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Original Communications.

PRESIDENTIAL ADDRESS, ONTARIO MEDICAL ASSOCIATION, 23RD ANNUAL MEETING.

BY J. C. MITCHELL, M.D.,
Physician to Asylum for the Insane, Toronto.

Gentlemen of the Ontario Medical Association: To have been deemed worthy of the most exalted position within the province of this Society to grant is indeed an honor.

The opportunity, however, to prove whether or not such virtue lies within me demands warmer expression of thanks, more zealous and untiring service from its recipient in order that the unblemished name and history of this Association may still stand for all that is worthy and of good report in our work. For both the kindly thought and the opportunity then, I desire to again express my thanks to the Medical Association of Ontario.

Permit me also to gratefully express my keen appreciation of the wisdom displayed in the selection of the executive. Surely no general ever had more faithful, earnest officers than were elected to support the hands of your President this year. To them, if there be success attending this meeting, let there be ascribed whatever of honor is associated in your minds with the successful carrying out of the general idea and the details of this meeting; theirs has been the tilling and sowing, with the labor late and early, that to you may come the full measure of reward for your faithfulness to this old Society which has meant much to many of us during the past years.

And now once again the President and officers greet the members and friends of this Association and desire to make their greeting warmer and more full of friendship than ever before, for has not our sympathy been mellowing and ripening

during another year, short though it may seem. And not alone the old members do we greet with gladness but the new, and those who come to us as welcome guests.

I utterly fail to grasp the true sentiment of the profession here if your visit at this time does not make you feel how glad we are to have you as our guests, and how anxious we are that this brief period of relaxation from your onerous professional duties may be one of the most pleasant and profitable you have ever spent.

This Province, though young in years, has for the greater part of its life taken a prominent place in educational matters.

Our Public School system growing out of that established by that wise educationalist, Dr. Egerton Ryerson, is one of which we are justly proud, and yet it has its faults.

A few years ago Dr. Hutchison, of London, read a paper before the Association, pointing out the injury occasioned to our growing youth by the present system of determining promotion by the result of written examinations. He showed how a very large amount of the work done was simply cramming for examination and not true education. That a great many children and young people were severely injured in health from the unwise but unavoidable competition under the system.

At last freedom and better order are making their appearance. The Hon. R. Harcourt, Minister of Education, has brought in a bill this session making changes as far as city schools are concerned, and he proposes discussing more radical changes with a committee appointed at the Ontario Teachers' Association, so as to enlarge its scope next year to apply to all the schools of the Province, thus making our systems more educative and less competitive, by combining with it manual training and eliminating many of the examinations. Our pupils will not then be under so great a mental strain, and will have better opportunities to mature and make the healthy men and women this country requires for the great future it has before it.

Truly we can get along with fewer neurasthenics, neurotics and cranks than we have at present. We welcome the evidence of progressive thought and interest in the welfare of our youth on the part of the Government.

We congratulate the medical schools of the Province on the good work they are doing. Our graduates compare most favorably with those of similar length of training wherever they may hail from; men going from our schools having that within "which maketh not ashamed," notwithstanding the immense endowments of many of the wealthy colleges elsewhere on the continent.

The rapid changes and development in both medicine and surgery will soon require a longer and more extensive course

than at present, and we can confidently depend upon the Ontario Medical Council keeping up the standard required to meet the exigencies of the time.

We can also trust the efficient staff of each of our medical colleges to make the clinical teaching keep pace with the large amount of work now required in the laboratory, so that our graduates may be as skilled in their observation of symptoms as they are in chemical and microscopic analysis.

We are glad to note the ever increasing number of our practitioners who are spending a greater or lesser amount of time in post-graduate work.

Has not the time arrived for the establishment of a post-graduate course in Toronto?

We have physicians as well instructed in scientific medicine, and surgeons who operate as skilfully as can be found anywhere. Our hospitals, too, have increased in number and importance, so that plenty of material could be at hand.

A staff formed by the union of our best men to give a post-graduate course could not fail to be of benefit to the Province, and afford opportunities of advanced study to many who could not, and to many who should not be allowed to go elsewhere.

We are glad to notice the increased number of hospitals throughout Ontario. It means a great deal to the afflicted, and particularly to those of limited means. It will give our local surgeons and practitioners a chance to do better work and to obtain vastly better results from the improved *regimé* possible in a more general use of the hospital. We trust it will not be many years until every town in Ontario will have its hospital.

We congratulate Lady Minto on her success in the establishment of Cottage Hospitals, and feel sure she will be rewarded for her labors in this direction by the benefit obtained by those afflicted ones who will receive care and treatment therein.

In our city hospitals I would endorse what our immediate past president, Dr. Powell, proposed last year, that the term of the house surgeon should be extended to at least eighteen months and so arranged that only half the staff be relieved at one time, so that skilled and expert men may be always in attendance. In this way a new appointee would not occupy a responsible position until trained for it and a skilled anesthetist would always be available.

In Provincial legislation the only matter of special note is the regulation adopted by the Provincial Board of Health on February 12th last *re* scarlet fever. It has occasioned a great deal of adverse criticism and it is questionable if the order for removal to either isolation hospital or tent is practicable at all seasons of the year either in congested communities or rural districts, and unless the attending physician has some voice in the matter it is not likely this law will be productive of good.

As for the Dominion House, Dr. Roddick succeeded in getting an Act passed providing for the establishment of a Dominion Medical Council with full power to hold examinations in medicine and grant licenses valid in any portion of the Dominion. This Council can only become constituted when all the provinces have accepted the provisions of the Act. With the exception of Quebec all have enacted such legislation as to make the Act effective. The legislature of the Province of Quebec, however, defeated the bill introduced for the purpose of rendering the bill inoperative. The reason for this action was that under the present Provincial Act Quebec graduates in McGill, Bishops and Laval Universities who have passed four years in their studies and obtained their degree are entitled, without further examination, to obtain a license to practice medicine in that Province. Graduates of the Manitoba University also require but four years, whereas, in Ontario, as we all know, a fifth year has to be spent before the candidate can go up for his final examination before the Council.

Dr. Roddick's Bill, had it been accepted, would have placed students in all the provinces upon the same footing, and having passed the examination of the Dominion Council the successful candidate would then have possessed a license entitling him to practise anywhere in Canada.

The series of amendments to the Act suggested to render it acceptable to Quebec would be so manifestly unfair to Ontario that we, of this Province, could never accept them. It would appear, therefore, that inter-provincial legislation is dead for the time being, unless Quebec is willing to rescind its action of the past session, and, like Manitoba, unselfishly place itself on the equal and advanced footing of the other provinces.

Dr. Roddick, however, has still hopes, and writes to say that, "Considering that four of the provinces have completed the concurrent legislation necessary, I am not disposed to give up the fight."

He is now asking the Parliament to amend the Dominion Registration Act so as to permit the provinces that favor it to begin at once the work of such registration.

The doctor certainly deserves great credit for the vigorous fight he has put up, and we earnestly hope he may be successful in his efforts.

The need and importance of the continuous education of the public on the lines of public health and prophylaxis is well illustrated by the formation of an anti-vaccination society in this city. At some of the meetings of this society this year, some practising physicians made statements (or were reported to have made them according to daily papers, April 10th) so wide of the truth that they showed a most lamentable ignorance of the whole history of the subject.

When we find the very commendable action for the enforcement of vaccination questioned by one of our own profession who introduced a motion during the late session of the legislature for the repeal of said enactment, it is certainly time to look into the matter and ventilate it as thoroughly as possible.

We believe with Dr. Ridpath that: "Essential freedom is the right to differ, and that right must be sacredly respected, nor must the privilege of dissent be conceded with coldness or disdain, but openly, cordially, and with good will. No loss of rank, abatement of character or ostracism from society must darken the pathway of the humblest, honest seeker after truth. The right of free thought, free enquiry, and free speech to all everywhere, is as clear as the noonday, and bounteous as the air and the sea."

If all professed seekers after truth were only honest in their views we could have no quarrel with them, even though we might differ in the result of our investigations. Some talk loudly on these subjects simply for effect, and are not honest in their statements, but desirous to achieve notoriety. Others talk through ignorance, having never taken either the time or labor to obtain for themselves the facts of the case. Then, added to these classes, we have the cranks and bores who will have a word in anyway, even if it be to repeat again and again some set speech.

At the same time it is the duty of the medical profession to continue to do as they have done in the past: ascertain all the facts in the case, study out the underlying truths, and put them, so far as we can, in the possession of the public. We must, so far as in us lies, continue to protect the public from themselves, even though we may often be called hard names, and lie under the charge that we are working with interested motives. On the contrary, we have motives of the very highest and noblest character, viz., the best interests of humanity; the desire to have justice done to the poorest and humblest who have not the means of protecting themselves from the scourges, such as smallpox, etc., that may devastate and destroy countless numbers, as in the past. Smallpox, from being a dreaded scourge, has become a disease seldom seen, and its increased prevalence during the past few years may well be ascribed to our increasing carelessness in vaccination.

Unless we are occasionally wakened up by an epidemic the tendency to neglect all forms of safeguarding ourselves grows upon us, and we do not like to take the trouble to render ourselves safe. It is difficult to convince people who have never seen the ravages of smallpox that it is an essential thing that their children should be vaccinated (and run the chances of a few days' illness or a very sore arm) for the sake of being pre-

pared for an evil that is unknown to them, and therefore entirely unappreciated.

There certainly have been evils in connection with vaccination, but what are the very worst of those compared to an epidemic of true smallpox in an unvaccinated neighborhood.

It would be safe to pay no attention to these anti-vaccinationists and class them in with the followers of Christian Science, the Dowieites, Vitosophists, Osteopathists, etc., were they not such a menace by reason of their position as guardians of the public health. We see very many apparently sensible people led off by these fads, so it becomes our duty to impart to them all the knowledge we can on these important questions of health and disease, and particularly along the line of preventative medicine.

Germany has possibly the most compulsory system of vaccination in the world known, and the result is that smallpox has almost vanished from the Empire. In 1899, with a population of 54,000,000, there were only 28 deaths of people nearly all of whom came in from an adjoining country.

If we consider the duty of the true physician is to stand by all measures that tend to promote health and prevent disease, there should be some way then of punishing those doctors who encourage the laity in their foolishness in combatting the laws which are intended for their own best interests. Such action is certainly highly reprehensible, and it is hard to believe physicians of any school could be guilty of talking such "utter nonsense" as was attributed to them at one of their anti-vaccination meetings.

It is quite probable that Dr. Councilman's great discovery of the germ that causes smallpox will assist us in a short time to a better understanding of the *rationalé* of vaccination.

Two years ago the then president, Dr. McKinnon, referred to the great and serious delay there was in gaining admission to our asylums for cases of acute mania, particularly with those at a distance.

This need never occur at the present time with our long distance telephone facilities, if our physicans are only careful enough to supply sufficient information. In all our asylums the superintendents are anxious to take in and look after this class of cases, and if applying physicians will but send full particulars setting forth the urgency of the case, complete papers for admission will be sent at once.

Asylum authorities, as a rule, send the history or application paper to fill up first, and then, if the case is a suitable one, and they can at all make room the patient is admitted.

A great many senile cases are sent into asylums which could be looked after all right in their own home.

It is a matter of great regret that so many insane people are sent to gaol without first making application to our asylums to see if they cannot be admitted at once. In the past year of all the insane that have been sent into Toronto gaol (and there have been a large number), in only four cases was Toronto asylum asked to admit the patient previous to arrest, and in all of these cases (with one exception due to overcrowding), although we sent the complete set of papers immediately on application, an arrest was made before the papers reached them, when there was really no necessity for this precipitancy.

Our physicians have a large measure of responsibility in this matter and they should try and prevent any case of insanity being sent to the gaol, unless there is absolutely no room for them in asylums, as is sometimes the case.

A change also should be made in the law so that two medical certificates would transfer a patient from the gaol to the asylum as it does from outside. In this way prompt action could be taken as against the complex procedure which at present exists.

We are glad to note that the Provincial Secretary, Hon. J. R. Stratton, has introduced and passed an act the past session, making it compulsory for all counties to erect and help sustain County Refuge Homes, one in each county or united counties. If these homes were in every county our asylums could in time be unloaded of all the chronic harmless dements and leave space for those amenable to treatment or who are a menace to the public or themselves.

So much can be accomplished by proper treatment and so many apparently hopeless patients restored to normal or almost normal conditions that it is certainly very sad that all the deranged cannot obtain a fair chance of recovery. We are overcrowded by a class of patients that would be quite safe elsewhere.

If county homes would take harmless dements and the majority of the senile cases it would leave room for the immediate admission of all acute cases and give opportunity for the classification and arranging of those under treatment. It would also, if properly looked after, lessen the arrests for insanity and shorten the period of their confinement in gaol when arrested.

It would be well to see the name asylum done away with and the term hospital substituted. An asylum simply means a place of refuge, while the term hospital would educate the public to understand that it is an institution for cure.

The medical profession should educate the public as to the dire results of heredity by misalliance, which populate the country with degenerates, a large number of whom afterwards gravitate to the asylums. They also have a very wide field in

the way of preventative treatment of children with a tainted line or lines of ancestry. Much more can be done than is commonly thought to ward off impending evils by early attention to the mental and physical evolution of such children.

The officers and active friends of the Ontario Medical Library Association have made strenuous efforts the past few months to place the library on a more sound financial basis.

There has been a movement on foot to enable the Board to purchase or erect a suitable building in which to store the books, and in which the several medical societies in the city can hold their regular meetings. At the last annual meeting, held on June 10th, handsome subscriptions for this purpose were reported by the Trust Committee, including $1,000 from Prof. William Osler. The amount subscribed by the profession is upwards of $3,600. In addition, between five and six thousand dollars have already been promised by a few public-spirited gentlemen who have the interests of the library at heart. The members of the profession have not as yet been all canvassed. The Board feel very much encouraged in their efforts and hope soon to be able to report further progress, and that the long-felt want will soon be a reality.

Now that the amalgamation of the Universities of Trinity and Toronto seems to be assured, there is greater unanimity than ever among the friends of the library. The feeling is that we should have a large central building which could be used for meetings such as this, in fact, a place where each medical man in the city and Province could feel he had a home. For the present they still occupy rooms in the upper floor of the Medical Council building, which have been provided for them by that body for a number of years. The Board wish to convey their thanks to the members of the Ontario Medical Council and Ontario Medical Association and the numerous private individuals who have generously contributed to the support of the library.

The books on the shelves are now catalogued and members of the Association are requested to take a copy of the catalogue with them, and if they wish to have a book sent them, that can be done simply by mailing a card to the Assistant Librarian and paying express charges.

It will be noted that in order to make the library self-sustaining as far as possible, the annual fee of $2 has been raised to $5.

At Gravenhurst, the National Sanitarium Association are continuing the excellent work for consumptive patients of our Province and of the Dominion.

A free hospital has been provided at a cost of $40,000 for the treatment of those who are really unable to care for themselves

as well as for those who are able to pay but a portion of the expense for their care.

