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TUBERCULOSIS, A CURABLE DISEASE—A SURVEY.

IN every age of medicine the subject of tuberculosis has been a fertile field for inquiry. No disease possesses such sad interest for humanity. Throughout the civilized world last year there were probably not less than one million deaths from this disease alone. For three thousand years its existence has been an established fact, and if we accept the views of some commentators of the Bible, that period may reasonably be extended many centuries more.

Hippocrates, five hundred years before Christ, gave a perfect description of the symptoms of an advanced case of tuberculosis. Hippocrates said all consumptives die. He recognized only the terminal events in the disease; the larval and chrysalis stages were to him unknown.

Galen describes the disease, as he found it among the Romans, in the second century of the Christian era. The

Romans had a fairly clear conception of the disease. They got their knowledge from the Greeks, and it is more than likely they got the tubercle bacilli from the same source.

The Greeks, to whom we are indebted so much for the history of medicine during antiquity, are believed to have taken their knowledge of the healing art from the Egyptians, and it is just possible they took the tubercle bacilli too. Back of the Egyptians all is tradition. The buried records may some day unfold the mystery.

It is scarcely likely that the modern tubercle bacillus has the same morphology and life history as the early denizens of the microscopic world. Due allowance must be made for evolutionary processes and the effect of association and environment. From the similarity, not only of their methods, but of their finished work, we recognize, in these aboriginal bacilli, the kith and kin of our modern enemies. It is fairly clear that the origin of tuberculosis was contemporaneous with the origin of civilization, and it is certain that tuberculosis has followed closely on the heels of civilization, down through the ages.

The question naturally arises, tuberculosis being universal and contagious, what has saved the human family from extinction? From Hippocrates we learn that the disease was more prevalent among the early Jews than it is among either Jews or Gentiles at the present time. Then what has saved the race?

There is an inherent law of antagonism in all organic nature, and it is this very antagonism that preserves the equilibrium. The antagonism between the flexors and extensors maintains the body erect. Every living thing is in a sense parasitic, and in turn is preyed upon. Man is the prey of many parasites. He has within him, however, the elements of successful defence—a strong navy—the phagocytes. When he has waged war against a parasite, and has won the battle, the vanquished foe cannot again take up arms for a longer or shorter period of time. This is immunity, and it is this immunity that has saved the race.

Parents who have had tuberculosis and have recovered from it transmit a partial immunity to their children, and these

again transmit a better immunity to their children, and ultimately, by a continuance of the process, immunity becomes complete or nearly so.

This is no mere theory. Racial immunity from tuberculosis can be demonstrated by the aid of history. The Jews enjoy the largest measure of immunity. Of all known people they are the least prone to tuberculosis, and recover most readily when they do contract it. They have fought the disease longest, and have thereby developed a greater internal resistance—a greater immunity.

The Jews claim their comparative immunity is due to their diet and mode of life. Few will be inclined to agree with them. The Spaniards, Italians and French show a better immunity than either the English or Germans. The races which have been exposed to the ravages of tuberculosis for the shorter period have little or no resistance. The North American Indian was practically exterminated before he could develop an immunity. The negro is three times more susceptible to the disease than his Caucasian brother.

Dr. Passmore, Deseronto, assures me that few full-blooded Indians are to be found on the Mohawk reserve, over which he has medical jurisdiction. Notwithstanding every effort at sanitation, the disease spread over the reserve like a tornado, and with as dire results. A better knowledge of sanitary methods, together with inter-marrying with the whites, saved the reserve from extinction.

That quaint delusion—the curative effects of certain climates—still has a few victims. The fact is, no country in the world has withstood the onslaught of tuberculosis. Small countries, which were free from it when first visited by civilization, soon became veritable pest-houses. The larger countries fared better. Canada, the Bermudas and the United States were strangers to tuberculosis until the beginning of the 16th century.

The Bermudas have an even and very desirable climate. The early European visitors were not long in recognizing this, and in learning, too, that tuberculosis was unknown on the islands. Soon these verdant spots were swarmed with Euro-

pean health-seekers, and the natives were wiped out by the new disease.

Nova Scotia, New York and Pennsylvania were in turn health-resorts for consumptives, and so have been every province of the Dominion, and every State of the Union, as civilization moved westward. The reputations earned by the primeval forests of the East, and the virgin prairies of the West, have been lost in the cultivated fields of both. Colorado has now a higher mortality from tuberculosis than Ontario, and the foothills of the Canadian Rockies will soon follow suit. This brings us to the second point, viz. :

THE DEVELOPMENT OF THE OPEN AIR TREATMENT OF
TUBERCULOSIS.

Our knowledge of the medicine of the Hebrews comes down to us through the Scriptures, especially through the writings attributed to Moses. The book of Leviticus, for example, is largely made up of rules and regulations concerning matters of public hygiene. The measures suggested by Moses for the prevention of the spread of leprosy, the twin-brother of tuberculosis, are unsurpassed to-day. The early Greeks probably included consumption under the head of fevers. Miraculous cures are recorded of certain fevers, even after the patient "had vomited blood, was pale and wan and apparently lost beyond recovery," by the administration of "pine seeds mingled with honey." If our ancestors treated consumption with "Pine Expectorant", then we must respectfully dissent from their judgment ; for if there is one thing more than another that knocks with ruthless hand the pillars from beneath the human structure afflicted with tuberculosis it is the administration of these monsters of polypharmacy—the so-called cough syrups. They derange the stomach, the last hope of the poor consumptive.

The Trojan war seems to have been an epoch-making event in the history of medicine in Greece, as indeed all great wars have been in every age. At the close of this war sanatoria were erected "on hill-sides, near thermal springs or fountains, and among groves." They were called temples then. The Asclepiadae, as the priests at the head of these temples

were known, prescribed venesection, purgatives, emetics, massage, sea-baths and mineral waters. A well-regulated dietary, pure air, regular hours of rest, temperate habits, coupled with a generous selection from the above remedial agents, sufficed for cures, which even nowadays would be regarded as wonderful. We have no records of what cases were admitted to these temples.

Galen, in the Roman period, considered impure air an important ætiological factor of pulmonary tuberculosis, recommended high altitudes, and suggested the possibility of the disease being contagious.

The Arabic school of the 10th century taught that tuberculosis was contagious and followed Galen in recommending mountain climates.

From the eleventh to the sixteenth century little of importance happened in the history of medicine, in any of its branches. With the Renaissance, however, medical science arose from its slumbers. Jacobus Syvius, in the early part of the 16th century, called attention to the great ravages of consumption. He is said to have been the first to give an exact description of tubercle.

The earliest effort in the sanatorium treatment of tuberculosis, however, was inaugurated by Dr. Geo. Bodington, of Sutton, Coldfield, Warwickshire, England. His essay on "The Cure of Pulmonary Consumption on Principles, Natural, Rational and Successful." appeared about 1859. He must, therefore, be recognized as the predecessor of Brehmer, the founder of the first sanatorium for consumptives in Germany. Concerning the erection of his sanatorium he writes :

"I have taken for the purpose a house in every respect adapted, and near to my own residence, for the reception of patients of this class. . . . It is presumed that the advantages to be derived from systematic arrangements with regard to exercise, diet and general treatment, with the watchfulness daily, nay, almost hourly, over a patient, of a medical superintendent, great advantages may be obtained by the consumptive patient treated in this way."

His theory was sound, but he was in advance of the age.

A level must be reached ; either the profession and the people must rise to his standard of thought and action or he must go down. He could not draw them to him. First, the sanatorium was mortgaged, then in desperation the home, and in due time the foreclosure came. The great mass of people said he was a fool, and perhaps he was. It's not well to venture too far in advance of the main guard ; you become a target for the enemy, and you may be dropped by your friends. Harvey's experience should have been fresh in his mind.

THE MANAGEMENT OF A CASE OF TUBERCULOSIS.

