of Euclid.
5. Latin. First two books of Virgil's *Æneid* or three books of Caesar's Commentaries, translation and grammar.
6. Elementary mechanics of solids and fluids, composing the elements of statics, of dynamics, hydrostatics and elementary chemistry.
7. Canadian and British history, with questions in modern geography.
8. Translation and grammar of any two of the following subjects: Greek, French and German.
9. In lieu of the above we also recommend that any student pre-

senting a certificate after examination from the professors of any standard or approved university in Her Majesty's dominions, of having completed a course of said university, be accepted in any of the provinces of Canada for matriculation and registration.

Fifty per cent. of the marks in every subject shall be required for a pass, and 75 per cent. for honors.

II. Professional education. (a) The curriculum of professional studies shall begin after the passing of the matriculation examinations and registration, and shall comprise a graded course in the regulation branches of four yearly sessions of not less than eight months in each year.

(b) The subjects to be Anatomy, Physiology, Chemistry, Materia Medica, Therapeutics, Practical Anatomy, Histology, Practical Chemistry, Pharmacy, Surgery and Clinical Surgery, Medicine and Clinical Medicine, including Diseases of the Eye, Ear, Throat and Nose, Mental Diseases, Obstetrics, Diseases of Women and Children. Medical Jurisprudence, Toxicology, Hygiene and Pathology, including Bacteriology.

(c) That at least twenty-four months out of the graded four years of eight months each, be required for attendance in hospital practice.

(d) That proof of attendance on not less than six cases of obstetrics and two post-mortem examinations be required.

III. Examinations: (a) All candidates for registration in the various provinces in addition to having filled the foregoing requirements shall be required to undergo examination before examiners to be appointed in each of the Provinces by their representative Councils.

Fifty per cent. shall be required for a pass and 75 per cent. for honors.

IV. Your committee recommend that as soon as the foregoing basis of agreement is ratified by the councils of the various provinces, each council shall endeavor to secure legislation to authorize the carrying out of the foregoing preliminary and professional curriculum and to embody the following to secure a board of examiners for a Dominion qualification, viz:

"That so soon as the various councils of the Dominion shall establish an Examining Board for the Dominion conducted by examiners appointed by the Medical Councils of the several Provinces, their candidates passing a successful examination before said Board and obtaining a certificate to that effect, shall be entitled to registration in the several provinces of the Dominion on payment of the registration fee, providing he is not guilty of infamous or disgraceful conduct in a professional respect."

Your Committee desire to recommend that efforts be made to ascertain the practicability of Federal legislation leading to the estab-



lishment of a central qualification which will place the profession in Canada upon an equal footing with that of Great Britain, and Dr. Roddick be authorized to take the necessary steps in said matter.

We further recommend that this Association shall appoint a Committee who shall consider and recommend the details as to the number of examiners to be appointed, the method of conducting examinations, the fees to be charged, and other necessary details to bring the aforesaid scheme into active operation, which details the officers of this Association shall with the foregoing send to each of the respective councils for approval.

This report was adopted, and the following committee appointed to consider the details of the scheme: Drs. McNeill, P.E.I.; Muir, N.S.; Walker, N.B.; Marcil, Quebec; Bain, N.W.T.; McKechnie, B.C.; Williams, Ontario; and Dr. Roddick was empowered to pilot the measure through parliament as soon as the various Councils had ratified the measure.

The social part of the meeting was happily conceived, and included a reception at Parent Park, a trip to Grosse Isle, and a drive to Montmorency Falls.

The visit to the Quarantine Station at Grosse Isle was particularly pleasant, and an opportunity afforded to inspect the disinfecting plant which is very complete and effective, reflecting great credit on Dr. Montizambert, the Superintendent. In connection with the alleged desire of the Government to replace Dr. Montizambert by Dr. Guay, a man of his own age, and without practical experience of quarantine matters, the Association passed a unanimous motion to the effect that they appreciated the efficiency of the station and Dr. Montizambert's zeal and skill, and strongly recommended that he be retained in his present position.

The usual complimentary votes of thanks to the officers, the local committee and the entertainers, were passed.

The Auditors, Drs. Dickson and Marois, reported on the Treasurer's books, showing that the balance from last year was \$132.52, while the receipts this year were \$156, making a total of \$288.52, of which a balance of \$62.48 still remains.

The following foreign medical men were elected honorary members: Drs. Eugène Delaunay, Massé, Julien, Faveau de Courmelle, Mesnard, Genpin, Paul Lozé, Glantenay and Noury.

It was decided that the next meeting should take place in Toronto and the following officers were elected.