No patient has been turned away, providing he was medically considered fit to undergo the treatment there. So that all cases of incipient phthisis, the poorest as well as the richest, have thus a door opened to them which has in many cases proved a door of salvation.

An effort is being made to induce the Government to make a grant of $20,000 towards the latter institution and we cannot conceive of a more legitimate demand on the part of the people for an apportionment of the people's money than one to this cause. It is greatly to be desired that both the public and the profession examine more thoroughly the work carried on so that all may be more thoroughly the work carried on so that all may be more interested in what has proved to be one of the most worthy institutions of our Province.

One of the greatest bars to the successful prosecution of the work from the professional aspect is the failure on the part of the profession to secure an early diagnosis of the condition of a patient.

How long will it be necessary for this Association to call attention to this fact? Happily our minds are slowly awakening to it, though our rising is but slow. The fault is not entirely with ourselves but also largely belongs to the careless public.

As for ourselves let there be no longer any taint upon our skirts—no partial and unsatisfactory examination of patients —no longer let the ready cough mixture take the place of scientific treatment preceded by systematic and minute analysis of symptoms. To-day with the enlightenment abroad in the world it is for every practitioner to enjoy the privileges made possible by the indefatigable workers along these lines.

One of the greatest advantages that results to the patients undergoing treatment at Gravenhurst is the knowledge he acquires as to how to live, so that he may prolong his own life and care for as well as teach others how to live.

Although the religious periodicals of Ontario have greatly improved in their character in the medical advertisements published during the past few years, they might go still further and copy the example set this year by one denomination in the United States. The agent having charge of all the advertising in the Methodist periodicals for the whole of the United States has definitely announced that no medical advertisement of any kind will be accepted this year.

Many of these advertisements are not only very immodest, but have an extremely debasing and immoral tendency, and many things are advertised to be used for immoral purposes,

but worded in such a way as to keep the advertiser safe from the law, as they admit of a double meaning.

Our public press still pander to this kind of thing, and many of the advertisements in our daily papers are simply disgraceful and not decent enough to be introduced into a respectable home.

Apart from this, they are all intended to gull the public.

Take for example, the wonderful cures by "The great Dr. Bluff," of Boston, the Electric Belts, Peruvian Syrup, and scores of other fakes of that class.

People who have led immoral lives, chronic sufferers and the weak-minded generally, are led away by the wonderful results promised in this misleading twaddle. They think there can be some miraculous change performed by these quack remedies, and that they will be restored to health and still go ahead and violate nature's laws in any and every particular.

It is time that our leading journals freed themselves from this prostitution and published clear sheets that have for their object the building up and amelioration of man's condition.

Our medical men themselves, we are sorry to admit, are not always free from dabbling with quack remedies, and it is not to be wondered at when some of the medical journals to the south of us advertise medicines which border on quackery as freely as they do. If we want to retain our own self-respect, and the respect of our professional brethren, we must stand by legitimate medicine. "Prove all things, hold fast that which is good."

We cannot bring our paper to a close without referring to some of the events which have occurred during the year, bringing sadness to all our minds.

The rider of the Pale Horse has been busy counting up his roll of victims. We see emblazoned upon the marble shields of his hosts an ever increasing number of names of good soldiers that have been overcome while battling "strong and true."

We, who are thrown into the posts of danger and the vanguard of the forces, must yield our quota of losses—for the inexorable law promulgated in the beginning of time may not be set aside. Though our warfare must always end in defeat until that great day when a new heaven and a new earth appear, and the weapons of our warfare are laid aside, yet we battle on, proud in our strife, because of the glorious possibilities which lie before all seekers after truth. Every true physician desires but to say at last, "I have fought a good fight, I have finished my course," for though the sword of the King of Terror strike us from our places, yet does it but cut the latch which lightly closes the gateway to the Eternal.

Ontario, this year, has a long roll of names of those who

have gone up from the battle. Of these, perhaps, the most familiar to us all are those of Spencer, Gordon and Horsey. The first two, because of their long connection with the two medical colleges, in which they did faithful work, and also because of the active interest they took in this association. The latter, because of the important position he filled, and seemed destined to enlarge in the political life of the Dominion.

The kindly reference to the life and work of Gilbert Gordon in the daily press, with its general estimation of the value of the cultured, honorable and sympathetic practitioner to the community, commands our warm praise, and makes us feel that the ofttimes overtaxing strain is, after all, worth the labor, if it but brings us so near to the hearts of our fellowmen.

Abroad, one of the Princes of Medicine passed away in the person of the great Virchow, honored by his fellows the world over, by the state and people.

While the veil of the future still hangs before our eyes, and though we stand on this side in what seems to be the full glory of the noontide of discovery, yet ever and anon there flash out from its impenetrableness gleams of light that seem to us revelations more glorious and full of hope than any which have yet been accorded to this age of rapid advancement.

We rejoice in the history of the past, with its record from the groping of inexperience to the dawn of rationalism.

The progress in our science has carried us from the question, "How shall we treat?" to "How shall we prevent?" and the unfolding of the future will largely concern developments along the line of the latter question.

To its solution this chair again calls your eager attention and effort. No question involving greater issues has ever been presented to the minds of men.

The time demands greater concentration of effort, more systematic methods of study and work, a priesthood in the temple of Galen more intellectual and highly trained than has been found during the past, and these the time will have. Let it be our part to so lay the new road-beds of medical progress that the trains may run no danger of being jolted and hindered by the pine stumps and rocks of the "has been."

> "Then let us on through shower and sun,
> And heat and cold be driving;
> There's life alone in duty done,
> And rest alone in striving."—*Whittier.*

UTERINE MYOMATA AND THEIR TREATMENT.*

By THOMAS S. CULLEN, M.B.,
Associate Professor of Gynecology in the Johns Hopkins University.

Mr. President and Gentlemen:

I gladly accepted your very kind invitation, not only on account of the great honor you have conferred upon me, but also because it gives me the pleasure of once more mingling with my teachers and schoolmates. It carries me back to my earliest glimpses of medicine, and even now I have vague recollections of sitting on the anxious bench nervously awaiting the results of the University and Council examination.

The subject I have chosen is a familiar one everywhere, but strikingly so in the South, where the negro population is greater. In Baltimore, nearly one-tenth of all gynecological cases admitted to our wards have been uterine myomata. Dr. Kelly and I have been analyzing the material of the Johns Hopkins Hospital of the last fourteen years, and during that time considerably more than a thousand cases of myoma have been placed on record. In deciding upon the preferable operative procedure in a given case, it is necessary to bear in mind the different varieties of myomata, their situation and size, the various degenerative processes which they may undergo and the complications that may arise. Furthermore, certain symptoms will also serve as a guide for treatment. In order to make the present paper clearer, permit me to discuss briefly these points. The subject is not new, but we are every day adding little by little to our knowledge of it.

From the investigations of others as well as from our own studies, it would appear probable that in the beginning nearly all myomata are interstitial. As they increase in size they may remain so, or on the other hand, may push outward or inward, forming subperitoneal or submucous nodules. The number of myomata present in a uterus may vary greatly. Occasionally only one is present, but more frequently seven or eight, and in not a few instances twenty or more can be counted. Again, these growths usually vary much in size. Thus in a uterus there will often be found a myoma of many pounds' weight, while in its immediate vicinity is another myomatous nodule not larger than a pin-head. As we all know, myomata may occupy any part of the uterus, sometimes being located on the surface of the organ, or at other times pushing their way out between the folds of the broad ligament. Again, not infrequently they occupy the entire pelvis, and we find the body of the uterus lying on the top of them. These are the cervical myomata which at times are so difficult of removal.

* Read at a meeting of the Ontario Medical Association, June 17th, 1903.

Condition of the Endometrium where Simple Uterine Myomata Exist.

As a rule the cervical mucosa is perfectly normal save for the presence of a cervical polyp, or some dilated cervical glands. In the body of the uterus, endometritis is occasionally found, but, when present, is almost invariably associated with inflammatory changes in the adnexa. Tuberculosis of the endometrium is occasionally associated with myomata, but rarely occurs independently, and is then usually secondary to a similar process in the Fallopian tubes. Of squamous-cell carcinoma of the cervix and adeno-carcinoma of the body of the uterus we shall speak later.

While any of the foregoing conditions may exist, in nearly all instances the changes present are usually entirely mechanical in their nature. If the myomata are subperitoneal or intraligamentary, the mucosa is usually normal, provided, of course, that the tubes are unaltered. When the nodule impinges on the uterine cavity the mucosa over the most prominent part becomes stretched and thinned out, until eventually there will remain nothing but the surface epithelium covering the nodule. While this atrophy is taking place, the mucosa in the depressions at the sides of the nodules remains unaltered or becomes thicker, this thickening occasionally being due to simple gland hypertrophy. Portions of the mucosa are often mechanically forced out into the cavity, producing polypi. With the distortion of the mucosa the glands sometimes become blocked, and small cystic dilatations are formed.

When the myoma becomes entirely submucous, it is usually covered by a thin layer of mucosa, but in a few instances we have seen a sloughing focus in the myoma opening directly into the uterine cavity.

Now and then a submucous myoma in the posterior wall will blend with a similar nodule in the anterior wall, obliterating the uterine cavity entirely over a limited area. From an examination of a great many specimens we can lay down the general rule that where the Fallopian tubes are normal, and where no sloughing submucous myoma exists the uterine mucosa is perfectly normal. This fact has no little bearing on the operative treatment inasmuch as the condition of the mucosa is an index of how far we may venture in removing a partially submucous myoma by way of the abdomen. Histological studies, then, having taught us that the endometrium is usually normal, we can in most instances open up the uterine cavity with little or no danger of infection.

Parasitic Myomata.—With the increase in their size the

subperitoneal nodules are continually rubbing against neighboring structures and frequently become attached to them. As a rule they become adherent to the omentum, the omental vessels soon furnishing a part of the blood supply and the original attachment to the uterus becoming less and less, until it is finally lost and the nodule apparently springs from the omentum and from it receives its entire nourishment.

Recently I operated upon a patient giving a clinical history almost typical of an ovarian cyst, but on opening the abdomen I found a myoma about the size of a fetal head. This was attached to the uterus by a very delicate pedicle, while all the omental vessel plunged into its upper portion and supplied nearly all its nourishment. Associated with this partially parasitic myoma was an accumulation of fifty-two litres of ascitic fluid.

A few months ago, while performing a hystero-myomectomy, I saw a nodule as large as a baseball situated at the brim of the pelvis. It lay directly over the ureter as the latter crossed the pelvic brim. Its nourishment came from the mesenteric vessels, and it had absolutely no connection with the uterus. This nodule in all probability had originated in the uterus, but becoming adherent to the pelvic brim had gradually changed its source of nourishment until all trace of its former attachment was lost.

Simple Degeneration in Myomata.—Myomata, no matter where situated, often undergo softening. In the first place the tissue changes in color from the characteristic whitish-pink to a white or yellowish-white. Such areas are sharply circumscribed and occupy a varying portion of the myoma. This whitish tissue gradually disintegrates, and the spaces thus resulting are usually filled with a clear serous fluid. Sometimes, however, the material is oily in nature, resembling melted butter. As a result of the continual breaking-down of this altered tissue we have large cavities traversed by delicate trabeculæ. On histological examination the degeneration is seen to be hyaline in character, and this hyaline tissue gradually melts or fades away, leaving the spaces filled usually with serum, but occasionally with the butterlike material. This fluid on histological examination is found to contain large quantities of fat droplets and cholester in crystals. In these degenerated myomata there is usually not the slightest inflammatory reaction and no evidence of infection. This is fortunate since, if perchance we should accidentally rupture such myoma during its removal, we should have little to fear if some of its contents escaped into the abdomen cavity.

Suppurating Myomata.—Occasionally subperitoneal and intra-ligamentary myomata become infected, probably as the

result of some degeneration which has permitted the entrance of bacteria. These suppurating myomata have an outer covering of myomatous tissue and are lined internally by granulation tissue. We have seen them containing several litres of pus. In one patient operated upon at the Johns Hopkins Hospital there was a large cavity in a subperitoneal myoma which extended as high as the umbilicus. This cavity communicated freely with the transverse colon, the feces passing directly from the gut into the abscess cavity.

Sloughing Submucous Myomata.—While the subperitoneal nodules are extending upward and outward the submucous ones are forced more and more into the uterine cavity. Their mucosa becomes thinner and thinner and eventually the dependent portion of the nodule usually undergoes necrosis and sloughing. Sometimes only a small portion of the nodule disintegrates, but occasionally the uterine cavity contains a sloughing nodule fully as large as an adult head.

In one of our cases we found a necrotic interstitial myoma which on its inner side communicated with the uterine cavity. On its outer side it had involved the uterine wall; necrosis had followed, the peritoneum had become involved and the patient had died of a general purulent peritonitis.

The Tubes and Ovaries in Cases of Myoma.—Let us now briefly consider the condition of the tubes and ovaries and also see the effect of the myomatous uterus on the surrounding structures. In the tubes we have noted hydrosalpinx (simple and follicular), hemosalpinx, tubal pregnancy, salpingitis, tubo-ovarian cysts and adeno-carcinoma, secondary to adeno-carcinoma of the ovary. Occasionally the normal tubes may be lost on the surface of the myoma and appear again at a distant point. While any of these conditions may be found, simple inflammatory adhesions are the most frequent. In all probability the adherent condition of the tube is due to the mechanical irritation caused by its being rotated and rubbed against surrounding parts.

Numerous pathological conditions of the ovary are also associated with uterine myomata. Thus we have found Graafian follicle cysts, both large and small, corpus luteum cysts, multilocular adenocystomata, dermoids, papillo-cystomata, primary adeno-carcinomata and ovarian abscesses. The ovaries are often embedded in adhesions, usually delicate and fan-like. The inflammatory reaction seems to be chiefly the result of mechanical irritation.

Parovarian cysts are also associated with myomata in a moderate number of cases.

The relation of the *bladder* to the myomatous uterus is also of importance from an operative standpoint. At times it is

not at all altered in its position, but is often drawn upward and outward, being spread uniformly over the anterior surface of the tumor. In other instances it has early become adherent to the tumor at one point and with the growth of the myoma has been drawn out into a long tongue or funnel-shaped projection. We have seen the bladder drawn fifteen or more centimetres above its normal attachment and in a few instances it has extended upward as far as the umbilicus. The interior of the bladder is rarely, if ever, altered.

If the tumor become incarcerated in the pelvis and pressure symptoms develop the *ureters* are frequently affected. First they dilate, giving rise to a hydro-ureter, sometimes reaching 1.3 cm. or more in diameter. Later on they may become adherent to the myoma and with its continued growth be carried up out of the pelvis. It is exceedingly important to remember this possible displacement when operating. Hypertrophy of the ureter is occasionally caused by the myoma and hydronephrosis may supervene.