The success of the treatment depends largely on the early recognition of the disease. It cannot be called early, when the expectoration contains not only tubercle bacilli, but streptococci and staphylococci, nor yet can it be called early, when tubercle bacilli are found in an abundance of sputum. Even in those cases in which as yet there is no breaking down of tubercles, cases in which no bacilli are found in the sputum, there are usually sufficient symptoms to attract the patient's attention, and a thorough investigation of these, together with a careful examination of the entire chest, will in a large majority of the cases afford sufficient evidence on which to base a diagnosis of probable incipient tuberculosis. When we consider that the earlier the real disease and its extent are determined the better are the prospects of arrest and ultimate cure, there is surely sufficient incentive to make the earliest manifestations of the disease a subject of careful study. Cases that are doubtful are candidates for consumption and should be regarded as such. A thousand times better to err on the side of safety and treat the milder affection as the severer one than imperil the patient's chances of recovery by neglect or delay, especially as the treatment is largely hygienic and dietetic and beneficial under any circumstance.

Having made a diagnosis, the patient should be told frankly his condition. Without his intelligent co-operation cure, or even arrest, is utterly impossible. He should be taught that tuberculosis is a curable and preventable disease, perhaps the most curable of all chronic affections, and certainly one of

the most preventable. In this way, instead of discouraging him, you will increase his hopes, and this is important. Discouragement means death. Worry and anxiety are the steps leading to the dingy threshold. The patient must be educated to a better knowledge of the possibility of cure and the means of attaining it. Knowledge will dispel fear and replace it by hope. The patient must ever realize, however, that he is fighting for his life. He will gather hope as he goes along. The soldier that has mounted successfully one kopje after another



SINGLE CANVAS SHACK, KINGSTON GENERAL HOSPITAL.

is not discouraged, but the physician as the commander-in-chief must see to it that he is properly fed and his energies well directed. In modern warfare the odds are all in favour of the army with a strong commissariat and good sanitation. In recent wars twice as many have fallen from the bacilli of typhoid and dysentery as from shell, Lee-Enfield and Mauser.

In this educational campaign our instructions must be definite, and just here would it not be well if the term "tuberculosis" were limited to the ravages of the tubercle bacilli, and the older term "consumption" applied to the later manifesta-

tions of the disease ; the stage indicated by the hectic flush, the drenching sweats, the constant irritating cough, when not only tubercle bacilli, but streptococci and staphylococci are found. Such a distinction would simplify matters.

Again, how frequently the tuberculous patient is told "to take plenty of exercise in the open air and eat nourishing food." Such instructions invite disaster. The first part of the advice is wrong so far at least as 90 per cent. of our cases are concerned, and the latter part is indefinite and therefore worthless. If the consumptive is below weight, or has a temperature of over a 100 F. should exercise very little. He must accumulate some energy before exhausting his limited store. His digestion may be poor. He may not be able to supply the ordinary demands of the body, to say nothing of laying up a reserve fund. A fever of over 100 F. is a great consumer of energy. Exercise is likely to increase his temperature. A severe fatigue during the acute stage of the disease may be the switch-signal that turns him from the high-road to recovery into the valley of the shadow. Recently a patient, undergoing the open air treatment, went to an opera, of course against orders ; the house was crowded and air vitiated, and for ten days all his symptoms were aggravated. The temperature and pulse-rate must be the guide as to exercise. A morning temperature of 100 F. or over, or a pulse-rate of 120, demands absolute rest.

The term "nourishing food" is too general. Directions for a consumptive must be specific. Few of these patients are dietetic experts. The food that is most nourishing, perhaps the stomach will instantly reject, or the patient may exhibit some idiosyncrasy to food as to medicine. Then comes the necessity for skilled supervision. In a case advanced, but still within the limit of hope, the patient should be seen daily until improvement has set in, or until at least he is seized with the importance of the minutest details of prophylaxis and treatment. And just herein lies the great advantage of the sanatorium treatment. The constant supervision is the important element. It is useless to tell the patient to be careful about spreading infection, or to recommend a mixed diet with a prepon-

derance of milk, eggs and meat. Directions must be specific. The patient must be given a proper sputum-mug and told how to use it and care for it. His hours of sleep, his hours of rest when he should not sleep, his mode of exercise, his baths, the character of his food, each must be definitely prescribed from day to day, and assurances obtained that instructions will be faithfully carried out. No reference was made in the above to ventilation, because here there is no variation. The patient should breathe the purest air available every hour out of the twenty-four. For this reason shacks are to be strongly recommended. In the home a southern verandah can be very easily transformed into a most satisfactory shack with the aid of a few yards of canvas. During the past winter three of my patients have slept in these verandah-shacks and have done well. The two patients in the shack on the hospital lawn have not complained of the severity of the winter, and their progress has been most satisfactory.

It has been urged, following an old delusion, that the climate in this district is too damp for tuberculous patients. "The beastly climate" is blamed by the consumptive no matter where he may be. In cold climates it is the low temperature, in damp climates the moisture, in warm climates the unbearable heat, and in high, dry climates it is the dusty winds and the great span between the night and day readings of the thermometer. The truth is, with few exceptions, the patient should be treated in the locality in which he expects to spend the balance of his days. The bracing air of our Ontario winter stimulates the appetite and improves the digestion—both important considerations. Consumption, unattended, runs a less rapid course here than it does in Florida.

Some have urged, and not without a show of reason, that the Government should erect and endow a number of sanatoria throughout the province for the treatment of tuberculosis. With this we agree, but our hopes are not radiant. A good start on the part of the Legislature might be made by more generously supporting the institutions we have. It is a lamentable fact that only 50 of the 75 beds in the Free Hospital for Consumptives at Gravenhurst are at present occupied, ow-

ing to the low condition of the institution's finances. The great benefits to the State, from the sanatorium treatment of tuberculosis, are everywhere apparent. The countries that have the largest number of sanatoria have the lowest death-rate from tuberculosis.

In the meantime, and as a stepping-stone, there should be a number of shacks or pavilions, for the reception of tuberculous patients, in connection with every General Hospital in the province. These shacks, besides being in every way suitable, are inexpensive and could be economically managed, as in the majority of cases no additional administration expense would be incurred. Besides their direct value, they would be an object lesson to the whole community. They would stand as silent monitors, advising and reproving, and a most efficient means of spreading broadcast a better knowledge of this disease. If ever this ancient malady is to be stamped out, it will not be by quarantine or coercion, but by a strenuous day-in-and-day-out educational campaign, in which every man, woman and child must play a part, the physician always in the vanguard setting the pace.

JAS. THIRD.

MEDICINE AND BIOLOGY.

A FEW days ago I was asked what connection animal biology had with medical science. The gentleman who asked the question was a highly trained man on the literary side. The question came unexpectedly, the time was brief in which to answer it, the facts available for a reply are multitudinous, and, as a consequence, my attempts at explanation left him, I fear, more befogged than enlightened. The incident suggested, however, the necessity of setting down as

clearly as possible the relation of certain parts of biology to certain parts of medicine.

In the first place we must distinguish between the doctor who is a mere tradesman and the doctor who is a thoroughly educated man. The former works by rule of thumb, and rises little above the times when the doctor was also a barber; the latter devotes study, skill, insight and conscience to the service of humanity. The one skins through his examinations, and then uses pills, powders and plasters in blind attempts to stop the progress of a disease which he does not understand; the other patiently sets to work to investigate the cause of disease, and then applies the appropriate remedies.

