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PRESIDENT'S ADDRESS, DELIVERED AT THE FORTIETH ANNUAL MEETING OF THE CANADIAN MEDICAL ASSOCIATION.

Montreal, September, 1907.

BY

ALEXANDER McPHEDRAN, M.B.,
Professor of Medicine, University of Toronto.

It is my first duty, as well as pleasure, to acknowledge my deep sense of gratitude for the honour you have done me in electing me to the chief office in this Association. I have experienced the unusual courtesy of an election for a second term. This, however, may not imply a compliment but rather a reprimand and an injunction—a reprimand for duty left undone, and an injunction to be more diligent in the discharge of duties of this high office, not to neglect the opportunities nor evade the responsibilities pertaining thereto. If so, I freely acknowledge the justice of the censure. The Presidency has been held by several of the ablest physicians this country has produced, and to succeed such men would be an honour to any one. It would, however, have been in the interests of the Association and much more in accord with my own feelings, had the by-law been observed, which requires that the president be elected from the city in which the meeting is to be held. In justice to Montreal this should have been done, as then some of our difficulties would have been avoided, and such honour as pertains to the position would have been bestowed where it belongs.

However, under the circumstances it is my pleasing duty to gratefully acknowledge the cordial sympathy shown by our Montreal friends, a generous cordiality in keeping with their well-known character. I can only most sincerely thank them for their cordial good-will and co-operation. I hope it will be my privilege to welcome one of their number as President at the next meeting held in Toronto, when I hope

to be able to show evidence of my appreciation of the uniform kindness that has been extended to me here. I wish further to express my great appreciation of the work of the Executive and various committees; the results are evident in the excellence of this meeting.

I may be permitted here to give expression to the deep sorrow with which every member of this Association heard of the calamity that overtook McGill University and Medical Faculty in the loss of their building last April. It is not necessary to assure them of our sympathy. The loss was not McGill's only, but was one also to medical education in this country and on this continent.

We are glad to know that the cloud had its "silver lining" and that now they are to be congratulated on the near prospect of a magnificent new building instead of condoled with on the loss of the old one good as it was. We knew that "Phœnix-like," the institution would rise from its ashes and be greater than ever. As we sorrowed with them so will we all now rejoice with them. We wish them "God-speed."

During the past year several members of this Association have gone to "the bourne whence no traveller returns." Among these were three of the most eminent in the Canadian profession, men of world-wide repute, to whose memory a brief reference is permissible. In this bereavement this city has to deplore the loss of Sir William Hingston and James Stewart, and Toronto, that of George A. Peters. All three had the common experience of being reared in a hard school, so that success could be attained only by living laborious days and practising the most rigid economy, conditions which often develop, as nothing else can, the best that is in a man. Each was a master in his own sphere, each possessed in an eminent degree "the genius for taking pains." Of each it may with truth be said that he was "the noblest work of God, an honest man."

Sir William Hingston was a distinguished type of the surgeon of the old school, a school in which it was essential to possess courage, decision and dexterity. Those of us who were not in close touch with his surgical work were attracted to him chiefly as the man. He was the embodiment of refined courtesy and of frank kindliness. He was intolerant only of what was unworthy. We miss the tall, erect, courtly man whom we all loved, and with whose graces there was always such a charm. Canada, in these her yet salad and hoydenish days, can ill spare men of such culture.

James Stewart stood for all that is best in medicine. He was of such singularly quiet and unobtrusive nature that it was only those with whom he was closely associated who knew the riches of both mind and heart that lay hidden behind the simple and unassuming manner.

His knowledge of medicine was deep and clear, such knowledge as comes only by living laborious days of self-sacrificing devotion to our Art.

George A. Peters was a type of the best in the modern school of surgery. Among Canadian surgeons, at least, he had no superior and few peers. Who could desire higher praise? He was a man of sterling character and rugged honesty, and fearless in his condemnation of whatever was unworthy of the highest traditions of his profession. His was a spirit that no difficulties or dangers could make quail or deviate from the path of rectitude. How vividly in recalling his career we are impressed with the truth of the aphorism of the Father of Medicine: "Art is long and time is fleeting."

I have great pleasure in drawing attention to the fact that Dr. William Bayard of St. John, N.B., a past president of this Association, completed seventy years in the practice of medicine on the 1st day of August last, and that he is still able, at the age of 93 years, to meet the wishes of many patients by ministering to their wants. His Alma Mater, the University of Edinburgh, on this 71st anniversary of his graduation, showed her appreciation of his character as a man and his work as a physician by conferring on him the degree of LL.D. Such a long professional life is, perhaps, unprecedented in modern times, it is, at least, so I believe, in the annals of Canadian Medicine. I have already, in the name and behalf of the Association, extended to Dr. Bayard the greetings and best wishes of the Association. I would suggest that now in Annual Session you authorize me to telegraph the renewal of our high esteem for him and sincere hope that the "eventide" may be calm and without a cloud.

I. Re-organization.

It is just forty years since this Association was organized. The first meeting was held in Quebec under the Presidency of Sir Charles Tupper, one who has since attained such eminence as a statesman. It is interesting to note that this first meeting was among the largest ones held by this Association—109 being present. At the second meeting, held in this city, there were 135, after that for several years the attendance never reached 100. Even of late years, compared with this first meeting, the Association has not shown the advance either in attendance or work that its founders were entitled to anticipate. However, history has but repeated itself, the higher life, intellectual and scientific, of young countries as of individuals, is always the latest to develop. It is quite possible that to the clear vision of the Fathers of the Association it was evident that its growth would be slow and subject to many

vicissitudes, that it would only be after many years of painful struggling that much advance could be hoped for. They doubtless foresaw such advance could come only after the growth of culture, that is, after the conditions of the people became stable and sufficient wealth accumulated at least to give ease, if not luxury, to many. For various reasons such a state has been slow in maturing in this country, but it may be said to have now come, at least in the older provinces. Such has been the history of the United States, where only recently science and art have made material advance, and even yet "it is the day of small things" with them in comparison with the development of the natural resources and growth of wealth of that country. Our history will doubtless be similar to theirs, although the indications are that our material growth will be even more rapid in proportion to the population. It is said that, although our population is only six millions, our immigration equals now that of the United States when her population was 40,000,000. Such great accessions we have good reason to fear, are beyond our country's powers of assimilation.

As a national association we have to bear our part of the great responsibilities imposed upon the country by these great accessions of foreign people and the rapid growth of its material interests. It devolves upon us, as far as possible, to promote the medical and scientific interests of this country so that they may be kept abreast with its material development. This responsibility rests on the older provinces chiefly, as in those there is more leisure and culture. United action on our part will be necessary to cope successfully with these responsibilities and to enable us as a profession to attain and maintain the status in the country to which we are entitled. This country's conditions are unusual. Its geographical extent is very great, and its population as yet only occupies its southern border extending from ocean to ocean. Community of action as well as of interest will, consequently, be difficult to develop and maintain. It seems therefore urgent that all available means should be taken to harmonize the interests of the various parts of the country in order the more efficiently to apply our energies for the advance of general scientific and professional interests. The closer we are in touch with one another the greater should be the stimulus to do higher works, the increased zeal and enthusiasm should yield results which will enhance our reputation as a profession and also redound to the credit of the country. Every scientific advance, however small, is an asset to the country, both in the intrinsic value of the work itself and in the impetus it gives to further advance. It is difficult to impress laymen, even the best educated, with the importance

of this truth; but that is not a matter of surprise, seeing that we ourselves are lacking not a little in appreciation of scientific achievements. This indifference to scientific and intellectual affairs is due to many causes, chief among which is the struggle for existence incident to a young country. This struggle has absorbed so much of our energy that little attention has hitherto been paid to purely scientific matters. Then our training is almost wholly confined to the preparation for purely professional work, and so little research work has been done that our attention has not been seriously directed into scientific channels. The result is that thus far, with a few notable exceptions, we have been content with the discharge of the daily routine of professional duty. That such is the present status of the Canadian profession few, I think, will deny. The question arises—What is the duty of this Association in relation to such a state of affairs? As the national organization representing the profession of medicine no one can take exception to the view that it should be the leader in all movements having for their objects the elevation of the status of the profession and the advance of the scientific interests of the country.

In the past the Association has been satisfied with a quiet existence, content to take by the way anything that was offered, obeying both in letter and spirit the injunction, "take no thought for the morrow." To many, especially of the younger men, living even at our doors it is scarcely known. During the year I have asked not a few to present papers at this meeting who had almost forgotten the Association's existence, if they ever knew of it. It is surely time to awaken out of this Rip Van Winkle state and develop the power of the Association so that its existence shall be known to the remotest corner of this land. How can this best be done? That the present constitution of the Association is inadequate to making any serious effort in this direction all will agree, and if anything is to be accomplished there must first be such a re-organization as will enable the Association to take effective action on the many important questions that must come before it from time to time. It is only by doing so that we can fulfil the objects which forty years ago its founders had in view. The very existence of this Association imposes on it the duty to consider all questions of national importance. It cannot make good its claim to a national character if it evades the responsibility. While the constitution of the Association at its organization was the best that could be devised to suit the needs of the time, it is but ill-adapted to the greatly altered conditions of the present day. The time seems ripe and the need urgent for a complete re-organization in order to fit the Association to meet the growing

demands incident to a growing country, and enable it to occupy its place in the medical world. Even for the continued existence of the Association it seems necessary to make radical changes in its constitution.

These are some of the motives which, at Halifax two years ago, led the Association to take the preliminary steps looking towards re-organizaiton. A committee was appointed to consider the whole matter. Its report is ready for your consideration. The committee in its recommendations has followed closely the constitution of the British Medical Association, the oldest of all similar organizations, and of the American Medical Association, which was modelled after it, and which has, during the last few years, made such rapid progress in perfecting its organization and increasing its usefulness. Our members are too small and we are too widely scattered across the continent to permit of our following the plan of either organization in its entirety; we must adapt our proved of by the Provincial associations of Ontario, Nova Scotia, and British Columbia, the only associations before which it has been presented. It is to be regretted that the scheme could not have been presented before every association and society in the country by some member of the committee.

One of the most important objects aimed at in seeking proper organization would be the effect that the existence of a vigorous association would have on general medical education. It would enable the profession to bring its opinion to bear on whatever might call for encouragement or amendment. The natural consequences would, not only be an improvement in medical education, but in time a unification of the requirements for qualification in the several provinces. This should furnish a good working basis for general registration for the whole country, a movement that has been so ardently and ably promoted by our distinguished colleague, Dr. Roddick. In view of the fact that medical education in Canada is wholly in the care of the universities, such a basis for registration should be acceptable to all the provinces. There is not a medical school in the country and therefore no private interests to be considered. I am sure all will regard this as a cause for congratulation. This is the only country in the Anglo-Saxon world in which such a desirable state of things exists. The Medical Faculties of Dalhousie University in the east, Laval and McGill in Montreal, Queen's in Kingston, the University of Toronto in Toronto, the Western in London, and Manitoba in Winnipeg, are all under the control of university courts. This should be a guarantee both of the excellence of the work done and of the certainty of steady advance.

With such conditions it should be possible for the undergraduates in any of these universities to pass from one university to another at the

end of any session as seemed to best suit their needs. The requirements in the universities being similar it would be sufficient for him to present the evidence showing that he had fulfilled these requirements for him to obtain registration in the institution which he desired to enter. Such an arrangement would lead the several institutions in their own interests to improve as far as possible the character of their work.

If this Association were well organized, embracing in its membership the great majority of the practitioners of the country, and actuated by high ideals, it is not too much to say that, in a few years, it could bring the necessary influence to bear on these universities, and on new ones that may be established, to secure such a general minimum standard of qualification that, their degrees would be a passport to legal qualification to practise medicine in any part of the country. If this plan is feasible, and it should be, it is within the "sphere of usefulness" of this Association; this is, in fact, the only organization which can successfully promote such a scheme. Such an opportunity to promote the interests of the country as well as of our profession should be sufficient, if there were no other reason, to lead to a proper organization of our forces. This course would not be in the interests of the universities as much as in that of the country, and of this Association as representing the profession. It is much easier to regulate and guide whatever pertains to the welfare of the country in this its early stage of growth, than it will be to gain control after it has developed into a populous country with fixed local interests. In the new western provinces there are some signs of a feeling of antagonism to the older parts becoming evident. There seems to be a fear that they may wish to dominate too greatly the policy of these newer parts. It will take wise management and judicious action to arrest the growth of that feeling, and forestall any attempt that might be made to estrange the sympathy and co-operation of these new provinces. Most of the western profession have been recently graduated from our universities and should understand us so well that with ordinary judgment, it should not be a matter of much difficulty to secure and retain their hearty co-operation in any scheme having for its object the highest interests of the whole country as well as of the whole profession. I say *country*, because we should see to it that the public recognize the fact that this and similar organizations exist for the promotion of what is for the general good as well as for the benefit of those more immediately concerned. The whole is but the sum of its constituent parts, and can be affected for good or ill only through the parts. Therefore what we, as a constituent part, do to promote our own true interests is of benefit to the country at

large. It is highly desirable that the public should realize that the objects of this Association are not only to benefit the profession, but also, and chiefly, for the promotion of what is for the general good. It is not a "trades union," but a national organization which should have, and has, the nation's welfare for its chief object. It is apparent to all that the country stands in need of all the assistance which this and other agencies within its bounds can bring to its aid in its enormous responsibility of assimilating the vast numbers of peoples from all nations annually entering its domain, and of developing and maintaining a proper national spirit marked alike by vigour and honour. That she is not coping quite successfully with the difficulties imposed upon her is a subject of common observation. Probably no country developing in population and resources with such phenomenal rapidity has ever been able to prevent, at least temporarily, some deterioration in public morals. It is almost a daily experience to hear some one remark on the decadence of the public conscience. With the large immigration from all parts of the world, and the intense striving after wealth incident to the development of a young country of such large resources, it is doubtless inevitable that there will be some relaxing of the rugged honesty, private and public, of the pioneers of this country, but that there should be even a semblance of ground for the very general charge of moral decadence is much to be deplored. As loyal Canadians we have a profound interest in this matter. Public morals cannot be degraded without affecting unfavourably all classes, so that in our own interest as well as that of this land which we love, to which we return from our pilgrimages year by year with an ever-increasing affection and pride, and for which, if need be, we would yield our heart's blood, we should be con-

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strained by duty as well as by loyalty to use our utmost efforts to stem the downward tendency. In such an effort the Association has a part to perform; in order to perform that part effectively it will require to be furnished with every facility with which we can provide it.

Hitherto the Association has been content to minister to the wants of the general practitioner in its two sections of medicine and surgery, but we have reached a stage when it should afford facilities also for the encouragement of all classes of special work. The field of medicine is so broad as to render specializing necessary. While all should possess sound, general knowledge none can be masters in more than a few branches at most. This year a first step has been taken in extending the work of the meeting by the formation of a Section for Laboratory Work. With a more vigorous association other sections will be neces-

sary in order to bring out the best work in the various departments. An omnibus meeting never accomplishes much that is of the highest value. Men will not do their best work unless there is an opportunity of presenting it to such as are specially qualified to appreciate its value. While there are many questions in all specialties that the general meetings are quite able to discuss and which should, as far as possible, be there presented, there are others that only those specially trained are able effectively to criticise and judge of their merits. The announcement is just made of the Eighth Medical Congress in Australasia to meet next year. It is to consist of eleven sections. With more than double their population we should be quite as capable of maintaining meetings with as many sections, in which the work presented would be of the highest order. I need not specify what additional sections should be formed. The widespread prevalence of contagious diseases indicates the necessity of directing even increasing attention to sanitation. Regarding tuberculosis there is great awakening on the part of the public, but as to typhoid fever there is amazing apathy, both in city and country. The formation of a section of state medicine seems therefore very desirable. Many other sections might be formed with great advantage to the Association's usefulness.

Another matter demanding the prompt and earnest consideration of this Association is the nostrum evil. Our friends to the south have been waging an increasingly active crusade against this evil during the last few years, and duty to the public no less than to our own interests demands that our action be prompt and energetic. The public do not understand the matter, and have no conception of the enormous injury done to their best interests. Those among them who give serious thought to the matter hold us responsible for their education in this question. I scarcely see how we can ignore the responsibility without detriment to our own interests as well as to theirs. They will be ready once they understand the matter to aid in suppressing it, or mitigating it where it cannot be wholly eradicated.

There are many other questions that might fairly claim attention, such as intemperance and the cure of the inebriate, the physical training of the young, the medical inspection of schools, etc., but time does not permit.

The educational authorities in the United States have just reported that 12,000,000 school children—one-third of their whole school population—are suffering from physical defects. Many of these are easily remedied, *e.g.*, malnutrition, defective breathing and vision, and enlarged glands. The nation has a vital interest in the condition, physical

and mental, of its children, and it is for this Association to point out the way in which these matters should be dealt with.

II.—A Journal.

The second need of the Association is an official journal. It is essential for several reasons. In the first place the Association's constituency is a very large and sparsely settled one and it appears necessary therefore that there should be a regular means of communication established in order to maintain a community of interest and an avenue through which the needs of all may be made known. Without such a means of communication it will be difficult to develop a truly national spirit, and unify the interests of the medical profession in Canada.

In determining on such a venture we would not be entering on untried grounds as we have the example of the two great Anglo-Saxon associations to guide us—the British, and the American Medical Associations. Neither of these associations could possibly have attained a tithe of its present usefulness without its own journal. In fact, it is doubtful if they could have continued to exist, at all events, they would not have been able to wield the power and influence they now possess. I do not forget that our numbers are relatively small. Still there are over 6,000 physicians in Canada, a constituency surely large enough to maintain a monthly journal of first class character, second to none published either on this Continent or in Europe. It should be elastic enough to admit all good contributions offered. Such a journal would, in a short time attract the bulk of the best work done in Canada, and would thus become a medium to which other countries could turn to learn of the scientific medical work of this country. Hitherto all the work done here has been published through British or United States channels, and has gone to the credit of these countries. We are loyal Greater Britons. We must at the same time be loyal local Britons,—that is, Canadians. We cannot be truly loyal to the greater without being supremely loyal to the less, and it is by our loyalty to our own country that we can best show our devotion to that Nation of which we are rightly proud of being a part.

It requires no argument to prove that with a first class journal a great impetus would be given to scientific work, and that the position of Canadian medicine would be greatly improved in the estimation of of the scientific world. The other sciences would also indirectly share in the benefit because no class of scientific work can be improved without having the influence reflected upon others.

Such a journal should also be made to meet the needs of the general practitioner, the "bone and sinew" of the profession. A section could be devoted specially to their interests.

The expense has been regarded by some as an insurmountable obstacle. Australia, with less than half our population, has published for years a creditable monthly journal. Can we not do as well? If every member here invested a small amount in such a venture, to be paid back, without interest, when funds became available, say five, or even ten years hence, it would be one of the best investments they ever made. Such an investment would bring an assured annual return, first, in enhancing the *esprit de corps* and improving the tone of the Canadian profession; second, in creating in us a greater appreciation of our own work and capacity, teaching us that the home product is equal to that of any other country, a lesson we sadly need to learn; and, thirdly, in stimulating all, especially the young men, to do work of ever-increasing merit, and so add to their own and the country's reputation.

In advocating the establishment of an official journal I wish it to be clearly understood that no disparagement of existing Canadian journals is intended. However excellent these journals may be, each can only serve its own locality and special *clientèle*. It is not possible for any private journal to reach all the Canadian profession, and even if it did, its influence would be much less than that of the Association's own journal. The interests of the private journal, being local and special, should not be infringed upon by an Association journal whose work would be identified with the general interests of the profession of the whole of Canada as well as the promotion of medical science. Anything like a monopoly of the journalistic field is not desired. The aim is not only to stimulate all to do better work and to promote the interests of medical science, but also to bring all the members of the profession into closer touch with one another so as to further the national spirit and greatly increase their influence in the country, and to enable them to bring their united influence to bear on all matters of national importance. These interests are quite apart from, and should not in any way conflict with, those of the private journals.