Adhesions between the myomatous organ and the rectum frequently take place, especially where the growth tends to become incarcerated in the pelvis. As the growth rises up, it sometimes takes the rectum with it, making it taut and carrying the upper portion high into the abdomen. As might naturally be expected, the intestines which lie in direct contact with the tumor sometimes become adherent to it. As a rule these adhesions are slight, but at these times the intestine is so intimately blended with the growth that it is necessary to sacrifice a portion of the uterine wall in removing the organ. Occasionally kinks in the bowel follow as a result of adhesions and the patient dies of intestinal obstruction. The appendix in many cases has dropped down and become adherent to the tumor or to the right tube and ovary.

Adeno-myomata of the Uterus.—We will now consider a variety of myoma which until very recently has received little attention. In these cases we have, as a rule, a uterus which is moderately enlarged, but which conforms to the normal contour save for some small nodules scattered throughout its walls or over its surface. On microscopic examination we find that the inner muscular layers of the uterine walls have become coarse in texture and converted into myomatous tissue. Into this coarse-textured tissue the uterine mucosa literally flows. We thus have myomatous tissue with islands and rivers of normal uterine mucosa scattered throughout it. With the gradual growth of the adeno-myoma portions of the mucosa are nipped off and either become submucous adeno-myomata or pass to the outer surface, forming subperitoneal nodules. The islands of mucosa in the myomata still retain their natural menstrual

function and hence at each period pour out their quota of menstrual blood. Naturally where the nodule is subperitoneal and the glands are surrounded on all sides by myomatous muscle there is no escape for this flow. It thus accumulates and eventually we have the myomata containing large cyst-like spaces lined by a smooth, velvety mucosa and filled with chocolate-colored fluid—the damned-up, changed menstrual flow. In nearly every instance in which we find a large intra-ligamentary or subperitoneal myoma containing such cyst-like spaces and filled with chocolate-colored contents we may ascribe it to an old adeno-myoma. Adeno-myomata of the uterus were found in nearly 2 per cent. of our cases. They are benign.

Sarcomatous Degeneration of Myomata.—Within recent years studies have definitely established the fact that myomata may undergo sarcomatous degeneration. Clinically, patients suffering from such growths usually give a history of several years' duration, during which the growth has either lain dormant or increased very slowly. Suddenly there is renewed activity, and in a few months the myoma increases greatly in size, and more or less marked signs of cachexia begin to appear. Sarcoma usually develops in one of several myomatous nodules and may be subperitoneal, interstitial or submucous, although it was formerly thought that such growths were always of the last-named variety. If the sarcoma develops in a submucous myoma portions of it may from time to time be expelled through the vagina—the so-called "recurrent fibroids." The sarcoma may develop from one of two sources, the connective tissue or the myomatous muscle cells. If it originates from the stroma the sarcoma may be spindle-celled or round-celled; if from the muscle, it is of the spindle-celled variety. From the drawings which are being passed anyone will be able to convince himself that a sarcoma may develop in the centres of myomata, and from the histological pictures it is possible to trace all stages from the normal muscle fibres to those which show the typical ear-marks of sarcoma. We have had several such cases in our series where the myomata became sarcomatous and in some of them death soon followed from metastases. It is of extreme importance to remember these cases when weighing in our minds the appropriate mode of treatment.

Carcinoma of the Uterus Associated with Myoma.—In my work on Cancer I reported several cases of carcinoma of the uterus occurring in conjunction with myomata, and in the three years intervening since the appearance of the book a goodly number of similar cases have come under my observation. Of course, where squamous-celled carcinoma or adeno-carcinoma of the cervix exists it will as a rule be readily detected before the

operation, and we will thereby be influenced in our mode of treatment. In the majority of the cases, however, where cancer of the body of the uterus has existed, it has not been suspected until the uterus had been opened after operation. Nor need such ignorance be unpardonable; for in all probability the only suggestive symptom has been hemorrhage, which naturally would be explained as belonging to the myoma. One would hardly deem it necessary or wise to curette when the myoma could be so clearly outlined, and considering the fact that the uterus is to be removed in so short a time. Nevertheless, when outlining the treatment one should always bear in mind the possible co-existence of a carcinoma of the body of the uterus and act accordingly.

Symptoms of Myomata.—The clinical features in cases of uterine myomata are mainly dependent on two chief factors. First: The situation of the nodules. Secondly: The size of the tumor. While these growths develop during the child-bearing period, they may not make themselves manifest until late in life. A myoma may be as large as a fetal head and yet give no symptoms whatever and be only accidentally detected. On the other hand, a nodule not larger than a walnut may give rise to alarming hemorrhages. If the myomata are interstitial or subperitoneal and so situated that they do not encroach on the uterine cavity, there will, as a rule, be little bleeding. On the other hand, if the myoma projects into the uterine cavity, thereby putting the mucosa on tension, there will undoubtedly be very free and troublesome hemorrhage. The amount of bleeding is usually in direct proportion to the surface area of the uterine mucosa on tension. We have had patients lose nearly two litres of blood at one time, and in one case I was called in to see the uterine cavity was 24 cm. in length and contained over a litre of decomposing blood-clots.

In the cases in which the myomata encroach on the uterine cavity the patient will usually give a history of prolonged menstrual periods for the last few years and will complain of some backache and often of a feeling of bearing-down pain in the lower abdomen. After suffering from these symptoms for a time she suddenly notices a lump in the lower part of the abdomen. With this increase in size there may be an increased frequency in micturition or retention due to the bladder being jammed up against the symphysis pubis. With the continued growth of the tumor constipation becomes marked and possibly pruritus ani develops, both due to the pressure of the growth on the rectum. Later on the woman suffers from pain and occasionally notices edema in one or both of the lower extremities. I recently operated upon a patient who had an interstitial myoma about the size of a child's head. The pressure symp-

toms were such that when lying down she had to be assisted to rise, although, when once on her feet, she had no difficulty in attending to her household duties.

With the continued enlargement of the myoma the abdominal contents will be forced upward against the diaphragm and shortness of breath will naturally follow.

In those cases in which submucous myomata exist, as evidenced by the prolonged menstrual periods or menorrhagia, the hemorrhage usually increases in amount, and between the periods of bleeding there is a purulent or muco-purulent discharge. In some instances, the submucous myoma is forced more and more into the uterine cavity and after a time projects slightly through the external os. At this time, there is often a loss of substance over the most dependent portion of the tumor. Necrosis of the nodule now readily takes place and we have in addition to the hemorrhage a continual watery and most offensive vaginal discharge, in odour and appearance often strongly suggesting that common in cancer. The long drain on the patient's resources saps her strength and she becomes sallow or very anemic in appearance and may have irregular elevations of temperature due to the damming-up in the uterus of purulent fluid, or to a septic focus which has meanwhile developed in the Fallopian tubes or in a neighboring myomatous nodule. The hemoglobin at this stage is often below 30 per cent. There are hemic heart murmurs, and the patient suffers from giddiness and fainting spells. Under such conditions she is now forced to spend most of her time in bed. Such is frequently the clinical history in the severe cases of myoma. In addition to these symptoms, we must remember those occurring where intestinal obstruction or appendicitis supervene or where the development of ovarian cysts or extra-uterine pregnancy add to the complications.

Vaginal Examination.—While much may be learned from the clinical history nothing gives such a clear idea as the bimanual examination. In a simple case, the finger in the vagina finds the cervix to be of normal size, while with the abdominal hand one or more hard nodules are to be felt rising up out of the pelvis, and on making pressure upward from the vagina we are able to determine that the mass is directly continuous with the cervix. This also enables us to determine the mobility of the tumor and also sometimes permits us to say with a fair degree of certainty whether the growth is adherent or not. In not a few instances, we find the cervix jammed up against the symphysis pubis, and the posterior vaginal vault bulging downward, due to the choking of the pelvis by the tumor. If the growth be cervical, the cervix has often unfolded itself on the surface of the myoma and is flush with the vaginal vault. In

such a case, the external os is often recognized as a semilunar slit two or three cm. in length.

Where a submucous myoma exists, the cervix will often admit the finger, and the nodule can be felt plugging the cervical canal just above the external os. If the myoma has already partially escaped into the vagina, the finger comes immediately in contact with it, and on skirting it backward the cervical lip is felt as a tense band hugging the outer surface of the growth.

Where the myoma is necrotic and has been sloughing for a long time we may find a tough but soft, slimy mass projecting from the vaginal outlet. Such tissue bears a striking resemblance to raw beef that has been macerated in water for some length of time.

Gentleness should always be exercised while making vaginal examinations. In at least two instances on opening the abdomen I have found that during the examination, just prior to the operation, subperitoneal nodules had been torn from their pedicles, and that from the rent there had been free hemorrhage into the pelvis. In both of these cases several persons had examined the patient and evidently too much force had been used. Where the operation was performed at once, as in these cases, the injury was of little consequence, but should such an accident have occurred during an ordinary routine examination, there would, in all probability, have been a fatal hemorrhage.

Treatment of Uterine Myomata.

The surgeon's first duty is to remove the growth. The second, equally important, is to sacrifice the reproductive organs as little as possible consistent with safety. Prior to opening the abdomen a catheter should be introduced to determine the confines of the bladder. If the *viscus* is high up, the abdominal incision should be commenced near the umbilicus and carefully continued toward the pubes. After having entered the peritoneal cavity and carefully packed off the intestine, the operator should examine the tubes and ovaries, and if these are free from adhesions, the question of a simple myomectomy should be considered.

Myomectomy.—Should the tubes be the seat of an inflammation a hysterectomy should be performed, as there is a possibility of infecting the cavities left in the uterus after the removal of the myomata. Several years ago, over-enthusiastic for conservatism, I did a myomectomy, after having made artificial fimbriated extremities for both tubes. In a few days there were distinct evidences of infection of the uterus. I again opened the abdomen and drained from above and below. The patient lingered for a month and then died. In this case

there was in all probability a latent infection lurking in the tubes, although no pus was detected at the time of the primary operation. The operation was a simple one, and had I performed a hysterectomy recovery would, in all probability, have followed.

After satisfying ourselves that the appendages are normal, and that there is no offensive vaginal discharge indicative of a submucous myoma or of carcinoma, we should carefully examine the uterus to see if it be feasible to do a myomectomy. Where the nodules are few in number and situated at accessible points, the uterus should be saved. In a few instances we have removed interstitial myomata larger than an adult head, and yet been able to preserve the uterus. If, however, the uterus is everywhere studded with small or medium-sized myomata, there is a great probability that some would be left behind and a subsequent hysterectomy become necessary.

It is not advisable to do a myomectomy where the nodule is situated in the broad ligament or deep down laterally in the pelvis. In these situations it is impossible to obliterate the resultant spaces, and blood is bound to accumulate. These difficulties might be overcome by abdominal drainage, but here hysterectomy is preferable. Several years ago I removed a nodule, the size of a small cocoanut, from the left broad ligament. The lower portion of this nodule extended far down beside the vagina. There was little hemorrhage, and the tissue apparently fell together nicely. In a few days, however, the temperature rose to 104. Shortly after this there was a free discharge of pus from the bladder, and on examination much induration of the left side of the vagina was found. The abscess had opened into the bladder. After several weeks the abscess cavity closed and the patient is now, six years after operation, in perfect health. A similar case was noted by a colleague of mine; in this instance, however, the bladder was not implicated.

Should we decide on myomectomy, the easiest method of controlling bleeding is by means of a gauze rope applied around the cervix and clamped with artery forceps, thus avoiding the necessity of tying. If the myoma be small, the incision is made directly over it and as soon as the nodule is exposed it is grasped with a meso-forceps and twisted or shelled out. Where the nodule is large and partially sub-peritoneal, a lozenge-shaped piece of muscle is usually excised with the tumor. Care should be taken not to sacrifice too much muscle, as so much contraction may occur that it will be found almost impossible to bring the margins of the cavity together. After careful palpating the uterine walls, to be sure that no other nodules remain and having turned in the mucosa and sutured with cat-gut, should

the uterine cavity have been opened at any point, the various cavities are totally obliterated by cat-gut sutures, three or four rows being used if necessary. It is upon this total obliteration of all dead spaces that the success of the operation depends. Often there is bleeding from the stitch-holes on the surface. This is usually controlled by placing one or more cat-gut sutures at right angles to the others.

The operator need not be alarmed if the temperature rise to 100 or even to 102 or 103 a few days after the operation. This we have noted very frequently. In such cases dead spaces have undoubtedly been left behind and there soon occurs a disintegration and absorption of the blood.

One should always remember that myomectomy is a much more dangerous operation than hysterectomy, and if patient be weak or any other contra-indication exist the complete operation should be chosen. The latter operation is the one of choice after the menopause, myomectomy being applicable during the child-bearing period.

The operator should also bear in mind the possibility of leaving some myomata behind. I recently saw in the dispensary a patient on whom myomectomy had been performed nine years previously. She had been perfectly well for several years, but when admitted to the hospital a second time the uterus was fully five times the normal size and everywhere studded with myomata.

Where the resultant incision in the uterus is long and it is necessary to hold the organ up on account of its large size, intra-abdominal shortening of the round ligaments is preferable to suspension. I am familiar with a case in which, following a myomectomy, the uterine incision became intimately blended with the abdominal wall over a wide area. Pregnancy followed, Cæsarian section was performed and the patient died. Suspension in such a case is an entirely different problem to the simple operation for displacement, as in the latter there is no raw surface whatsoever.

I would strongly advise giving the preference to myomectomy in all suitable cases, but in every doubtful instance hysterectomy should be performed.

Hystero-myomectomy with Preservation of the Ovaries.—In those cases in which it is deemed safer to perform hysterectomy, if the patient has not passed the menopause, we should endeavor to save the ovaries. In the first place we have no right to remove normal structures, and in the second place preservation of the ovaries will relieve the patient to a great extent of the troublesome hot flushes and nervous phenomena naturally associated with the menopause. Thus, where the operation is performed on a woman, say thirty-five years of age, these

unpleasant phenomena are generally deferred until the usual time for the cessation of menstrual life or for several years at least. We make it a point to preserve one or both ovaries wherever feasible. Spinelli and others are still more conservative, and whenever possible preserve at least the lower segment of the uterine cavity. In other words some of the mucosa from the body is left *in situ* and the menstrual function, although naturally limited, is still preserved. In the near future it seems probable that this plan of treatment will often be adopted.

In performing the ordinary hysterectomy with amputation through the cervix it is always well to remember the blood supply of the pelvic organs. From above downward we have the ovarian artery and veins easily exposed to the outer side of the ovary. Next comes the artery of the round ligament which, although small, often occasions much oozing, if not tied. On freeing the folds of the broad ligament the uterine artery with its accompanying veins is seen skirting the side of the cervix near the internal os. On the opposite side a similar system of vessels is encountered. We may then roughly compare the hysterectomy with amputation at the cervix to an ordinary amputation with four main vessels, the ovarian and uterine on each side.