No institution can develop the highest type of physician by exacting from him a narrow medical training. Time was when a doctor's biological studies were confined to human anatomy and human physiology. Gradually a change came. The great teachers of human anatomy began to dissect domesticated animals. Harvey, writing home from the continent in 1636, after the Thirty Years' War, says; "By the way, we could scarce see a dog, crow, kite, raven or any bird, or anything to anatomize; only some few miserable people, the reliques of the war and the plague, whom famine had made anatomies before I came." His *Exercitatio Anatomica de motu cordis et Sanguinis* is based upon comparative anatomy. In common with other great investigators, he discovered that the bones, arteries, muscles, nerves, &c., found in man, are present in the horse, dog, &c. The anatomical terms, therefore, used in describing the parts of a human being were simply transferred to corresponding parts of tame, and later on, to similar parts of wild animals. The science of comparative anatomy was thus founded. Upon this foundation comparative physiology was based, and upon both was reared the superstructure—comparative medicine. Sir Astley Cooper, who, by the by, was professor of *comparative* anatomy in the Royal College of Surgeons, bought up discarded race horses, treated their diseases precisely as he did those of his human patients, and soon possessed an unrivalled stud of thoroughbreds. Veterinary medicine slowly emerged into one of the

learned professions. It has in turn, re-acted upon human medicine, and to-day it lends its aid to every important advance in the progress of medical science.

But while admitting that Harvey was a great comparative anatomist—greater than any cotemporary, one may almost say, greater than any successor until the times of Hunter and Meckel, some critic may object that it is not necessary to repeat the work of these men, and that it is not necessary at the present time for any graduate in medicine to know more anatomy than human anatomy. In answer to this it may be said that if the aim is to turn out mere tradesmen, then precious little human anatomy will suffice. From this narrow point of view the medical curriculum might well be cut down to two years. But, if the aim is to give to graduates in medicine breadth of view in regard to the healthy processes of the body, to give insight into disease—its spread, ravages and consequences, then a five years' curriculum is not too long in which to give the necessary training.

Everything that is best in the practice of modern medicine and surgery has grown out of studies in comparative anatomy, in comparative physiology, and in the comparative diseases of man and animals. Perhaps no better illustration of this can be adduced than what is found in a circular letter issued a few weeks ago from the Cancer Institute, London, England. As every one knows, this institution was founded and endowed about two years ago for the purpose of discovering a cure for these terrible afflictions. Since then able experts have been at work upon the problem, but thus far without success. The circular referred to announces that the institution will, for the next few years, direct its energies solely towards ascertaining the cause of the disease. Until this is found, it is idle to look for a cure. The disease is to be studied not merely as it occurs in man, but in animals as well. In other words, the problem is to be attacked from the point of view of comparative anatomy and comparative disease. The circular asks the co-operation of comparative anatomists all over the civilized world. Biological laboratories in Europe, Asia and America are requested to forward to the Institute in London tumours or can-

cerous growths found in any part of any animal. Already a beginning has been made. Cancerous growths have been obtained from the horse, cow, sheep, dog, pig, cat, mouse, hen, Indian parakeet, salamander, cod, gurnard and trout. In each case the special kind of cancer was determined, and was found to be similar to cancerous growths in man. The first report issued by the Institute was published in the *British Medical Journal* of 30th January, 1904, and expresses the hope that a comparative study of 20,000 cases in different kinds of animals may throw some light upon the causes, if not the cure, of these terrible maladies. Evidently the historic method of investigation is still the dominant one in the Royal College of Physicians and Surgeons, London.

A few words in regard to physiology. As most people are aware, a knowledge of anatomy must precede a knowledge of physiology. A man must understand the structure of a watch before he can understand how it keeps time. When anatomy stands still so does physiology. The reason why British medical men have not been pioneers in recent researches into the physiology of the nervous system is because the minute anatomy of the brain and spinal cord has been at a standstill. Elsewhere than in Britain it has been worked out largely by experiments upon living animals. Untold suffering has been the result. In Britain an anti-vivisection act of Parliament has hindered or completely stopped all such experiments, and with their cessation nearly all progress in the anatomy and physiology of the brain and spinal cord. In Spain, Russia and Italy, where there is as yet no anti-vivisection legislation, experimentation still goes on, and from these countries have come wonderful additions to our knowledge. This is not the place in which to discuss the ethics of vivisection. I am merely stating facts in order to make clear one relation of medical science to biology. If the pathways and centres in the brain and cord of the lower animals had not been mapped out by means of vivisection, our knowledge of brain function in man would have consisted largely of gaps and guesses. Comparative anatomy and physiology are the keys with which its mysteries have been unlocked.

Nor is nerve physiology the only branch of the subject that is dependent upon vivisection experiments. Recent advances in our knowledge of the digestive processes have been made by Pawlow by this method, and it is safe to say could never have been made without it. To such an extent does physiology depend upon observations and experiments on lower animals, that the subject as taught to medical students is now spoken of as animal physiology—not human physiology. Our knowledge of this latter is exceedingly meagre. Examination of the healthy fluids and tissues of the body, and of the normal processes carried on by its external organs, includes about all the human physiology there is known. Obviously no experiments can be carried on with human beings except the very simplest. But with animals the case is different. Dead animals tell no tales.

In embryology we meet with a precisely similar state of affairs. Here every step of our knowledge has been gained by experiments and observations on the reproductive processes among lower animals. Writing of Harvey in 1642, Aubrey says: "He came several times to our College (Trinity) to George Bathurst, B.D., who had a hen, to hatch eggs in his chamber, which they opened daily to see the progress and way of generation." Here is clearly indicated the source of the materials embodied in Harvey's second great work, the *Exercitationes de Generatione*. Hertwig asserts that the generative changes taking place in the human embryo for the first three weeks are absolutely unknown. We do know very well what these changes are in the domesticated animals, and we assume that they are exactly similar in a human being. You may call this a huge assumption if you will, but it is no greater an assumption than much of our so-called knowledge of the digestive, secretory and nutritive processes of the human body. They are all alike based upon comparative anatomy and comparative physiology.

I pass over the explanation which biology offers for the existence of vestigial structures in man, such as the vermiform appendix and muscles of the ear, tail, scalp, forearm, &c. Readers who are interested in the origin of these structures

will find them discussed in Wiedersheim's *Structure of Man*. I pass over also the origin of the malformations and deformities with which a small percentage of the human race is afflicted. These with imbecility and idiocy find their only rational explanation in the light which comparative anatomy throws upon the human frame. They are all evidences of man's past history, and of his indissoluble kinship with lower animals.

Nor can I delay to point out how biology has shed a flood of light upon the spread of the infectious diseases, and made clear the necessity for aseptic and antiseptic surgery. For bacteriology is merely one branch of biology, and finds its *raison d'être* as a medical subject of study solely in the fact that some twenty-five diseases are caused by microscopic plants or animals getting into the body and producing there those symptoms and effects which we know to be characteristic of a contagious disease. Measles, small-pox, diphtheria and consumption are examples of such diseases. To prevent the spread of these scourges there has grown up the science of Public Health, with its Boards of Health and its health officers in every enlightened community in the world,

Rather must I hurry on to point out how in Ontario, through the action of the Medical Council, medical education has drifted away somewhat from the best traditions of the past. The Ontario Medical Council does not require its licentiates to have studied biology in any wide sense. Its spirit is largely that of the trades' unions. You will look in vain for biology in the council's curriculum. In Britain, on the contrary, the first session in medicine is devoted to chemistry, physics and biology. In the old land it is clearly recognized that if a man would understand human life and action he must study animal life. Every year shows the wisdom of the early investigators like Harvey and Hunter; because every year shows new connections between the diseases of man and the life of other living organisms. What is more wonderful than the discovery of the cause of the malarial fevers, through the agency of the mosquito, or the discovery of those serums which are used to combat the deadly effects of disease producing bacteria? If medical

men had limited their studies in the past exclusively to human beings, medical science would still be little better than a collection of old wives' fables.