I am convinced that a journal is a necessity, if not to our existence, at least to our success. I have full confidence in the ultimate success of our efforts, if steps are taken to establish such a journal and, that within a very few years, at most, we will have a journal equal in merit to the best, and in which our ablest men will be more than willing to publish their best work.

Some fear we cannot cope with the difficulties of developing and maintaing such an active organization as I have outlined, or of publishing a journal worthy of our Association and of the Canadian profession. That the difficulties will be considerable no one doubts; still

these difficulties can be successfully met by the Canadian profession—a profession whose members are, it is no boast to say, physically and mentally the peers of the best in the world. A survey of this audience should be sufficient to convince any doubter, and this audience is but a fair representation of the great body of physicians scattered across this country from the Atlantic to the Pacific. Great as the difficulties will be I have full faith in our own powers to overcome them. We need but united loyal action to attain a success that will gratify ourselves as well as our friends. Some will say that these views are chimerical, but to me they but feebly outline the possibilities which lie before us. A few years ago had any one said that this country would now be developing materially with the present phenomenal rapidity, that it possessed such extensive acreage for the growth of wheat and other grains, that it is so rich in mineral wealth, and that it could afford homes for many millions of population which we now know it is capable of providing, his views would have been scouted as too visionary to merit serious consideration. The venerable Lord Strathcona, whose sagacity excels even his buoyant hope, and who knows this country as perhaps no one else knows it, has just been credibly reported as saying that he believed this country by the end of the current century will have a population of 80,000,000.

A recent writer, whose book has been most favourably received, who came from England as an immigrant, and remained six or eight months traversing the country from coast to coast, mingling with the masses, and working in forest and field, so as to make a thorough study of the country, says, it is quite capable of sustaining a population of 140,000,000. May we not reasonably look forward to something like a corresponding development on the literary and scientific side?

One of the most potent causes which have retarded the development of Canada in all its aspects—in population, industries, literature, science, national sentiment— has been its proximity to the Motherland and to the strong nation to the south of us. We have been overshadowed by both, perhaps a little overawed, so that we have feared to assert our manhood. But it is to inertia rather than fear that the slow growth of national spirit is due. We have had facilities of all kinds desired close at hand in those two great countries so that we have been saved the trouble of developing our own resources. But the dawn of a new development has come, and Canada is known the world over as the "land of promise." Are we to be laggards in this national awakening? No one who knows the Canadian profession will doubt the answer.

It is for us to consider whether the profession is to be provincial or national in its character and aspirations; whether it is to consider ques-

tions from a provincial, even parochial, point of view, or occupy a higher plane and regard matters in a broad, national spirit, and so take its place and assume its responsibilities as one of the forces moulding the destinies of the nation, feeling that it has especially committed to its care the development of medical science in its highest character. It may be said that this is too high an ideal. We must not forget that the higher the ideals, if we try to attain them, the greater the success. However, I cannot regard the ideal as too high, but rather that it but faintly indicates all the future holds for us if we are but equal to the demands of the present and grow with the increasing needs of rapidly growing conditions. With a united and courageous association embracing the whole profession of this country and actuated by high ideals of our duty and of the needs of the country, I have every confidence that the results would far exceed our highest anticipations. Such success, however, can be attained only by earnest united effort. "In Union there is Strength." To the multitude, whether the Nation or Association, as to the individual, true greatness comes only by unremitting toil, energy, and intelligence directed by the highest motives and ideals. To all who so pursue their vocation, whether crowned with apparent success or not, true greatness comes in proportion to their deserts. Ours will be no exception to the universal rule.

We are citizens of a giant young country of inexhaustible resources entering on the threshold of its greatness and power, blessed with an invigorating climate which should produce a virile race such as no country ever excelled. Such is our heritage. You know that "to whom much is given, of him also shall much be required." That we *can* meet these our responsibilities so as to fulfil the requirements, I have the fullest faith; that we *will* meet them successfully, remains for all, especially the younger members of the profession, by their effort and work, to prove.

SOME PROBLEMS IN CONNEXION WITH THE SUPRARENALS.

BY

H. D. ROLLESTON, M.D., F.R.C.P.,
Physician to St. George's Hospital, and to the Victoria Hospital for Children. London.

First, let me express my sincere gratitude for the high compliment which you have paid me in asking me to give the address in Medicine; it was impossible to hesitate about accepting such an honour even had

[1] The address in Medicine, delivered at the meeting of the Canadian Medical Association at Montreal, September 12th, 1907.

it not been conveyed through Professor Osler who, hailing from McGill, is now Regius Professor in Oxford. The subject matter of an address in Medicine must always be a source of some anxiety to those entrusted with the honour. It may either be on general lines and deal with the history, recent advances, future and relations of medicine, or it may be more special and deal with a single subject. Each course has its own disadvantages; but, after some consideration, I have decided on a special subject, and must beg your indulgence for the following review of some problems in connexion with the suprarenal glands.

As is well known the suprarenals are composite glands consisting of two portions which are distinct from a developmental and from a physiological point of view—the cortex derived from the coelomic epithelium of the Wolffian ridge and closely related to the genital glands, and the medulla derived from the sympathetic and neuro-ectodermal in origin. These two portions are separated from each other in elasmo branch fishes, the cortical cells forming the single inter-renal gland and the medullary cells a series of paired bodies connected with the sympathetic (Swale Vincent). It will be convenient to discuss the cortex and medulla separately.

The Cortex.

The cortex is larger than the medulla and is composed of epithelial cells the structure of which suggests a high degree of functional activity: in Biedl's hands experimental removal of the cortex, the medulla being left intact, was followed by death of the animals; and it is stated that compensatory hypertrophy of accessory suprarenals, when this occurs, after excision of the main glands, is solely cortical. These considerations strongly suggest that the cortex has some important function and that it is essential to life, but in what exact way is as yet unknown. The most certain point about the cortex is that it is quite unlike the medulla. Its cells contain fat and lecithin, the significance of which is unknown, but do not give a green colour with ferric chloride (Vulpian's reaction), or a brown colour with chromic acid, as the (chromaffine) cells of the medulla do. Physiologically extracts of the cortex are quite inactive and do not raise the blood-pressure. Our knowledge as to the function of the cortex is very imperfect, but some arguments can be adduced in favour of each of the three following views, namely, that it may be concerned (1) with growth and development, especially of the sexual organs; (2) with neutralization of poisons, or (3) in some manner with the internal secretion of the medulla—adrenalin.

1. *The relation of the cortex of the suprarenals to growth and development, especially of the sexual organs.*—It is now known that there

is a definite group of cases in young children, the peculiar feature of the cases being that a primary tumour of the suprarenal body (hypernephroma, mesothelioma, Woolley)[1] is associated with excessive development of the organs of generation, hair, and fat. Bulloch and Sequeira[2] have collected ten cases, all but two under eight years of age, two in males and eight in females, showing this precocious development in association with a hypernephroma which, in some of the cases at any rate, was derived from the cortex of the suprarenal; future researches will naturally be directed to determining whether hypernephromas of cortical origin are, as suggested here, specially associated with exaggerated growth, while hypernephromas arising in the medulla of the suprarenal show no such association. Bulloch and Sequeira have indeed collected twelve cases of hypernephromas in children who did not show any signs of premature development, and in some of these cases the tumours, described as sarcomas or lymphosarcomas, were definitely regarded as arising from the medulla of the gland. It must, however, be noted that in adults cortical hypernephromas, which are probably more often seen in the kidney (renal hypernephromas or adrenal "rest" tumours) than in the main adrenal gland, are not associated with the notable genital development, hirsuties, and obesity seen in children. As rare exceptions to this rule attention may be directed to Thornton's[3] case of a woman aged thirty-six years, who was covered all over with black, silky hair and had to shave her face, and to a somewhat similar case in a female lunatic aged thirty-two years (Richards), in both of which hypernephromas were present. In passing it is interesting to note the rarity of renal tumours of adrenal origin in children as compared with the incidence of these tumours in adults and with the incidence of hypernephromas in early life. But, although excessive genital development and growth of hair in a child should always suggest the existence of a cortical hypernephroma, it must be remembered that these striking signs may exist without any such lesion in the suprarenals (Guthrie and Emery).[4] As bearing on the connexion between exaggerated cellular growth of the suprarenal cortex and the development of the genital organs, a few cases are on record in which suprarenal hyperplasia has been found in individuals with such excessive size of the clitoris that they were erroneously regarded as males. Further, enlargement of the suprarenals has been noted in animals during periods of sexual activity and pregnancy; and it has

[1] Woolley. *Trans. Assoc. Am. Physicians*, 1902, XVII.
[2] Bulloch and Sequeira. *Trans. Path. Soc.*, London, 1905, LVI, 189.
[3] Thornton K. *Trans. Clin. Soc.*, London, 1890, XXIII, 153. Richards, O. *Guy's Hosp. Reps.*, 1905, LIX, 225.
[4] Guthrie and Emery. *Trans. Clin. Soc.*, London, 1907, XL.

appeared to me that there is a close resemblance between the cells of the suprarenal cortex, on the one hand, and the luteal cells normally found in corpora lutea, and exceptionally in luteal cysts, on the other hand. This resemblance, both histologically and morphologically, has been insisted on by Mulon,[1] who, from observation on guinea-pigs, speaks of the corpus luteum of pregnancy as a temporary cortical suprarenal. It is interesting to compare the developmental anomalies accompanying some cortical hypernephromas with acromegaly, which is usually associated with hyperplasia or adenomatous change in the anterior lobe of the pituitary gland. For, as Shafer and Herring[2] point out, the anterior lobe of the pituitary and the cortex of the adrenal are alike in several particulars, namely, in the glandular character of their epithelium, in the physiological inactivity of their extracts, and in ensheathing collections of neuro-ectodermal cells (the posterior or infundibular lobe, and the adrenal medulla) which, on the contrary possess extremely active physiological extracts. As bearing in a somewhat remote manner on the relation of the suprarenal cortex to the growth of the body it may be mentioned that evidence is accumulating to show that primary malignant growths of the cortex, like primary carcinomas of the thyroid, have a special tendency to produce metastases in bone (Scudder)[3]. This association has also been independently noticed by Prof. Adami. This similarity of the thyroid is of interest in the light of the well-established influence of the thyroid on skeletal growth.

Conversely, hypoplasia of the suprarenals has been found in anencephalous monsters; but the relation between the two developmental abnormalities is doubtful, Zander[4] regarding the lesion of the nervous system as primary and Alexander[5] considering the suprarenal defect as primary. Very possibly, however, the failure of development is concomitant, in any case this association is not a strong argument in support of the influence of the suprarenal cortex on the growth of the body, for the hypoplasia of the suprarenals appears to affect the cortex and medulla equally and not to be specially marked in the cortex. Hypoplasia of the suprarenals has been met with in a few cases of retarded sexual development, and in the case of osteogenesis imperfecta Lovett and Nichols[6] found the internal organs normal with the exception of the small size of the suprarenals. It has also been suggested, but in

[1] Mulon, P. *Compt. rend. Soc.: biol.*, Paris, 1906, LXI, 272.
[2] Schäfer and Herring. *Phil. Trans. Roy. Soc.*: London, 1906, Vol. 199, p. 27. Series B.
[3] Scudder, C. L. *Publications of the Massachusetts General Hospital*, 1907, Vol. I, No. 3, p. 82.
[4] Zander's *Ziegler's Beiträge*, 1891, XI, 145.
[5] Alexander. *Ziegler's Beiträge*, 1890, VII, 441.
[6] Lovett and Nichols. *Brit. Med. Jour.*, 1906, II, 191.

no way proved, that mollities ossium is connected with suprarenal inadequacy.

There thus appears to be evidence that in some instances pathological changes in the cortex of the suprarenal glands, whether in the direction of hyperplasia or of imperfect development, are associated with similar conditions of growth generally, and especially of the genital organs.

2. The question whether the *suprarenal cortex has the power of neutralizing certain toxins* is a subject about which very little is known, and on which it is dangerous though attractive to speculate. It was formerly thought that the suprarenal bodies destroyed effete blood-pigment, but this conception has been given up for want of proof. That the cortex may exert antidotal properties is suggested by Myers'[1] observations that cobra poison, after being mixed with an emulsion of the suprarenal cortex was no longer toxic, control experiments with emulsions of the suprarenal medulla and of other organs being negative. Experimental infections with various organisms, such as bacillus tuberculosis, slow diphtherial intoxication and lead poisoning (Gouget)[2] have been found to give rise to hypertrophy of the cortex of the adrenal glands, thus suggesting increased functional activity. It may be mentioned incidentally that according to Mulon,[3] the histological evidence of over-activity (hyperépinéphrie) of the cortex is increased pigmentation and diminished fat in its cells.

Adenomas or nodular hyperplasia of the suprarenal cortex are found in a certain number of autopsies. In 6,200 autopsies at St. George's Hospital, London, adenomas were present in 11 cases, or 0.2 per cent. (Hodge), and at Guy's Hospital in 0.7 per cent. of autopsies (Richards). They are sometimes found in cases of chronic pulmonary tuberculosis, but special attention has been drawn to the association of cortical edenomas with granular kidneys and high blood-pressure, and it has been pointed out that they are rare in cases of chronic nephritis with low blood-pressure. There would therefore appear to be some relation between their presence and high arterial blood-pressure; as the cortex does not contain any pressor substance it cannot be held that the cortical hyperplasia has any direct influence in causing the increased pressure, and it has been suggested that the adenomas are evidence of an attempt on the part of the cortex to neutralize the toxins responsible for the high blood-pressure (Aubertin and Ambard).[4] As bearing on this it may be mentioned that it is stated that experimental lesions of

[1] Myers, W. *Trans. Path. Soc.*, London, 1898, XLIX, 368.
[2] Gouget. *Compt. rend. Soc. biol.*, Paris, 1903, lv, 1659.
[3] Mulon, P. *Ibid*, 1907, lxii, 905.
[4] Aubertin et Ambard. *Mém. et Bull. Soc. méd. des hôp*, Paris, 1904, 175.

the kidney lead to hyperplasia of the adrenals (Darré).[2] The main interest of the speculation as to the existence of an antitoxic function in the cortex of the adrenal glands is in connexion with the pathogenesis of Addison's disease. The low blood-pressure and extreme asthenia in that disease can be satisfactorily explained as due to an absence of adrenalin or the pressor substance provided by the medulla, but the vomiting, gastro-intestinal disturbance, and the pigmentation suggest irritation of the sympathetic. This has, in the past, usually been attributed to invasion of the adjacent sympathetic by inflammatory changes, or adhesions or to mechanical stimulation of these nerve plexuses by tuberculous masses in the adrenal glands; but this explanation breaks down for cases in which the adrenals are only atrophied. To meet this objection it has been supposed that the absence of adrenalin leads, by perverted metabolism, to a toxæmic state and that this toxæmia accounts for the irritative manifestations. On the other hand, Addison's disease might be regarded as the outcome of total suprarenal inadequacy, namely, of (*a*) medullary inadequacy which, by the absence of adrenalin accounts for asthenia and low blood-pressure, and of (*b*) cortical inadequacy, which accounts for the irritative symptoms by failure or an antitoxic function exerted by this part of the organ. It is conceivable that, owing to destruction or atrophy of the cortex there is no longer neutralization of toxic bodies, and that these accumulate and irritate the sympathetic. In this connexion it may be pointed out that the widespread distribution of pigmentation is more readily explained by a general toxæmic irritation of the system in general rather than by a local irritation of the sympathetic. It may also be urged in favour of this hypothesis that it explains why suprarenal extract so commonly fails to cure Addison's disease in the same way that thyroid extract counteracts myxœdema; for, although suprarenal extract provides the wanting adrenalin, the extract of the cortex, even when given, is not necessarily the equivalent of the activities of the living cells of the tissue.

3. *That the cortex is in some way concerned with the internal secretion of the medulla.*—Although it does not contain any pressor substance it is conceivable that the cortex plays an essential part in the early stages of the formation of adrenalin and that the process of elaboration is completed in the medulla, in which part alone the full activity of the secretion is acquired. In favour of this hypothesis Schäfer and Herring[1] point out the analogy between the pituitary and

[2] Darré. *Thèse de Paris*, 1907, quoted by Beaujard. *Sem. Méd.* Paris, 1907, 230.

[1] Schäfer and Herring. *Phil. Trans. Roy. Soc.*, London, 1906. Series B, Vol. 199, p. 27.

the suprarenal glands; in both, the glandular epithelial parts (anterior lobe and cortex) are inactive, while the neuro-ectodermal parts (infundibular portion and medulla) yield a highly active extract. The close anatomical relation of the epithelial and neuro-ectodermal parts in the two glands suggests that their physiological relation may be equally close.

We have thus seen that three views at least have been put forward as to the function of the cortex; (1) that it is connected with growth, especially of the sexual organs, (2) that it is antitoxic, (3) and that it plays some part in the elaboration of the internal secretion of the medulla. A priori it would appear improbable that the cortex discharges all these three functions, but from experiments on animals Marrassini [1] has put forward the view that the three zones of the cortex—zona glomerulosa, zona fasciculata, and zona reticularis—have different functions; this is little more than a suggestion, but it shows the need of waiting for further investigation. The most definite point about the cortex would appear to be that it is correlated with sexual growth.

The Medulla.

The cells of the medulla provide a pressor substance—adrenalin—which acts on the sympathetic nerve endings. These cells, called chromophil or chromaffine, from their affinity for chromic acid, are not confined to the medulla of the suprarenal glands, but are found elsewhere in contact with the sympathetic, as Zuckerkandl's parasympathetic bodies, the inter-carotid gland which has been described as an accessory medullary adrenal (Mulon), Luschka's coccygeal gland, and some collections of cells in the pituitary body. The medulla of the suprarenals therefore forms the most conspicuous part but not the whole of what has been called the hypertensive glandular system. The importance of this conception is that it explains why cases with destruction of the medullary portions of the adrenals do not always manifest the symptoms of Addison's disease, the remainder of the chromaffine system being sufficient to supply the required amount of adrenalin; conversely in some cases of Addison's disease in which the medulla of the suprarenals is not obviously affected, the hypertensive system as a whole may conceivably be deficient.

1. *Alteration in quantity.*—(*a*) Complete absence of the internal secretion is met with in Addison's disease, as is proved by the inactive condition of the medulla when tested physiologically. It has also been

[1] Marrassini. *Arch. Ital. de Biol.*, Turin, 1906, xlvi, 73.
[2] Mulon. *Arch. gén. de méd.*, Paris, 1904, 2543.

shown that the suprarenal medulla may be devoid of adrenalin in patients dying from chronic exhausting diseases, and that though there is often obvious naked-eye change in the glands this is not an invariable accompaniment of the loss of functional activity. (Mott and Halliburton). As bearing on the interesting question whether there is normally an equilibrium between the pressor or hypertensive internal secretions of the medulla of the suprarenals and of the other collections of chromaffine cells on the one hand, and the depressor internal secretion of the thyroid on the other hand, it may be pointed out that in Addison's disease a relative excess of the internal secretion of the thyroid might be expected on account of the absence of adrenalin. There is, however, no evidence of this in Addison's disease; there are no symptoms resembling those produced by overdoses of thyroid extract or thyroidism, and so far as this goes it would appear that if there be normally a balance between the internal secretions of the suprarenal and thyroid glands, this balance is partially maintained, possibly by diminished thyroid secretion or by some neutralization of the active thyroid secretion by the tissues of the body, when the internal secretion of adrenalin fails entirely. There is, of course, one manifestation common to Addison's disease and exophthalmic goitre, namely, pigmentation, but it is very difficult, in the present state of our knowledge, to explain this as the result of one and the same process in the two diseases; it is much more likely that in both cases there is over-excitation of the sympathetic nerves, in exophthalmic goitre by an excessive and abnormal thyroid secretion and in Addison's disease by a toxæmia possibly depending on inadequacy of a hypothetical antitoxic function of the cortex of the suprarenals.