Where the growth is situated in the body of the organ and the cervix is long, the operation is, as a rule, quite simple. The round ligament are first tied and the organ can be lifted still higher out of the abdomen. Portions of the ovarian vessels passing to the uterus are controlled at the uterine horn and the uterus is freed on each side. After opening up the broad ligaments laterally and separating the bladder reflection anteriorly, the uterine vessels are readily exposed and tied. Many operators employ only cat-gut for the uterine and ovarian arteries. We still feel much safer with silk, and always use it for the larger vessels. After tying the uterine arteries, taking of course good care not to include a ureter in the ligature, we cut through the cervix, encountering little or no bleeding except from the tumor. We usually cut the cervix slightly and then close with cat-gut sutures. Only occasionally is the cautery introduced into the cervical canal. The broad ligaments are then closed with continuous cat-gut sutures, care being taken to cover over the stumps of the appendages. The bladder peritoneum is drawn over to that of the posterior surface of the cervix. The pelvis now presents a perfectly smooth surface offering little opportunity for the subsequent development of intestinal adhesions.

Hysterectomy with Removal of the Appendages.—If it has been deemed advisable to remove the ovaries, the operation is carried out in precisely the same manner, save that the ovarian

vessels are tied just before they reach the ovary instead of on the uterine side.

While many hystero-myomectomies offer little difficulty, others are by no means so easy. Sometimes the growths are exceedingly large and so distorted that it is at first hard to get one's bearings. Under such circumstances it is always advisable to seek out the round ligaments and sever them at once. This invariably renders the tumor more mobile. The left tube and ovary are then usually tied off and the tumor rolled outward and to the right, as recommended by Dr. Kelly. The uterine vessels on the left side are now controlled and severed, and the cervix is cut across with the upright slant so that the cervical stump, and consequently the uterine vessels left on the right side, will be longer. Clamps are applied to the right ovarian vessels and the entire tumor is removed *en masse*. It is astonishing with what ease an otherwise difficult operation is rendered comparatively simple by this "from left to right" operation of Kelly. Great care must be taken with the ureter, and if the operator has the least suspicion that one or both have been injured he should seek each ureter as it crosses the pelvic brim and follow it through the pelvis and carefully outline it to its vesical insertion.

Several months ago I had a very difficult hystero-myomectomy in which the patient was exceedingly anemic and the vagina was filled with a very vascular submucous myoma. While liberating a subperitoneal nodule adherent to the right pelvic brim, I found it necessary to tie the ovarian vessels. There was only one point at which the vessels could be controlled and that merely wide enough for a single ligature. After having emptied the pelvis I felt rather uneasy about the right ureter, although no suture had been placed anywhere near the usual ureteral site. As a matter of fact the ureter had been included with the right ovarian vessels. It was released with ease and the patient made a perfect recovery.

Sometimes the ureter is carried up out of the pelvic cavity by large tumors, and there is great danger of it being tied or cut. If, after tying the round ligaments and releasing the tube and ovary, the blunt dissection be carried down close to the uterus, the danger is minimized. In some instances it may be necessary to perform a preliminary myomectomy, thus diminishing greatly the size of the uterus and allowing the ureters to drop back into their normal position. The same result may be accomplished by bisection of the uterus.

Bisection of the Uterus.—In not a few instances, on opening the abdomen, the operator is confronted with a very discouraging problem. The pelvis is filled with a nodular tumor glued everywhere to the omentum and intestinal loops or

firmly wedged in the pelvis. In some of these cases it is next to impossible to gain a point of cleavage, and were it not for bisection of the uterus the operation would either have to be abandoned or the resultant injury to the intestine from the difficulty in the separation of adhesions would be so great that the chances of the patient's recovery would be minimized. In such difficult cases the uterus is firmly grasped with mesoforceps on each side and the organ is boldly split in the middle. As the incision is increased fresh mesoforceps grasp the uterine walls on either side, and eventually the entire organ is separated into two halves or divided as far as the cervix. We would naturally expect to see injury to the surrounding parts, but by this operation we reach the adhesions from their under surfaces, where they are lightest. You would also naturally expect much hemorrhage, but if the uterine halves are kept taut with the mesoforceps no danger from this source is to be feared.

With the uterus now in halves the respective portions are removed entire or amputated through the cervix, the vessels being controlled in reverse order to the usual method, namely, first the uterine, then the round ligament, and finally the ovarian vessels. The remainder of the operation is completed in the usual way.

Abdominal Hysterectomy with Preliminery Amputation through the Cervix.—In a certain number of cases, in which the adhesions are so great that bisection of the tumor is not feasible, it may be possible after severing the round ligaments to push down the bladder so that the cervix is exposed. The uterine vessels are then clamped on both sides and the cervix is cut through. The cervix is then drawn strongly forward and Douglas' sac is opened from below. The broad ligaments are then clamped and the tissues cut. The cervix is now drawn still further upward and all the adhesions are gradually separated from the under surface. The ovarian vessels are clamped on each side and the tumor is delivered. In these desperate cases all vessels have been clamped and the organ is removed without a ligature having been applied. The vessels are tied with silk and the operation is completed in the usual way.

Where the intestines are densely adhered to the tumor, always sacrifice the part of the myoma, or its overlying layer of uterine muscle, as the case may be, leaving it attached to the intestines. This raw flap adherent to the gut is now turned in on itself in such a manner that the bleeding is checked and a smooth surface left.

Complete Abdominal Hysterectomy.—While amputation of the cervix is usually preferable, first, because it is easier, and secondly, on account of the remaining portion of the cervix

forming a good firm support for the vaginal vault, still in not a few instances the complete operation is clearly indicated. For example, where a large cervical myoma exists there is often no normal cervix left and the growth has so encroached on the vagina that a small cuff of this must also be removed. In these cases, after tying the uterine arteries low down near the ureter it is not very difficult to free the mass on all sides until the vagina is exposed. In every case, however, where there is great danger of injury to the ureters these should be carefully outlined to see that they are intact.*

In all cases in which we suspect adeno-carcinoma, or development of sarcoma in a myoma, splitting of the uterus should never be performed, as we run the risk of not only implanting cancer and sarcoma cells upon healthy tissue, but also of setting up a general peritonitis, as in these cases virulent pus organisms are very liable to be present. Knowing that we may at any time encounter malignant growths in the uterus, when we are operating for myoma, I have made it a rule where the uterus has been amputated at the cervix to always have the organ opened at once, so that, if perchance, a malignant growth exists, the cervix may also be removed before the abdomen is closed.

Treatment of Myoma Complicating Pregnancy.—If pregnancy occurs when the uterus is studded by large and small myomata, which apparently encroach on the uterine cavity to such an extent that they almost preclude the possibility of the pregnancy advancing over a few months, hysterectomy should undoubtedly be performed, irrespective of the ovum. In other cases in which the myoma is cervical, and so plugs the pelvis that labor through the normal passages is impossible, the question should be laid squarely before the family, and the alternative of complete hysterectomy at once, or Cæsarian section at term, followed by hysterectomy at a later period discussed. The uterus might possibly be removed immediately after the Cæsarian section, but the parts are so vascular in the pelvic floor, and a large cervical myoma is often so difficult of removal that no fixed rule can be laid down, and the surgeon must use his own discretion in the individual case. Recently I saw a patient who was eight months' pregnant, who had a myoma as large as a child's head, situated in the anterior uterine wall. Three surgeons were sure that Cæsarian section would be necessary; two considered normal labor possible. All preparation was made for operative interference, but the patient fortunately had a normal labor.

Treatment of Submucous Myomata.—Where the submucous

* Doyen's operation where Douglas' sac is opened, the cervix firmly grasped and drawn backward and upward and then freed from the vagina on all sides and the uterine vessels are clamped and cut, is also a method of complete hysterectomy to be strongly recommended.

myoma is small, and situated far up in the body and no discharge exists, it will often be advisable to open the abdomen, split the uterus and remove the nodule, sewing up the rent in the uterine mucosa, and then uniting the muscle. If the myoma projects through the cervix where it can be grasped, it is often possible to bring it down, and we can control the pedicle by two or three cat-gut sutures. If it be impracticable to reach the pedicle, the cervix may be split anteriorly until the necessary exposure is obtained. If the nodule is very large and fills the vagina, delivery by obstetrical forceps is at times feasible; but as a preliminary measure it may be necessary to incise the peritoneum to obtain the requisite space.

In a recent case the vagina was completely filled by the growth and the hemorrhages had been very profuse and frequent. I endeavored to build up the patient, but without success. We waited until within a few days of the next period so that she might rally somewhat. On attempting to wash up the vagina the hemorrhage was alarming. I accordingly desisted and opened the abdomen at once, fearing that any more vaginal interference until the uterine vessels were tied would render her pulseless. After all the blood supply had been cut off, the nodule was readily drawn up through the abdominal incision with the accompanying multinodular myomatous uterus.

Where a sloughing submucous myoma exists, the utmost care is necessary. If there be little bleeding, it will be safe to delay operation a few days and frequent douches of a 1 or 2% formalin solution should be given. Where there are no other myomatous nodules and where the offensive discharge has ceased the myoma may be treated as a simple submucous nodule and removed. If, however, the uterus be large and studded with other growths, the cervical lips may be sewn together, the vaginal portion of the growth having been removed some days previous. The vagina is then thoroughly douched with a 2% formalin solution and bichloride and complete abdominal hysterectomy performed. Unless the chances of infection from the uterine cavity be reduced to a minimum, the probability of general peritonitis is great.

When not to Operate in Cases of Uterine Myomata.—It is only after studying many cases and following, as it were, their life history that we can get the true perspective and determine with any degree of accuracy when to operate, or in what cases it would be better surgery to refrain from interference. This is especially the case when considering the treatment of uterine myomata. We all know of patients who have had myomata for many years and yet suffered no inconvenience whatever. Others have experienced some trouble, but not sufficient to

interfere with their daily work. Judging from these cases alone we would naturally infer that no operation would be necessary unless the myoma attained very large proportions. From our work on the subject, however, we find that unpleasant consequences may follow ultra-conservative treatment. In the first place we have seen that uterine hemorrhages often become profuse and frequent, occasionally amounting to from 1 to 2 litres at a time. Then again the general health gradually yields under the constant loss of blood. After a time pressure symptoms not infrequently develop, accompanied by gradual interference with locomotion. Again, we have to bear in mind that these growths may be so situated as to effectively prevent a normal labor. With the formation of adhesions there is some danger of intestinal obstruction and an operation, where such a complication exists, is most unpromising. Finally, we must remember that in fully 1 per cent. of the cases sarcomatous degeneration of the myomata occurs,* and in another 1 per cent carcinoma complicates myoma; so that in practically 2 per cent of all uterine myomata a malignant growth also develops at one period or another.

The Operative Results in Myoma Cases.—It is not many years since the mortality in simple myoma cases was excessive. To attempt removal of a large and adherent myomatous uterus was rarely undertaken. But during the last decade the technique has been so perfected that in some clinics the mortality in simple cases is not over 3 per cent., and in Naples last fall, Professor Spinelli informed me that he had just operated upon 100 cases with a mortality of over 1 per cent

With such advances in surgery, bringing with them so marked a decrease in the mortality of these cases, have we the right to advise against operative interference, with the possibility of hemorrhage, loss of health, pressure symptoms, septic infections, intestinal obstructions, staring us in the face and even the remote likelihood of sarcomatous degeneration or carcinoma? And this is not all. When giving our verdict in this or that case, it is on the assumption that our diagnosis has been correct. Unfortunately, we are not infallible. Less than seven weeks ago, I saw in consultation a patient complaining of slight hemorrhage, and with a uterus about twice the natural size, rather firm, and feeling exactly like a small uterus containing a nodule the size of a small apple. To clinch the diagnosis were two small nodules, each about 2 cm. in diameter, one on the posterior surface of the uterus, the other at the right cornu. She asked if it were cancer, and I informed her that it was without doubt a myoma. On account of bleeding, I advised hysterectomy, and to my surprise the growth proved to be an

*This is a very conservative estimate, as some have noted it in 2 per cent.

adeno-carcinoma of the body of the uterus, while the two supposed small myomata were situated at points at which the cancer had extended entirely through the uterine walls, forming secondary growths on the surface of the organ. They were already adherent to the small intestines. With my eyes closed, and that uterus in my hand, I should undoubtedly have diagnosed the case as one of myoma.

Nor are these cases by any means rare. I removed a uterus, the size of a four months' pregnancy, two years ago, and, to my surprise on opening it, I found it the seat of an extensive nodular carcinoma, no myoma being present. Two weeks ago one of my colleagues removed a uterus about the size of a four-months' pregnancy. Pregnancy, however, was absolutely excluded, and the specimen was sent to the laboratory with the supposition that the growth was a myoma. On opening the organ, we found a cancer just above the internal os. This had blocked the cervical canal, and the uterus was distended by fully 500 cc. of blood. On three different occasions I have opened the abdomen expecting to find myomata. In each the history was absolutely against pregnancy, but upon this we cannot rely in the majority of the colored race. In each of the three I carefully made an incision until the nodule was detected and then did a hysterectomy. These are but a few instances of the difficulties that arise in making an absolute diagnosis in cases in which myomata are suspected.

After a careful study of many cases, and finding that the operative mortality is as low as, or even lower than that which follows where patients are not subjected to operation, I feel that the only patients that should be advised against operation are those who exhibit no symptoms, or where the myomata are very small, and give rise to little or no trouble.

I am afraid my remarks have been too lengthy, but the subject is a very important one, and merits, I feel, all the time you have so kindly allowed me to occupy.

A CASE OF BRAIN TUMOUR WITH UNUSUAL LOCALIZING SYMPTOMS.

By W. B. THISTLE, M.D., L.R.C.P., London.
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The following report of a recent case of brain tumour is of special interest because of the somewhat unusual situation of the growth, and because the symptoms, from the first, enabled one to locate very definitely the position of the tumour.

The patient was admitted on the surgical side of the Hospital for Sick Children, under the care of Mr. Cameron, who has kindly permitted me to present the case from the medical standpoint.

As will be seen from the report and the specimen presented, the *post-mortem* discovered a tumour in the exact location, and implicating those structures to which attention had been directed by the localizing symptoms. Additional interest is attached to the case because of the localizing significance of a symptom prominent in this case namely, bilateral nerve deafness.

On December 10th, 1901, the patient, a well-grown, healthy-looking boy of six years, had a fall, striking and injuring the right side of the head. There was considerable swelling on right side of the face, in the superior maxillay region. Some of his teeth were loosened, and his nose bled.

Three or four weeks later he vomited frequently, but less frequently after another two weeks. Early in January the sight of the right eye began to fail, and he complained of headache between the temples. Gait became staggering, with a tendency to fall to the right side. About the middle of February hearing in the right ear began to fail. Since that time, both sight and hearing have failed quickly. About the end of February the left ear and eye became affected. On admission he was said to be completely deaf for one week.