President—Dr. Irving H. Cameron, Toronto.

Vice-Presidents—Prince Edward Island, Dr. J. McLeod, Charlottetown.

Nova Scotia, Dr. Kirkpatrick, Halifax.

New Brunswick, Dr. L. N. Bourque, Moncton.

Quebec, Dr. James Bell, Montreal.

Ontario, Dr. J. A. Williams, Ingersoll.

Manitoba, Dr. R. S. Thomson, Deloraine.

North-west Territories, Dr. Lindsay, Calgary.

British Columbia, Dr. S. J. Tunstal, Vancouver.

General Secretary, Dr. F. N. G. Starr, Toronto.

Treasurer, Dr. H. B. Small, Ottawa.

Local Secretaries, Drs. S. R. Jenkins, P.E.I. ; W. G. Putnam, N.S. ; T. D. Walker, N.B. ; Hon. C. Marcil, Que. ; C. R. Dickson, Ont. ; Geo. Clingen, Man. ; Loise, N.W.T. ; R. Walker, B.C.

Publishing Committee : Drs. A. D. Blackader, J. L. Davison, W. A. Young, F. N. G. Starr, H. B. Small.

Committee on By-laws : Drs. C. S. Parke, Wyatt Johnston, Jas. Bell, C. R. Dickson, G. S. Ryan, W. W. Dickson, J. M. Beausoleil, Starr and Small.

T H E

# Montreal Medical Journal.

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## THE BRITISH PHARMACOPŒIA.

What is the status of the British Pharmacopœia in Canada? This question has arisen during the discussion which has been provoked by the appearance of a Revised Edition. As the British Pharmacopœia is the legal standard for the preparation of medicines, for the British empire, it should be for the colonies, but Canada does things somewhat independently of the Mother Country. In the Provinces of Quebec and Ontario, the feeling is quite general that the British Pharmacopœia is the authority, but some doubt has arisen owing to the regrettable decision a few years ago of the Dominion analyst, at Ottawa, who, after the examination of certain samples, decided that usage would allow Pharmacists to handle and dispense other medicines than those of the British Pharmacopœia.

The revision of the British Pharmacopœia this year contains so many important, even serious changes, that something should be done to ensure a proper understanding as to what to use in putting up a prescription. The Province of Quebec reached a fairly satisfactory agreement between doctors and pharmacists that the British Pharmacopœia should be considered in force on and after October, 1898. The recent meeting of the Canadian Medical Association afforded an opportunity for obtaining a Dominion pronouncement on the subject, and an agreement as to date for its enforcement was secured. This is well so far as it goes.

A letter from Dr. Leech, chairman of the British Pharmacopœia Committee indicates the fact that in England the idea prevails, that in Canada, the British Pharmacopœia is not held to be authoritative. The action of the Canadian Medical Association in appointing a Committee to endeavour to bring about a Dominion enactment in favour of the British Pharmacopœia was a good move. We trust that the

Committee which is composed of Drs. A. D. Blackader and T. D. Reed, of Montreal; A. Marois, of Quebec; H. B. Small, Ottawa; H. I. Cameron, F. N. G. Starr, and J. N. MacCallum, of Toronto, will be able to stir up our legislators to settle the matter and make the British Pharmacopœia the sole authority for Canada. There are several ex-presidents in parliament, whose aid we think, could be counted on to assist in bringing about so desirable a conclusion.

In the mean time it may be noted that the representative medical body of the Dominion has, by unanimous vote given its "recommendation" of the British Pharmacopœia, of 1898.

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### VACCINATION IN ENGLAND.

The greatest sensation in medical circles in England has been the Vaccination Act which has at last passed both houses amidst most stormy scenes, threatening indeed the defeat of the Government. Of the merits of the Bill little deserves to be said, and the best that the English profession could hope for it was that it might fail to pass or be withdrawn. Indeed, Lord Lister characterised it as a "Tremendous experiment." For, from making vaccination compulsory, a conscience clause has been introduced, and it was over this clause that the fight raged fiercest. It reads as follows :

" 2 (1) No parent or other person shall be liable to any penalty under Section XXIX. or Section XXX. of the Vaccination Act of 1867 if, within four months from the birth of the child, he satisfies two justices or a stipendiary or metropolitan police magistrate in petty sessions that he conscientiously believes that vaccination would be prejudicial to the health of the child, and within seven days thereafter delivers to the vaccination officer for the district a certificate by such justices or magistrate of such conscientious objection.

" (2) This section shall come into operation on the passing of this Act, but in its application to a child born before the passing of this Act there shall be substituted for the period of four months from the birth of the child the period of four months from the passing of this Act."