(*b*) *Diminution in the amount of adrenalin* may be considered under the heads of (1) chronic inadequacy; (2) acute inadequacy; (3) relative inadequacy.

(1) Chronic Inadequacy.—The existence of cases of larval or fruste myxœdema, or benign hypothyroidism, has now long been recognized. The most convincing proof of its existence in a given case is improvement after the administration of thyroid extract. Similarly, there is a condition of deficient adrenalin secretion. Possibly in some cases this defect of the adrenalin-secreting cells may be congenital; and it has been suggested that the status lymphaticus and hæmophilia are thus explained (Wiesel). A condition of deficient secretion of adrenalin or partial medullary inadequacy is probably more commonly acquired and the result of morbid changes in the medulla. These changes may be due to tuberculous, syphilitic, or cancerous invasion secondary

to disease elsewhere in the body; or toxins conveyed from other parts of the body, for example, the lungs in cases of tuberculosis, may so act on the suprarenals as to produce degeneration and fibrosis; or again, as the result of acute infections, such as staphylococcal or pneumococcal, the suprarenals may be permanently damaged and suprarenal inadequacy be established; this sequence of events is analogous to chronic nephritis after an acute attack of nephritis. To this condition of suprarenal inadequacy the name Addisonism has been applied by Boinet,[1] who, in thirty-seven cases of pulmonary tuberculosis manifesting Addisonism, found the suprarenal bodies fibrosed in thirty, infiltrated with small tubercles in four, and with caseous tubercles in three. This conception has some bearing on the pigmentation which so commonly accompanies advanced pulmonary tuberculosis and often raises the question as to the existence of Addison's disease. Everyone is familiar with these cases, but as the symptoms are not sufficiently marked to justify a diagnosis of Addison's disease the tendency has been rather to put the factor of the suprarenals aside in attempting to explain the melanodermia of advanced phthisis. Since it has been shown that the suprarenal medulla may be devoid of adrenalin in exhausting diseases (Mott and Halliburton) there appears to be reasonable ground for the view that Addisonism may be present in these cases. Boinet recommends adrenalin in these cases; in order to determine whether there is or is not suprarenal inadequacy the effect of adrenalin on the arterial blood-pressure should be estimated, for O. F. Grünbaum has shown that in healthy persons suprarenal extract has no effect on blood-pressure, but that a rise of blood-pressure, after the administration of suprarenal extract indicates suprarenal inadequacy. This method of diagnosis and treatment deserves further trial. But it must be borne in mind that though low blood-pressure and asthenia may be counteracted by adrenalin, the pigmentation has not been proved to depend on want of the internal secretion of the medulla and hence it cannot be anticipated that the administration of adrenalin will remove the melanodermia, which may indeed depend on a concomitant lesion in the cortex.

Just as numerous symptoms have been referred to benign hypothyroidism, so it is not illogical to suppose that various conditions, characterized by low blood-pressure and debility, both of the involuntary and voluntary muscles, may depend on an insufficient supply of adrenalin. Thus, it has been suggested, but by no means proved, that cyclical albuminuria, and those forms of neurasthenia associated with low blood-pressure are manifestations of adrenal insufficiency.

[1] Boinet. *Arch. gén. de méd.*, Paris, 1904, cxciv, 2324, 2525.
[2] Grünbaum, O. F. *Med.-chir. Trans.*, London, 1907, xc.

(2) *Acute adrenal insufficiency.*—It occasionally happens that death occurs suddenly in patients suspected to be the subjects of Addison's disease on account of some abnormal pigmentation, but without very definite constitutional symptoms; or that persons previously in fair health and certainly not known to have any disease, suddenly become acutely ill, often with convulsions, and die rapidly from collapse. In some of these cases tuberculous disease of the suprarenal bodies is found at the autopsy and death is perhaps certified as due to Addison's disease. Though this conclusion is in the main correct, it does not explain the fulminating character of the termination. It is probable that this is due to some form of acute infection attacking the suprarenal glands and leading to suppression of their functional activity, and it can easily be understood that this will occur more readily when the amount of suprarenal medullary substance available has been previously curtailed. In many acute infections, especially in diphtheria, the micro-organisms or toxins produce acute changes, such as cloudy swelling, necrosis, leucocytic infiltration, in adrenals previously healthy. In some instances the damage is so acute that hæmorrhage occurs into the glands; this acute condition of adrenal hæmorrhage has been specially studied in children and it has been suggested on the one hand that rapidly fatal hæmorrhagic small-pox explains some of the cases, thus of ten recorded cases seven were unvaccinated (Riviere),[1] and on the other hand, that the condition is due to food poisoning or an acute toxæmia of unknown origin and is possibly a distinct disease (Dudgeon)[2] Acute adrenal hæmorrhage may also complicate various fevers such as diphtheria, enteric, pneumonia, erysipelas. The hæmorrhages may be punctate, infiltrating or massive, unilateral or bilateral. The most characteristic symptoms of these adrenal hæmorrhages are sudden onset with fever, violent pain in the hypochrondrium radiating to the loins, convulsions, vomiting, diarrhœa, and later tympanites, collapse, and death within forty-eight hours from the onset. No doubt damage is done to the adjacent abdominal sympathetic by the hæmorrhage and thus clinical manifestations analogous to those of hæmorrhagic pancreatitis are produced. Cutaneous purpura is sometimes associated with hæmorrhage into the adrenals, as in variola, and it would, at any rate at first sight, appear probable that some underlying cause—toxæmia or bacteriæmia—is responsible for both sets of hæmorrhages. It has, however, been thought that the changes in the adrenals are primary and the purpura secondary (Loeper),[3] that purpura may stand in the same relation to

[1] Riviere, C. *Trans. Path. Soc.*, London, 1902, lii, 368.
[2] Dudgeon. *Am. Jour. Med. Sc.*, Phila., 1904, cxxvii, 134.
[3] Loeper. *Clinique Médicale de l'Hôtel-Dieu*, Paris, 1906, v. 90.

acute destruction of the suprarenals as pigmentation does to chronic destruction (Dudgeon), and that the proper treatment is to give adrenalin. As arising out of this it is worth while to enquire to what extent the low blood-pressure and circulatory failure seen in acute febrile diseases is the result of temporary suprarenal inadequacy, brought about by the action of bacterial toxins on the cells of the medulla of the suprarenal bodies. The action of toxins on the heart muscle cannot be questioned, but it is conceivable that some of the loss of vascular tone in fever is due to conceivable that some of the loss of vascular tone in fever is due to a want of adrenalin and that it is not entirely the result of the direct action of toxins on the vascular system. This question is of practical importance as bearing on the advisability of giving adrenalin in acute diseases with threatened failure of the circulation. That the amount of adrenalin in the suprarenal glands may be greatly diminished by acute disease has been shown by testing the glands physiologically (Mott and Halliburton)[1]. In poisoning by diphtheria the medulla of animals is devoid of adrenalin as shown by the colour reaction with chromic acid (Elliott and Tuckett[2]), and it had previously been found emperically that adrenalin was of great value in the cardiac failure of diphtheria. An obvious objection to the administration of adrenalin in such conditions is that if it increases the peripheral resistance it will of necessity give the failing left ventricle more work to do, and so be harmful rather than beneficial. I have, however, for some considerable time been in the habit of giving adrenalin by the mouth in cases of pneumonia in adults, and in bronchopneumonia in children, and, I believe, with good results; it has appeared to prevent cardiac failure and has not given rise to any bad symptoms such as pulmonary œdema. Another objection raised against the use of adrenalin is that experimentally it produces arterial degeneration; as bearing on this I have examined the aorta in a few cases in which adrenalin had been given during life and have not found any recent changes. But I do not lay any stress on this for several reasons—my observations are quite insufficient, the amount and duration of the administration of adrenalin were not comparable with those employed in the experimental degeneration, and even if recent changes were found it might be argued that they were due to toxins of the disease responsible for death. While I believe that adrenalin is a valuable circulatory tonic in acute infections, especially pneumonia, I am anxious that this point should be more thoroughly tested; espe-

[1] Mott and Halliburton, *Archives of Neurology*, 1907, III, 123.
[2] Elliott and Tuckett. *Journ. Physiol.*, London, 1906, xxxiv, 332.

cially as I have found but little increase in the blood-pressure of febrile patients showing apparent improvement while taking adrenalin.

(3) *Relative inadequacy of the internal secretion of the medulla.*—By this is meant that if there be normally a balance between the effects of the pressor and depressor glands, any excessive secretion (depressor) of the thyroid should lead, the pressor secretion maintaining the normal mean, to a relative deficiency of the antagonizing internal secretion. The question that arises here is whether the symptoms of thyroidism, of exophthalmic goitre, and the allied toxic manifestations which, as Sir Victor Horsley[1] points out, may sometimes be seen in ordinary goitre, are in any degree due to a relative deficiency in the secretion of adrenalin. It is clear from Janeway's[2] summary that the blood-pressure is not low in exophthalmic goitre as might naturally be expected if the disease be regarded as due to simple hyperthyroidism, and that it may be very considerably raised as the result of psychical excitement. In the few cases in which I have taken the blood-pressure with a Riva-Rocci sphygmometer, it has been rather above than below the normal. It is true that in some cases of exophthalmic goitre improvement has followed the administration of suprarenal extract; I have seen this myself. But it must be remembered that exophthalmic goitre often improves both spontaneously and after widely different forms of treatment, and that it has not been shown that suprarenal medication is a certain means of counteracting the symptoms of exophthalmic goitre. We have therefore no evidence that an excess of thyroid secretion produces bad effects by means of a relative deficiency in adrenalin.

(*c*) *Excessive secretion of adrenalin.*—Here again very little is known. The excess might conceivably be (1) due to an excessive secretion of adrenalin by the medulla, or absolute excess, or (2) be relative and depend on a diminution in the amount of the thyroid secretion.

(1) Since the demonstration that atheroma can be artificially produced in animals by the injection of adrenalin (Josué,[3] Pearce and Stanton,[4] and others), the question has arisen whether high arterial blood-pressure in man and its results—hypertrophy of the left ventricle, arteriosclerosis, atrophic changes in the kidneys and so forth—may be due to an excess of adrenalin in the circulation. As it is generally believed that in renal disease a raised blood-pressure is, within limits, useful, it might be assumed that this compensatory process is brought

[1] Horsley. *Clinical Jour.*, 1904, XXIV, 29.

[2] Janeway, T. C. "*The clinical study of Blood-Pressure.*" New York, 1904, p. 200.

[3] Josué, O. *Presse méd.*, Paris, 1903, 798.

[4] Pearce and Stanton. *Jour. exper. Med.*, 1906, VIII, 74.

about by hyperplasia of the suprarenal medulla. Let us see how the evidence available bears on this question. From some experiments on animals Marrassini [1] concludes that interference with the renal excretion increases the functional activity of the adrena medulla. A case of parenchymatous nephritis with great hypertrophy of the left ventricle and manifest hyperplasia of the medulla of the suprarenals has been reported (Vaquez and Aubertin [2]), and might be taken to support this view. But as regards this special form of renal disease this would appear to be almost an isolated observation. Wiesel [3] has recorded a number of cases of high blood-pressure, arteriosclerosis, and granular kidney associated with enlargement of the suprarenal medulla and also of the chromaffine cells in the solar plexus. Here it might at first sight be thought that the suprarenal change was the cause of the high blood-pressure and the structural changes, as in experimental atheroma. It has, it is interesting to note, been suggested (W. Russell [4]) that certain foods, especially proteins, may lead to increased secretion of adrenalin. It would thus be possible to construct a hypothesis of dietetic excess, absorption from the intestine of toxic bodies which stimulate the medulla of the suprarenals to increased functional activity followed by hypertrophy, and that subsequently the cardio-vascular changes are produced. But Wiesel believes that the cardiac hypertrophy precedes the hyperplasia of the suprarenal medulla and is not due to it. This relation between the sequence of events must be somewhat difficult to determine and the subject is in need of further study. But it is clear that at present there is no proof of the existence of any disease due to excessive adrenalin secretion, and corresponding to exophthalmic goitre in the case of the thyroid, but on this point we must be content to wait for further information.

(3). *Relative excess due to a deficiency in the amount of antagonizing depressor internal secretion.* It is conceivable that as the result of the atrophy of the thyroid which so commonly accompanies advancing years, the equilibrium normally existing between the internal secretions of the thyroid (depressor) and of the adrenal medulla (pressor) would no longer be maintained, and that an excess of adrenalin would therefore accumulate in the circulation and thus induce a correspondingly high arterial pressure. In other words, that the rise of arterial blood-pressure as life advances is due to a predominance of the pressor internal secretions. In support of this it might be urged that in myxœdema it

[1] Marrassini. *Arch. Ital. de Biol.*, Turin, 1906, XLVI, 82.
[2] Vaquez et Aubertin. *Compt. rend. soc. biol.*, Paris, 1907.
[3] Wiesel. *Wien. med. Wchnschr.*, 1907, LVII, 674.
[4] Russell, W. *Brit. Med. Jour.*, 1904, 1, 1299.

is common to find arteriosclerosis and granular kidney, which are the results of long continued high blood-pressure; but too much stress must not be laid on this for the age of myxœdematous patients approaches that at which vascular degeneration is common, and in a certain number of cases of myxœdema the kidneys are healthy.

To return again to the question whether the hypothetical equilibrium between the depressor and pressor internal secretions may be upset by a deficiency of one, so that the other secretion has a paramount influence, Gioffredi's[1] conclusions are to the effect that normally certain organs and tissues—the liver, the blood, and to a less extent the voluntary muscles—transform adrenalin into an inactive product and so protect the body against the toxic results of an excess of adrenalin which might otherwise result. In order to exert this change the blood must be provided with oxygen and be alkaline, but those conditions are not necessary in the case of the liver and voluntary muscles. It is conceivable that such a compensatory mechanism might fail under the same conditions as those under which the thyroid secretion wanes, and that then a relative excess of adrenalin in the circulation would result. These considerations are highly speculative, but they may perhaps be forgiven because they bear in a somewhat remote manner on an important practical point, namely, the prevention and reduction of the rising arterial pressure of advancing years. For they suggest that the administration of thyroid extract might have this desired result, and that it may prove to be the routine treatment. Iodides which are so widely given in clinical medicine in order to lower blood-pressure have been shown to have no depressing effect on the heart or blood-pressure (Stockman and Charteris[2]); but it is conceivable that they eventually lower blood-pressure by stimulating the thyroid to an increased secretion.

2. *Alteration in quality.*—Of alterations in the quality of secretions very little is known if we except the gastric juice, but it is reasonable to believe that in the future this factor will attract attention and be shown to have most important pathological bearings. The adenomatous changes in the thyroid in exophthalmic goitre and in the pituitary body in acromegaly may safely be assumed to lead to an altered internal secretion, and so to have a causal bearing on the associated diseases.

In the case of the adrenal medulla nothing is known as to any alteration in the quality of the secretion. It is somewhat wild speculation, but it may be mentioned for what it is worth that possibly intestinal toxins may so act on the cells of the adrenal medulla as to produce

[1] Gioffredi. *Archivio de Farmacologia sperimentale*, 1907, 145.
[2] Stockman and Charteris. *Brit. Med. Jour.*, 1901, ii, 1520.

an internal secretion of such an abnormal character that the normal process of transformation of any excess into an inactive body, as suggested by Gioffredi, cannot be carried out by the tissues. The excess of such abnormal adrenalin might conceivably cause high arterial pressure, arteriosclerosis and the allied morbid changes.

Mr. President and Gentlemen, my address is now at an end, and I feel as I have felt all along since I began it some months ago that I must apologize for its imperfections and for its speculative character. I have tried to comfort myself by thinking that it is well from time to time to take stock of the current researches and hypotheses which sometimes become the working basis for the practice of to-morrow. But I must not excuse myself or make further demands on your patience, and must again thank you for an honour I shall never forget.

WHEN AND HOW TO RESUME NORMAL FEEDING IN TYPHOID CONVALESCENCE.

BY

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I have no notion that I shall be able to say anything new or startling, and do not propose to take more than a few moments of your time for the attempt to lay before you the result of my own clinical evolution in sixteen years of observation of the question under consideration.

This I shall try to do with brevity and conciseness, possibly re-stating old facts without bringing forward anything new, and grateful if I succeed in crystalizing views more or less loosely held, perhaps even by myself.

The subject is well delimited by the title, which divides it into two parts, first *when*, and then *how*, to give up the restricted feeding necessary during the active stage of the disease, about which, of course, we have nothing to say here, and begin normal diet.

Perhaps I might better have begun my homily, as is usual, with a text, and it would be the dictum of the old French physician, whose name I have unfortunately forgotten, that convalescence from typhoid is a second disease. By this he meant, of course, that in all cases of typhoid which proceed to recovery, a point is reached when one must sit down and completely re-write one's orders as to food, medicines, and management, after which the patient has still a period of some weeks in prospect before complete recovery.

This brief paper is meant to contain if possible a few directions for the proper determining of that point in the disease. Perhaps one

should first ask what are the dangers apprehended from an unwise change of diet. They are, of course, relapse, recrudescence, perforation, hæmorrhage, meteorism, etc. The term "relapse" perhaps needs definition and brief discussion. A relapse may be defined as a return of fever:

(*a*) Not due to a complication, *e.g.*, Phlebitis

(*b*) Not a simple recrudescence, as from excitement, exertion, constipation, too much or too early feeding, but,

(*c*) Accompanied by two or more features of the regular attack, such as re-engorgement of the spleen, fresh rose spots, and the characteristic temperature curve, with sometimes, a Widal re-action which had not been previously obtained.

To be properly called a relapse this should occur after a definite interval of normal temperature of at least twenty-four hours, sometimes even of a week or longer. The cause of any given relapse is, of course, intimately bound up with the intricate and as yet ill understood questions of immunity, the development and persistence of antibodies, the bactericidal qualities of the blood, and the destruction of the specific endotoxins. To quote from the monumental article of Thos. McCrae on typhoid in the second volume of Osler's Modern Medicine:

"Durham has suggested the most satisfactory explanation. Infection is the result of the action of a sum of a number of infective agents which are similar, but not identical, so that there may be a number of varieties and sub-varieties. If the members belonging to different varieties are nearly equal, we have a normal infection in which no unit predominates. Each is affected equally by the anti-bodies, and no relapse results. However, if one variety predominates we have an abnormal infection, and there may be but small protection against one form, which may begin to multiply rapidly, and cause the second infection. In connection with this the finding of both the typhoid and paratyphoid bacillus in the one patient may be noted."

The simpler older views are not sufficient explanation; for instance, that relapse is due to a simple re-infection from spleen, mesenteric glands, or especially from the gall-bladder, in which case it was taught that the early giving of solid food caused relapse, by causing an increased flow of highly infected bile, or acted as an irritant to unhealed intestinal ulcers. The whole matter, however, McCrae says, is so involved with the difficult problems of immunity that much must be left for future explanation.