Examination of eyes by Dr. J. M. MacCallum. Double optic neuritis present; vessels swollen; veins full and tortuous. About disc there are a number of whitish spots. Pupils widely dilated; equal, and contract to light slightly; accommodation to distance lost. Slight lateral nystagmus. Sight vision in upper field of both eyes, very little power of vision remaining. Right eye a little better than the left.

Examination of ears. External and middle ear normal. Hears tuning-fork slightly when placed on cranium. He can hear and understand when spoken to loudly.

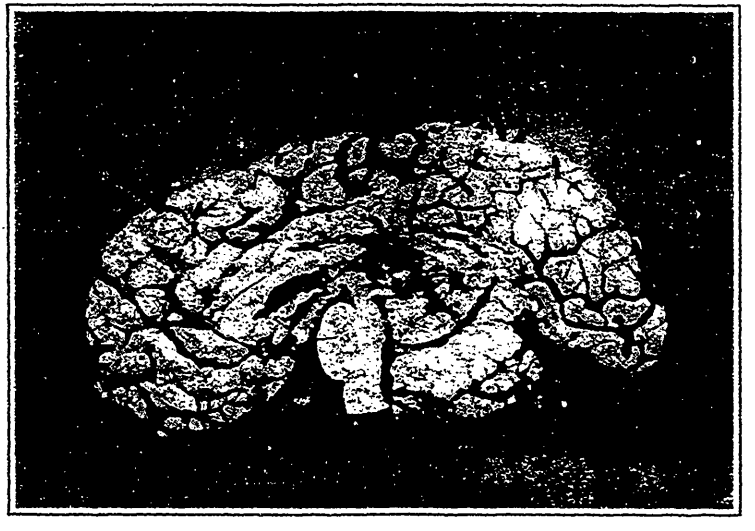
Sense of smell and taste preserved.

Sensation of pain, temperature, and touch present.

Digestion. Voracious appetite. Bowels and urine involuntary.

Muscular power is good throughout. He can hold himself up by his hands. Can move legs freely in bed, but cannot stand or sit up. He can support himself, but if allowed to stand alone, would fall backwards. Is able to feed himself if food is placed in his hands.

March 29th. Totally deaf in both ears. Complains of toothache. Appetite ravenous, will eat anything, and at all times. He talks away quite cheerfully, but has said nothing to indicate that he had noticed anything about him, His conversation is quite rational, and he is evidently talking to his friends at home.



Reflexes. Plantar absent on the right sight, present on the left. Great toes are extended, the others flexed. Knee jerks absent.

March 30th. Temperature 102, pulse 140, respiration 32. Semi-comatose. Takes food. No difficulty in swallowing. Absolutely blind and deaf.

April 7th. Sense of smell could not be demonstrated present. Pupils widely dilated. Kernig's sign present. Slight paralysis of Ext-rectus in left eye. Resonant note discovered over cranium.

April 10th. Mr. Cameron removed a button of bone from

the tempero-sphenoidal region. Brain showed no pulsation, and was resistant. A trochar was inserted in the direction of the lateral ventricle, bringing away a considerable quantity of perfectly clear watery fluid. No improvement followed the operation on the head, except a slight relief of pressure symptoms.

April 15th. Clonic spasm in left arm.

April 17th. Arms and legs quite rigid at times. For some time a watery discharge from the left ear. Temperature continues moderately elevated. Resonant note on percussion of skull. Complete paralysis of the right side of face evident. Right eye remains open, while the left is closed. Movement of left arm and leg, but no movement of right arm, and slight of right leg.

Death occurred on May 6th.

I had frequent opportunities of studying this case, and on two occasions had utilized the case for clinical lecture. My diagnosis was, tumour in the mid-lobe of the cerebellum, implicating the corpora quadrigemina, and the auditory paths above their nuclei, interfering also with the nuclei of the optic nerves in the Geniculate bodies. Mr. Cameron's exploratory puncture, disclosing ventricles much distended with clear fluid, seemed confirmatory of growth in the region mentioned which occasioned obstruction at the iter, and consequent accummulation of fluid in the lateral ventricles.

In the cases of disease of the brain there are three questions to determine.

1. The nature of the disease.
2. If abscess or tumour, its location.
3. If a tumour, the nature of it.

Concerning the first question, the history of the case, the gradual development from week to week, over several weeks, with the absence of the usual symptoms, excluded meningities; and the presence of headache, optic neuritis, and vomiting with general disturbance, pointed to local disease, most likely abscess or tumour. Abscess unassociated with some disease of the ear, or obvious connection with a suppurative process in some part of the body is somewhat rare. There was an absence of other signs of abscess, e.g., slow pulse, low temperature, wasting chills, sweating. It, therefore, seemed much more probable that a tumor was the cause of the disturbance.

Regarding the location of the growth, the early history of the case pointed strongly to the cerebellum. Difficulty in maintaining equilibrium was an early symptom. The boy soon became unable to walk, or to sit up in bed. This existed without loss of muscular power in any part of the body. Clearly the growth was neither in the motor area nor in the

motor tract. The boy was quite bright, and perfectly rational until almost the last. He had no difficulty with speech. This would seem to exclude the frontal region. A growth at the base, or in the region of the pons would early implicate some of the cranial nerves. Until the last weeks of his life there was no paralysis of the cranial nerves, other than the special nerves of sight and hearing.

After the disorder of equilibrium, which suggested cerebellar disease the next most suggestive symptom was the almost simultaneous deafness in both ears. The loss of hearing occurring gradually until deafness was complete. This symptom is highly suggestive of disease of the corpora quadrigemina, a lesion in that region interrupting the paths of both cochlear nerves as they pass up from the pons to corpora quadrigemina, brachia and on through the internal capsules to their cortical termination in the tempero-sphenoidal lobes. In Albutt's system, symmetrical nerve deafness it is said, may be due to symmetrical disease of the tempero-sphenoidal lobes; to disease of the corpora quadrigemina, or medulla, or to bilateral disease of the internal ear from Syphilis. Clearly the first or the last cause is not in operation in this case.

Granted that the diagnosis of tumour was correct, the disordered gait with absence of implication of the cerebral functions of motion and sensation, is strongly suggestive of cerebellar disease. Again given a cerebellar tumour, the association of double deafness, gradual in development locates the disease in the anterior portion of the mid-lobe, for in this location extension of the tumour destroys the corpora quadrigemina, and the central or supra-nuclear paths of both auditory nerves. Of nineteen cases of tumour of corpora quadrigemina reported in Albutt's system in nine there was deafness, double in five cases.

The third notable symptom of localizing value was, early loss of vision. In conjunction with double deafness, the early blindness is probably due to extension of tumour to the Geniculate bodies, which contain the optic nuclei. Optic atrophy had not had time to develop. The early symptoms were cerebellar gait, double deafness, double blindness. On admission the boy was noticed to have widely dilated pupils, and lost accommodation. This might be due to implication of the corpora quadrigemina. Experimentally a lesion of the inferior corpora quadrigemina causes dilation of the pupils. Pressure on the iter was the probable cause of the distension of the lateral ventricles with clear fluid.

The later symptoms are not of special significance and were due to general pressure, and extension of the growth. Paralysis of sixth; infranuclear paralysis of the right facial, hemiplegia were some late developments.

Throughout it was noticed that the note over the skull was highly resonant. MacEwan of Glasgow, considers that if this symptom is present in case of abscess or of tumour of the brain, it is highly suggestive of location in the cerebellum. He attributes the changed note to distension of the ventricles.

The tumour, as can be seen from the specimen, occupies the space anterior to the mid-lobe of the cerebellum and incorporates the crura cerebri, iter, corpora quadrigemina, optic thalami.

The mass is about as large as an orange and is gliomatous in nature. The dark circle in the photograph indicates the limitation of the morbid tissue.

IMMUNITY IN THE LIGHT OF RECENT STUDIES.*

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"When an organism, subjected to the action of some influence noxious to certain other organisms, is found to be insusceptible to it, that organism is said to be *immune* to that particular noxæ." Here is the broadest possible definition of "immunity," and covers not only the action of bacteria and their toxins but also other poisons or harmful conditions.

It has been for some time recognized that in bacteriology we have to deal with two kinds of bacteria, one which secretes or produces a powerful soluble toxin which can be developed in cultures and in the body spreads widely, and to which belong the bacilli of tetanus, diphtheria and botulism; and of a second-class, to which belong most of our ordinary pathogenic bacteria which do not produce such a toxin. For the first of these groups we have learnt a method of protection in the production of an antitoxin, the best example, of course, being that for diphtheria. For the second group we have as yet no such method of protection and all our studies point to the necessity of producing a curative serum of a different type, hence the great value of gaining a closer knowledge of the mechanism of their toxic action and of preventing their growth in the body.

The well-known Widal test for typhoid was one of the first practical applications of the later studies of bacterial action. This test depends on the property acquired by the blood of

*NOTE.—The aim of this article is to present clearly and as simply as possible for the practising physician some of the new view-points on our resistance to disease, which have been developed by the later work in Pathology, Physiology and Bacteriology, and in the development of which the author became interested as the result of a research carried out in the Pathological Laboratory of the University of Toronto under Prof. Mackenzie and Dr. Silverthorne and which led to further allied study in the Laboratory of Physiology of the University of Pennsylvania.

typhoid patients when added to cultures of the typhoid bacilli in bouillon, of causing the bacilli to loose their motility and to gather together into adhering clumps. A phenomenon readily observed with the microscope. It was found also that if guinea-pigs were injected with increasing doses of typhoid bacilli, their serum also acquired the power of agglutinating or clumping the bacilli in a culture. Similar experiments were made with other bacteria and were very successful with the active cholera vibrio. Here, too, the guinea-pig rapidly became so resistant that it could take many times the fatal dose of cholera without suffering. The guinea-pigs had, in other words, become immune to cholera. Its serum would also cause agglutination of the bacteria, or if the immunity were strong enough would cause complete solution of the bacteria. This phenomenon we name "*bacteriolysis*" (from *luo*, to dissolve). Bacteriolytic sera have also been developed for typhoid and many other bacteria. These interesting phenomena were at once seen to be of importance and carefully studied. It was quickly found that if such immune sera were heated to 55 deg. C., the bacteriolytic power was destroyed while the agglutinating power remained, but the further addition of normal serum which in itself possessed no bacteriolytic power at once produced bacteriolysis.

At this point several observers were led to study the injections of other foreign bodies, especially red-blood cells, into various animals, and study their blood serum to ascertain whether like phenomena could in these cases also be detected. From the success of these experiments a flood of light has been shed upon the subject, owing largely to the much greater facilities for studying such cells and their changes, on account of their size than are afforded by bacteria.

Experiment I.—Some defibrinated guinea-pig's blood is centrifugalized, the clear serum is poured off and the red cells placed in a 0.85 per cent. salt solution, again centrifugalized and suspended again in saline and in this way freed from serum. In such a suspension the cells will, on standing, slowly sink to the bottom leaving the saline clear and colorless. To such a suspension of guinea-pig's red blood-cells in a test-tube a few drops of rabbit's blood serum is added and the test-tube put in the incubator at 37 deg. C. and left for some hours. At the end of this time the supernatant saline will be found to be clear and colorless. To a similar suspension is added the same number of drops of serum from a rabbit which has been "immunized" against guinea-pig's red cells by receiving successive injections, intraperitoneally, of defibrinated guinea-pig's blood at intervals of about a week. About five injections, increasing from 5 c.c. to 20 c.c., will be found to be sufficient. After standing at 37 deg. C. for even a few minutes the saline solution will be seen

to be darkly tinged with red, due to the dissolving of the hemoglobin out of the cells. Clumping, agglutination of the cells may or may not occur.

This experiment evidently shows that the rabbit has developed some protective mechanism against the guinea-pig's red blood cells, and which acts as a toxin to these cells similarly to the bacteriolysin developed for cholera or typhoid bacilli. This phenomenon in the case of red cells we designate as hemolysis. Further experiments have shown that the hemolysin so produced will dissolve only guinea-pig's red corpuscles, and leaves the serum normal in its reaction to cells of other species of animals. The action, in other words, is a *specific* one.

Experiment II.—Some of the rabbit's serum immune against guinea-pig's red cells is treated for half an hour to 35 deg. C., and is then added to a guinea-pig's red-blood cell suspension as above. At the end of several hours in the thermostat no hemolysis has taken place. A few drops of serum from a normal rabbit, which is not in itself, as we have seen (Experiment I.), hemolytic is added and hemolysis occurs.

In this case, too, as in that of the bacteriolysins, there are two bodies concerned in the reaction, one which is normally present in the serum, and one which is produced in the course of our immunization. This latter body, on account of its method of production, is called the "immune body"; it is only destroyed by heating to 65 deg. C.; it is much more resistant to chemical action and to the effects of standing. The other body we name the "complement." It is destroyed by temperatures above 55 deg. C., is readily destroyed by chemical action, and by standing.

Experiment III.—The amount of our immune serum necessary to completely hemolyse any given amount, say 5 c.c. of a 5 per cent. suspension of guinea-pig's red-blood cells, can readily be found by placing in a series of test-tubes equal amounts of our suspension and adding increasing amounts of our immune serum to successive tubes. The tube receiving the least amount of serum, and yet showing complete solution, indicates the amount required. To a suspension of guinea-pig's blood cells only enough immune serum to cause complete hemolysis is added, and the mixture at once cooled and placed on the ice at 0 deg. C. for some hours; no hemolysis occurs, and the cells have settled to the bottom of the clear fluid. The clear fluid is removed and added to a fresh suspension and placed in the thermostat. Again, at the end of an hour or two, no hemolysis has occurred, but on adding immune body only in the form of a few drops of heated immune rabbit serum the solution becomes red. Consequently our clear fluid must have contained complement, but no immune body. The red-blood cells from

which we removed the clear fluid are now washed with saline to remove any traces of our original fluid, and again suspended in fresh saline. If placed in the thermostat no hemolysis occurs until a few drops of normal serum containing complement is added, when hemolysis occurs.

Evidently at 0 deg. C. the chemical reaction between cell and immune body can occur, and hence the immune body became united to the cells and removed from the fluid; while the reaction between the complex thus formed and the complement was unable to take place. This general method of separating complement and immune body is not always successful. In some cases, too, it has been shown that immune body and complement unite before uniting with the cell. In consequence of these facts we must look upon the immune body as an "intermediary body," which forms a binding *link* between the cell and complement, and whose action is in itself not a deleterious one, while that of the complement is. The complement is the real toxin for the cell.

Experiment IV.—A suspension of rabbit's blood-cells, another of sheep's blood-cells, are prepared, and to test-tubes of each some serum from a normal dog is added. Both test-tubes are placed in the thermostat, and in both hemolysis takes place.

We have here in dog's serum a natural hemolysin for both rabbit's and sheep's blood. Experiments such as No. II. will show that there are two bodies—immune body and complement—present, especially if an experiment such as No. III. be performed, only that rabbit's serum is used to supply complement instead of the naturally hemolytic dog's serum. And here, too, we find that we may in some cases take our immune body, whether natural or acquired, from one species of animal and our complement from another species.