I have no desire to under-estimate the good work of the Ontario Medical Council. It has kept up a high standard of proficiency by means of its strict examinations. But it has not been liberal or progressive in framing its curriculum. It did not add bacteriology until long after the medical schools had been teaching it. Only last summer did it prescribe physics. Botany, once found upon its curriculum, has been dropped. Animal biology, including comparative anatomy, has not yet received recognition,

The curriculum is faulty in another respect. It requires only two years to be spent upon anatomy, physiology, chemistry, materia medica and pharmacy, and three years upon the strictly professional or final subjects. The historic methods of the great physicians would suggest that it would be vastly better to spend three years upon the primary subjects, including physics and biology, and two upon the final. The fifth year's course has hitherto been a sham; and even with the change made last summer is merely a repetition of the fourth. It is a waste of time which might far better be devoted to laying a broad foundation in an accurate knowledge of human and comparative anatomy, comparative physiology, physiological chemistry and experimental pharmacology—in short in acquiring a wide knowledge of biology, the only co-ordinating subject of the medical curriculum.

A. P. KNIGHT.

EDITORIAL.

THE 51st Annual Convocation of the Medical Faculty of Queen's University was held on Friday, April 8th, and was presided over by the Chancellor. It was of more than ordinary interest, not only because it marked the completion of half a century of faithful, self-denying work, giving a broad view of the steady advance made, but because of the new interests enlisted and the spirit of buoyant, hopeful enthusiasm displayed.

The few but feeling references to the late revered Principal, Rev. Dr. George Munroe Grant, testified that "our deepest thoughts cannot be expressed," and the kindly mention of the life and work of the late Dean Fowler gave evidence of the large place he occupied in the life of the Medical Faculty. The newly appointed officials, to use an expressive phrase, "shaped well," and Queen's friends need not have any fears for her future under their guidance.

The large percentage of Arts graduates among her students gives great promise for the future, and the uniform excellence of the students was well expressed by the Hon. Senator Sullivan in presenting a medal to one of the graduates when he said, "You are no better than any other member of the class, for you would not have been first if it had not been for two or three marks." The "gods" evidently thought Dr. Mundell entertained similar views when they applauded his partial sentence to another prize-winner: "This prize is not given for *brilliancy*"—(applause); the "gods" felt they were all brilliant.

Professor James Cappon, at the request of the Dean, addressed the graduating class. His subject was well chosen, and his treatment of it marked by the clearness and finish of all his work. We expect to let all our graduates share our good fortune by printing it in full in our July number.

Dean Connell continued the practise of the late Principal of giving a prize to the member of the graduating class who could be expected to "do the right thing under all circum-

stances," such member to be chosen by a ballot of the class. Dr. E. W. DeLong was awarded the prize. In presenting it the Dean remarked that it was gratifying to know that though Dr. DeLong received the greatest number of votes, he was closely followed by several of his fellow graduates.

Elsewhere in this issue will be found a full list of prizemen and graduates, as well as the results of the spring examinations.

PRELIMINARY steps are being taken towards the establishment of a permanent Professorship of Anatomy, *i.e.*, the appointment of a man who will devote his whole time to the subject of anatomy. This will certainly be a gain to the teaching staff, and a great advantage to the student body. The successful elaboration of the plan will depend largely upon the man appointed, and it is to be hoped that the Faculty may be as successful in their choice for this chair as they have been in other cases.

Apropos to the establishment of new chairs we would like to see medical students in all colleges given some definite instruction in the subject of Medical Ethics. As matters now stand medical graduates are sent from our colleges, often without any and always with but a smattering knowledge of those necessary rules of professional courtesy that makes our associations with fellow practitioners so enjoyable and without which so many unnecessary misunderstandings occur. In this as in all other matters of education much depends upon a man's natural equipment. No amount of "polish" can make up for the lack of natural gentlemanliness, but the smallest natural endowment is vastly improved by ordinary education. A short code detailing the accepted course in "Consultations," "Emergent Cases," "The Rights of the 'Family Doctor'," "Surgical Assistance," etc., would be of great use to the young practitioner.

ADDRESS OF DEAN CONNELL AT CONVOCATION.

ON behalf of the Medical Faculty I desire to address you for a few moments in reference to the work of the session, the present position of the school, and our plans for the future.

This fiftieth session has been marked by a number of important events. Its opening was celebrated by the ceremonies connected with the installation of Principal Gordon, and with the Jubilee of the Medical School. The death of Dr. Fife Fowler, who had been Dean for so many years, made necessary the appointment of a successor, and the retirement of Dr. Herald from the office of Secretary led to the selection of Dr. W. T. Connell for that important position. Thus an entirely new executive has assumed the great responsibility of carrying on the affairs of the Faculty.

The class work of the session has been satisfactory, and has been characterized by enthusiasm on the part of both students and Faculty. The continued illness of Dr. Anglin and of Dr. Herald interrupted the work of their departments to some extent. Extra work, however, was done by Doctors Mundell, Third, Ryan, Wood, Mylks and Campbell to make up the clinical instruction necessary. We are delighted to know that Dr. Herald is in good health again, and we hope Dr. Anglin's trip to Europe will restore him to his usual vigor.

Dr. Williamson was appointed Lecturer in Jurisprudence to relieve Dr. W. T. Connell when he assumed the duties of Secretary.

The students of this session have distinguished themselves by their application to study and by their regularity in attendance. For my own part I desire to thank them for the generous support given me in instituting some necessary changes, and for the excellent discipline maintained by their own organizations.

The attendance of the year is the largest on record. In the session 1902-1903 the total registration was 201. For this year the total is 216.

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The number of Arts graduates in attendance is 37. We have also quite a number of students who are taking the combined Arts and Medical Course, which can be had in six years, but the exact number I have not been able to determine. It is, therefore, quite correct to say that a large proportion of our students have a great deal more than the minimum amount of preliminary education necessary for a physician.

Of non-matriculated students there are 17 on the list, and of these the majority require the single subject of Latin to secure the certificate. In the past there has been no fixed rule as to when matriculation must be completed. The Faculty has now decided that no student can delay its completion beyond one year from entering upon the study of medicine; so that hereafter all second year students must be full matriculants.

The amount of work for medical matriculation has also been increased, so that now it is equal to junior matriculation, except that the optional subjects are not required.

To the medical curriculum Physics has been added as one of the studies of the first year.

The division of the classes into Junior and Senior is now complete except in clinics, and in these a beginning has been made.

As to our plans for the future, I have to announce that the department of Anatomy is to be strengthened by the appointment of a man to devote all his time to the teaching of Human and Comparative Anatomy, and it is expected that under his care an anatomical museum will be established. This announcement must not be taken as indicating any existing weakness in this department, as the teaching of anatomy has been most satisfactory, but comparative anatomy has not had suf-

ficient attention. It is true that in no other Canadian Medical School is anatomy taught by a man not in active practice, but Queen's has a reputation for initiative, and I do not hesitate to prophesy that our example will soon be followed.

For the teaching of Pharmacology a laboratory is being fitted up, and as soon as possible its equipment will be completed.

The Faculty look forward with confidence to a further increase in efficiency. No effort will be spared to provide a thorough scientific training for those who come to us.

A new conception of the true function of the physician has almost imperceptibly been produced by the evolution of scientific medicine. As medicine becomes more and more an exact science its chief aim tends to change from the cure to the prevention of disease. Its most conspicuous triumphs have been won in the defence of public health, and in this direction lies the hope of its future expansion. For this reason the physician of to-day needs a different training from that which he received in the past. His scientific knowledge must be of a higher kind, his judgment must be sure, and his power of observation educated by practice and well directed attention. There is necessary, therefore, not only a vast acquisition of knowledge, but a training in scientific method, in observation and in reasoning on facts observed.

To the graduating class I wish to say a few words.

In the profession to which you are about to be admitted there are great possibilities for the higher development of character. The readiness to render assistance whenever and by whomsoever it is needed, irrespective of any other consideration; the assuagement of human sorrow as well as the mitigation of physical suffering; the courage which never shrinks from meeting infection or from incurring necessary responsibility; the perseverance which refuses to yield to the enemy until the end is obviously nigh; the generosity, discretion, cheerfulness, patience and sympathy which are attainable by the followers of the healing art, when they are realized, are beautiful in themselves and in their effects. The sympathy of a physician should be not so much an emotion as a motive; it is not indeed a sentiment expressing itself in cries and tears,

but a sympathy manifesting itself in active effort for the relief of the sufferer who is in need of help.