Naturally, in determining the time at which typhoid diet may be departed from and normal diet resumed, each case must be considered

on its own merits. One must seriously bear in mind general considerations, such as the condition of the patient's health prior to the onset of his illness; the constitution, the stamina, the nervous stability, and ordinary physiological processes of the patient; the severity and duration of the attack; the existence of complications and their character, whether symptoms and complications were mainly nervous or digestive or circulatory; the course and progress of the disease as a whole; the degree of emaciation and exhaustion; the probable duration of convalescence; and the rallying power of the patient. Thus, to contrast two cases such as are familiar, of course, to all of us, let us suppose first, a boy of 20, robust, with acute attack, temperature reaching a fastigium of 103° F. in three or four days, and declining typically in twelve to fourteen days, no complications, not severe emaciation, stable nervous mechanism, early return of appetite with clean tongue and steady normal or sub-normal temperature. Over against him let us set case No. 2, a patient of, say, 48, a free liver, with six or eight weeks of illness, marked by variations and recrudescence, severe nervous symptoms, and perhaps marked diarrhœa, or tympany, or hæmorrhage. I need not remark on the need of marked differentiation of management in these two cases, when it is proposed to feed as for convalescence.

Apart from these general considerations, which would lead us far astray and beyond our time limit if further discussed, there are three particular points which I should emphasise as factors in determining the resumption of normal feeding.

A. The state of the tongue.
B. The condition of the spleen.
C. The temperature curve.

First, as to the tongue, I think there can be no question that if the tongue clears early and well with the decline of temperature, and particularly if appetite returns with the clearing of the tongue, solid nourishing food may be safely resumed at an earlier date than if appetite lags, and the tongue clears slowly. I think that I have noticed too that a tongue which clears early at the centre becomes clean more rapidly and permanently than if the clearing process begins at the tip and edges, a statement which holds good in all acute disease, as well as in typhoid.

As to the second of the indications which I mentioned, the spleen, it is well known that the bacilli are always present in the spleen, and large numbers, and a spleen which remains large after the temperature has begun to decline is a distinct danger to the patient as regards

the possibility of relapse, so that while any enlargement of the spleen could still be detected, I should hesitate to resume normal feeding. Just in what way early and injudicious feeding can cause the engorged spleen to flood the blood with fresh bacilli, or otherwise cause relapse, I do not pretend to say, as I do not know, but the clinical evidence is too abundant, and the general consensus of professional opinion the world over too unanimous, to make it possible to dismiss with a *post hoc ergo propter hoc* the view that unwise early feeding does cause relapse.

With regard to the third point—the temperature—my view has come to be that in a case in which the temperature declines regularly in three or four days to normal, and remains normal or sub-normal for four or five days, if the tongue is clean, and the spleen no longer discoverable, normal feeding may be safely, though carefully resumed; whereas with a temperature which declines to normal as above described, but continues for days or even for two weeks rising to 99° F. or 99.4° F. during some part of the day, the patient must still be kept on a rigorously restricted diet for fear of relapse. Of course, one would not here discuss those cases of prolonged slight elevation, which turn out to be really cases of starvation fever, in which the temperature becomes normal, as soon as sufficient nourishing food is given. One must, of course, too, exclude most carefully any complication such as phlebitis, bone lesion, cholecystitis, or concealed suppuration.

The second of our two main heads is, having set a time *when*, to determine *how* to add to the patient's diet list, and this I shall treat very briefly, without troubling you with the details and lists of food stuffs to be seen by anyone in any text-book. One general principle to be laid down is that, as in infant feeding, change should be gradual, and the diet of the active stage of the disease be only very gradually discontinued. Thus, once only during the first day of additional diet one may give, say, a small slice of milk toast, or small baked custard, or coddled egg, the results being carefully noted before proceeding further. A second general rule widely advocated seems to be that farinaceous rather than proteid food stuffs should be first given. Fagge says, "No solid food should be given for a fortnight after fever and diarrhœa have ceased," which is, I think, rather extreme ground according to the present views, except in very severe cases. Osler states that meats given early are apt to disagree, or cause *febris carnis*. I must say that while not venturing to controvert such a distinguished authority, I would apply this rule only to cases which have been of great severity. I have never noticed any ill result from the very early giving,

in mild cases, say, on the fourth day of normal temperature, of an ounce of well minced beef, underdone, as a *paté*, or a raw or nearly raw egg. One may at any rate use strong broths, perhaps identical with those given during the acute stage, but thickened with boiled rice, sago, mashed potato, green peas, vermicelli, etc. In a day or two the frequency of such feeding may be steadily increased, always providing that the temperature and other conditions are going on normally, and the "slops" of the active stage be withdrawn. Red meat juice well thickened with toast made in the oven and rolled into a powder, beef tea custard, made with one or two eggs beaten smooth to a cup full of red meat juice or beef tea, thickened by setting in a thin cup into boiling water, are favourite foods with me, as one objection to farinaceous foods is that they are usually served sweet, while the convalescent from typhoid, or any other acute disease, usually prefers salty and meaty foods. In mild cases at least, and when the stomach digestion is good, it would seem *a priori* that such things as meat jellies, raw oysters, sweetbreads, soft eggs, omelets, and rightly cooked chops and steaks, can be, if well chewed, taken with less prospect of indigestion and other ill results, than large amounts of vegetable or farinaceous foods, the digestion of which must fall largely upon the intestine, where the chief disturbance incident to the disease has occurred.

I am correct, I think, too, in saying that undue delay in the adoption of full diet prolongs convalescence needlessly.

In conclusion, I would venture to remind ourselves that it is only by attention to details and careful appreciation of the capacities and disabilities of each case that we can avoid mistakes. The physician who has carefully followed a case through the acute stage is best qualified to settle dietetic and other details of convalescence.

Permit me to close my paper, for your kind attention to which I am much obliged, by repeating that with which I began, that the three points on which I have come, rightly or wrongly, to lay most stress in determining when to resume normal diet, are, the state and behaviour of the tongue, of the spleen, and of the temperature at the time when mentioned, my desire being to make a small contribution to the subject normal is first reached, subject always to the general considerations from the clinical side, without any pretence at an exhaustive theoretical discussion.

RECTAL HYDROTHERAPY IN TYPHOID FEVER.

BY

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In looking over Dr. Thomas McCrae's exhaustive and admirable article on the treatment of typhoid fever in Osler's Modern Medicine, I observed that no mention was made of a form of hydrotherapy that has been in constant use in the Chatham hospitals for the past three or four years. The means adopted are so much simpler and less distasteful than the bath tub and so much more efficacious than sponging or the cold pack, and, apparently not in general use, otherwise it would have been referred to in the article mentioned, that I thought it well to bring the method to the notice of the profession.

The means I refer to are cold or ice water enemas administered every three, four, six or eight hours, according to the temperature of the patient, when the temperature is 102.5° or over. The method has none of the objections or drawbacks urged against the bath treatment, and, whilst probably not so effectual in cases of profound toxæmia or very high temperatures, in the large majority of typhoid fever cases the bath tub has not been required when the procedure is used. When both methods are used, as they have been in some cases, the patient infinitely prefers the enemas, in fact, they complain but little of the latter.

As with the baths the nervous symptoms, such as restlessness, delirium, muscular tremors, are remarkably improved, and if the enemas are commenced early, what is known as the typhoid state is rarely seen, even where the temperature is reduced but a little the general condition of the patient is improved.

The amount of urine is increased in quantity, more so than in bath treatment, pulse improves in character and falls in rapidity, and we have never noticed any gastro-intestinal disturbances. The temperature invariably drops from one-half to three degrees, and there is always an improvement in the condition of the patient's mouth.

This system of hydrotherapy is carried out systematically in all cases when the temperature is above 102.5°. The nurse has instructions to use an enema of cold water every three, four, and six hours as required. The temperature and nervous symptoms being the guide. From one to three pints of water is used according to the severity of the symptoms. If the temperature is not running high and there are no marked signs of involvement of the nervous system, water out of the tap is sufficiently cold, if, however, there are pronounced nervous symptoms and toxæmia, and the temperature is running 104° or upwards, ice water is given. Some patients retain the enemas better and longer than others. Where

it is retained for some time the fall of temperature of course is more pronounced. A stimulant is sometimes given while the patient has the enema.

Shivering frequently occurs, but one does not notice the blueness of the skin as when the bath is used. If the patient's temperature drops to 100°, which I have rarely seen it do, the patient is wrapped up in a blanket. The temperature in these cases require to be taken either in the axilla or mouth.

The contra indications are the same as in the use of the tub, hæmorrhages, peritonitis, severe abdominal pain or other indications of perforation; I have never seen or heard of any unfavourable effects as the result of their use and they have been administered with great benefit for several years in mostly all cases of typhoid fever in our hospitals. Occasionally, in very severe cases, it will not bring down the temperature. In these cases the bath is used.

As regards mortality, one cannot judge accurately; when the procedure advocated fails, the bath tub has been resorted to.

We have an ideal tub in our hospitals, which runs easily and noiselessly on rubber wheels. It is the exact height of the fever beds, and from the upper rim on one side is a shelf on hinges and when open it passes to the bed. In removing the patient from the bed a coverlet is laid over the shelf.

The bath tub has a double bottom, the upper one being perforated and movable. By means of a lever a nurse easily moves it up or down. The perforated bottom is brought to the top of the bath tub and the patient is easily slid from the bed to the extended shelf, from the shelf to the perforated bottom, and then gradually lowered to the water. The rectal hydrotherapy, however, is so much simpler than the bath treament, and in so many cases equally efficacious, that I feel sure that any one using it will be pleased and satisfied with the results.

VASELINE OIL IN THE DRESSING OF THE RADICAL MASTOID OPERATION.

BY

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For some years past, the dressing of the mastoid operation has been done in several different ways. In 1902, Eeman of Gand, in his first communication to the Belgian Oto-rhino-laryngological Society, extolled

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the use of boracic acid. In the following year, he returned to the same theme, and reported statistics of thirty-eight patients treated by his method.

In 1905, Mahu of Paris, presented before the French Oto-rhino-laryngological Society a new procedure which consisted, not in packing the wound, but only in draining it by a strip of gauze placed upon the floor of the canal.

It is not my intention here to discuss the opinion of Laurens which, in certain cases, would make the dressing of the radical operation identical with that of trephining in simple mastoiditis. This would be going too far outside my subject, inasmuch as in the present communication I desire to speak only concerning epidermization and not concerning the filling up of the wound after operation.

All these different procedures are merely modifications of the classical German method which consists in bringing about the epidermization of the cavity by means of gauze packing.

During the month of June, 1905, it fell to my lot to perform the radical mastoid operation; and in spite of all possible care in the dressings, healing was long delayed. After having used without success all known procedures I fell upon the idea of making an entire change of method, and of replacing dry dressings by oily ones. The wound which I had been treating for more than six months was healed in ten days. Later I had, together with certain *confrères,* the opportunity of experimenting further with those oily dressings, and with no less success. In consideration of these facts, I feel justified now in laying down the following rules for this new method of dressing.

Radical operation is done as usual; but the surgeon should choose by preference an autoplastic procedure which will allow him to sew together the lips of the wound behind the ear; and especially so if he has not to do with a cholesteatoma. For complete hæmostasis the post-operative dressing should be slightly compressive; and iodoform gauze should be used. About the sixth day the gauze is taken out, and the wound is carefully cleaned with hydrogen peroxide; then dried with cotton. Little strips of plain gauze, about one and a half centimeters wide and six centimeters long, are dipped in vaseline oil, one end is introduced into the drum either by the canal or by the retro-auricular opening, and the other end remains outside the wound. The whole cavity must be carefully carpeted with this gauze, and the strips should overlap each other slightly. Upon the first layer, cotton is applied sufficiently saturated with liquid vaseline to be well packed in. In doing this packing, which must be fairly tight, it is necessary not to leave any dead spaces, so that to this end it is better to use little pledgets of

cotton. A great deal of care must be given to the external meatus and to the operative opening of the canal. It must be packed rather tightly, on the one hand to prevent any subsequent narrowing, and on the other hand to maintain the apposition of the flaps. When the cavity is well filled, the dressing is finished with dry cotton and a bandage. It is scarcely necessary to add that the vaseline, the oil, and the cotton should be sterilized, and that the surgeon should conform to the most careful asepsis. At first the dressings must be done every day; but when the secretion of the wound lessens and epidermization is going on normally, they may be done every second day. The dressings should be removed very slowly. Inasmuch as the strips of gauze sometimes stick to the skin, it is better to take them out by pulling from outsides inwards, after having moistened them with oil or with peroxid. Subsequently, the wound is cleansed with peroxid, carefully dried, and before replacing the dressing in the manner described care must be taken to see that no stray ends of gauze are left. In the presence of any possible complication one must act according to circumstances. The technique of the method, as may be seen, is easy.

Case Reports.

In March, 1905, Mr. M., 23 years of age, consulted me at the Hôtel-Dieu for a discharge from the left ear which had lasted two months. Upon examination I found a perforation of Shrapnell's membrane and a polyp taking origin in the attic. The removal of the latter was immediately done. In spite of this the discharge continued and the polyp recurred, even after a second operation. In April, I decided to perform removal of the ossicles with thorough curetting of the attic. The hammer and the incus were removed and the post-operative course was normal; nevertheless, the ear continued to discharge and the polyp again recurred. Towards the end of May, patient became a little feverish following a slight attack of mastoiditis. Evidently, there was still retention; the treatment was giving no result, and symptoms were increasing. In June I performed the radical operation. The antrum, the aditus, and the attic were found to be filled with granulations, due to the osteitis. Panse's autoplastic method was employed; the dressing was done daily, plain gauze being used with compression. At the end of four months, the cavity had skinned over with the exception of one recess in the floor of the drum which, during the succeeding month refused to heal. I then changed the dressings to boracic acid, and in spite of the small amount of powder insufflated retention occurred, and the patient grew worse. I then contented myself with cleaning the wound and leaving it to nature. A small crust formed

and the cavity suppurated. Being confronted with a total lack of success from these three methods used over a considerable period of time, there occurred to me the idea of using vaseline oil in the dressings, a method which brought about definite cure inside of ten days, a cure which has been maintained from that time to this.

The two following observations I owe to the kindness of my friend, Dr. Lasalle, to whom I had communicated this method, and who was so kind as to try it.

Sister L., thirty-two years of age, suffering from a double acute suppurating otitis media, influenzal in origin, lasting since January, 1905. In March, double mastoiditis which on the left side got well. On the right side trephining was done in April. Patient was scrofulous and the tissues in poor condition, so that the wound kept on granulating. Tonics were given internally. In April the cavity was still not filled up, the osteitis was persisting, and the radical operation was done, using Stacke's autoplastic method. The wound was dressed with clean gauze under compression. In the later course it had to be cauterized and scraped repeatedly on account of recurring granulations and slow epidermization; and in spite of tight dressings the cavity tended to close. The peri-tubal cells were causing osteitis, so that in December, 1905, a complete curetting was done; the former dressings were again employed but alternating later with those of other methods. One year later there still remained one-third of the wound to become covered with epidermis. Finally, dressings with vaseline oil were tried and definitely cured the patient.

Mrs. P., 36 years old, had suffered with a discharge from the right ear since her childhood. Following a coryza she had an attack of mastoiditis in December, 1906, and a sub-periosteal abscess. On the 22nd of December the radical operation was done. There was no cholesteatoma, but there was destruction of a large portion of the peri-antral cells and of the posterior bony canal. The dura mater and the lateral sinus were laid bare by the osteitis. The ossicles had disappeared as the result of the suppuration. The Stacke autoplastic operation was done, followed by packing with iodoform gauze. On the sixth day, the first dressing with liquid vaseline was done. By the commencement of January the cavity was beginning to skin over. On the 31st of January the epidermis had covered three-quarters (¾) of the wound. With the compressive dressings with vaseline oil, all narrowing of the cavity had been prevented, the patient suffered no pain; the wound did not over-granulate, and never suppurated. By the 14th of February,

the patient was completely cured, that is, after fifty-four days of dressings.

Discussion.

If now we take a rapid survey of the advantages and the disadvantages of these various procedures we shall see that:

The classical German method which consisted in gauze packing is very painful; moreover, it is impossible to fill up completely the operative cavity, and especially the drum. Inasmuch as these dressings irritate the tissues there are formed granulations which necessitate repeated scrapings and cauterization. Add to this the fact that treatment must extend over several months.

Upon the admission of Mahu himself, the procedure which consists in letting nature have her way and in simply draining the cavity, is applicable only when there is present simply osteitis. The operative cavity not being lightly packed, naturally the walls fall in, and this may occasion serious complications. Moreover, there is formed an excess of granulations which retard epidermization.

As to the method of Eeman, which seems to be most in favour with otologists, the same objection must be made to it as to the preceding method. In the absence of tamponning, the cavity has a tendency to close over, and the recurrence of cholesteatoma might even render necessary a second operation. Boracic acid more or less dissolved by the secretions of the wound forms an irritating paste and promotes excessive granulations. Finally, the pain of the dressings during the first three weeks has been alone sufficient to prevent many surgeons from continuing to use it.

With vaseline oil the surgeon is able according to his wish to allow the wound to close in by merely packing more or less tightly; or, on the other hand, to preserve the shape of the cavity such as it was immediately after operation. The granulations in contact with this aseptic fatty body are perfectly protected against all infection, and have no tendency to grow exeburantly or to suppurate. The epidermis formed is solid and extends quickly over the well prepared osteo-fibrous bed. No pain is felt at any time during the dressings. The patient whose history was last related was cured in fifty-four days. It would be easy now to secure complete healing in much less time by suturing the margins of the retro-auricular wound immediately after operation. I do not wish to discuss the value of Thiersch's skin grafts; yet the partisans of this method will find in vaseline oil after drying and freshening the wound one of the best methods of dressing for this small operation.

Among all the oily substances, I have concluded that liquid vaseline was to be used in preference to vegetable oils. We can get the same results, according to my experience, with other oils; for example, olive oil, and sweet almond oil; still, we know that these are often adulterated, and rapidly become rancid by a fermentation which changes them partly into oleic acid or other analogous acids; and they may thus become very irritating to the tissues with which they come in contact. Moreover, the least lack of asepsis is capable of making of them an excellent culture medium.

On the other hand, liquid vaseline has none of these disadvantages. It is a neutral mineral oil, and it does not change either with light or in the air; consequently, it does not become rancid. It is very stable, and can resist the action of the most energetic chemical substances; moreover, it cannot be infected. For three reasons, it is to be preferred to all other oils for this kind of dressing.

The small number of patients treated hitherto by this new procedure does not allow me to deduce fixed conclusions. The aim of this communication is rather to submit this method to my *confrères,* and to suggest that they should try it and later communicate the result of their personal experience.

In conclusion, I would remark that with vaseline oil dressings: 1, There is no pain; 2, the wound does not granulate; 3, epidermization proceeds rapidly; 4, the cavity retains, if so desired, the shape which it had immediately after operation.

A CASE OF PRIMARY BILATERAL MASTOIDITIS.

BY

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The clinical history of the case which I present to you at this meeting would, I think, be of sufficient interest to report if the title had been simply one of bilateral mastoiditis. Such cases are quite uncommon, but in this instance, it has associated with it features which suggest the use of the word *primary.*

I am well aware that primary mastoiditis is exceedingly rare, if one reports a case wherein there was not and never had been any infection of the middle ear. Infection may travel through the Eustachian tube into the tympanum and from there to the mastoid antrum. The resisting power of the mucous membrane of the tympanum may be sufficient to prevent any appreciable symptoms and a mild reaction pass unnoticed, while the infection leads to pus formation and necrosis in

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the pneumatic spaces of the mastoid. If I may be permitted to use the word primary to denote those cases where suppuration exists in the mastoid without, not only aural discharge but any symptoms denoting involvement of the tympanic cavity, then my title will hold good. One must not forget that cases of chronic middle ear suppuration occur in which no discharge appears externally, and, furthermore, cases long since healed may, during such diseases as scarlatina, measles, diphtheria, typhoid, tuberculosis, syphilitic and other systemic diseases have conditions associated with them which favour mastoid suppuration. I cannot do better than quote Blake Reik on the surgical pathology and treatment of diseases of the ear. "A careful study of the few cases of reported primary mastoid inflammation on record suggests, in the light of more recent experience in this field of clinical investigation, the suspicion that there had been previous middle ear inflammation as the inceptor of a chronic quiescent mastoid disease, which was later awakened by acute manifestations, while in others the implication of the mastoid cells possibly followed a superficial periostitis on the outer mastoid surface with pus formation, denudation of bone and subsequent spontaneous perforation inward."