Experiment V.—The amount of such natural immune serum necessary to completely hemolyse any given amount of either rabbit's or sheep's blood can readily be found by using a series of test-tubes, as described for Experiment III. To a suspension of rabbit's cells is added just the quantity of dog's serum necessary to hemolyse them, and after standing some hours in the cold the clear fluid is poured off and added to a suspension of sheep's cells. To the rabbit's cells saline and normal rabbit's serum, complement, are added, and both test-tubes are placed in the thermostat. In both hemolysis occurs.

We must infer from an experiment such as this that in such a natural immune serum there are present two kinds of immune bodies, one of which will only unite with rabbits' cells, the other only with sheep's cells. That each immune body has a specific action. In fact, experiments have shown that dog's serum contains specific immune bodies also for rat, goat and guinea-pig.

Goat's serum is naturally hemolytic for rabbit's and guinea-pig's bloods, but if filtered through a pukalla filter the first part of the filtrate will only hemolyse guinea-pig's red-blood cells, though immune bodies for both are present. This, with many other experiments shows that there are different complements which will only react with certain immune bodies.

Experiment V.—To suspensions of dove's and human red cells goat's serum is added. After standing in the thermostat for some time the cells will be found to have agglutinated and be fairly clumped together, but no hemolysis has taken place. To goat's serum is added such an excess of either of these kinds of blood cells that it is no longer able to agglutinate them, and then the serum is added to a suspension of guinea-pig's blood. Hemolysis of the guinea-pig's cells takes place readily.

Many experiments point to the fact that hemolysins and agglutinins are distinct bodies and have nothing to do with each other. Agglutinins can also be readily produced by immunization and usually appear earlier than the hemolysins. Serum may be heated to between 65 to 70 deg.C. without destroying its agglutinating power. Further studies have shown us that not only hemolysins and hemoglutinins may be produced, but also nephrolysins, hepatolysins, etc., by the injection of the appropriate kind of tissue. Two or three observers, who have by successive injections of an emulsion of kidney cells produced strong nephrolysins, find that the injection of such a serum into the species of animal whose kidneys were used, will bring about a nephritis, and in large enough doses, death. The injection of natural or acquired hemolytic serum is, of course, fatal, if the dose be large enough. It was undoubtedly from the presence of these various toxic bodies that are naturally present in normal blood that transfusion from one species of animal to another often resulted fatally to the animal receiving the transfusion. And this may even be the case in the transfusion from one animal to another of the same species, for in several experiments Ehrlich injected goats with large quantities of other goats' blood and in this way succeeded in getting a serum which was hemolytic for the blood of some other goats, though not for all. Hence, the injected blood must have had some action in the first goat.

Dr. Longcope, at the University of Pennsylvania, examined the blood in several cases of chronic diseases, cirrhosis, nephritis, etc., and measured the amount of complement present that would unite with the immune bodies for bacillus coli and bacillus typhosus and found that terminal infections occurred in those cases in which the amount of complement fell. Other observers have also had similar results.

Professor Flexner and Dr. Nogachi undertook the study of

snake poisons in the light of these facts, and they found that it contained immune bodies for many kinds of tissue cells, the complements for which are supplied by the animal into which they are injected, as well as several kinds of agglutinins. Amongst them are those which attack red-blood cells, nerve cells and endothelial cells of the smaller blood vessels. The multitude of small hemorrhages found in death from cobra venom is due to the action of this last variety. In all probability the small hemorrhages found in many diseases is due to a similar endothelolyisin. Earlier observers had shown that cobra venom consisted of several very complex albuminous bodies, and the results of several studies of natural and acquired hemolysins point to them being of the same character. Dr. Kyes, working in Erhlich's laboratory, has made the important discovery that lecithin, a well-known complex fat occurring normally in the human body, will serve as complement for certain of the immune bodies present in cobra venom.

Of antitoxins that for diphtheria is the best known example. It is produced by injecting a horse with increasing doses of the soluble toxin produced by diphtheria bacilli in culture. The bacteria are not introduced. The horse is somewhat feverish after every injection and shows the effects of the poison, but in time can take many times the dose of toxin that would originally have been fatal. Its serum has acquired an antitoxin which neutralized the toxin.

The theory used to explain all these considerations is one prepared by Ehrlich. We must imagine the molecule of living protoplasm in every cell, consisting of many thousands of atoms, as undergoing continual change, ever taking up food-stuffs and giving off waste materials, any food or other chemical body, in order to enter into or effect the protoplasm, must be able to unite chemically with some of its constituent chemical groups. We must imagine also that other bodies may enter into union in many different ways, either being simply added on or being changed or changing the whole molecule in the process. He suggests, too, that there are certain simple groups of such a character that they unite readily with food bodies or with toxins or other chemicals. Should toxin groups unite they may break up the molecule, or if not able to do that they will prevent the molecule from obtaining food. The changes, however, taking place in the protoplasm molecule, will tend to produce other groups capable of taking up food or toxin and thus preserve its life.

As taught by the law of compensation and excess production, these groups will be produced in excess and will be cast off and be found free in the serum. When thus cast off they form the antitoxin and can unite with the toxin and thus prevent its

uniting with the cell. Excess groups of a similar but more complex character form the immune bodies, only they are so constructed that they cannot only unite with the toxic bodies the complements, but can link them onto the cell. The complements are also such complexes which have the property of acting as ferments, breaking up and making ready for use within the cell any chemical complex with which they are united. That they, too, are produced in the cell seems to be proven by the fact that Dr. Kyes has shown that certain blood cells contain the complement necessary for hemolysis when united with a cobra venom immune-body within themselves.

From these facts we see that we may have immunity due to several causes, in addition to those more or less mechanical causes which prevent the entrance of bacteria or toxins into the body. These may be, first, bodies of the nature of agglutinins which, while they may not cause the disintegration of bacteria, may prevent their spread; secondly, the introduction or production of an antitoxin; thirdly, the formation of a lysin which will kill the bacteria; fourthly, the inability of the toxins or immune-bodies, and, in all probability, bodies of this nature are also formed by the bacteria, to unite with the protoplasmic molecule at all. As specific immune-bodies produced by injection, and as also specific complements have been found in placental or fetal blood and in that of the new-born, and also in the mother's milk, an explanation is here given for some cases of hereditary immunity.

Further, in order to produce a curative or preventative serum we may proceed in various ways: First, by producing a specific antitoxin, by injecting toxin into an animal as is done for diphtheria and tetanus; secondly, by inoculation with a modified or weakened organism, as is probably done in vaccinia, and so producing within the animal to be protected specific immune-bodies; thirdly, by producing in the animal by inoculation specific immune-bodies which, when transferred to the animal to be protected, will find a complement suitable to them within the animal, or by introducing with such an immune-body complements with which it may react.

Perhaps for all of us the most interesting point in all this work is the demonstration of the wonderful complexity of the chemical processes going on in even such cells as the red-blood corpuscles and in indicating to us in what manifold ways the cells may take up their nourishment and give off their waste products or secretions.

Editorials.

THE ONTARIO MEDICAL ASSOCIATION.

The recent meeting of this Association was in all respects good. While not brilliant in any way it was *well balanced:* there was no hitch of any kind. The papers were practical and interesting, while the discussions were quite above the average. The "smoker" was a great success, while the luncheon was the best the Association has known. Probably the most satisfactory feature of the meeting was the large attendance of young physicians who were warmly welcomed by their former teachers.

We are told that there was some talk about the selfishness of the Toronto doctors as shown by the fact that only Toronto men were placed on the nominating committee. The writer, however, heard not one word of the sort, and is inclined to think that reports in this regard are much exaggerated and unjust to one who is really a *good fellow* and a strong friend of the Association. The selfishness of Toronto men is scarcely worth discussing. It undoubtedly exists and no discussion will diminish it. At the same time we know of no town large enough to accommodate the Association which has not a little of the same commodity. However, according to Musser "the less said about Caligula the better." Let us apply this rule to our selfishness!

Let us consider what are the best interests of the Association. Should it be peripatetic? Many of us in Toronto would much like to see it so if it were in the interests of the society. Most of us who had the opportunity voted for the three outside meetings held at Hamilton, London and Windsor, respectively. These meetings, unfortunately, were comparatively small, and not altogether successful. The writer has studied this matter very carefully for over twenty years, and is satisfied that at least three-fourths of the members outside prefer Toronto as the permanent place of meeting. As to the Presidency it should go outside Toronto as often as possible. Unfortunately an outside President is, to a large extent, handi-

capped because he cannot prepare for a meeting as well as one in Toronto. This year the nominating committee first recommended Dr. Ingersoll Olmsted of Hamilton for the presidency, but he preferred not to become President now as he is likely to spend a portion of the coming year in Germany. In consequence Dr. James F. W. Ross, of Toronto, was unanimously recommended and duly elected.

CANADIAN MEDICAL ASSOCIATION.

As already announced through the columns of this journal, the thirty-sixth annual meeting of the Canadian Medical Association will take place at London, Ont., on the 25th, 26th, 27th and 28th of August, with Dr. Walter H. Moorhouse, of that city, as President. Dr. George A. Hodge, Queen's Avenue, is chairman of the Programme Committee, and Dr. Hadley Williams, Park Avenue, is Local Secretary, to either of whom or to the General Secretary, Dr. George Elliott, 129 John Street, Toronto, titles of papers may be sent. Arrangements for reduced fares on the regular standard certificate plan have been already completed with the Grand Trunk and Canadian Pacific Railways, while negotiations are now in progress with the Intercolonial and the Canadian Pacific officials as to transportation rates from the Martime Provinces and points west of Fort William. These arrangements will be published in full in due time. In addition to those who have consented to read the regular addresses, the following have signified so far their intention of being present and contrib'ting papers: A. M. Rosebrugh, Toronto; Perry G. Goldsmith, Belleville; T. Shaw Webster, Toronto; R. Ferguson, London; A. Lapthorn Smith, Montreal; Henry Howitt, Guelph; Alexander McPhedran, Toronto; E. G. Wood, Nashville, Tenn.; C. W. Wilson, Montreal; Geo. H. Aylesworth, Collingwood; Jennie G. Drennan, St. Thomas; Adam Wright, Toronto. This list is every day being added too, and the Programme Committee is desirous that those contemplating should send in their titles without further delay. Entertainment is in the hands of a strong committee, and London is quite sure to do itself proud in this direction. It is understood

that Western Ontario is going to turn out very strong to the support of London, and there is every probability that the largest attendance ever recorded will be equalled, if not eclipsed. A great many members in the Western Peninsula who have not attended the annual meetings for years will take advantage of the proximity of this meeting to renew old acquaintances. The meetings will take place in the Normal School buildings, which are said to be the finest of their kind in Ontario.

WALTER BAYNE GEIKIE, M.D., F.R.C.S., Edin., L.R.C.P., Lond.

Another of our great teachers of medicine in Canada has given up active work in his college. Dr. W. B. Geikie, the Dean of Trinity Medical College, has resigned from his positions in that institution and will confine himself for the future to consulting practice. He was well known as one of our most prominent lecturers in medicine since 1856 when he accepted a professorship in the medical department of Victoria College, Toronto, of which the late Dr. Rolph was Dean. During the next forty-seven years he filled at different times the chairs of Materia Medica, Midwifery, Anatomy, Surgery, Practice of Medicine and Clinical Medicine.

In 1871 having with Dr. Rolph resigned his position in Victoria College he and others induced the corporation of Trinity College to reorganize the medical department which had first been organized in 1850 but discontinued a few years after. Dr. Geikie was appointed Professor of Medicine and Clinical Medicine in this reorganized department which opened in October, 1871. After the death of Dr. Hodder in 1878, Dr. Geikie was elected Dean and retained this position for twenty-five years. The marvellous success of this great school of medicine during all these years was, as is well known, largely due to his great ability and untiring energy.

Dr. Geikie belongs to a family as well known in Great Britain as he is in Canada. His brother, the Rev. Cunningham Geikie, D.D., Vicar of St. Martin's-at-Palace, Norwich, England, is author of "The Life and Words of Christ," "Hours

with the Bible," "The Holy Land and the Bible," and other works widely read. His cousins, Dr. Archibald Geikie, of London, England, and Dr. James Geikie, are very eminent geologists; the former being chief of the Geological Survey of Great Britain, and the latter Professor of Geology in the University of Edinburgh.

We offer our congratulations to Dr. Geikie upon his distinguished career as a practitioner and teacher of medicine. We rejoice that his health is good and all his faculties unimpaired, and we wish for him many long years of congenial work in his profession which he so well loves and so highly adorns.

THE AUTOMOBILE AND PUBLIC SAFETY.

Two perils threaten us in connection with the rapid extension of the use of the automobile. The first is the danger of fire or explosion in those motor-cars driven by gasoline engines, and the second is illustrated on a scale that we hope may never be seen again by the motor-car race from Paris to Madrid last month.

The facts in regard to this race are astounding. The distance is 400 miles, the number of vehicles taking part was 228, they were despatched from the starting-point in Paris at intervals of one minute, and some of them were driven at the rate of 88 miles per hour.

Seven persons were killed before the race was stopped somewhere near Bordeaux. It is not for one moment claimed that the drivers were not careful. On the contrary, it was in endeavoring to avoid a dog that one driver caused a collision in which two persons were killed. But the dust was so great that the drivers could not see, and 88 miles an hour is a pace that kills.

The danger of explosion in connection with gasoline tanks and engines is very great, as was shown by an occurrence on 47th Street near Third Avenue, New York City, on May 21st, 1903. The driver in charge was taking Mr. T. D. Hewitt's automobile to a repair shop when he found it was on fire and gave the alarm. The firemen were promptly on hand, but no sooner was the water turned on than the gasoline tank

exploded, severely burning twenty or thirty persons in the crowd of bystanders and passers-by. Fortunately, owing to the fact that the firemen extinguished the burning clothes of these people with rubber coats, etc., none were fatally injured, but about a dozen had to be taken to the neighboring hospitals.

The same thing happened recently to a New York physician's automobile. He had just stepped out of it at his office door when it suddenly exploded, sending some fragments 100 feet and breaking several windows.

Gasoline stoves are also most dangerous. A Toronto lady lost her life last summer near Gananoque, as a consequence of severe burns caused by her gasoline stove exploding.

We hope our city and Provincial Governments are alive to these dangers and will do something to regulate automobiles and the use of gasoline generally before any more lives are lost in this way.

CORONER OF THE CITY OF TORONTO.