Moreover, as the Act does not provide for revaccination, it practically means that for the next five years vaccination is purely a voluntary matter.

Mr. W. T. Stead, with his usual velocity, has come to judgment on this subject. He says :

" The second great victory which was gained last month in Britain was the defeat of the Government over the Vaccination Bill. This may seem a small thing to many, especially to those who take a super-

ficial view of the matter. In reality it is a victory of the greatest importance, for it is a victory which almost for the first time definitely and formally extends the area within which conscience is recognised as king. \* \* \* \* \*

The latest concession to the sovereignty of the individual conscience was due to the same readiness on the part of individuals to go to prison rather than obey a law which they believed to be unjust. This concession, forced from the Government under threat of imminent defeat, extends the same principle to another sphere. By the clause introduced by Mr. Balfour into the Vaccination Act, and accepted by the House of Commons, any parent who satisfies the Justices of the Peace that he has conscientious scruples which forbid him to assent to the vaccination of his children is to be exempt from compulsion. This concession, bitterly assailed by the medical police, who as always are dominated by the fixed idea that the health of the community can only be secured by the sacrifice of the liberties of the subject, marks a great advance, the full significance of which is yet but dimly appreciated. This clause will be fiercely assailed in years to come. But if the advocates of liberty or conscience in matters of medicine as well as matters of theology are up to their work, they will succeed in making it the starting point for a whole series of similar concessions.'

The reference to the "medical police" is somewhat undeserved.

With regard to scruples, conscientious or otherwise, whatever relation they may bear to matters of theology, they cannot be considered in medical matters. Such are not questions of conscience or even opinion, but are matters of fact. The value of systematic vaccination as a preventative of small-pox or as a means of mitigating the attack one would have thought would have been set at rest by the report of the recent British Commission on the subject. To all fair minds this was conclusive in favour of vaccination. The principle is also endorsed by both the Royal College of Physicians and the Royal College of Surgeons, so that the medical profession of England is overwhelmingly in its favour, to say nothing of that in other civilized countries. The resolution of the former body is as follows:

"The Royal College of Physicians having learnt that certain changes are likely to be made in the laws relating to vaccination, think it their duty to reiterate their conviction that vaccination, properly performed and duly repeated, is the only known preventive of small-pox."

In view of this testimony the Marquis of Ailesbury might well say that they objected to abrogating the work of Jenner at the bidding of a few faddists when all the nations of the world were following his teaching.

The doctrine of the divine right of a nation to misgovern itself which is such a fetish to many minds, is only a monster begotten of this latter day democracy. Law and order is only possible when there is judicious control of people's actions. "The greatest good to the greatest number" is the maxim to be observed in matters of public health as well as in other directions, and if people will not think and are deliberately careless, other people must think for them. And who better than the doctors who are the best qualified to judge on matters of health and disease? When disease breaks out we isolate people and disinfect houses and exercise other restrictions. Is this not interference with the liberty of the subject? If we have the right to do this after disease breaks out, we certainly have the right to prevent people from deliberately running into infection, or neglecting ordinary measures of precaution. Disease and death is too serious a matter to be left in the charge of ignorance or carelessness.

The only hope is that the government will carry a Revaccination Bill next session on its promises.

In the meantime England has taken a retrograde step, and must go on record as subjecting knowledge to ignorance and presumption. It is a pity that such matters should be the sport of political parties.

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### GESTA MEDICORUM.

"QUICQUID AGUNT MEDICI NOSTRI FARRAGO LIBELLI."

Prof. v. Leyden is the new Dean of the University of Berlin.

The next meeting of the British Medical Association is to be held in Portsmouth.

The American Public Health Association meets this year in Ottawa, on the 27th, 28th, 29th and 30th of September.

Dr. Victor Vaughan, Professor in the University of Michigan, has been unfortunate enough to contract yellow fever while at the seat of war in Cuba.

Dr. Fleischer, Professor of Internal Medicine at Erlanger, is appointed to the Chair of Medical Propædeutics and History of Medicine in the same university.

Edinburgh University is to have an Institution of Public Health. This building is presented by Mr. John Usher, who had previously evinced his generosity by completing the endowment of the Chair of Public Health which was initiated by the late Mr. A. L. Bruce.

Dr. Alexander Mitchell Stalker, Physician to the Dundee Royal Infirmary, has been appointed Professor of Medicine in the Dundee

University College ; Dr. David MacEwan, Surgeon to the same Infirmary, Professor of Surgery ; Dr. Charles Templeman, Lecturer in Forensic Medicine and Public Health ; and Dr. David Fraser Harris, Lecturer in Physiology and assistant to Prof. Pettigrew in the University of St. Andrews.