Consultation with Dr. C. P. Lusk.

Lady, aged 61. Family and personal history unimportant. On the 4th of October was taken ill with what appeared to be a mild attack of Influenzal Grippe with a temperature of 101½—102, cough, aches and pains over body and mild catarrh of the bronchi. One week later she was taken with a chill and a pronounced rise in temperature to 104 degrees, depression marked and all the symptoms of a return to the catarrhal cold from which she had been suffering. It was considered a re-infection. The temperature dropped the following day to 99, pulse 86, respirations 20. The condition remained unchanged for the next four or five days, when she complained of a good deal of pain in the head, especially on the vertex and along the course of the posterior auricular nerve. There was no pain or pressure on the mastoid whatever and no aural discharge. Both membranes were quite normal and hearing not impaired. The external auditory canal along the posterior wall of the cartilaginous portion was quite tender. Four days later the pain in the vertex while persisting to some extent was associated with some tenderness over the mastoid, but was not different from the left mastoid, which had given no evidence of mischief. The patient was in a very nervous condition and it was difficult to say really how much pain she suffered and, as the other side was also tender, one naturally did not feel like relying too much on the patient's replies. The next day both walls of the external auditory canals were found

considerably swollen making an inspection of the deeper structures very difficult.

I now saw the patient and was able to elicit slight mastoid tenderness localized over the right antrum, some very indefinite tenderness over the left mastoid. Both meati were found much occluded by swelling, but I was able to see the drum and found nothing to record. Next day a very little pus was found in the external ear, but it came from the posterior wall of the canal and not from the tympanum. There was no perforation whistle on inflation. Temperature 99, pulse 72, respiration 20. The case was one really wherein one was asked to exclude the ear as being the cause of the frequent rise of temperature and the cause of so much depression and pain on the vertex. The absence of aural discharge; the absence of any symptoms of tympanic involvement made the question a difficult one. The condition of the patient was one of great concern, while the temperature did not go higher than 100, and pulse 85, the depression was very marked and increasing. It was then decided that the right mastoid should be opened. At the time of operation it was, so far as we could learn by aural examination or percussion or from the patient's symptoms, immaterial upon which side the operation was performed. As the right had previously been the most affected one it was taken.

You will therefore see that the operation was in not a few respects an exploratory one, and it was of little choice which side was operated. The right mastoid as being the worst, if any, was laid bare by the usual post aural incision. On chiseling into the bone over the antrum, creamy pus was found at a very short distance. The opening was enlarged and the mastoid was found to be of the diploeic type, and while there was not much breaking down of the intercellular walls there was moist extensive involvement of the cells. The point of great interest was noticed that the disease seemed to extend as it were through solid walls of bone infecting cells well beyond areas of hard, smooth bone. The tip cells were extensively diseased and no connexion could be made out between this area and the antrum. The same condition existed in the cells at the root of the zygoma. Owing to finding pus beyond areas of apparently healthy bone I considered it best to lay bare the lateral sinus as one had no way of knowing where the outside area of the infection extended. On removing the hard and healthy looking boundary of the sinus I found a collection of creamy pus over the vein—really an extra dural abscess—the venous walls appeared healthy, and there was no thrombosis of the sinus.

Owing to having found such an extensive suppurating focus with so little subjective symptoms I decided to open the other mastoid and this was immediately done, when an exactly similar condition was found, with the exception of an extra dural abscess; the sinus was exposed but no pus was found.

The antra lay very high on both sides, that on the left being one inch above the superior border of the external auditory canal and the right one-half inch above. I noticed particularly the presence of large cells along the post wall of the bony meatus which were extensively diseased and communicated with the ear canal. This accounts for the discharge in the ear canal the day previous to both operations. The additus and tympanum were left alone as there was no evidence of any disease there.

The pus was found to be of pneumonococcus origin. The healing of the cavity was rapid and uneventful. Beyond an excessive pale, straw coloured serous discharge containing pneumococci, which persisted for about a week or ten days, there was nothing to record. Dry dressings changed twice a week were sufficient. The patient regained strength somewhat slowly, and is now quite well with almost normal hearing.

MEDICAL PROTECTIVE ASSOCIATION.

During the convention of the Canadian Medical Association the sixth annual meeting of the Canadian Medical Protective Association was held, the president, Dr. Powell, of Ottawa, was in the chair. The chief business transacted had to do with a proposal to limit membership to those who were proposed and seconded by members of the association and who were also eligible for membership to the Canadian Medical Association. After some discussion, owing to the fact that several homœopathic physicians were now members, the motion was carried.

The report of the solicitor, Mr. F. H. Chrysler, K.C., showed that for the year ending in July last the association had not been called upon to defend any member. Since then one case has occurred, that of a member sued for ten thousand dollars on a charge of performing a major operation without consent of the patient.

The election of officers was then proceeded with and, with the exception of filling the place of two members of the Quebec Executive, the following were re-elected:—

Executive—President, R. W. Powell, M.D., Ottawa; Vice-president, J. O. Camarind, M.D., Sherbrooke; Secretary-treasurer, J. Fenton Argue, M.D., Ottawa; Solicitor, F. H. Chrysler, M.D., Ottawa.

Provincial Executive for Ontario—E. E. King, Toronto; I. Olmstead, Hamilton; D. H. Arnott, London; J. C. Connell, Kingston; J. D. Courtenay, Ottawa.

THE

Montreal Medical Journal.

A Monthly Record of the Progress of Medical and Surgical Science.

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CANADIAN MEDICAL ASSOCIATION.

The annual meeting of the Canadian Medical Association was held in Montreal, from September 11th, to 13th, 1907. In many respects the meeting was the most important which has yet been held. The leading members of the profession were present, and they gave of their best. Toronto was particularly well represented by Drs. McPhedran, MacCallum, MacKenzie, Starr, Rudolph, Hunter, Ross, Goldsmith, Johnston, Wright, Primrose, Fotheringham, McMurrick, Graham, Young, Ferguson, Elliot, Hodgetts, Smith, Hart, Jones, Dickson, Chambers, Ryerson, McKeown, Aikins, Wishart, Reeve and Walters. Though the registration was not excessively large, members were present from every province in Canada.

Slowly perhaps, but surely, the annual meetings are becoming more national and more representative of the profession in Canada. It was

good to see the presidential chair occupied, not by a local nominee, but by a leader of the profession in another centre, worthily supported as he was in the work of the Meeting by many others from the same city. We would not say that this presidential interchange will always prove as successful as it was in this case. We can imagine that when the president hails from a greater distance, the want of his directing force in arranging the preliminaries would be felt by the local committee, but under certain circumstances, as in the present case, it must help to bring the profession together.

The president's address was comprehensive of all which such an address should contain, and Dr. Rolleston's address in medicine was, in matter and treatment, in the best manner of the London physician. Both of these appear in the present number. The reorganization of the Association and the establishment of a journal for the Association received thorough discussion and something substantial was done in both subjects.

Yet another advance to be chronicled is the inauguration and first sitting of the Laboratory Workers' section, to include all those engaged in experimental medical research. Both in quality and quantity the work presented by this section was admirable and the attendance throughout was larger. We are, indeed, informed that this was the only section which, from one or other reason, completed its programme, even though it did this by prolonging its sessions. There has been little work of this order presented hitherto at meetings of the Associations, with the result that the most advanced medical work in the country has been given to the outside world. This has not been creditable. We admit that, as stated by Dr. Adami in his address in Pathology, it is good policy that Canadian work should be published, in part, at least, in Great Britain and the United States, and we acknowledge the generosity, with which papers by Canadian workers, have so been published; but it is not Chauvinistic to hold it wise that the home products should be displayed before those at home.

The members of the Association need have no fear that the publication of this work will render meetings less popular with the general practitioner. That has not been the experience in connexion with the American Medical Association. Those men who are most keen in their professional work are those who are most keen to attend the annual meetings of the Association, those men it is who appreciate no banalities but serious studies of the most recent advances in their subject. Altogether the meeting was one full of good hope for the future. The next meeting will be held at Ottawa, under the presidency of Dr. Montizambert.

The following is the result of the election of officers:—General Secretary, Dr. George Elliott, Toronto; General Treasurer, Dr. H. B. Small, Ottawa; the two latter being re-elected. Provincial Vice-Presidents: Prince Edward Island, Dr. Alex. McNeil, Summerside; Nova Scotia, Dr. M. A. Carry, Halifax; New Brunswick, Dr. Ross, Sackville; Quebec, Dr. F. R. England, Montreal; Ontario, Dr. W. H. B. Aikins, Toronto; Manitoba, Dr. Harvey Smith, Winnipeg; Saskatchewan, Dr. Kemp, Medicine Hat; Alberta, Dr. R. D. Sansom, Calgary; British Columbia, Dr. C. J. M. Pearson, Vancouver. Provincial Secretaries: Prince Edward Island, Dr. R. D. McLaughlin, Morell; Nova Scotia, Dr. R. S. Mathers, Halifax; New Brunswick, Dr. J. V. Anglin, St. John; Quebec, Dr. A. H. Gordon, Montreal; Ontario, Dr. Hackney, Ottawa; Manitoba, Dr. Gordon Bell, Winnipeg; Saskatchewan, Dr. R. J. Kee, Esterhasy; Alberta, Dr. Dow, Calgary; British Columbia, Dr. Eden Walker, New Westminster. Executive Council: Dr. R. W. Powell, Dr. E. B. Echlin, and Dr. G. Gibson, all of Ottawa.

HALIFAX MEDICAL COLLEGE.

Dr. N. E. Mackay has resigned his position as professor of surgery in Halifax Medical College. In a letter to Dr. A. W. H. Lindsay, chairman of the committee, dated May 14th, he gives as the ground of his resignation that he "refuses to teach surgery if men are associated with him in that chair, who are unworthy of confidence and respect because of their want of knowledge of this subject." This is tolerably plain speaking, and not liable to be misunderstood.

In the letter referred to Dr. Mackay made other observations equally pointed: "The work of the College needs toning up all round and the standard of work raised a good deal if we hope to have more than empty benches to lecture to. In making appointments, merit and natural aptitude for the work which is expected to be done alone should count. The fact that a person was on the teaching staff for a number of years, should go for nothing unless the applicants are of equal merit, in which case he should have the preference. On the other hand, if he had been a failure as a teacher, it should count against him. Each chair should have a responsible head and no appointment should be made in connexion with the teaching of his subject except on his recommendation. The abominable ring-system which heretofore regulated appointments and brought the College to its present unsatisfactory condition, should receive decent burial."

This letter was published by Dr. Mackay in the *Halifax Morning Chronicle* of September 2nd, along with much other printed comment.

He remarks that the graduating class last year numbered only four persons, though thirteen had begun their studies, and describes the real trouble as due to a "lack of practical teaching in important subjects, appointment of men who do not continue to be students after receiving their degrees, men of no enthusiasm in their work, or of no aptitude for teaching."

A somewhat acrimonious correspondence followed in the newspapers, all of which makes painful reading. Leaving out of account all local and personal circumstances, the experience of Halifax Medical College is not unusual. The medical school without ample endowment, large scientific equipment, and extensive hospital facilities, has fallen on evil times. In the old days the possession of a lecture room and a few bodies were considered sufficient warrant for carrying on the teaching of medicine, and many excellent practitioners issued from that system with profit to themselves and to their teachers. To-day the teaching of medicine is impossible without a large subvention from the state or from private munificence. It costs McGill University $1,650 to graduate a student of medicine, and it receives from the student only $575 in return. Bishop's College was astute enough to foresee the changing condition of affairs, and entered into an arrangement with McGill by which it was relieved from a burden which in time would have grown intolerable.

The only hope for the smaller medical schools is that McGill has raised its requirements to five years, and Toronto will follow next session. No one contends that this is too much, but there are always students who will be content with the second best. These will seek the smaller schools and give to them a renewed though temporary lease of life. Halifax may take courage from what has happened in Kingston where, in a city of 17,000 inhabitants, with corresponding hospital facilities, there are registered this year 230 medical students.

THE MEAT INSPECTION ACT.

The custom prevailing among farmers throughout Canada of slaughtering animals, particularly swine, upon their own premises and selling the dressed carcasses on the local market, is one which entails more or less loss to the producer. Before the advent of packing establishments, the domestic trade was supplied by the local butchers, who were necessarily compelled to provide for future supplies, and, as a result, the local markets were created. Conditions have changed however, the local dealers no longer supplying the domestic trade, which

has passed into the hands of the packing houses, which are now the distributing centers for meats. Packers can afford to, and actually do pay higher prices and sell at lower values than the local butchers for reasons which are obvious when one considers that profits are represented by the by-products. The packers are adverse to buying dressed carcasses as they represent smaller profits in by-products; again, dressed carcasses are imperfectly handled by the farmer, the meat in many cases being bruised and unsightly, this, as well as improper chilling, being deterrent to good prices. Animals, especially hogs, require scientific chilling, otherwise those parts which enter into the process of curing become sour and unfit for market. Packers prefer to buy their meats on the hoof, and for the reasons set forth above, are able to pay higher prices for them.

In view, however, of the large trade carried on in some parts of Canada, more particularly during the fall and winter, in dressed pork, as well as in other dressed meats, attention may be directed to one of the requirements of the regulations made under the new Meat Inspection Act, which is likely to have a considerable effect on the business above referred to. The Department of Agriculture at Ottawa having assumed the responsibility of inspecting and practically guaranteeing the healthfulness of all meats and meat products sent out by the packing houses, must, of necessity, protect itself by making sure that no diseased carcasses are permitted to enter these establishments. The most effective way of preventing the entry of such diseased meat is, of course, the careful ante-mortem inspection provided for by the regulations, but, in view of the large trade carried on in dressed carcasses, and of the fact that both farmers and packers have been in the habit of handling meats in this way, the officials in charge of the enforcement of the Act have decided to admit to the establishments under inspection, dressed carcasses under such conditions as will enable them to judge with reasonable certainty, as to whether the animal, prior to slaughter, was free from disease. Provision has therefore been made for the admission on inspection, of dressed carcasses with the head, heart, lungs and liver held by their natural attachments, such carcasses to be inspected before entering the establishment and, if found fit for food, to be so marked and admitted for packing purposes, while if found to be diseased, to be condemned.

This being the case it is incumbent upon every farmer bringing dressed hogs or other animals to market to remember that unless the carcasses are dressed in accordance with the regulation mentioned above,

namely, with these organs left in their proper positions, it will not be possible for the representatives of the packing houses to buy such carcasses for use in any of the establishments coming under the operation of the Meat and Canned Foods Act.

The presence of the buyers or agents of these establishments on our local markets has always been, at least to some extent, a safeguard against possible attempts by local combinations of butchers and others to depress the price of dressed meats, and it will be well for producers to bear in mind the new conditions, and when, for any reason, unable to market their stock on the hoof, as they should undoubtedly do whenever possible, dress their hogs, as well as other animals in such a way as to meet the requirements of the new Act.

A CANADIAN MEDICAL JOURNAL.

Whatever competition may be in trade, it is the death of medical journalism in Canada. With a population of 6,000 physicians there are seven journals published in English and three in French. If every physician subscribed to a journal, which in itself is a presumption, that would yield for each 600 subscribers. Probably an average of 400 would come nearer the mark. The result is that the existing journals are local in their influence, and are obliged to look to advertisers for a patronage. Persons who write papers desire to have them read, and with the best will in the world towards Canadian journals they feel obliged to seek publication either in England or the United States. This is a loss to medicine in Canada.

The Canadian Medical Association has adopted a new constitution, which embraces all the local and provincial medical societies. It is about to become a national affair and promises to enter upon a wide field of usefulness in all matters pertaining to the profession and the public health. The transactions of so important a body should be recorded, and there is at present no adequate means of doing so. There is not sufficient inducement for any of the existing journals to engage in so laborious and costly an undertaking.

At the last meeting the principle was adopted of publishing a journal of the Association, and a committee was appointed to report upon the feasibility of the project. This committee is composed of Dr. J. F. Young and Dr. F. N. G. Starr, Toronto; Dr. Murray Maclaren, St. John; Dr. O. M. Jones, Vancouver; Dr. John McCrae and Dr. Andrew Macphail, Montreal. These several members are experienced in the publication of Medical Journals and, indeed, four of them are actually

so engaged. They may be trusted not to make too light of the difficulties which lie in the way of a journal which will speak for the whole profession; but we cannot refrain from expressing the hope that they will approach the question with an open mind and not in the spirit of that Demetrius the silversmith who saw that his craft was in danger. It appears to us that there are several methods by which the result might be accomplished. All the existing journals might merge their interests in one national publication. Failing this, one or more of them, if not all, might unite and place their equipment at the disposal of the Association. Finally, the Association might see its way to establishing an entirely new journal. We have no doubt that all these possibilities will be considered by the committee and that the Association will be advised wisely and disinterestedly.

THE TROUBLES OF AN HOSPITAL.

There is much internal trouble in the Victoria Hospital at Fredericton. The latest bulletin is that the nurses have gone on strike and threaten "to walk out in a body" unless the matron is discharged. They complain that the food is bad and that the cook, when remonstrated with, applied opprobrious epithets to them. An investigation was held "which lasted till midnight," at which the trustees, medical staff, matron and nurses were present. Dr. Atherton charged that the matron had praised Dr. Vanwart to a patient and said he was "great on appendicitis." To this the matron "gave a lengthy explanation." The nurses desired to make a statement, but they would not make it in presence of the matron, and she consented to retire. This statement was an extremely painful one. The nurses complained that the appearance of the table-maid was not attractive, and that she would enter into the conversation going on at dinner. That, of course, is intolerable. Bitter complaint was made of Charlie Wagley, who was described as "a deceitful, saucy, bad boy, too familiar in his manner towards the nurses, even going so far as to call them Smithie, Brownie, etc. His language was said to be very profane, and he would lie in bed mornings while the junior night nurse made the kitchen fire." The maid above-mentioned was also charged with matutinal sleepiness, which shows, if true, that maids in New Brunswick have the same vice as they have in Montreal. From the newspapers which reach us the trouble appears to be one long standing. As long ago as August 26th the *Gleaner* contained an elaborate account of the circumstances under which Dr. Atherton resigned from the hospital; but it appears from

the St. John *Sun* of the following day that he "got over his huff" and consented to continue his service. The whole affair is deplorable and we counsel peace in the interests of the public and of the profession.

Reviews and Notices of Books.

DISEASES OF INFANCY AND CHILDHOOD. By LOUIS FISCHER, M.D., Visiting Physician to the Willard Parker and Riverside Hospitals. With 303 Text Illustrations, several in colours, and Twenty-seven Full-page Half-tone and Colour Plates. 979 Royal octavo pages. Extra cloth, $6.50, net; Half-morocco, $8.00, net. *Sold only by subscription.* F. A. Davis Company, publishers, 1914-16 Cherry Street, Philadelphia.