The Act respecting Coroners was amended at the recent session of the legislature, and under the Act so amended, Dr. A. J. Johnston, who was appointed a Coroner in 1875, was chosen by the Government to fill the position of Coroner of the City of Toronto. The powers and duties of the Coroner of the City of Toronto, and of all Associate Coroners in the city, shall be defined by and shall be exercised subject to such regulations as may from time to time be made by the Lieutenant-Governor in Council. The action of the government in this respect is to be commended, and will, we trust, eventuate in the doing away with the unseemly tactics displayed by some of the advertising loving and vainly ambitious younger appointees to this old and honorable position of "Crowner." The following is from Bill No. 176, which passed its third reading, June 12th:

Section 1 of the Act respecting coroners is amended by adding thereto the following subsections:

"The Lieutenant-Governor may from time to time appoint a coroner, to be designated 'the Coroner for the City of Toronto,' and from and after such appointment all coroners or

associate coroners theretofore or thereafter appointed in and for the County of York shall as to the City of Toronto have and exercise within the City of Toronto the powers only of associate coroners for the said city, but this shall not limit the power of the Lieutenant-Governor to make further appointments of associate coroners for the City of Toronto from time to time. The powers and duties of the Coroner of the City of Toronto appointed under this sub-section, and of all associate coroners in the said city respectively, shall be defined by and shall be exercised subject to such regulations as may from time to time be made by the Lieutenant-Governor in Council.

"Whenever the death of any person appears to have been caused by an accident occurring upon a street or highway in the City of Toronto in the operation of any railway or street railway or electric railway on or across any street or highway the Crown Attorney for the County of York shall direct the coroner or one of the associate coroners in the said city to hold an inquest upon the body of the person so dying, and the coroner or associate coroner to whom such direction is given shall issue his warrant and hold an inquest accordingly.

"Section 4 of this Act shall not apply to or be in force as to inquests in the City of Toronto under the foregoing provisions of this Act, nor as to investigations held in the City of Toronto under section 6 of this Act.

"The Coroner for the City of Toronto shall be paid such salary, not exceeding $1,500, as may be fixed by Order in Council and the same shall be paid by the city half-yearly and shall be in lieu of all fees which would otherwise be payable to him and the city shall be entitled to be reimbursed out of the Consolidated Revenue Fund as to one-half the amount of such salary.

"Any coroner within whose jurisdiction the body of a person is lying upon whose death an inquest ought to be held may hold the inquest." (See Imperial Coroner's Act, 1867, s. 7).

RESULTS OF EXAMINATIONS.

Queen's University, Kingston.

House Surgeons—W. S. Murphy, Portland; A. H. Leonard, Kingston; J. H. Laidlaw, B.A., Georgetown; F. M. Bell, Kingston: G. H. Ward, Napanee.

Medal in Surgery—A. H. Leonard, Kingston. Medal in Medicine—W. S. Murphy, Portland. Dean Fowler Scholarship—W. Gibson, Amherst Island. Dr. McCabe's Prize, Junior Pathology—A. H. Singleton, Newboro'. Dr. Hyunger's Prize in Materia Medica, Therapeutics, and Pharmacy—A. H. Spooner, B.A., Latimer. Faculty Prize for Best Examination in Anatomy, Physiology, and Chemistry—A. C. Spooner, B.A., Latimer, and H. A. Boyce, Murray.

M.D., C.M.—S. W. Arthur, B.A., Inverary; W. H. Aykroyd, Railton; F. M. Bell, Kingston; J. H. Cryan, Demorestville; J. S. Dickey, North Williamsburg; F. J. Ellis, Ellisville; T. B. Faley, Charlottetown, P.E.I.; H. A. Gibson, Kingston; D. H. Houston, Belleville; O. A. Igoe, Tarrytown, N.Y.; W. J. Knox, Beechburg; J. H. Laidlaw, B.A., Georgetown; A. H. Leonard, Kingston; R. H. McKerras, Kingston; A. E. MacMillan, Sydenham; H. M. Moore, Athens; W. S. Murphy, B.A., Portland; L. E. Mylks, Kingston; A. McCabe, Gloucester, Mass.; J. E. McCambridge, Kingston; D. M. McCarthy, Kingston; J. J. McDonell, St. Andrews West; J. L. McDowall, Kingston; C. G. McGreer, B.A., Napanee; W. W. McKinley, Seeley's Bay; W. L. Pannell, Kingston; J. A. Pritchard, Brockville; G. M. Reid, Kingston; J. J. Robertson, Montreal; E. Sheffield, Peterborough; W. T. Shiriff, Fitzroy Harbor; A. A. Staley, Wolfe Island; G. H. Ward, Napanee; J. A. Wellwood, Fordyce; W. Workman, Kingston; G. E. McIntosh, Kingston; B. Haskin, Green Bush; C. A. Symmes, Aylmer, Que.; F. A. Aylesworth, Bath.

Ontario Graduates at McGill.

Ninety-six of the students in the final year of the faculty of medicine, McGill University, have passed for the degree M.D., C.M. The pass list includes the following students from Ontario: A. W. Allison, Renfrew; G. A. Bishop, Kinburn; L. C. Bishop, Marbleton; J. H. Boulter, Picton; O. Boyd, Russell; W. G. Campbell, Brantford; H. B. Chamberlain, Perth; L. V. Croft, Middleville; A. J. Dickson. Goderich; R. D. Forbes, Stratford; C. R. Gilmour, Brockville; A. E. Lynch, Britannia Bay; J. M. McCulloch, Durham; C. A. McDermid, Kemptville; J. W. McEachran, Rockland; D. W. McKechnie, Dundas; J. A. McIntosh, Vankleek Hill; D. D. McLaren, Felton; Thos. McPherson, Stratford; C. F. Magee, North Gore; A. G. Memdl,

Mattawa; H. B. Munroe, Almonte; H. G. Munroe, St. Elmo; J. H. Munro, Maxwell; J. S. Nelson, City View; G. R. Peterson, Tay's Hill; W. H. Secord, Brantford; A. Wilson, Russell.

Trinity University.

Gold Medal—B. F. O'Reilly. Siver Medal—E. C. Beer. Certificates of Honor—H. E. Eaglesham, B. F. Cousler, W. T. Gemmell, M. J. Perkins, A. J. Thompson.

Class I.—G. E. Chapman and C. H. Hair (equal), G. B. Campbell, A. W. Canfield, B. H. Hamilton, J. M. Baldwin, T. J. C. Tindle, R. A. M. Cook and C. C. Cragg (equal).

Class II.—J. H. Kidd, J. P. Cade, R. S. Conboy, R. E. Loucks, E. V. Smith, W. C. Arnold, F. R. Fursey, A. H. Campbell, W. W. Milburn, W. E. Mason, C. E. Duggan, D. Munro, A. C. C. Johnston, L. S. Pritchard, R. A. Fraser, C. B. Stone, J. A. Anderson, W. A. Lawrence, H. W. Coulter, G. F. R. Richardson, E. C. Dixon, F. W. Hill, B. D. Munro, A. H. Cook, F. J. Dodd.

Class III.—Miss E. F. Lucas, C. R. Learn, J. W. Rowntree, H. F. W. Vernon, P. W. Fuller, E. T. Cavan, A. W. Hicks, Miss O. M. Rae, W. E. Ekins, Miss M. G. Bryson, Miss L. M. Patterson.

Conditioned: In Pathology and Therapeutics—J. A. Allen.

In Therapeutics—F. M. Crosby, G. O. Ireland.

In Midwifery, Gynecology and Pathology—W. E. McLean.

In Applied Anatomy—A. E. Whitmore.

Toronto University.

M.D.—Thomas McCrae, B.A., 1891; M.B., 1895.

M.B.—Daniel Archibald Sinclair, M.A., 1900; Claud Wesley Freeman, B.A., 1896; William Abraham Groves, B.A., 1899; John Rowland Parry, B.A., 1899; George William Ross, B.A., 1899; Thomas Willoughby Walker, B.A., 1899; George Arthur Winters, B.A., 1899; Elgin Angus Gray, B.A., 1900; Edmund Murton Walker, B.A., 1900.

M.B. with Honors.—John Allan Oille, George Ewart Wilson, John Phillips, Frank C. Neal, William Edward Gallie, Wilmot Alvin Graham, James Lyons Biggar, John D. Leeson, Norman Duncan Buchanan, Charles Edward Kinster.

M.B.—Peter Anderson, Albert Thomas Bond, Richard Sheldrick Brewster, John Vassie Brown, Thomas Arthur Carson, Kirk Colbeck, Charles Lawrence Constantinides, Ernest Keys Cullen, Jos. Eugene Napoleon De Haitre, Thomas Bickerton Edmison, John Ferguson, Robert Ovens Fisher, John Gerald Fitzgerald, Edwin James Foster, Robert Franklin Foster, Ernest Victor Frederick, George Ethelbert Greenway, James

Henry Hamilton, Eugene Alex. Patrick Hardy, Emerson Leroy Hodgins, Kingsley Hulme Holmes, Mildred Jean Hoyles, John Garnet Wollsely Hunt, W. Beauchamp Seymour Hunt, Robert Ingram, Heber Carss Jameson, David Scott Johnston, Daniel Paul Kappele, William John Kerfoot, Dougall MacDougall King, George Franklin Lamb, Major Henry Langs, Fred Large, William Richmond Mahood, William Norman Meldrum, Thomas H. McColl, Peter Francis McCue, Archibald McInnis, William T. Morris MacKinnon, Robert Patrick McLaughlin, Hector McLean, Hugh Clayton McLean, Norman Keachie MacLeod, William McTavish, James Melvin Park, Arthur Douglas Proctor, Peter Francis Quinlan, John Morrow Robb, Frederick Alexander Ross, Victor Ross, Arthur Alex. Johnston Simpson, Solomon Singer, Wallace Eugene Somers, Norman Henry Sutton, Daniel James Sweeney. Harry Manstield Torrington, Walter Scott Turnbull, Bert Weir, Thomas Dunlop White, Ward Alvin Willson Woolner, Suat Chwan Yin.

SURGICAL HINTS.

Milk of assafetida, in doses of four to six ounces, forms an excel' at rectal injection in cases of tympanites occurring after intra-abdominal operations.

Support by means of a well-fitting bandage of felt is always permissible, and often advisable after any abdominal wound, but pressure upon a recent cicatrix by means of a hard pad must always be avoided.

Resection of the omentum is a procedure which seldom seems to give rise to additional shock, and which is easy to perform. Hence it is always best to resect protruding omentum if it is much in the way, or if it is soiled, or much congested, or simply difficult to reduce.

If cutting instruments are to be boiled, it is always best to continue the boiling for not over three or four minutes, as it blunts the instruments badly. A preferable way of disinfecting them is to wash them well with soap and water, place them in pure carbolic acid for ten or or fifteen minutes, remove them with forceps and place them in alcohol.

After using some of the more complicated instruments which it may be impossible to dry very thoroughly after they are washed, they may be dipped in alcohol, which will absorb the remaining water, or they may be placed in an oven for a few minutes. The latter method is probably the better of the two. —*International Journal of Surgery.*

Personals.

Dr. E. L. Connelly has decided to locate in Collingwood.

Dr. Hershey has been appointed quarantine officer at Owen Sound.

Dr. C. F. Smith, of St. Mary's, has been appointed Coroner for South Perth.

Dr. Brefney O'Reilly (Trin. '03), left Toronto, June 19th, and sailed, June 20th, for England.

Dr. Charles O'Reilly left Toronto for Montreal, June 18th, and sailed on the *Tunisian* as far as Quebec.

Dr. Samuel E. Flemming (Tor. '95), of Sault Ste. Marie, was married, June 17th, to Miss Mary Gertrude Dunkin.

Dr. T. S. Sproule of Markdale, Ont, has been elected Grand Master of the Grand Orange Lodge of British America.

Dr. C. E. B. Duncombe, of St. Thomas, has gone to London, England, to take a course in post-graduate work.

Dr. S. G. Storey, Blenheim, Ont., is in Baltimore taking a post-graduate course in surgery at Johns Hopkins University.

Dr. A. D. McLaren, formerly of Petrolea, has been appointed County physician in Port Huron to succeed Dr. Mills, resigned.

Dr. E. C. Arthur of Nelson, B.C., has been elected Grand Master of the Grand Lodge of the I. O. O. F. in British Columbia.

Dr. Henry C. Wales, who has had charge of the practice of the late Dr. Bridgeland during the latter's illness, has decided to remain in Bracebridge.

Dr. Edmund G. Weir, late house surgeon at the Toronto General Hospital, has successfully passed the examinations for the double qualifications of M.R.C.S. and L.R.C.P., London, England.

We have much pleasure in announcing that Dr. C. D. Parfitt, has recovered from his recent slight illness, although he has not yet gone back to work. He spent a portion of June on a yachting cruise with Mr. Jarvis, of Toronto, after which he returned to Gravenhurst, where he will probably spend the rest of the summer.

Dr. T. W. Walker (Tor. '03), will practise in Ridgetown, near Chatham.

Dr. King Smith, of Toronto, sailed from New York for England, June 27th.

Dr. Fred Grasett, of Toronto, sailed for England on the *Ionian*, June 20th.

Dr. Lorenz, the famous Austrian surgeon, visited Montreal, Ottawa and Quebec, June 20th to 24th.

Dr. James H. Richardson, of Toronto, is much in evidence in bowling on the green matches this summer.

Dr. K. H. Holmes (Tor. '03), will go to Johns Hopkins Hospital for post-graduate work in September.

Drs. F. C. Neal, N. D. Buchanan, S. C. Yin, E. A. Gray, C. E. Kinston and Greenway (all Tor. '03), expect to go to England in August.

Dr. Marshall E. Gillrie (Tor. '88), of Hamilton, received a severe injury to his right leg on Toronto Island, June 20th, from which he is now slowly recovering.

Dr. J. Algernon Temple has been elected Dean of Trinity Medical College, and also representative of the College in the Ontario Medical Council in place of Dr. W. B. Geikie, resigned.

Much regret was expressed respecting Dr. Harold Parsons' decision to retire from the secretaryship of the Ontario Medical Association after a faithful service of five years.

Dr. Lusk, who acted last year as Assistant Secretary, was unanimously elected to the position. It is no simple matter to fill Parsons' place, but Lusk's many friends think he will *fill the bill.*

Dr. James F. W. Ross entertained a large party composed of members of the Ontario Medical Association on the steam yacht *Cleopatra* on the afternoon of June 17th. Those present enjoyed the sail very much.

Dr. Thomas S. Cullen, after his return to Baltimore, wrote to friends in Toronto saying that he enjoyed himself immensely at the Ontario meeting, and appreciated greatly what the Association did for him.

Dr. Charles Lang, of Granton, who has been pursuing advanced studies in Great Britain, has been admitted, by examination, to the membership of the Royal College of Surgeons, England. Some time ago he received the diploma of the Royal College of Physicians, London.

Book Reviews.

Progressive Medicine. Fifth annual series. Volume II., June, 1903. A Quarterly Digest of Advances, Discoveries and Improvements in the Medical and Surgical Sciences. Edited by HOBART AMORY HARE, M.D., Professor of Therapeutics and Materia Medica in the Jefferson Medical College of Philadelphia. Octavo, handsomely bound in cloth, 427 pages, with 46 illustrations. Per volume, $2.50, by express prepaid. Per annum, in four cloth-bound volumes, $10.00. Lea Brothers & Co., Publishers, Philadelphia and New York.