It is the penalty of the individualistic and private nature of medical practice that doctors are proverbially sensitive and jealous in their professional relations with each other. However, this is merely to say that medical men are made of the same clay as other men, but the doctor, in the words of Matthew Arnold, should "see life steadily and see it whole."

In virtue of the choice which you have made you owe a debt to humanity, and you will often be in a position of marvelous confidence and of the most delicate trust which will need all your strength of mind and will, all your tact and all your sense of honor to sustain worthily. Habits of reticence, of self-control, of disinterestedness, are doubtless of slow growth, but the germ of them should be clearly visible in every one who would aspire to be a priest of medical science and a brother of the healing craft.

ITEMS OF INTEREST.

Dr. Leonard W. Jones, class '02, has decided to practice his profession in Athens, Ont., and will hang out his shingle on April 1st.

Dr. George Newlands, class '79, Seattle, Wash., is here on a visit to his father, George Newlands, Princess street. It is many years since he has been in Kingston.

Dr. C. P. Johns, M.R.C.S., L.R.C.P., has decided to practise in Brockville, Ont. He begins well equipped for his work.

We are delighted to welcome Dr. W. G. Anglin, the Professor of Clinical Surgery, back to his work. For a time it looked as though the poisoned finger might end his life, or at least necessitate the loss of an arm, but matters took a change for the better, at which all his friends rejoice.

Dr. W.S. Murphy, '03, is practising at North Augusta, Ont.

J. W. Presault, of the final year, represented Queen's at the annual dinner of McGill Medical Faculty.

At Newburgh the marriage of Miss Edith, eldest daughter of Dr. Beeman, to Dr. H. E. Paul, B.A., class '01, of Fort William, formerly of Newburgh, took place. The ceremony was performed by Rev. Prof. Nicholson, of Queen's University.

Dr. A. A. Staley, of Kingston, a graduate of Queen's medical class of 1903, has been appointed house surgeon in Hannemann Hospital, Rochester, N.Y.

Dr. Bertram, '85, of Dundas, is enjoying his visit in Costa Rica and gaining both in spirits and health. While he is away his practice is being looked after by Dr. Davey.

Dr. W. G. Anglin is leaving in a few days for an extended trip in Europe. He will be accompanied by two other surgeons.

Dr. A. E. Malloch, of Hamilton, gave a complimentary dinner at Lovering's, March 4th, to Dr. Daniel M. Gordon, Principal of Queen's University, and the graduates of Queen's who reside in that city. About forty guests accepted his invitation, including representatives of Toronto University. Several ladies were in the gathering. Dr. Malloch presided.

Dr. F. F. Carr-Harris is expected home in a couple of weeks after spending two years at the London hospitals, England.

Dr. Fred. Etherington, '02, expects to sail for England early this month, where he will study.

In Windsor, on the 21st January, Dr. Lambert died at the advanced age of 76. He was a graduate of the Medical College in Kingston and Queen's University in '59, and also from Bellevue, N.Y. He came to this country from England while young. He had practised in Windsor for forty years, and was its medical health officer for some years. His wife and three children survive him.

On Thursday evening, 25th January, occurred the death of Dr. W. J. Anderson, of Smith's Falls, a man widely known throughout that vicinity. The late Dr. Anderson was aged 75 years and had been failing for upwards of a year. He was a son of the late Rev. Joseph Anderson, M.A. (formerly of

Heckston), and was born in Ireland, coming to Canada when but two years of age. He graduated in medicine, at Queen's University, in 1861, and afterwards practised for two years at Inkerman, when he removed to Smith's Falls, where he has since resided continuously with the exception of some five years spent at Winchester Springs. He was warden of Lanark county for the year 1902, and has for many years been a prominent figure in the professional and municipal life of Smith's Falls.

Dr. E. Fahey, '01, is practising in Duluth, having recently passed the Minnesota Medical Council.

Dr. A. F. Grant, a graduate of Queen's in 1899, and formerly of Peterboro, was married in Rochester, Minn., to Miss Harriet Hopkins, a trained nurse. The couple will go to the foreign field as medical missionaries, under the United Presbyterian Board of Missions. They leave for Asyut, Egypt.

GLIMPSES OF PRISON LIFE AS SEEN BY THE PHYSICIAN.

THERE is always a certain element of romance or of heart's interest surrounding those unfortunates who have incurred chastisement from the arm of the law. It steals over one unconsciously on entering the prison; the casual visitor who comes to peep curiously through the bars, or who stands in solemn silence gazing down the great halls with their rows of cells, tier upon tier, cannot repress a feeling of sympathy or of compassion for those who are locked within. And yet how little can the visitor feel for the prisoner in comparison with the doctor who comes into personal contact with these men and women in the discharge of his medical duties, and who often has to lend an ear to tales of sorrow and distress. Perhaps no one gains a clearer insight into the true life and

character of these individuals than the physician, no other sees as he does the bright and the dark side of their nature, the good and the bad,—frequently a curious admixture of the two ; and no one is in a better position to understand their failings or to sympathize with their sorrows.

It is pathetic to see, as I have seen, a man past the prime of life, a university graduate, imprisoned for some slight offence, reduced to the position of valet to the youthful doctor of the place, cleaning his shoes or sweeping the room, and at the same time conversing in the most intellectual manner, exhibiting an air of gentlemanly refinement strangely at variance with his menial office.

How infinitely sad to notice as the days go by the haggard look in his face, the drooping head ; to see him brooding over his misfortunes until he becomes reduced to a state of melancholic insanity. To stand idly by, perforce, and see a man of intelligence slowly drifting toward such a fate might well bring a tear of pity to the eye. Perhaps the Law would be more merciful could it but see the results that sometimes follow its labors.

Strange as it may sound, there is a variety to prison life : it is found in the never-ceasing stream of new-comers. What an opportunity for the study of faces and people ! Here comes a boisterous youth, half subdued, but secretly glorying in his guilt ; there we see another crestfallen and repentant, with bowed head and shamed face. On the one hand is a hardened sinner, whose evil face is darkened by the shadow of an hundred crimes ; on the other a petty offender, sobered in head and saddened at heart—the victim of a single fault.

But prison life has its humorous as well as its serious aspect.

Those prisoners who are under punishment, such as confinement to the dark cell, or “cooler,” as it is somewhat advisedly termed, are visited daily by the physician. On one of these occasions a negress, who might easily have passed for a follower of Mephistopheles, if an absence of horns or tail be left out of consideration, greeted me with a fiendish grin and informed me in a hoarse whisper that she had discovered a new

way of committing suicide. (This being of interest from a scientific standpoint, I prepared to listen.) She said that by tightening the handcuffs she could shut off the circulation of the blood. I tried to explain that it would only affect the hands, but she sneered at my ignorance and protested that she had already tried it with such success that she could feel death slowly creeping over her. I asked for experimental evidence; this brought to light an objectionable feature in the scheme. The exquisite suffering provoked by the pressure caused my suicidal demonstrator to cry aloud for relief, thus terminating the novel experiment. Subsequently she cast about for some less painful form of death. Starvation seemed feasible and sufficiently horrible. How consoling, she reasoned, it would be to see her captors compelled as they should be to witness her torture, what remorse should be theirs on seeing her emaciated form, and at the last her lingering death. Accordingly this enterprise was launched into with great fervor and a strength of resolution which carried her into the third day; unfortunately, at this time a gnawing hunger importunately demanded food; this, together with a new lease of life, was accepted by the prisoner, to her own great disgust, but meanwhile she comforted herself with the reflection that she might murder a few of us after liberation. This same interesting creature used to give a nightly howling performance which put the island felines to shame and caused their retirement in great dudgeon.