The seventeenth Annual Announcement of the New York Post-Graduate Medical School and Hospital, University of the State of New York, for 1898-99 has just been issued. It shows that 523 practitioners of medicine have attended its courses during the past year. They came from the various States of the Union and the Dominion of Canada. There were ten physicians from foreign countries, two of these being from India and one from Japan. Only 96 were from the State of New York.

Dr. Wm. Pepper died suddenly from angina pectoris on July 28th. He was scarcely 55 years of age. He graduated from the University of Pennsylvania in 1864. In 1868 he was made lecturer in Morbid Anatomy in his alma mater ; lecturer on Clinical Medicine 1870, and professor of the same in 1876. In 1881 he became Professor of the Theory and Practice of Medicine. He was well-known as the editor of "A System of Medicine," and "An American Text-Book of the Theory and Practice of Medicine." In 1871 he founded the *Medical Times*. He was a voluminous writer on Medical subjects. He was also a generous benefactor of his University, and gave it the William Pepper Laboratory of Clinical Medicine in memory of his father.

The thirty-first annual meeting of the Canadian Medical Association was held in Laval University, Quebec, on August 17th, 18th and 19th. The detailed proceedings are given in another place.

It was regrettable that only a small proportion of the members thought it advisable to attend, some 78 only being registered ; this probably being accountable for the mediocrity of the majority of the papers presented. Thus the enthusiasm which members beget was absent. Still in regard to the business transactions it was a notable meeting and will go on record as consummating a most important advance—Interprovincial Registration. Quebec is an ideal city to visit, and great thanks are due our Quebec *confrères* for the hospitable way in which they entertained the delegates, the visit to the Quarantine Station at Grosse Isle being a particularly happy thought. The social part of the meeting certainly was a great success.

At the Convocation of Edinburgh University, held in connection with the visit of the British Medical Association to that city, the following distinguished visitors received the honorary degree of LL.D. :

Dr. Henry Bowditch, Professor of Physiology, Harvard University, U.S.A.; Sir William Broadbent, Bart., F.R.S.; Dr. Lauder Brunton, F.R.S.; Dr. E. Doyen, Paris; Dr. David Ferrier, F.R.S., Professor of Neurology, King's College, London; Dr. Joseph Forster, Professor of Hygiene, University of Strassburg, Germany; M. le Comte de Franqueville, Member of the Institute of France; Dr. Karl Gerhardt, Professor of Clinical Medicine, University of Berlin, Germany; Mr. Richard B. Haldane, Q.C., M.P.; Mr. Jonathan Hutchinson, F.R.S.; Dr. Theodor Kocher, Professor of Surgery, University of Berne, Switzerland; Dr. August Martin, Professor of Gynaecology, University of Berlin, Germany; Dr. Johann Mikulicz, Professor of Surgery, University of Breslau, Germany; Dr. Ottavio Morisani, Professor of Midwifery, University of Naples, Italy; Dr. William Osler, Professor of Medicine, University of Baltimore, U.S.A.; Dr. William Playfair, Professor of Obstetric Medicine, King's College, London; Dr. Roddick, Professor of Surgery, McGill University, Montreal, Canada, President of British Medical Association, 1897; Dr. Seigmund Rosentein, Professor of Clinical Medicine, University of Leyden, Holland; Dr. Hermanu Snellen, Professor of Ophthalmology, University of Utrecht, Holland; and Sir Richard Thorne, K.C.B., F.R.S., Chief Medical Officer, Local Government Board, London.

#### NEW BOOKS, ETC., RECEIVED AND NOTED.

Atlas of Legal Medicine. By Dr. E. von Hofmann. Authorized Translation from the German. Edited by Frederick Peterson, M.D., assisted by Aloysius O. J. Kelly, M.D. Philadelphia, W. B. Saunders, 1898.

Atlas and Abstract of Diseases of the Larynx. By Dr. L. Grunwald, of Munich. Authorized Translation from the German. Edited by Charles P. Greyson, M.D. Philadelphia, W. B. Saunders, 1898.

Sir Benjamin Collins Brodie. By Timothy Holmes, M.A., F.R.C.S. London, T. Fisher Unwin, 1898.

Conservative Gynaecology and Electro-Therapeutics. By G. Betton Massey, M.D. Third edition. Philadelphia, New York, Chicago, F. A. Davis Co., 1898.

Yellow Fever. Clinical Notes by Just Touatre, M.D. (Paris). Translated from the French by Charles Chassaingnac, M.D. New Orleans, New Orleans Medical and Surgical Journal, 1898.