The subject of Diseases of Infancy and Childhood has been divided into twelve parts. Section I. deals with the new-born infant, being devoted to hygiene and what the author terms diagnostic suggestions. Section II. deals with the abnormalities and diseases of the new-born. The important subject of prophylaxis and treatment of the eyes of the new-born is dismissed in less than one page, a good portion of which is taken up with the illustration of an ordinary eye dropper, while the rare condition of fœtal ichyosis receives a full page illustration and a page and a quarter of letter-press. Hæmorrhagic diseases of the new-born are dealt with in a little over two pages. In speaking of asphyxia neonatorum the author states that one of the main causes is "compression of the cord in a *natural* way"; just what is meant is rather difficult to understand. He does not once mention Schultze swinging method, and seems to place great reliance upon hypodermic injections of various remedies, recommending in this connexion 1-100 of a grain of strychnine, which seems an enormous dose of this drug for a new born infant.

Section III., which is one of the longest in the book, deals with the important subject of feeding in health and disease. Knowing the author's previous work in this subject, which has gone to three editions, one naturally expects a full discussion, nor is one disappointed. There is an enormous mass of heterogenous information upon the subject of infant feeding, which has been gathered from many sources, and is compiled with very little effort at arrangement. The result is that after reading through the section, one has but a hazy idea of the subject. The author deals first with woman's milk, and then with cow's

milk. He suggests the use of cocoa to modify the curd in milk, and thinks it is a food of highly nutritious quality. Where milk is not well borne the addition of one or two teaspoonfuls of cocoa, properly sweetened, to rice water, is recommended. He seems to prefer home modification to the use of laboratory feeding, and quotes freely from Holt, Rotch, and Chapin. It cannot be said that he has added anything that is new or important to the subject.

Section IV. deals with the diseases of the intestinal tract and to those diseases associated with the improper nutrition. He considers that, in convalescence from typhoid fever and pneumonia, there is no better stimulant for children than coffee administered in small doses, to which large quantities of milk or cream are added. The arrangement of this section leaves much to be desired, and the classification seems to be somewhat original. On page 243, under the heading of "Pathology of Acute Gastric Catarrh," the following paragraphs occur, "When gastritis is met with in older children, the origin of the trouble can be easily traced to over-eating, especially cakes, pies and puddings, too rapid chewing and swallowing of unmasticated pieces will aggravate an attack of this kind." Again, "It is quite common to have, especially among the working class, distinct evidence of alcoholic gastritis. Unwholesome food, candies and ice cream have frequently caused acute gastritis in many children." One would like to know what the author understands the word Pathology to include.

Ten and one-half pages are devoted to the bacteria of the intestines, most of which consists of quotations from the work of Booker. Diarrhœa is discussed in two pages, and the reader is referred to the chapter on acute milk infection. In the treatment of the latter condition the author places great reliance on irrigation of the bowel. There are two large illustrations, marked original, of the method of washing out the stomach of a child, who looks to be about seven or eight years of age. The child is lying on its back with its head on a pillow, though how it is kept in that position, as there is no one holding him and no evidence of strapping, it is difficult to conceive, as, in the experience of the reviewer, stomach washing in children of this age is a matter of considerable difficulty, on account of the struggles of the child. The author in discussing appendicitis seems to place great reliance upon the examination of the blood as giving the important aid in diagnosis and in deciding the proper time to operate. He argues as follows:

"Leucocytosis means pus-abscess; leucocytosis, stationary, that the abscess is walled off; leucocytosis increasing, spreading abscess; leucocytosis, declining, favourable course. From which we conclude that a

steadily increasing leucocytosis is a bad sign—operate; while a steady decreasing leucocytosis is a good sign—don't operate."

The chapter on Rachitis is excellent and contains some interesting illustrations. Keller's Malt Soup is recommended in the treatment of marasmus.

Section V. deals with diseases of the heart, liver, spleen, pancreas, peritoneum, and the genito-urinary tract. The discussion of diseases of the heart leaves much to be desired. Section VI. deals with diseases of the respiratory system and is inadequate. Section VII. on the infectious diseases consists of 253 pages, and is by far the best portion of the work, as it is evident that the author has devoted particular attention to this department of pediatrics. He ahs classed pneumonia under the infectious diseases and has applied the term "cerebral pneumonia" to that type of the disease in which the meningeal symptoms are the chief complication, and in which clonic spasms or convulsions are usually present. The extensive histories of two cases are given.

In the treatment of pneumonia the author urges that the patient be isolated as strictly as a case of diphtheria. He suggests that very small doses "only 1-200 or 1-100 of a grain of strychnine" may be given every hour without fear. The author gives no indication as to what age the patient should have reached to stand this somewhat heroic dosage of strychnine.

The author speaks of an acute tuberculosis as being very frequent in young children. He states that the majority of cases of tuberculosis are found in children brought up by artificial feeding. The author examined 5,000 children at random in his clinic in New York and found 59 cases which showed distinct evidences of pulmonary tuberculosis; only nine of them showed the presence of tubercle bacilli in the sputum.

The chapter on diphtheria is one of the most interesting in the book, and the author quotes liberally from the extensive literature on this subject. He considers that no form of diphtheria is more fatal than the nasal variety. He thinks that all cases of follicular tonsilitis should be isolated and dealt with as cases of true diphtheria until a culture has been taken and examined. The author gives a list of 479 cases of diphtheria in which antitoxin was injected, 32.08 per cent. of which developed rashes. The rash is usually fully developed on the second day after injection of the antitoxin, and is usually present on the chest, abdomen and buttocks. It is frequently accompanied with intense itching and occasionally with pain in the joints. The author states that between 10 and 30 per cent. of all cases of diphtheria are followed by paralysis and that this complication is most frequently found in

children between two and six years. The dose of antitoxin for a child between one and five years old, with a mild form of diphtheria, should be from 1,500 to 3,000 units. In severe laryngeal diphtheria at least 10,000 units should be injected at the first dose, and if no improvement follows in twelve hours the initial dose should be repeated, in any case. The author prefers the dorsal position for intubation. He has frequently intubated in this position without an assistant. He quotes extensively from O'Dwyer's article on intubation.

He divides scarlet fever into the simple, septic, and toxic forms. In 20 per cent. of his cases middle ear disease developed. Hot saline injections are recommended to stimulate diuresis in scarlet fever and also the use of anti-streptococcus serum.

Section VIII. deals with the diseases of the blood, glands, and ductless glands. Strangely, the author includes the subject of mumps in this section instead of taking it up as one of the infectious diseases. Section IX. deals with the diseases of the nervous system. Section X. deals with the diseases of the eye, ear, and skin, and abnormal growths. In Section XI. he discusses diseases of the spine and joints. Section XII. is entitled "Miscellaneous," and includes a dietary, a chapter on milk, and remarks upon the examination of the gastric contents in children, the urine, bacteriological memoranda, anæsthetics and rectal medication. The work concludes with a table of doses which, strange to say, are chiefly in the metric system, though throughout the course of the work the author has followed the ordinary English system of weights and measures. An extensive index which is particularly necessary in this work is fortunately provided.

The style of the author is involved and his use of the English language is at times original. For instance, in the opening chapter he employs the following sentence, "The blood vessels of the umbilical cord, which have nourished the child and connected it with the circulatory system of the mother, rapidly atrophy as soon as breathing is established." Surely he has made a mistake in the following sentence, "*A drop* of laudanum on absorbent cotton placed in the *middle* ear seems to act well in most instances." The paragraphing is bad, and as a whole, the work requires careful editing.

As a text book this work cannot be commended, but it may be said that it contains a large quantity of useful information upon the subject of diseases of infancy and childhood. The publisher's work has been well done; the illustrations and letter press leaving nothing to be desired.

KEENE'S SYSTEM OF SURGERY. Vol. II. W. B. Saunders & Co., 1907.

The second volume of Keene's Surgery corresponds in subject matter largely with the third volume of Bryant and Buck's System. While not wishing to institute comparisons it must be said that the purely American and Canadian work of Bryant and Buck compares very favourably with the other, which is advertised as being of International authors; as a matter of fact, in the present volume none but American authors appear. The chapter on diseases of the bones is by Nichols of Boston, who has become more or less an authority on the subject. What there is of it is good, but it is sadly short and the illustrations are not up to the highest standard. The chapter on fractures, by Eisendrath of Chicago, is, on the whole, excellent; the illustrations are very numerous, are up-to-date, and occasionally a little superfluous as the fashion now is. The chapter on the surgery of the joints is by Lovitt and Nichols, and here again one has to complain of the inadequate space given to a subject in a system which proposes to be a very comprehensive one. The chapter on orthopædic surgery by Lovitt is good; the illustrations, so necessary in the proper presentation of the subject, are abundant. The last few chapters in the volume are devoted to a consideration of the nervous system. Spiller writes a very excellent chapter on the pathology of the nervous system and its surgical bearings. Spiller having written it, it must be good. Wolsely of New York takes up the surgery of the nerves and later of the spine. His description of the late operations for facial paralysis and the work of Clarke, Taylor and Prout, on brachial birth palsies, deserves special mention. In the surgery of the spine we find an excellent and scientific presentation of the subject. Wolsely's own experience with spinal tumours has been considerable and he speaks with authority. Surgery among the insane is given a special chapter, the author of which is DaCosta. Surgery in its relations to traumatic neurasthenia, hysteria and insanity is written by Dercum. One good thing about the volume, a point in which it excels the Bryant and Buck work, lies in the appending of good bibliographies to the end of each chapter.

E. W. A.

THE AMERICAN PRACTICE OF SURGERY. Vol. III. Edited by JOSEPH D. BRYANT and A. H. BUCK. William Wood & Company, 1907.

This is the third volume of the new system of surgery which is to be completed in eight volumes. The first two have previously been reviewed in these columns and the favourable comment there expressed can only be repeated here. The illustrations, upon the whole, are numerous and very well executed. The first chapter is taken up by the consideration of poisons and poison wounds. The presentation of

the subject of tetanus, though correct and up-to-date as far as it goes, seems to us decidedly inadequate. The work of Meyer and Ransome along the experimental line, and of Rogers of New York on the clinical side is not mentioned. On the other hand rabies is extremely well presented by Rombaud, the director of the Pasteur Institute in New York. The chapter on fractures is by Eve of Nashua and, on the whole, it is a good practical article, although the pathology and the pathogenesis of the subject is somewhat insufficiently considered. The treatment by mechanical means it seems to us is given perhaps a little inadequately, but on the whole, criticism must needs be carping to find very great fault with it. One is glad to see the subject of patellar fractures and of injuries through the malleoli given their proper consideration. One occasionally notices a bibliographical error in the mention that von Bergmann states such and such a thing, while in reality such a statement merely occurs in his system of surgery. The chapter on pseudarthrosis, by Turner Thomas of Philadelphia, is good. One is pleased to see that the two chapters in the book by Canadians are especially creditable. The late Dr. Peters of Toronto writes upon the inflammatory infections of bone. His presentation of the subject is characterized both by sound scientific knowledge of the subject in its most modern aspects and by an English style which it is pleasant to read. The valuable recent work of Lexer upon the circulation in bones, with reference to inflammatory processes, is given full consideration and one of Lexer's beautiful injection specimens is reproduced; his original illustrations are numerous and suitable. The chapter on the non-inflammatory affections of bones is by Roswell Park of Buffalo and, needless to say, it is excellently well done. Simmons of Boston writes an exhaustive chapter on tumours of bone. Painter writes upon the non-tuberculous and non-traumatic affections of bone and the work is good and especially well illustrated. The second Canadian writing for the System is Primrose of Toronto, whose subject is bone and joint tuberculosis; it is an excellent piece of work, alike in the reading matter and in the illustrations, most of which are original. As a whole, the volume is highly to be commended.

E. W. A.

THE CLIMATIC TREATMENT OF CHILDREN. By FREDERICK L. WACHENHEIM, M.D., Chief of Clinic, Chidren's Department, Mount Sinai Hospital Dispensary, New York. Rebman Company, New York. Price, $2.50.

The first half of this book is taken up with a description of the climate of North America in general, with special accounts of those regions which are generally recognized as health resorts. Canada is

by no means neglected, although our winter climate is regarded by the author as too severe for most children. He also draws attention to the general lack of provision for health seekers among the towns and villages of the St. Lawrence Valley. He recognizes some half dozen honourable exceptions however, and we are glad to find Montreal among those mentioned.

Facts are given with regard to the temperature, humidity and elevation of many regions to which one might contemplate sending ones young patients. European resorts receive some attention, although they are very properly discussed more briefly than those of our own continent.

The last half of the book deals with the climatic treatment of well and sick children, and the author seems to speak with an authority that proceeds from knowledge. European authors are frequently quoted, but where they recommend European health resorts, the author usually suggests an American equivalent. The book is well conceived and well written, and will, we think, be found very useful.

FOOD AND HYGIENE; an Elementary Treatise upon Dietetics and Hygienic Treatment. By WILLIAM TRIBBLES, LL.D., L.R.C.P., M.R.C.S., L.S.A., Medical Officer of Health, Fellow of the Royal Institute of Public Health, etc. Rebman Company, New York. Price, $3.00.

This book presents a great mass of materials culled from various sources on foodstuffs, waters and climates with their application to the preservation of health and the cure of disease. One finds here a rather useful collection of facts about the source, projects and chemical composition of the various foodstuffs. Many details are given which one might find considerable difficulty in obtaining elsewhere.

The early chapters are devoted to a somewhat antiquated account of digestion and assimilation. The last third of the book gives a fairly good account of the use of food and various hygienic measures in the treatment of various diseases. The appendix contains some useful tables of standard dietaries and of the fuel value and composition of a very large number of different foods. It also contains brief accounts of salt free and purin free diets.

ON THE EVOLUTION OF WOUND TREATMENT DURING THE LAST FORTY YEARS. By SIR HECTOR C. CAMERON. Glasgow: James MacLehose & Sons, Publishers to the University, 1907.

This is a book of a class now rapidly disappearing in which a medical subject is treated in a literary way. It is more than a history of the

evolution of knowledge of the treatment of wounds; it is full of a criticism which has arisen out of the author's experience of surgery during the past thirty years. This little book is sweet to the reviewer's taste.

THIRD ANNUAL REPORT OF THE HENRY PHIPPS INSTITUTE FOR THE STUDY, TREATMENT AND PREVENTION OF TUBERCULOSIS: Feb. 1, 1905, to Feb. 1, 1906. Edited by JOSEPH WALSH, A.M., M.D. Published by the Henry Phipps Institute, 238 Pine Street, Philadelphia, 1907.

The third annual report is a volume of more than 400 pages, to the composition of which some thirteen authors lend their assistance. The report deals with the figures of previous years and 655 additional new cases, and it is most exhaustive with reference to the use of serum. L. F. Flick says that the serum of Maragliano, according, at least, to their method of using it, has not been satisfactory, although they propose to continue its use for some time. A statistical study of the influence of the Institute on the death-rate of Philadelphia indicates that, in a general way, a reduction of death-rate from tuberculosis has occurred in the vicinity of the Institute, which is attributable partly to the distribution of material aid therefrom.

The report is a very interesting volume for one who is concerned with tuberculosis and its problems. Sixteen formal papers dealing with different questions and with statistical studies are embodied in it.

PRACTICAL FEVER NURSING. By EDWARD C. REGISTER, M.D., Professor of the Practice of Medicine in the North Carolina Medical College; Chief Physician to St. Peter's Hospital; editor of the Charlotte Medical Journal. Illustrated. Philadelphia and London. W. B. Saunders Company, 1907. Canadian agents, J. A. Carveth & Co., Toronto, Ont. Price, $2.50.

We are not entirely in accord with the idea that prompts this work, for as we have pointed out in these columns before, we are nowadays asking too much of our nurses in the matter of medical knowledge. Let it not seem that we do not wish the best-educated nurse that is possible: but we venture to say that there is much in this book that the best-trained nurse will entirely fail to understand: the author forgets the gradual process of years of study by which he has come to understand much of it himself, and it seems to the reviewer that he is laying too great strain upon a nurse in expecting her to assimilate much that she cannot appreciate because she has not the essential ground-work of knowledge. When we have said this, and pointed out that a full page illustration such as 'counting the pulse' is unnecessary, while some of the

others are not sufficiently definite to teach the processes to any one not familiar with them, we have said most that we have to say in criticism; unless it be to add that there is not enough insistance on the very important facts that every nurse must know to be efficient.

For the physician who has not had a hospital training there is much that is useful and here, we think, Prof. Register's book is more likely to reach its true purpose than in the hands of the nurse, for much of the information, if acted upon, should be acted upon by the physician and not by the nurse.

MEDICAL JURISPRUDENCDE, FORENSIC MEDICINE AND TOXOLOGY. By R. A. WITTHAUS, A.M., M.D., and TRACY C. BECKER, A.B., LL.B. Second Edition, Volume II. New York: William Wood & Company, 1907.

The second volume of Witthaus's great work on medical jurisprudence is a splendid book of over 1,000 pages, done in the fine style for which William Wood & Company are famous. The collaborators are a body of men from the medical and legal professions, which it would be hard to excel in any country. The work is likely to remain long as a standard in law courts upon which the lives of men will depend. The article on Abortion, by J. Chalmers Cameron, is done with scholarship and professional knowledge. The work is one of the most important which has been published in the United States; but we cannot refrain from saying that the work is marred by the undue consideration of sexual perversions.

A TEXT-BOOK OF PHYSIOLOGY FOR MEDICAL STUDENTS AND PHYSICIANS. By WILLIAM H. HOWELL, Ph.D., M.D., LL.D., Professor of Physiology in the Johns Hopkins University, Baltimore. Second Edition. W. B. Saunders & Co.; Canadian Agents: J. A. Carveth & Co., Toronto.

We had the pleasure of reviewing the first edition of this book nearly two years ago, and made the statement that it was the best text-book of physiology yet written in the United States. We see no reason to change our opinion after examining the second edition. The author has the happy faculty of giving a large amount of detailed information and referring to a great many recent publications without sacrificing a certain literary charm.

We do not know of any book from which a general knowledge of recent advances in physiology may be obtained with less mental effort. In a little over 900 pages it gives about as much information as can be imparted in a single volume.

Physiology seems to be coming into her own just now. Clinicians are recognizing its value as a foundation for rational practice, more, perhaps, than ever before. Professor Howell presents his subject with a full recognition of these facts and the light that modern physiology throws on such disorders as those of the circulation, the nervous system and metabolism shines out from the pages of this book with no ordinary brilliancy.

W. S. M.

MANUAL OF ANATOMY—Systematic and Practical including Embryology. By A. M. Buchanan, M.A., M.D., Professor of Anatomy, Anderson College, Glasgow. Vol. II. London, Balliere, Tindall & Cox, 1907.

The first volume of this work was reviewed in November last. This volume comprises the abdomen, thorax, head and neck, nervous system and organs of special sense. It is a very creditable work and recommends itself by its size and it requires no special muscular effort to handle as do some of the treatises, and yet no essentials are omitted—at the end of each section is a guide to the dissection of that part. The illustrations as in the previous volume are diagrammatic but very simple and plain, many of them are familiar friends. Development and embryology are treated at the end of each section in a short concise manner and not too elaborate to be confusing to the beginner. The volume finishes with an appendix in anatomical nomenclature which is of doubtful value, but there is a most useful glossary, which, if it gave the derivation of the words as in Quain's anatomy would be much improved. We can recommend this as a useful and convenient treatise in anatomy.

A MANUAL OF DISEASES OF THE NOSE, THROAT AND EAR. By E. B. GLEASON, M.D., LL.D., Clinical Professor of Otology in the Medico-Chirurgical College, Aurist in the Medico-Chirurgical Hospital, etc. Illustrated. W. B. Saunders Company, Philadelphia and London.

This book, as its title implies, is a Manual of Rhinology, Laryngology and Otology.

The chapter devoted to the Diseases of the Septum is very complete, as might be expected from the author, whose operation for the correction of septal deviations is well known.

The submucous operation of the septum is described but we do not think its advantages over the crushing operations have been sufficiently emphasized.

Bronchoscopy and Oesophagoscopy have not even been referred to, which we consider a notable omission in a text-book of such recent date.