A glance through this volume will suffice to show the reader the fatuity of attempting to keep up with the progress of scientific medicine unless he can avail himself of such a work. The enormous amount of material which it contains is the more astonishing when it is realized that it represents only what is of real, recognized scientific and practical value in current medical literature, and not simply a mass of abstracts of articles which have appeared in magazines. Each of the contributions possesses features which render it especially valuable to every medical man. The timeliness of the article by Dr. William B. Coley, on the "Surgery of the Abdomen," including "Hernia," cannot be overestimated. The vast importance which attaches to the proper diagnosis and treatment of diseases of the pancreas and liver, especially in view of the recently perfected operative measures for their relief, has only of late been fully realized, and many obscure digestive disorders, which have hitherto been regarded as of gastric or intestinal origin, are now ascribed to diseases of the pancreas or its ducts; and many diseases of the liver and gall, bladder and ducts, which have hitherto been considered as practically fatal in their outcome, are known to yield readily to operative interference.

Dr. Clark begins the section on Gynecology with a thorough discussion of all the various phases of cancer of the uterus—its etiology, clinical manifestation and treatment. Among the interesting points discussed is the relation of the diseases of the vermiform appendix to pathological conditions of other abdominal or pelvic organs.

Dr. Stengel's section on diseases of the blood includes also morbid conditions of the ductless glands and disorders of metabolism. As of especial interest, we would call attention to the discussion of the effect of various poisons upon the constitution of the blood, and of the changes of the blood in infectious diseases.

The section of Ophthalmology, edited by Dr. Edward Jackson, is, as usual, noteworthy for the practical value which it possesses, not only for the ophthalmologist, but for every physician.

Practical Details of Cataract Extraction. By MAJOR H. HERBERT, F.R.C.S. (Eng.). Professor of Ophthalmic Medicine and Surgery, Grant Medical College; in charge of the Sir Cowasjee JeLanqui Ophthalmic Hospital. Bombay and London: Bailliere, Tindal & Cox. Toronto: J. A. Carveth & Co. Price, $1.25.

Nothing but praise is due to this little volume. The author has had great experience in the extraction of cataracts. He is evidently a keen observer, a most careful chronicler of that experience, and possesses sound judgment in sifting out and placing on record the more important results of the vast amount of work he has done. True, some of his conclusions would be questioned by some operators, but the book has yet to be written which commands universal assent. The present work is, however, a safe guide to go by, and it contains a mass of practical details not to be found in many of the larger works. The scope of the book may be judged by a list of its contents, which are arranged in five chapters: I. Operable Cataract; II. Description of the Operation; III. Discussion of Operative Technique and of Alternative Procedures; IV. After Complications; V. Complicated and Soft Cataracts. No ophthalmologist will wish to be without this book. It should be in every library. J. T. D.

At the recent American Congress of Tuberculosis, held in New York, Dr. E. J. Barrick, of Toronto, was elected President, and Dr. P. H. Bryce, first Vice-President. Next year's Congress will be held in St. Louis.

The Board of the Winnipeg General Hospital have offered to raise fifty thousand dollars for new buildings if the city will contribute $25,000. The provincial government has promised $25,000. The increase of population is overtaxing the hospital.

Dr. Alexander Stark Ogg (Tor. '78), has practised in Sydney, Australia, almost continuously since he graduated. Early in June he visited Canada and stopped in Toronto a few days. He then went to his old home in Dundas, where he remained a couple of weeks. He will return to Australia early in July.

Dr. Herman, the well known obstetrician of London, England, has retired from the position of Senior Obstetric Physician of the London Hospital, after a service of twenty-seven years. He was entertained at dinner by his old resident accouchеurs June 8th.

"SUMMER" DIARRHEA IN INFANTS AND CHILDREN.

In Dr. A. Jacobi's standard work on "Therapeutics of Infancy and Childhood," the author makes the following statement:

"In acute cases of Intestinal (or gastro-intestinal) catarrh with high temperature, application of water, of from 60 to 70 degrees F., to the abdomen will render good service. The cloth must be wrung out thoroughly, covered with rubber cloth and flannel, and changed when warm. Anæmic children and those with much pain require warm or hot applications, which may be preceded by a warm bath. Frequent injections of water of 100 F. or more, with or without an antifermentative, such as thymol (1:1000 or 2000) answer well in most cases.

In great debility or collapse the water ought to be from 105 to 112 F., and contain some alcohol and opium, or teaspoonful of the tincture of musk. The addition of gum-arabic to the injection, or the use of glutinous decoctions (flaxseed) instead of water has a satisfactory influence. Starch injections have the advantage of adding to the nutrition of the body by the facility with which the colon changes amylum into dextrin, which will be absorbed. Part of the injected water will always be absorbed, fill the blood-vessels, and may prevent intracranial and other thromboses. Indeed, in many bad cases in which the cerebral symptoms of the so-called hyrencephaloid condition have made their appearance, or are imminent, frequent injections into the rectum of a few ounces of warm fluid contribute considerably to the restoration of circulation."

The above is quoted chiefly to show the high value that is placed upon enteroclysis in the treatment of diarrhea in infants and children by such an eminent authority as Dr. Jacobi. The importance of washing out the lower bowel cannot be too strongly impressed upon the general practitioner.

In a communication recently received from E. J. Melville, M.D., of Bakersfield, Vt., he states:

"The season is fast approaching when the wide-awake physician must look up his weapons of defence against the intestinal diseases of childhood. Shall we give digestives when the mucous membrane of the stomach and bowels is inflamed and incapable of retaining any nourishment to digest; or shall astringents be exhibited when to lock up the secretions would be but to add fuel to the flame? Should we risk the danger of opium poisoning in order to temporarily relieve some of the most distressing symptoms or to allay the anxiety of anxious parents? No doubt cases occur when some one or or all of the above mentioned remedies are imperatively indicated, but the

majority of the patients will recover if strict attention is given to diet and hygiene, and a mild antiseptic used to sterilize the *prima via*. For the past two years I have followed a plan of treatment in these cases which has proved very satisfactory. After due care has been given to cleanliness, fresh air, sunlight and a suitable diet or lack of diet, Glyco-Thymoline is given by mouth and rectum. This preparation has been chosen for the following reasons:

1. It is pleasant to take and thus easily administered to children. 2. Although a mild antiseptic, it has shown no poisonous effect, even when a large quantity has been absorbed. 3. It is the best of good tonics and favors osmosis from diseased surfaces, thus lessening inflammation and promoting healthy granulation in cases where an ulcerative process has begun. 4. On account of the oily consistency of Glyco-Thymoline, it remains in contact with the mucous membrane for a considerable length of time, thus acting in double capacity of a protective and an absorbent. This latter quality is easily explained by the strong affinity of Glyco-Thymoline for the products of inflammation. The following cases may be of interest to the profession:

CASE 1.—Was called to see Mary P——, aged 8, on July 4th, 1900. Family history tubercular. Pulse, 102; temperature, 100 F. Diarrhea, vomiting, pain, tenderness and tumefaction over small intestines. Dilatation of pupils, loss of appetite, flesh and strength. Night sweats. Other organs healthy. History of recurring attacks every twe months for past three years. Gave Glyco-Thymoline, one drachm to four ounces of water every four hours, and high rectal injections in knee-chest position of one ounce of Glyco-Thymoline in a quart of warm water every eight hours, having the patient retain as much as possible. Diarrhea and vomiting controlled in 36 hours. Convalescence uneventful. Continued Glyco-Thymoline in thirty minim doses three times a day for three weeks, when further medication was considered unnecessary. Prescribed an easily assimilated diet, rest in the open air, and cool sponging of abdomen daily. No return of symptoms to date, May 28th, 1902.

CASE 2.—Saw G. H. F.——, aged 3 months, on August 3rd, 1901. Cholera infantum. Pulse, 170; temperature, 105; respiration, 44. Vomiting and purging of blood and mucus. Tenesmus of rectum. Symptoms of collapse. Ordered hot saline baths, followed by a brisk alcohol rub every two hours. Discontinued all food for thirty-six hours. Gave hypodermics of brandy, thirty minims, every three hours, and twenty minims of Glyco-Thymoline in one drachm of water at the same time. High rectal enemas of one ounce of Glyco-Thymoline to a pint

of hot water three times daily. Vomiting controlled in forty-eight hours and diarrhea much lessened. Gave twenty minims of Glyco-Thymoline in four ounces of broth every four hours, which was retained, and continued rectal injections for five days, when all untoward symptoms had disappeared. Uneventful recovery.

CASE 3.—Was hurriedly summoned on Sept. 8th, 1900, to Maggie G — , aged four years, who was having convulsions. Temperature per rectum, 107 F; pulse, 135; respiration, 49. Purging of greenish colored fluid. Stools numbered thirty in past 24 hours. Hot mustard bath, followed by a brisk alcohol rub. Mustard to extremities. Glyco-Thymoline, four ounces to three quarts of water as hot as could be borne by rectal injection, allowing the fluid to flow out alongside of nozzle and injecting it slowly. This was repeated every four hours. On the following day the child's temperature was 104; pulse, 138; respiration, 48. No convulsions in past 24 hours. Gave thirty minims of Glyco-Thymoline in two drachms of water by the mouth every three hours. Temperature now began to fall rapidly and was accompanied by a corresponding decline in pulse rate, respiration and number of evacuations. Child began to ask for food and was given hot beef juice, two ounces every two hours. From this time on improvement continued rapidly and in four days the patient was convalescent. Continued Glyco-Thymoline for four weeks in twenty minim doses four times a day, well diluted with cold water. At the end of that period a normal condition was established.

Disinfection by Dry Heat.

Schumburg (*Zeitschrift fur Hygiene und Infectionskrankheiten*) shows that, although dry hot air is so uncertain in its action as to be unsuitable for practical disinfection, air at 100°C. will kill the most resistant non-sporing bacteria in and on clothing and other objects within an hour, if it contains from 55 to 65 per cent. relative humidity. This degree of moisture can be attained by having a vessel of water in the space where the objects are treated. Since disinfection of clothing and other objects containing anthrax and tetanus spores is very seldom needed, and since, on the other hand, the bacteria most commonly the object of disinfection (those of typhoid fever, cholera, plague, influenza, diphtheria, tuberculosis, and, probably, measles and scarlet fever, and the pus cocci) form no spores, disinfection with moist hot air will suffice in almost all cases. This method has this advantage over disinfection by steam: that articles of leather (gloves, books, riding breeches, etc.) may be exposed from six to eight hours without injury.—*American Journal of the Medical Sciences.*

Selections.

Tin as a Teniacide.

Dortschewsky (*Medicinskoe Obosrenie Revue médicale de Normandie*) finds that galvanically (electrically) precipitated tin forms an excellent remedy in tenia. He has used this preparation in cachets, each containing 0.60 gramme (9 grains), giving altogether five or six cachets at intervals of a quarter of an hour, and after the last cachet three tablespoonfuls of infusion of senna or two tablespoonfuls of castor oil. It is important at the outset of the treatment thoroughly to cleanse the intestinal canal by some good mineral water; and, further, for the two or three days preceding the administration of the tin, the patients must be subjected to a diet that will afford a minimum of fecal matter. Of thirty-eight patients thus treated, the tenia was expelled the first time in twenty-six cases; in seven instances the treatment had to be repeated; but in five cases, even after repeated treatment, the tenia was not expelled.—*N. Y. Med. Jour.*

Acute Nephritis following Mumps.

Paganelli (*Riv. Crit. d. Clin. Med.*, from Silvestrini's clinic, reports a case of mumps in a boy, aged nine years, who had never suffered from any of the exanthemata. At first the symptoms were light, the affection being limited to the right side, while at the same time a younger brother had bilateral parotitis. Two days later the patient became very ill: respirations, 44; temperature, 39.4° C; pulse, 120. Slight edema of the eyelids and of the extremities, especially of the hands and feet. Urine scanty, 0.4 per cent. albumin; in the sediment, numerous hyaline and epithelial casts and a moderate number of red and white blood corpuscles. Stained specimens from urine passed into a sterile vessel showed a moderate number of bacteria, a few bacilli coloring with Gram, but no cocci which held their color with Gram. Cultures showed only a few ordinary bacteria (mesentericus, proteus, sarcinæ and bacilli of the colon group). One rabbit inoculated with the sediment of the urine died after fifteen days of infection with a variety of the bacillus coli, while the other died after a month, of coccidiosis. After sixteen days the fever fell to normal, the edema disappeared, the urine cleared up, and the patient rapidly recovered. The relation of this attack to the parotitis, together with the absence of evidence of any other general infection, led the author to believe that the renal process was due to the specific cause of parotitis. While slight albuminuria is not infrequent during the course of parotitis, actual acute nephritis is so unusual as to justify mention of the case.—*American Journal of Medical Science.*

Hyoscine for the Morphine Disease.

Dr. R. C. Rosenberger reports an interesting history of a confirmed taker of morphine. The patient during eleven years had used the drug, and his regular dosage was from 30 to 60 grains a day. The immediate urgency for treatment was an acute maniacal attack. The morphine was withdrawn and $\frac{1}{100}$ grain doses of hyoscine hydrobromate administered every hour. After twenty-five days the patient made a complete recovery, and has remained free from the use of the drug for eleven months.—*Medical News.*

Mycosis Fungoides and Its Treatment by the X-rays.

Jamieson (*British Journal of Dermatology*) reports two new cases of this comparatively infrequent affection, in one of which quite remarkable results followed the prolonged use of the X-rays. This case began with the usual eczema-like patches, which were followed in time by tumors which ulcerated. Soon after coming under the author's care treatment with the X-rays was begun, the exposures lasting from three to five minutes, with a soft tube at a distance of four inches. This treatment resulted in a steady and continuous shrinkage of the tumors, although new lesions appeared in the parts not exposed to the rays. After sixty exposures, on as many different days, all the tumors had disappeared. Reaction sufficiently marked to require suspension of the treatment was at no time manifest. Not only did the tumors disappear, but the thickened patches were also removed, and with them the itching.—*American Journal of Medical Science.*

The Treatment of Lupus Erythematosus.

Hollander (*Berliner klinische Wochenschrift*) has employed the following method of treatment with very satisfactory results in the severest and most unfavorable cases of erythematous lupus: Large doses of quinine are administered internally, and at the same time the diseased areas are treated locally by applications of tincture of iodine. After having ascertained that the patient has no idiosyncrasy in regard to this drug, a half-gramme of the sulphate or hydrochlorate of quinine is given three times a day, and five to ten minutes after each dose the affected parts are thoroughly painted with iodine. This is continued for five or six days; then the treatment is suspended for an equal period of time, until the crust produced by the iodine has fallen off. If the reaction is slight the dose of the quinine is increased. The result of this treatment is either a scar-like atrophy or a complete return of the skin to the normal, the latter occurring in the recent cases. In the majority of cases about 60 grammes of quinine are necessary to complete the cure.—*American Journal of Medical Sciences.*