The Johns Hopkins Hospital Reports, Report on Pathology. Baltimore, The Johns Hopkins Press, 1898.

An American Text-Book of Diseases of Children. Edited by Louis Starr, M.D. Assisted by Thompson S. Westcott, M.D. Second edition, revised. Philadelphia, W. B. Saunders, 1898.

An American Text-Book of Gynaecology, Medical and Surgical for Practitioners and Students. Edited by J. M. Baldy, M.D. Second edition, revised. Philadelphia, W. B. Saunders, 1898.

A Text-Book of Pathogenic Bacteria for Students of Medicine and Physicians, By Joseph McFarland, M.D. Second edition. Philadelphia, W. B. Saunders, 1898.

A Manual of Modern Surgery. By John Chalmers DaCosta, M.D. Philadelphia, W. B. Saunders, 1898.



The Retrospect of Medicine. Edited by James Braithwaite, M.D. Vol. 117. Jan.-June, 1898.

On Cardiac Failure and its Treatment. By Alexander Morison, M.D., F.R.C.P. London, The Rebman Publishing Company, Ltd., 1897.

Dwelling Houses, their Construction and Arrangements. By W. H. Corfield, M.A., M.D., F.R.C.P.L. Fourth edition. London, H. K. Lewis, 1898.

The Tuberculin Test in Cervical Adenitis. By Edward O. Otis, M.D. Reprinted from the Medical News, July, 1898.

The Principal Poisonous plants of the United States. By V. K. Chesnut. Washington, Government Printing Office, 1898.

Renal Calculus. By J. H. Musser, M.D. Reprinted from the Philadelphia Medical Journal, 1898.

The Essential of the Art of Medicine. By J. H. Musser, M.D. Reprinted from the Philadelphia Medical Journal, 1898.

The Diagnostic Importance of Fever in Late Syphilis. By J. H. Musser, M.D. Reprinted from the University Medical Magazine, October, 1897.

Remarks at the Presentation of Candidates for the Degree of Doctor of Medicine at the Commencement of the Johns Hopkins University, June 14th, 1898. Reprinted from the Johns Hopkins Hospital Bulletin, July, 1898.

The Prevention of Diseases now preying on the Medical Profession. By Leartus Connor, A.M., M.D. Reprinted from the Bulletin of American Academy of Medicine. Vol. III, No. 9.

Diseases of the Lachrymal Passages—Their Causes and Management. By Leartus Connor, A.M., M.D. Reprinted from the Journal of the American Medical Association, July, 1898.

The Employment of Solutions of Toluidin-Blue as Collyria, and as a Stain for Corneal Abrasions and Ulcers. By Clarence A. Veasey, M.D. Reprinted from the Philadelphia Medical Journal, 1898.

Bains d'Air Chaud Sec. By Dr. P. V. Faucher. Reprinted from La Revue Médicale.

The Treatment of Choleraic Diarrhoea. Lambert Pharmacal Co.

Some Points in the Diagnosis of Morphia Addiction. By Stephen Lett, M.D. Reprinted from the Canada Lancet, August, 1898.

Hospitals and Sanatoria for Consumption Abroad. By Edward O. Otis, M.D. Reprinted from the Boston Medical and Surgical Journal, 1898.

Kryofine. By Eugene Back. Reprinted from the New England Medical Monthly, May, 1898.

Detection of Fœtal Heart Murmur in Gravida with Report of a Case. By J. H. Hall, M.D. Reprinted from Archives of Pediatrics.

Aortic Stenosis with Mitral Regurgitation, A Clinical Lecture. By J. H. Hall M.D. Reprinted from the Colorado Medical Journal, January, 1898.

Displacement of the Heart in Lung Diseases. By J. H. Hall, M.D. Reprinted from the Medical Fortnightly, Feb. 1898.

Notes on Malaria in Connection with Meteorological Conditions at Sierra Leone. By Surgeon-Major E. M. Wilson, C.M.G. London, H. K. Lewis, 1898.

Neurotic Eczema. By L. Duncan Buckley, A.M., M.D. Reprinted from the American Medical Association, April, 1898.

A Case of Bilateral Syphilitic Ulceration of the Palpebral Conjunctiva. By Clarence A. Veasey, M.D. Reprinted from the International Medical Magazine April, 1898.

A Preliminary Report on a Method of Overcoming High Resistance in Crooke's Tubes, A Possible Step Toward Maximum Radiance. By W. W. Graves, M.D. Reprinted from the American X-Ray Journal, April, 1898.