That portion of the work devoted to the diseases of the ear has been carefully described and considered.

Many special formulæ have been appended. The book has been abundantly illustrated, the type is excellent, and on the whole we can heartily recommend it to the student and general practitioner.

R. H. C.

A Manual of Clinical Diagnosis by Microscopical and Chemical Methods. By Charles E. Simon, M.D., Professor of Clinical Pathology in the Baltimore Medical College. Sixth edition, revised. Octavo, 682 pages, with 177 engravings and 24 coloured plates. Cloth, $4.00, net. Lea Brothers & Co., Philadelphia and New York, 1907.

The present edition of Prof. Simon's work is the sixth, and there are numerous changes since the last one which appeared. Among the new subjects treated we find opsonins, which is satisfactorily handled; there are also appended two chapters, one on the preparation of culture media, and one which we do not remember to have seen taken up in any other book of this kind, a digest of a course in clinical methods used in the laboratory. Whether the order of subjects there given be adhered to or not, the chapter will form a useful control for laboratory teachers, upon their own courses, and the class "exercises" there laid down will often be found suggestive. Much remodelling of the text has been done, to make room for the additions, and new plates have been added, so that the volume still remains of the same size, and is, in this respect, admirably suited to its purposes. The sixth edition will maintain the popularity that Prof. Simon's book has enjoyed in past years.

Lea's Series of Pocket-Text-Books. Materia Medica, Therapeutics, Pharmacology and Pharmacognosy including Medical Pharmacy, Prescription Writing and Medical Latin, A Manual for Students and Practitioners by William Schlief, Ph.G., M.D. Demonstrator of Medical Pharmacy in the Medical Department of the University of Pennsylvania. Series edited by Bern B. Gallaudet, M.D. Third edition, revised and enlarged. Lea Brothers & Co., Philadelphia and New York.

This is the third edition, revised and enlarged, and on examining it, one does not expect that any further enlargement can be necessary in the future, for it seems to be complete. The useful drugs appear to be all here, and the useless ones are not; incompatibilities are briefly given,

medical Latin is reduced to its simplest, the poisons and their antidotes, a classification of drugs and a number of prescriptions are given. The text is brief and to the point, and by the judicious use of italics and short sentences, it is the reader's fault if he do not carry away some knowledge even of the physiological and pharmacological effects of the various drugs. Dosage is given in both systems of measurement, and the volume ends with an index which even suggests the drugs to be used for particular diseases or symptoms. One whose weak point is therapy will get a great deal of support from this text-book; and even others will obtain usefully-tabulated, if not new material from its pages.

500 SURGICAL SUGGESTIONS. By WALTER M. BRICKNER, B.S., M.D., and ELI MOSCHCOWITZ, A.B., M.D. Second Series. New York, U.S.A.: Surgery Publishing Company, 92 William Street, 1907. Price, $1.00.

Most persons are aware that New York is in the U.S.A., as is affirmed in the above transcript from the title page of this book; and many of the "snappy, practical suggestions," and "terse, useful, therapeutic hints, and diagnostic wrinkles" contained in this "pocket manual *de luxe*!—printed in attractive Cheltenham type, on antique India tint paper, with marginal headings and subheads in contrasting ink, and with an artistic binding of heavy cloth, gold-lettered," are equally obvious with that geographical statement. Many of these aphorisms we have already seen in those medical journals with which "manufacturing chemists" furnish us free of charge. We are not denying the truth of them. We admit that section of the annular ligament weakens the hand, that a wedge of hard wood makes a gag, that flat-foot is a cause of pain in the leg; but we do not find "refreshment" in studying such gems of thought.

INTERNATIONAL CLINICS. Edited by W. T. LONGCOPE, M.D., Philadelphia. Volume III, Seventeenth Series, 1907. Philadelphia and London: J. B. Lippincott Company, 1907.

This volume of a series which is called "International," contains 25 clinics, of which 15 are from the United States and 10 from the adjacent parts of the world. There are five from Philadelphia, two from New York, two from Washington, and one from each of the following places: Silver City, Chattanoga, Cincinnati, Louisville, Baltimore and Hathorne, Mass. There are none from Germany, nor, indeed, any from the Continent of Europe, except from France, though in that large area there must be valuable work going on. Very few of these articles are in reality clinics. One could not imagine a man at a bedside talking,

as Dr. Bullock does, about "the flounderings of the human intellect," and the "unceasing struggle with God's infinities." It would not be fair to the man in the bed and students would laugh.

A MANUAL OF HYGIENE AND SANITATION. By SENECA EGBERT, M.D., Professor of Hygiene in the Medico-Chirurgical College, Philadelphia. New (fourth) edition, thoroughly revised. 12mo, 498 pages, with 934 illustrations. Cloth, $2.25, net. Lea Brothers & Co., Philadelphia and New York, 1907.

The material in this book is well presented, no small task, when one considers that the author has chosen to include in a manual everything connected with hygiene, from oil-stoves to ovulation. But, as he says somewhat sustentiously, "knowledge of the right kind can do not harm." That, we think, is well within the truth, and we are willing to admit the applicability of the aphorism to all which this book contains. A student who reads it will know something of everything, and that is as much as a student can expect. Therefore, the book is well designed.

THE STANDARD FAMILY PHYSICIAN. By PROFESSOR CARL REISSIG, M.D., of Hamburg, Germany, and SMITH ELY JELLIFFE, A.M., M.D., Ph.D., Volumes I and II. Funk & Wagnalls Company, New York and London, 1907; Canadian Agents: The Cambridge Corporation Limited, 472 St. Catherine Street, Montreal.

There is no better book than this for those of the laity who think they are benefited by the possession of a work on medicine. In so far as we have examined it the information which it contains is correct, and it is pervaded by a scientific spirit.

PROGRESSIVE MEDICINE. Edited by HOBART AMORY HARE, M.D., assisted by H. R. M. LANDIS, M.D. Volume III, September, 1907. Lea Brothers & Co., Philadelphia and New York, 1907.

The contents of Volume III are Diseases of the Thorax and its Viscera, including the Heart, Lungs and Blood-vessels, by William Ewart, M.D., F.R.C.P.; Dermatology and Syphilis, by William S. Gottheil, M.D.; Obstetrics, by Edward P. Davis, M.D.; Diseases of the Nervous System, by William E. Spiller, M.D.

Medical News.

MILITARY SURGEONS.

A meeting of military surgeons was held in Montreal during the convention of the Canadian Medical Association.

The following officers were elected: Hon. President—The Hon, Sir Frederick Borden, K.C.M.G., Minister of Militia. Hon. 1st Vice-

President—Col. E. Fiset, D.S.O., Deputy Minister of Militia. Hon. 2nd Vice-President—Lieut.-Col. G. C. Jones, Director-General of Medical Services. President—Lieut.-Col. G. Sterling Ryerson, M.R.O., Toronto. Vice-Presidents for the different districts as follows:—Capt. D. H Hogg, A.M.C., M.D., No. 1; Lieut.-Col. Hillary, 12th Regt., M.D., No. 2; Lieut.-Col. Duff, P.A.M.C., M.D., No. 3; Major J. D. Courtenay, M.R.O., M.D., No. 4; Major MacTaggart, 1st Prince of Wales Fusileers, M.D., No. 5; Lieut.-Col. Worthington, A.M.C, P.M.O., M.D., No. 6; Lieut.-Col. Grondin, 87th Regt., M.D., No. 7; Lieut.-Col. MacLaren, A.M.C., M.D., No. 8; Lieut.-Col. Sponagle, A.M.C., M.D., No 9; Major Devine, P.A.M.C., M.D., No. 10; Lieut.-Col. J. A. Grant, P.A.M.C., M.D., No. 11; Lieut.-Col. Johnston, A.M.C., M.D., No. 12; Capt. S. Hewetson, A.M.C., M.D., No. 13. Secretary-treasurer—Lieut. T. H. Leggett, A.M.C., Ottawa.

The Executive Committee appointed consists of thirteen, one officer from each of the respective thirteen military districts. They are:

Capt. H. A. Kingsmill, 7th Regt., Fusileers; Major R. Rennie, 2nd Regt., Queen's Own Rifles; Major Kilburn, P.A.M.C.; Major A. T. Shillington, A.M.C.; Lt.-Col. K. Cameron, A.M.C.; Capt. M. Lauterman, Duke of Connaught Hussars; Capt. E. A. Lebel, 9th Regt.; Major G. J. McNally, 71st York Regt.; Capt. G. M. Campbell, 7th Nova Scotia's Regt.; Lieut. J. W. Manchester, 90th Regt., Winnipeg Rifils; Capt. F. C. McTavish, 6th Regt., Duke of Connaught's Own Rifles; Lt.-Col. J. Warburton, 82nd Regt.; Lieut. T. A. Hislop, Headquarters, D.G.

The next general meeting will be held at Ottawa in 1908, at the time of the Canadian Medical Association meeting.

MEDICAL INSPECTION OF SCHOOLS.

The following physicians have been appointed medical inspectors in the elementary schools of the city:—Doctors Archambault, 3597 Notre Dame Street; E. G. Asselin, 481 St. Antoine Street; —. Belanger, 198 Mount Royal Avenue; A. Bourdon, Bourgouin, 479 St. Denis Street; B. Bonnier, 1875 St. Catherine Street; J. G. Brown, 1171 St. Denis Street; S. G. Brown, 485 St. Catherine Street; E. G. Cartier, 30 Chaboillez Street; Dr. Conroy, 304 Centre Street; J. A. Cousineau, 3767 Notre Dame Street; H. Desmarais, Donnelly, 543 St. Antoine Street; Fafard, 616 Parc Lafontaine; J. E. Gagné, 487 Ontario Street; R. Gagné, 1422 St. Denis Street; Gellathy, 349 Charlevoix Street; Grenier, 1859 Ontario Street; Haldimand, 734 St. Catherine Street;

Hamelin, 429 Mount Royal Avenue; Handfield, 24 Mount Royal Avenue; M. Hansford, "The Bellevue Flats"; Jasmin, 987 Notre Dame Street; Lacombe, 687 Parc Lafontaine; Z. O. Lapointe, 791 Notre Dame Street; Laurie, 980 St. Catherine Street; J. A. Leduc, St. Paul Street; Z. Lefebvre, 983 Notre Dame Street; Lemieux, 31 St. Louis Square; Malouf, 124 Lagauchetiere Street East; Mason, 30 Shuter Street; W. Monette, 263 Richmond Street; Mullaly, 81 Union Avenue; A. T. Mussen, 45 Crescent Street; H. McDonald, 200 Milton Street; McEvoy, 447 Wellington Street; McGovern, 157 Island Street; Opsoomer, 14 Darling Street; Phillmore, 7 Buckingham Street; Prendergast, 9 St. Louis Square; Ranger, 1232 Ontario Street; Richer, 562 Parc Lafontaine; J. A. Rousseau, 1066 St. Denis Street; H. Schlan, 43 McCord Street; Verner, 997 St. Denis Street; Villecourt, 914 St. Denis Street, and T. R. Wilson, 44 Park Avenue.

COLLEGE OF PHYSICIANS AND SURGEONS.

The election of Governors for the College of Physicians and Surgeons of the Province of Quebec resulted as follows:

Governors re-elected 1907-10—R. Boulet, Montreal; M. D. Brochu, Quebec; F. X. P. Dolbec, St. Casimir; Hon. J. Girouard, Longueuil; J. L. M. Genest, St. Bernard; A. Jobin, Quebec; J. E. Ladrière, Lotbinière; J. A. Laurendeau, St. Gabriel de Brandon; J. A. Lessard, Granby; J. A. Macdonald, Montreal; A. R. Marsolais, Montreal; L. M. Moreau, L'Islet; L. P. Normand, Three Rivers; C. O. Ostigny, Valleyfield; L. A. Plante, Louiseville; J. A. Rouleau, Montreal; A. Simard, Quebec; L. J. O. Sirois, St. Ferdinand de'Halifax; A. Thibault, Wotton.

New Governors—E. G. Asselin, Montreal; L .A. Beaudry, St. Hyacinthe; H. W. Blagdon, St. Phillippe de Néri; S. Boucher, Montreal; C. E. Côté, Quebec; J. E. D'Amours, Papineauville; F. X. De Martigny, Montreal; C. J. Edgar, North Hatley; J. F. Gauvreau, Rimouski; E. Laberge, Quebec; W. Lamy, Sherbrooke; C. R. Paquin, Quebec; F. Plourde, St. Jerome; H. Prevost, St. Jerome; A. L. Smith, Montreal; I. Sylvestre, Sorel.

The following officers were elected:—President, M. Normand, Three Rivers; Vice-presidents—H. A. Lafleur, Montreal; A. Simard, Quebec. Secretaries—C. R. Paquin, Quebec; J. A. Macdonald, Montreal. Registrar—S. Boucher, Montreal.

CANADIAN SOCIETY OF NURSES.

At the meeting of the Canadian Society of Superintendents of Nurses' Training Schools held in Montreal, September 11th and 12th, the following officers were elected for the coming year: President, Miss Snively, of Toronto; 1st Vice-President, Miss Chesley, of Ottawa; 2nd Vice-President, Miss Livingston, of Montreal; Secretary, Miss Brent, of Toronto; Treasurer, Miss Meiklejohn, of Ottawa. The following were elected Councillors: Miss Henderson, Toronto; Miss McDougald, Halifax; Miss Wilson, Winnipeg; Miss Chesley, Ottawa; Miss Patton, Toronto; Miss Greene, Belleville, and Miss Scott, Kingston.

News comes from England of the death of Surgeon Major-General Sir John Reade. Sir John Reade was a native of Perth, Ont., where he was born July 7, 1832. He was a son of the late Geo. Hume Reade, staff surgeon, and formerly colonel commanding the 3rd Regiment of Canadian Militia. He was married in 1861 to Harriette Fanny, daughter of Major J. D. Bean, of the Indian army. He was educated at a private school and Edinburgh University. In 1854 he entered the army medical department and became surgeon-general in 1888. He retired in 1892.

Dr. J. Ward Merrill died in the Water Street Hospital, Ottawa, of cerebro-spinal meningitis, September 4th. He contracted the disease in Chapleau, where he was resident physician for the Canadian Pacific Railway. He was thirty-one years of age, and was a graduate of Queen's University, Kingston, in Arts and Medicine. He was for a time in the service of the Water Street Hospital as House Surgeon.

Dr. Earle Stewart died in the Winnipeg General Hospital from typhoid fever on September 6th. Dr. Stewart was born in Manitoba and was twenty-four years of age. He was a graduate of the Manitoba Medical College, and only entered the hospital service last June.

Dr. Kenneth MacKenzie, House-Surgeon at St. Luke's Hospital, Ottawa, died on September 7th, from an attack of pneumonia. He was a native of St. Thomas, and was in the twenty-fourth year of his age.

Dr. George S. McGhie, a leading practitioner of the County of Leeds for more than twenty years, died at Elgin, of acute Bright's disease. He was a graduate of Queen's University.

A meeting of twenty-five physicians of the Western District of Middlesex was held at Strathroy on September 23rd. The following officers were appointed:—President, Dr. L. Hyttenrauch, Appin; Vice-president, Dr. O. L. Berdan, Strathroy; Secretary-treasurer, Dr. W. H. Woods, Mount Brydges.

Dr. John W. Considine, of St. Catharines, has just celebrated his ninetieth birthday and is yet engaged in practice. He was born in Ireland and graduated from Trinity University, Dublin. He has lived in St. Catharines for thirty-five years and still occupies the position of County Coroner.

Dr. D. G. Revell has been appointed Provincial Bacteriologist in the Department of Agriculture at Edmonton. Dr. Revell has been connected with the University of Chicago for five years. He is a native of Elgin County, and a graduate in medicine of the University of Toronto.

An epidemic of diphtheria is reported from Quyon, near Ottawa. The schools and churches are closed, and in one house the whole family of twelve contracted the disease. The disease was prevalent in the village for six weeks before assuming a virulent form.

Dr. James C. Fyshe, who for two years has been medical superintendent of the Alexandra Contagious Diseases Hospital, has left for Bankok, having accepted the position of assistant director of the department of hygiene of Siam.

Dr. Harvey Clare, who has been assistant physician at the Toronto Asylum for about a year, has been appointed assistant medical superintendent of the asylum at New Westminster.

Dr. G. C. Richardson, of Hazeldean, has been appointed Sheriff of Carleton county, in succession to the late Sheriff Sweetland.

Dr. Claude E. Kilborn, of Winnipeg, died on September 7th. He was in his thirty-first year, and was a graduate of Manitoba College.

At the last meeting of the American Laryngological Association, Dr. H. S. Birkett, of Montreal, was elected President.

Retrospect of Current Literature.

MEDICINE

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

E. L. TRUDEAU. "Tuberculin Immunization in the Treatment of Pulmonary Tuberculosis." *Am. Jn. Med. Sc.*, June, 1907.

Immunity in tuberculosis has long been looked upon as impossible of attainment, because there is little clinical evidence that one attack protects against another. Experimental work has, however, done much to demonstrate the possibility of producing a certain degree of immunity. This immunity is only relative and the best results have been obtained by vaccination with living bacilli.

Calmette, from the introduction of living bacilli in calves and young goats, was able to produce immunity to subsequent inoculations in doses proving fatal to controls, while a larger amount, or repeated inoculations of the same small dose ended in general infection and death.

The work of Wright and Douglas on the opsonins shows that the size of the dose governs the result, which may be a prolonged negative phase with its decrease of the natural resisting power, or a positive phase resulting in a relative degree of immunization. If we use tuberculin by the clinical method small doses result in a well marked degree of toxin immunity, as shown by increased toleration to large doses of toxin, whilst larger doses, or too rapid an increase may induce an aggravation of all the symptoms of the disease.

Trudeau has used chiefly the B. E. tuberculin. Habituation takes place slowly and violent reaction sometimes takes place even when the dose is increased with the utmost care. Possibly a preliminary course of B. F. tuberculin might obviate this difficulty.

The clinical method of using tuberculin adopted by Trudeau aims at carrying the patient to large doses, one hundred to ten thousand times the initial dose, while avoiding marked reactions or any disturbance of the patient's general health. The main difference between this and Wright's method is progression in dosage and to a certain extent the interval between the doses, which is much longer in Wright's method.

The question is which is the more reliable method as to dosage—the opsonic index or the clinical observation of the patient's condition and symptoms? And is the production of tuberculin immunity essential or not?

The improvement in the patient's general condition and symptoms while being injected with increasing doses of toxin, would point to the conclusion that whatever the effect may be on the opsonic index, it has a favourable influence on the patient's disease.

When used according to established rules there is little risk in tuberculin, and the main object by the clinical method is to produce as strong an immunity to tuberculin as possible, without bringing about any general fever reactions, violent local reactions or disturbing the general health.

The dosage at the outset of treatment should be extremely small and to put off reactions as long as possible. If a marked reaction occurs at the onset it is very difficult to habituate the patient to increase in the dosage. It has been amply demonstrated that tuberculin hypersusceptibility may be produced on cases in which the diagnostic test has been made with tuberculin, and it may be exceedingly difficult to produce tolerance when the treatment is begun. To commence with doses of 1-10000 milligram of filtrate B. F. or Koch's B. E. in afebrile cases, or 1-1000 mg. old tuberculin should be given.

Denys makes use of eight solutions in giving B. F. No. 1 contains 1-10000 mg. to each c.c. No. 2 contains 1-1000 mg. to each c.c. No. 3, 1-100. No. 4, 1-10, and so on running up to No. 8, which is pure filtrate. The increase in using these solutions is always by 1 decigram each solution. As 10 decigrams, or 1 c.c. of each solution is reached, the real solution which is ten times stronger, and in which 1 decigram represents the same dose as 1 c.c. of the preceding solution, is taken up and the increase is again by 0.1 of the new solution until 1 c.c. is given. Thus, for ten doses the increase is by 1-10000 mg., then by 1-1000 mg., etc. Reactions are most apt to occur at the second or third injection of the new solution, as the increase is ten times larger when a new solution is used.