The loss of voice control she ascribed to nervousness. At any rate it had a stimulating effect on the already excellent swearing capabilities of her fellow-prisoners and incidentally disturbed the night watchman's slumbers.

In the hospital I was astonished to see six or seven children ranging in age from a few weeks to three years. Wondering what offence such youthful prisoners could have committed, I asked the nurse and was told that their mothers when sentenced, having no one to take care of the little ones, had brought them along. Poor wee toddlers, oblivious of their desolate surroundings, unconscious of their mothers' fault, they were happy and contented.

For the past two weeks a little old man has been attending my clinic. Each morning he says :

“Dóctor, I’m troubled with a very weak heart ; can you do something for it?”

The first day I examined him and finding the heart normal, told him so. Notwithstanding this, each day I find him in line and he tells me the same story. I repeat:

“There is nothing wrong with your heart.”

“Nothing, sir?”

“No !”

“Thank you, sir, good day?”

And yet to-morrow morning there will be the same dialogue by the same people.

A prisoner who has had both legs amputated at the upper thigh is the proud possessor of a pair of abbreviated leathern breeches, upon the seat of which he propels himself about the hospital in a lively manner, using his hands and arms as crutches. He has been facetiously, but not inaptly, nicknamed “Shorty” by his fellow sufferers. He is of a bright, jolly disposition, and makes himself useful as a hospital orderly. To see the dexterity with which he will “make” a bed, over which he can barely see, is truly amazing. It is amusing sometimes, when one has lost sight of him, to find that he is merely standing behind the steam coils, which are about six inches taller than he.

One man who had been committed for drunkenness proved on examination to have a stricture of the oesophagus. He had been unable to swallow anything for six years, and had had a gastrotomy performed, a small rubber tube entering the stomach through the anterior abdominal wall. It was rather interesting to find a drunkard who couldn’t swallow. I remarked it to him. He said he used to attach a funnel to the rubber tube and pour the liquor into his stomach. Here was an earnest inebriate—surely he stands pre-eminent among his fellows !

The strength of the mania for drink can be adjudged from the fact that some of these prisoners have been known to drink turpentine because it had a little alcohol mixed with it. Some

men are so fond of intoxicants that a surgical operation has in it a charm, because they will pass through a stimulating stage during the administration of the anesthetic.

The diagnosis of malingering from real illness is one which the prison doctor is frequently called upon to make. One fellow pretending paralysis of the legs would permit a needle to be driven into his foot without so much as the quiver of an eyelash, another simulating epilepsy had a bottle of strong ammonia placed to his nose, from which he edged away a little, but this movement being remarked by the doctor, he seized the bottle and commenced inhaling it as though it were pure air.

Some of these characters are such a compound of good and bad that the mixture is truly amusing. A notorious pick-pocket, whose accounts of thieving rivalled those of the Artful Dodger and Charley Bates, when placed in a position of trust here, proved an honest and faithful servant, scrupulous about his work and frankly truthful.

Interesting as the drunkard proves at times with his delirium tremens and train of nervous troubles, he is entirely eclipsed by the morphine and cocaine habitués, who arrive in flocks. Some of these acknowledge having consumed as much as two drams (120 grains) of morphine per day. Imagine such a one suddenly deprived of the prop which has sustained him for years; the agonies of these people are pitiful to behold; some cry, some plead, some even pray for it. At times one suffering more than his fellows will beg for a little strychnine with which to end his miserable existence. In many cases these poor wretches are driven to insanity by the sudden deprivation incident to their being thrown into prison. It is difficult to determine what course is best to pursue in treatment. One authority says: "Stop the drug at once!" Another says: "Let it be stopped gradually!" Our own experience seems to prove that, providing other stimulants be substituted at first, it can be stopped almost immediately. A number of patients left the institution apparently cured. Whether it was but temporary or not I cannot say.

Some even when apparently cured have no desire to break

away from the habit, but seem bent on their own destruction. A tall, once handsome, young man with sunken eyes, pallid cheeks and wasted body, was committed to prison by his despairing mother who had tried in vain every other conceivable means of withholding morphine from him. In hospitals and sanatoria it had been smuggled in by bribed attendants or too sympathetic friends, and as a "dernier resort" the family physician had advised imprisonment. For weeks after admission to the hospital he would cry like a child, his wailings and tears being a source of annoyance to his fellow prisoners, who, not understanding the extent of his sufferings, treated him with unmitigated contempt. In one month the colour had returned to his cheeks, his weight had increased by forty pounds, he had regained health and strength; his tears forgotten, he looked and acted like a man. One would imagine such a change in his bodily condition would stimulate him to flee from his consuming vice and to feel thankful for his deliverance. But, incredible as it may seem, his feeling was one of base ingratitude and resentment toward all who were concerned in what he termed his "ill treatment." He resolved as soon as the prison gates closed behind him to resume his old habit, mainly as a means of revenge on his mother. Alas, poor fool! He had his revenge. Some months after he became free, a wretched, illy fed being, pale and sickly, staggering along the city streets, was recognized as this same young man whose love of self outweighed that for his mother.

It is significant that almost nine-tenths of prisoners are addicted to spiritous liquors, that a large proportion of these are also morphine habitués. The fact that strong drink brings many to prison is acknowledged by all. Shall we say that the drug habit, too, is responsible for perversions of mind which lead to crime, or that morphinism is coincident with and a brother to these other vices? It seems reasonable to suppose that the former is the case.

In conclusion, let me say that while the young prison doctor sees the worst side of life, he gains an experience with men and with disease which cannot be acquired elsewhere.

New York, March, 1904.

F. MCK. BELL.

EXCISION OF THE UPPER JAW.

IN view of the successful result of this operation it is interesting to note Treves's statement, that the value of the usual operation, viz., the removal of one superior maxilla for malignant disease, is a matter of question.

Butlin is of the opinion that "unless there is a reasonable hope that better results will be procured in future, the operation must be condemned."

Mrs. C., aet. 32, wife of a farmer, was referred to me for operation in July last. About six months before this time she first noticed a swelling in the left antrum, which gradually forced its way downward to the roof of the mouth. At various times, in the hope of obtaining relief from pain, she had all the teeth on the left upper side removed. When she came under my care there was a prominence of the left cheek without any skin involvement, and on inspecting the roof of the mouth a blueish mass was seen on the left side extending quite to the median line; and antero-posteriorly from the alveolus to the soft palate. The mass protruded fully an inch into the cavity of the mouth.

Dr. Scott, of Lanark, had furnished a small piece of the growth to the Pathological Department of Queen's, and it was pronounced to be sarcoma.

Having decided that the case was one suitable for operation, the patient was given a few days preparation, and on the 28th July, 1903, ably assisted by Dr. J. C. Connell, I operated in the presence of several local surgeons. The details are as follows :

After the patient had been anaesthetized in the usual manner with chloroform, the posterior nares was carefully plugged, and the operation by a median incision was commenced. This method, in Treves' opinion, forms without doubt the best measure for excising the superior maxilla.

The incision was commenced at a point half an inch below the inner canthus and carried down by the side of the nose,



AFTER EXCISION OF SUPERIOR MAXILLA

following the groove which limits the ala nasi, and, skirting the nostril, reached the median line on the lip, and was then carried through this line into the mouth. Haemorrhage was effectively controlled by sponge pressure and artery forceps securing the superior coronary arteries, and other divided vessels. A second incision was carried along the lower margin of the orbit as far as the malar bone. The cheek flap thus marked out was rapidly raised from the bone. The nasal process was then divided with a fine saw, and as it was decided to leave the orbital plate, the saw was used to divide the thin plate of bone just beneath the orbital margin, and finally a section of the malar bone was made, about the centre of the bone.