The intervals between the injections are three or four days, and longer with the larger doses. If no intolerance is manifested it should continue for six months, but when reactions appear it may take a year to reach full doses.

The symptoms of intolerance may be divided into three groups, those of a general febrile reaction, those indicating a local reaction both at the site of disease and of injection, and those pointing to general constitutional disturbance, as malaise, headache, sleeplessness, pains, anæmia, nausea and loss of weight and strength. Any of these groups of symptoms indicate intolerance, and are to be considered before giving another dose and in regulating its strength. The febrile reaction may be short or prolonged, the former resembling the tuberculin reaction, and the latter lasting at a very moderate grade for a week or less.

Local reaction at the seat of disease is a valuable guide to dosage. Increased cough and expectoration, pleuritic pains, aggravation of the

physical signs, hoarseness, pain and aphonia if the larynx is involved all point to local reaction and are indications for caution in increasing the dose. If moderate, these symptoms soon subside, and are of benefit in bringing about reparative processes. In support of this is the improvement in the general condition and the lessening of cough and expectoration following moderate local reactions.

Slight local reaction may be disregarded, but if severe it is of significance and demands caution in increasing the dose.

More important and most often disregarded because no rise in temperature may be present is the group of symptoms denoting constitutional disturbance. If the injections are continued and the dose increased the disease may take on an acute form.

The more chronic types of cases are the most favourable for tuberculin treatment. Acute cases, or cases with an acute onset, should be treated by the open air treatment only, and the remedy should only be used when a partial arrest in the activity of the process takes place.

Trudeau's belief in the value of tuberculin rests on a long clinical experience, and is supported by the fact that 18 to 25 per cent. more of treated than of untreated cases discharged from the Sanitarium during the past fifteen years were living at the time of making the enquiry.

DR. JAMES J. PUTNAM. "Recent Experiences in the Study and Treatment of Hysteria at the Massachusetts General Hospital; with Remarks on Freud's Method of Treatment by 'Psycho-Analysis.'" *Jn. Abnormal Psychology*, Vol. I, No. 1.

HARRY LILIENTHAL and E. W. TAYLOR. "The Analytic Method in Psycho-therapeutics. Illustrative Cases." *Publications of the Massachusetts General Hospital*, Vol. 1, No. 3.

These papers are based on Freud's view of the origin and treatment of hysteria. Briefly stated, Freud believes that hysteria has its origin in some suppressed emotion, usually a painful experience and commonly of a sexual character. The emotion is suppressed, but is accompanied by some bodily or verbal expression, which continues as an element of the patient's consciousness.

The recurrence of the expressive sign may involve also the recurrence of the emotion, but eventually the sign persists alone, until such time as the repressed emotional state is given some opportunity to work itself out in some adequate and natural expression, after which the recurrence of the sign comes to an end.

Freud lays much stress on the element of sexual repression, and regards the sexual factor as prominent in the etiology of all the psycho-

neuroses. In many of the hysterical cases there are predisposing circumstances ("hypnoid states"), without which, perhaps, the sexual or painful experience would not exert the binding force which they establish.

Freud believes that the mischief kept up by these repressed emotions are annulled if they are given an opportunity to work themselves off by articulating in the presence of the conscious attention. In order to secure the "cathartic" result, Freud does not regard it as necessary to resort to hypnotic methods or suggestion. He endeavours to induce in his patients a condition of relaxation and passivity, with abstraction from the engrossment of sense stimulations, and then with the hand pressed to the forehead to urge and lead them to search their memories, in order to bring to life anything and everything, no matter how disagreeable, how offensively sexual, which may be related to the condition which is at stake, or may even come into the mind, without at first seeming to have any relationship to this condition. The accomplishment of this task is said to be usually easier than it would seem. In fact, the repressed emotion, although it may be the thing which the patient seems to find the greatest difficulty in bringing vividly before his mind, is really the thing which, in fact, principally occupies his mind. The physician's appeal may for a long time be resisted, but when the "confidences" eventually come they have a sharpness of outline indicating how clearly they have been preserved.

Putnam regards the "psycho-analytic" method as one to be attained but by few physicians, but he is inclined to think that a confidential conversation may accomplish just as much good.

In both papers instances are recorded illustrating the methods applied and the beneficial results obtained.

OBSTETRICS.

UNDER THE CHARGE OF J. C. CAMERON AND D. J. EVANS.

The indications for, technique and result of operations for widening the pelvis. (XII. German Gynæcological Congress, Zentralbl. f. Gynæk., No. 24, 1907).

Zweifel (Breslau) defended symphyseotomy. At first he had to encounter opposition. The advice to let labour take its normal course after the operation had nothing terrible in it. It prevented vaginal lacerations. The women do not suffer greater pain than in normal labour. Gigli's opposition to symphyseotomy, that cartilage did not heal well, had been disproved by numerous experiments. The second

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cause of opposition was that the symphysis was a joint, yet he found that it healed as well as bone. The third cause, the difficulty of asepsis, could be got over. Good pains and a short labour were a necessity. Bad pains were often a sign of putrefaction of the amniotic fluid. The fourth was that only in 9 out of 100 cases was there any permanent increase in the size of the pelvis (Baisch). There were, however, 17 natural and induced labours, so that he ought to have reckoned 9 in 834, and in 8 of these he states that there was a "schlotter" joint. This, Zweifel says, is incorrect. He showed three of the patients, and their walk was quite right. Baisch had later withdrawn his statement. It was possible to demonstrate a measureable increase in the size of the symphyseal cartilage when, after operation, the patients were made to lie with the legs apart.

Doederlein was pleased to see that Zweifel and he agreed in all the important points. Various operators had shown that it was not at all easy to differentiate in subcutaneous operations between bone and cartilage, and symphyseotomy had been done in place of hebosteotomy. There was little to choose between the operations, but he believed that it was preferable to cut somewhat to the side. Zweifel and Pinard believe that section of the symphysis is preferable, as it leaves a permanent increase in the size of the pelvis. That may be possible when, a year or two later, a space is present; in the other operation, this does not occur. Natural labour after hebosteotomy is due to other favourable factors, not to increase in the size of the pelvis.

Von Franque had operated in 19 cases, and lost one mother from atonia uteri. Four children died owing to the operation having been performed too late, but he believes that it should be done in suitable cases, when the child is beginning to show signs of asphyxia, and not too long postponed; also when the patient is not too severely infected. Of 9 infected cases, all recovered, and 5 had no fever in the puerperium. He showed Sitzenfrey's needle, with which he held that it was impossible to injure the bladder. In two instances where it occurred, it took place during the separation of the bones. The operation is indicated when, two hours after rupture of the membranes, the head has not entered the pelvic brim; and then he allows labour to end naturally; but this could not always be followed, as there were indications that required intervention. Two infected cases with communicating vaginal lacerations recovered after a severe puerperium. The operation is not for every case in private practice. Nine of the patients were under observation for one year, and only in one (with a communicating vaginal laceration) was there any trouble in walking. Hernia was present in

no case. In two there was slight descent of the anterior vaginal wall. In one case the bones had not united two years after the operation. The children did well.

Seeligman reported the results of hebosteotomy as done by his method, which consists in making a small incision parallel to the upper edge of the pubic bone, then with his finger separating the periosteum from the back of the bone until he reached the lower edge of the pubis; then drawing the vulva inwards, he incised the skin at the outer fold of the labium majus, and with the finger separated the corpus cavernosum clitoridis along with the periosteum from the bone, until the posterior surface of the ascending ramus was reached. By so doing he can pass the saw very easily and without any danger of wounding adjacent organs. The needle used to pass the sound round is left lying to protect the parts during division of the bone. He drains through the lower wound. Results of operations in private and in kliniks show quite different figures. The induction of labour, perforation, and cæsarean section all show a considerable degree of maternal mortality, and he believes that hebosteotomy will diminish this.

Henkel believes that hebosteotomy in suitable cases and carried out with proper care, allows a very good prognosis to be given both for the mother and for the child. Primiparæ are not suitable on account of the resistance of the soft parts and the danger of lacerations, which cannot be prevented even if labour is allowed to proceed naturally. One usually does not expect in such cases the labour to terminate naturally. Prophylactic section of the pelvic may seem advisable in some primiparæ, where the soft parts are easily dilatable. The severe hæmorrhage and lacerations which sometimes follow render it advisable to wait till the os is fully dilated, as it may be necessary to terminate labour rapidly. The patient must never be left after the operation has been performed till the labour is over, and then the vagina should be examined for lacerations. It may be advisable to use the dilating bag to dilate the vagina, or to do an episiotomy. Certain forms of contraction, including pelves of the male type, and with a high symphysis, are not suitable for this operation. Lacerations, hæmorrhage, and bladder lesions affect the prognosis. Direct separation of the periosteum protects from hæmorrhage and bladder lesions. He had never seen infection of the wound or necrosis of the bone follow. He prefers the half-open to the properly so-called subcutaneous method. The section of the bone should be done as near the symphysis as possible, as that gives the greatest amount of room. He operates through a single small incision at the upper border of the symphysis.

Certain researches which he had made on the symphyses of women who had died soon after labour had shown that the symphysis was a proper joint, with a fibrous capsule and a true synovial membrane.

Stoeckel reported 44 cases from the Charite (Berlin), with no maternal deaths. Two of the children died. Hebosteotomy is an operation without danger to the mother. By the proper subcutaneous method there is least bleeding, and the bladder can easily be avoided. As the bladder lies usually extra-median, its position should be correctly ascertained, and the operation performed on the opposite side. If the needle is passed from below upwards, the bladder can be easily avoided. In his 44 cases, on only one occasion was the bladder punctured. Bladder puncture will heal spontaneously, while bladder rupture is dangerous, and is due to excessive separation of the bone. The legs should not be allowed to separate too widely, and labour should be allowed to proceed naturally. Prophylactic hebosteotomy purely on the result of the pelvic measurements is not justified, and neither should one wait too long. In the case of obvious disproportion between the fœtal head and the pelvis, hebosteotomy should be done as soon as the os is fully dilated and the child still unharmed. Operative delivery is indicated when there is any danger to the child. Forceps is preferable to version.

Fleischer found as the result of hebosteotomy of seven puerperal pelves that (1) the true conjugate showed a distinct increase, greatest in small, round pelves (10 mm.), (2) the transverse diameter was still more increased (up to 2.3 mm.), on the average 14.3, 15.0, 15.6; (3) the alteration in the oblique diameter was very slight, and should not affect the choice of the side for operation: (4) the circumference was important, as the average increase was 5.5 c.; (5) the integrity of the sacroiliac synchrondrosis was not affected by a separation of the bone of 4 cm.

Schickele says that in order to bring about a permanent increase in the size of the pelvis, the section of the bone should be made in the form of a step, and after delivery the ends of the bone so manipulated that the two projecting parts remained opposite each other. This might be arrived at by keeping the patient lying, with the legs abducted.

Van de Velde directed attention to the permanent increase in the pelvic dimensions which can be attained after hebosteotomy when the patient is made to lie with the legs well apart and without a bandage. Such increase takes place with complete recovery of the bony continuity. He showed skiagraphs, from which one could see that there was an increase of from 1.5 to 2.0 cm. That this is sufficent was proved by three of his cases, in which the next children were born naturally, even

although they weighed 100, 300 and 160 grammes more than those for which hebosteotomy was done. This is preferable to the increase sometimes met with after symphyseotomy, where union is fibrous, whereas here it is bony. There are none of the disadvantages of symphyseotomy. The pelvis is certainly assymetrically enlarged, but this is no disadvantage, as it allows during the passage of the head the parietal tuberosities to find room. He reported two cases with favourable results where the operation had been done for contracted outlet; the one was a coxalgic, and the other a funnel-shaped pelvis. When the soft parts at the outlet are with difficulty distensible, or not at all, he does as a routine operation episiotomy, and considers it necessary in all cases where hebosteotomy is done for contraction of the outlet. The operation is of great use in contracted outlet, as the increase is more direct, and it will replace perforation in many cases. There is demonstrable after the operation an increase of from 1.5 to 1.30 cm. in the distantia tuberum.

Fueth made a number of experiments on rabbits in which he transplanted a piece of rib cartilage into the symphysis pubis, and six weeks later killed the animal, and found that it had healed in with the formation of a fibrous capsule round it, and increased the width of the symphysis from 2 mm. to 1.05 cm. Becoming cognizant of the work of Payr with magnesium, he tried the effect of the metal in the form of wire, and found that by using it instead of cartilage, he could get an increase in the use of the symphysis and the formation of fibrous tissue as easily as with transplanted cartilage.

Sellheim advises that one should practise the operations of symphyseotomy and hebosteotomy on sheep that have, previous to being killed, been rendered insensible by a blow on the head as the conditions are very similar to, what is found in man.

Kroemer believes that operators must take steps for a better convalescence, and cause the formation of a distensible cicatrix—a pseudarthrosis. The latter he has arrived at in dogs by interposing a piece of muscle and fascia between the ends of the bones. The prognosis of the operation depends upon the extent and healing of the lacerations. He is opposed to forceps delivery, as it causes lacerations, while version and extraction do not do so. After the operation, the bladder should be filled, and if there are any lesions then the part should be laid bare, and after primary suture, a catheter tied in. Of 134 cases operated upon at Giessen, all the mothers made a good recovery, and all the children were born alive.

Buerger states that in Schauta's Klinik 76.5 per cent. of women with narrow pelves were delivered naturally. The "surgical" cases amount-

ed to 34.4 per cent. He is in favour of hebosteotomy taking its place in obstetrics, as he believes it is a safe procedure for both mother and child. The operation does not interfere in any way with walking or working, and in many there is a permanent increase in the size of the pelvis.

Scheib reported a case that had died from atonia uteri twenty-seven hours after hebosteotomy. The woman was a primipara, aged 39, with a slightly assymetrical flat rachitic pelvis (conjuguta vera 6.9 cm.). He made casts, and gives the following as his conclusions: (1) That it is important that the expulsive forces act in the same way as in the complete pelvis; (2) That the increase in the obstetric conjugate is greater than in the transverse diameter when the expulsive force acts vertically; (3) That the increase in the transverse diameter of the pelvic inlet is due to the pelvic bones opening like the halves of a door, the axes being at the sacro-iliac synthondroses; (4) That when the bones were apart, there was no increase in the length of the oblique diameters.

Menge's treatment for the commoner forms of contracted pelvis is as follows: (1) When the conjugate is between 5.5 and 6.5 cm., and the child of medium size and alive, cæsarean section; (2) With a conjugate between 6.5 and 7.5 cm., at times labour can finish naturally. This is possible in head presentations. In breech and transverse presentations, prolapse of the cord or small parts, and when in the interest of the mother or child delivery must take place without delay, cæsarean section; (3) With a conjugate between 6.5 and 7.5 cm. hebosteotomy may be done before it is possible to know the proportional relation between the fœtal head and the pelvis, *i.e.*, before rupture of the membranes, as natural delivery can scarcely be expected. It is, however, advisable to wait till the os is fully dilated. When the membranes have ruptured, the operation should be done as soon as possible; (4) With a conjugate over 7.5 cm., spontaneous delivery of a full-term child may occur. When, however, some considerable time after the membranes have ruptured, it is clear that the disproportion between the fœtal head and the pelvis will not allow of a normal delivery, and the child is still alive, hebosteotomy should be done; (5) With a conjugate between 7.5 and 8.5 cm., hebosteotomy is preferable to version and extraction when the presentation is transverse and cephalic version impossible, when there is prolapse of the cord or small parts, or when the presentation is a breech; (6) Immediate delivery after hebosteotomy is only proper when the mother or child are in danger.

Reifferscheid reported 27 hebosteotomies. One died five days after operation from emboli. Bladder lesions occurred in three instances.

In all the operation was done by the proper subcutaneous method, in which he does not think it is possible to avoid the bladder with certainty. Labour should be allowed to terminate naturally. It is suitable in cases with a conjugate over 6.5 cm., and permits us to wait and see if labour will not terminate naturally. In private practice its place will always be taken by induction of premature labour. A second pregnancy after the operation ended in one case in version and extraction of a living child, and in another labour terminated naturally. The children were, however, smaller. Union was found not to be bony, but fibrous. It should be attempted to get some of the muscle or fibrous tissue between the ends of the bone, so that union will be fibrous, and a more or less movable joint formed.

Thiess states that natural labours are very common after symphyseotomy. There is permanent enlargement of the pelvis, as can be seen from measurements and skiagraphs. The symphysis also then has the power of stretching, and this does not interfere with walking. Labours before the operation show 16 per cent. of living children, after the operation, 79 per cent.

Pelham reports from Chrobak's Klinik that out of 1,300 labours where the pelvis was under 10 cm. conjugata vera, 72.5 per cent. were delivered naturally, and 27.5 by operative means. Hebosteotomy can be used in cases where formerly cæsarean section was done from relative indications. It is owing to the great danger of lacerations, not an operation for the general practitioner, and should be done only in hospital.

Hammerschlag, in reporting the cases from the Koenigsberg klinik, discards the superiosteal method, as it is only after the periosteum is torn that the bone can fall apart. He attempted in one patient to get a permanent enlargement of the pelvis by transplanting a piece of periosteum and bone from the tibia.

Baisch compares the child mortality of Saexinger, who makes common use of the induction of premature labour for contracted pelvis, and of Doederlein, who very rarely has recourse to it, and finds that it is about the same. Leopold had a similar experience.

Mayer discussed the question of the osseous healing of hebosteotomy wounds. Nine women were operated upon, and of these, six were examined later, and to five it was found that union was fibrous. Reviewing the position of affairs after operation, it seemed that any separation of the bone was favourable to fibrous union.

Walcher would pla.. the limit of hebosteotomy lower. In one case he had operated with a conjugate of 6.2 cm., and the child lived. The time for the induction of premature labour should be placed later.

Bumm had done hebosteotomy 44 times in 4,000 labours without a maternal death. Bad bladder lesions were caused by separation of the legs, not by the needle. Too much weight should not be laid upon a permanent increase in the size of the pelvis, the delivery of the patient was the first consideration.

Franz had done 11, and lost one from thrombosis of the ovarian arteries. In two there were some difficulty in walking, and one had a hernia.

Fehling had operated in 20 cases, and found it difficult to fix the limit, as he considered it depended upon the sort of deformity of the pelvis. Hebosteotomy would take the place of perforation of the living child. He did not think that the induction of labour gave so bad results as some were inclined to think.

Von Rosthorn lost one patient from hæmorrhage after hebosteotomy. He opened up the wound, but could find no bleeding vessels and plugged, but the bleeding continued. The bleeding was purely venous.

Kuestner and Hofmeier were opposed to hebosteotomy, and favoured cæsarean section.

Zweifel, in reply, stated that he was pleased that the concensus of opinion was in favour of waiting for a spontaneous delivery after operating. He had advocated episiotomy some time ago. Bladder lesions did not follow symphyseotomy, only hebosteotomy, and unless this could be avoided, symphyseotomy was preferable. He was opposed to the induction of labour in contraction of the first degree; in contraction of the second degree, it was permissible. After symphyseotomy there was a permanent enlargement of the pelvis, but this was not proved for hebosteotomy.

Doederlein, in reply, said that the future of hebosteotomy depended, upon good primary results. The question of a permanent increase in the size of the pelvis was of secondary importance, but if it were as easily attained as Van de Velde said, then it should be attempted. Bladder lesions could be avoided by the use of the finger.—W. G. G.