A gag having been introduced and the mouth well opened, the muco-periosteal covering of the hard palate was divided in the median line. A saw was now introduced through the nose and the bony palate divided a little to the right of the median line, and, last of all, by means of a transverse incision, the soft palate was divided behind the growth. By means of a lion forceps the bone was then seized and wrenched from its remaining attachments. The resultant bleeding was controlled by firm plugging of the cavity, and the skin wound carefully united by interrupted sutures of silk-worm gut and horsehair.

The patient made a good recovery, with very little deformity, as the plate will show, the photograph being taken ten days after operation.

The following is Dr. W. T. Connell's report :

July 20th, 1903.

Several small pieces of tissue from antrum, removed by pushing a toothed forceps through space left by extraction of bicuspid tooth, were received to-day from Dr. Scott, of Lanark. These pieces on section were composed entirely of small spindle and oval cells with the characteristic arrangement seen in sarcomas.

Date of Operation.

Dr. Anglin referred to me tissue removed by operation from Mrs. C—. The portion examined consisted of a superior maxillary bone except the orbital plate. The antrum was filled with a soft homogenous growth which had invaded

the bone, anteriorly, inferiorly and internally absorbing and replacing it. Superiorly and posteriorly the growth was limited by a thick fibrous layer, evidently the thickened mucosa of the antrum. The line of incision through palatal tissues was very close up to margin of growth. Microscopically the growth was a typical small spindle celled sarcoma.

W. T. Connell.

In a letter received from the patient's husband eight months after the operation he says: "She is extra well; she "has not been in as good health for a number of years, and her "face has healed up nicely, and there is no appearance of the "growth starting again."

W. G. ANGLIN.

DR. W. T. CONNELL

Desires to announce to the Profession that he is prepared to make Microscopical, Chemical and Bacteriological Analysis, as may be required, of Morbid Tissues, Tumors, Serous or Purulent Effusions, Curettings, Sputum, Urine, Blood, Stomach Contents, Throat Membranes or Secretions. Urethral or Vaginal Discharges, and to apply Widal's method for diagnosis of Typhoid Fever. He is also prepared to perform Autopsies, Medico-legal, or otherwise.

For information, methods of transmitting specimens, etc., address

PATHOLOGICAL LABORATORY,
QUEEN'S UNIVERSITY, KINGSTON.

Medical Examinations.

DEGREE OF M.D. AND C.M.

Bailey, R. W.....	Kingston, Jamaica.
Branscombe, M. E., B.A.....	Picton.
Brown, W. C.....	Bellview.
Carruthers, J. S.....	New Glasgow, N.S.
Caskey, J. C.....	Tweed.
Connolly, A. K.....	Kingston,
Costello, T. J.....	Calgary.
DeLong, F. W.....	Gananoque.
Driscoll, A. C.....	Trenton.
Falkner, A. D.....	Williamstown.
Ferguson, E. A.....	Kingston.
Ferguson, A. A.....	Glenwalter.
Gallivan, J. V.....	Kingston.
Gibson, William.....	Emerald.
Gillespie, J. J.....	Morrisburg.
Goodfellow, J. R.....	Kingston.
Graham, J. A.....	Montreal.
Gray, T. J.....	Kingston.
Hoppin, L. W.....	Kingston.
Kinkead, E. C.....	Kingston, Jamaica.
Lalonde, A. J.....	Barrie.
Leach, G. C., B.A.....	Fenelon.
Lee, R. A.....	Port Hope.
Munroe, A. T.....	Moose Creek.
McCullough, F. C.....	Gananoque.
McDonald, H. A.....	Sunbury.
McGonigle, M.....	Newboro.
Pennock, N. I.....	Brockville.
Reid, Miss Victoria, B.A.....	Kingston.
Robinson, E. J.....	North Williamsburg.
Rutledge, S. H.....	Thomasburgh.
Singleton, A. H., B.A.....	Newboro.
Smith, N.....	Kingston.
Tandy, H., B.A.....	Kingston.
Williams, E. J. F., B.A.....	Brockville.
Van Ness, C. S.....	Wolfs Island.
Young, J. M., B.A.....	Renfrew.

MEDALS AND PRIZES.

In Medicine :	
H. Tandy, B.A., B.A	Kingston.
In Surgery :	
William Gibson.....	Emerald,
Chancellor's Scholarship :	
F. C. McCullough.....	Gananoque.
Dr. Clarke's Prize in Mental Diseases :	
J. M. Young, B.A.....	Renfrew.
Dean Fowler's Scholarship (third year) :	
A. C. Spooner, B.A.....	Latimer.
McCabe Prize in Pathology :	
H. J. Williamson, B.A.....	Kingston.
Faculty Prize (second year) :	
E. Bolton	Philipsville.
Hayunga Prize in Materia Medica :	
P. A. McIntosh, B.A.....	Dundela.
Hayunga Prize in Anatomy :	
J. C. Dwyer, M.A.....	Kingston.
House Surgeons :	
William Gibson.....	Emerald.
H. Tandy, B.A.....	Kingston.
A. H. Singleton, B.A.....	Newboro.
Next in order, F. C. McCullough	Gananoque.

Medical Examinations, April, 1904.

First Year.

JUNIOR PHYSIOLOGY.

R. D. Paul, J. P. Quigley, A. G. Curphy, P. M. Anderson, F. H. Trousdale, S. McCallum, C. Laidlaw, J. P. McNamara, M. L. Burke, S. B. Casselman, A. T. Spankie, B. Asselstine, R. Wightman, V. G. Franklin, W. E. Spankie, J. Johnston, H. G. Bowen, G. E. Storey, A. M. McCormick, F. G. Keeley, G. E. Holmes, J. F. McDermott, G. E. Carto, J. H. Duchesne, W. L. Yule, O. J. M. Walker, H. G. Sullivan, A. McDonald, J. A. Charlesbois, W. H. Ford, E. G. Twitchell, J. G. Herald, F. R. Nicholls, E. J. Reid.

JUNIOR CHEMISTRY.

R. D. Paul, J. P. Quigley, W. L. Yule, H. M. Bowen, S. B. Casselman, J. P. McNamara, P. M. Anderson, B. Asselstine, O. J. M. Walker, R. F. Nicholls, A. T. Spankie, F. H. Trousdale, M. L. Burke, A. C. Johnston, A. G. Curphy, R. Wightman, G. E. Carto, F. J. Keeley, A. M. McCormick, H. L. Bond, G. G. Haycock, W. E. Spankie, V. G. Franklin, H. J. Sullivan, W. H. Ford, S. S. Shannon, A. McDonald.

JUNIOR ANATOMY.

A. H. Trousdale, J. R. Losee, J. Johnston, R. Wightman, A. L. Raymond, J. P. Quigley, J. P. McNamara, B. Asselstine, P. M. Anderson, C. W. Graham, H. M. Bowen, R. D. Paul, M. L. Burke, A. T. Spankie, G. A. Greaves, S. B. Casselman, W. L. Yule, A. M. McCormick, W. C. Porter, S. McCallum, F. J. Keeley, C. Laidlaw, G. E. Carto, F. A. Cays, E. O. Platt, F. R. Nicolle, A. G. Curphy, O. J. M. Walker, R. M. Mills, W. E. Spankie, A. M. McDonald, A. C. Johnston, J. F. McDermott, H. J. Sullivan, R. F. Nicholls, W. H. Ford, G. E. Holmes, G. E. Storey, G. F. Chff, W. Riddick.

JUNIOR MATERIA MEDICA.

M. L. Burke, F. H. Trousdale, E. O. Platt, S. McCallum, R. Wightman, A. G. Curphy, J. Johnston, A. L. Raymond, S. B. Casselman, C. Laidlaw, P. M. Anderson, J. P. McNamara, J. P. Quigley, J. F. McDermott, F. R. Nicolle, G. E. Carto, W. C. Porter, G. E. Storey, J. R. Losee, E. G. Franklin, B. Asselstine, A. T. Spankie, R. D. Paul, F. J. Keeley, W. L. Yule, A. C. Johnston, H. M. Bowen, A. McDonald, G. A. Greaves, O. J. M. Walker, R. F. Nicholls, W. H. Ford, H. J. Sullivan, W. J. Taugher, W. E. Spankie, A. M. McCormick, R. M. Mills, H. E. Bond, J. H. Duchesne, J. A. Cays, R. Riddick, G. E. Holmes, E. C. Twitchell, A. W. Cumming.

Second Year.

SENIOR ANATOMY.

A. E. Baker, M. E. Reynolds, E. Bolton, J. G. Dwyer, P. A. McIntosh, L. L. Playfair, J. Reid, R. W. Halliday, F. J. O'Connor, F. R. W. Warren, J. J. Robb, R. K. Paterson, A. E. Mahood, W. E. Patterson, W. R. Patterson, J. J. Wade, E. Sutherland, D. G. Dingwall, J. B. Snyder, S. H. Smith, H. Cochrane, A. M. Bell, J. R. Stewart, W. J. Taugher, D. McLellan, D. J. McDonald, C. P. Templeton, A. G. McKenley, A. W. Cumming, B. Sutherland, R. A. Scott, E. A. Gaudet, B. A. Sandwith, J. P. McCormick, D. M. Young, C. A. Publow, F. E. Lowe, G. L. Cockburn, W. E. Spankie, S. S. Shannon, C. Lawler, W. C. Nickle.

SENIOR PHYSIOLOGY.

L. L. Playfair, J. Reid, E. Bolton, A. E. Baker, W. R. Patterson, D. J. McDonald, J. J. Wade, W. E. Paterson, J. R. W. Warren, J. B. Snyder, J. F. O'Connor, D. G. Dingwall, E. Sutherland, A. M. Bell, J. G. Dwyer, C. A. Lawlor, G. L. Cockburn, C. A. Publow, W. E. Spankie, W. J. Taugher, S. H. Smith, J. F. Brander, A. G. McKenley, C. P. Templeton, R. K. Paterson, D. M. Young, J. M. Hourigan, F. E. Lowe, B. Sutherland, B. A. Sandwith, A. Y. Thompson, H. Cochrane, J. Graham, J. P. McCormick, C. J. Austin.

PRACTICAL CHEMISTRY.

D. G. Dingwall, E. Bolton, J. Reid, W. E. Patterson, B. Sutherland, F. E. Lowe, W. J. Taugher, E. J. Reid, H. Cochrane, A. M. Bell, G. F. Cliff, J. R. Stewart, A. E. Baker, G. S. Storey, J. B. Snyder, F. J. O'Connor, W. E. Spankie, A. Publow, C. P. Templeton, L. L. Playfair, D. J. McDonald, G. L. Cockburn, J. J. Wade, J. F. Brander, A. Y. Thompson, C. A. Lawlor, D. M. Young, A. G. McKenley, J. P. McCormick.

SENIOR CHEMISTRY.

E. Bolton, A. E. Baker, L. L. Playfair, J. Reid, J. R. Stewart, A. G. McKenley, F. J. O'Connor, J. G. Dwyer, F. E. Lowe, C. A. Lawlor, G. E. Storey, J. F. Brander, J. P. McCormick, D. J. McDonald, G. F. Cliff, J. J. Wade, W. E. Spankie, H. J. Bennett, A. M. Bell, G. L. Cockburn, S. H. Smith, B. Sutherland, W. E. Patterson, H. Cochrane, C. A. Publow, C. Laidlaw, M. G. Rigney, F. Kingsley, J. G. Herald, W. R. Mikera, W. J. Taugher, D. M. Young.

SENIOR MATERIA MEDICA.

P. A. McIntosh, A. E. Mahood, W. A. Smith, A. E. Baker, E. Sutherland, B. A. Smith, E. Bolton, M. E. Reynolds, D. McLellan, J. G. Dwyer, W. R. Patterson, F. R. W. Warren, J. T. Hogan, A. W. Girvin, J. Chant, E. C. Consitt, J. J. Wade, J. B. Snyder, M. E. Grimshaw, J. R. Stewart, D. J. McDonald, D. G. Dingwall, C. R. Moxley, B. Sutherland, R. W. Halliday, A. M. Bell, C. A. Publow, L. L. Playfair, F. E.

Lowe, J. Reid, J. W. Warren, J. Y. Ferguson, H. Cochrane, C. M. Eddington, W. E. Patterson, M. Lesses, F. J. O'Connor, C. A. Lawlor, A. G. McKenley, S. J. Keyes, J. H. Code, G. D. Gordon, J. J. Robb, C. B. Dear, S. S. Shannon, R. K. Patterson, E. A. Gaudet, S. H. Smith, H. J. Bennett, D. M. Young, J. M. Hourigan, R. W. Tennent, W. C. Nickle, J. P. McCormick, W. E. Spankie, R. A. Scott, M. G. Rigney, A. J. MacLachlan, H. E. Moore, G. F. Cliff, E. W. Sproule, G. L. Cockburn, W. J. Taugher, A. W. Cumming, G. R. Reid.

HISTOLOGY.

J. Reid, E. Sutherland, S. McCallum, S. H. Smith, E. Bolton, L. L. Playfair, W. R. Patterson, J. Johnston, C. Publow, C. W. Graham, A. M. Bell, H. Cochrane, A. E. Baker, W. J. Taugher, D. G. Dingwall, F. R. W. Warren, W. E. Patterson, B. Sutherland, C. A. Lawlor, D. J. McDonald, F. B. Snyder, S. S. Shannon, F. J. O'Connor, A. Y. Thompson, G. L. Cockburn, J. J. Wade, B. A. Sandwith, E. G. Twitchell, C. P. Templeton, J. P. McCormick, R. Z. Paterson, J. F. Brander, C. J. Austin, D. M. Young, J. Y. McFadyen, F. Kingsley, W. E. Spankie, M. G. Rigney, G. F. Cliff, T. Little.

Third Year.

JUNIOR PATHOLOGY.

H. J. Williamson, M. Lesses, A. C. Spooner, H. A. Boyce, J. F. Sparks, S. M. Jallum, C. B. Dear, J. T. Hogan, D. L. McKinnon, W. A. Smith, M. E. Grimshaw, B. A. Smith, F. R. W. Warren, A. H. Hunt, A. W. Girvin, G. R. Reid, J. Chant, T. D. Macgillivray, R. W. Halladay, E. W. Sproule, J. Y. Ferguson, W. M. Robb, J. H. Code, M. Locke, J. Johnston, E. A. Gaudet, G. W. Graham, H. V. Weaver, G. D. Gordon, E. J. Bennett, S. J. Keyes, C. R. Moxley, E. C. Consitt, A. D. McMillan, J. W. Warren, W. H. Dudley, W. C. Nickle, J. M. Hourigan.

JUNIOR PRACTICE OF MEDICINE.

H. J. Williamson, H. J. Bennett, F. R. W. Warren, A. C. Spooner, J. T. Hogan, J. G. Dwyer, C. B. Dear, J. F. Sparks, M. E. Grimshaw, S. J. Keyes, R. W. Halladay, J. W. Warren, H. A. Boyce, M. Lesses, T. D. Macgillivray, W. M. Robb, D. L. McKinnon, B. A. Smith, W. C. Nickle, W. A. Smith, A. D. McMillan, J. Chant, P. A. McIntosh, J. M. Hourigan, G. G. Haycock, W. J. Geddes, J. J. Robb, A. J. MacLachlan, E. W. Sproule, M. Locke, J. Y. Ferguson, C. R. Moxley, H. V. Weaver, R. W. Tennent, A. W. Girvin, G. D. Gordon, E. A. Gaudet, E. C. Consitt, A. E. Mahood, W. H. Dudley, J. H. Code, M. E. Reynolds, A. H. Hunt, G. R. Reid.

MEDICAL JURISPRUDENCE.

H. J. Williamson, H. A. Boyce, A. C. Spooner, T. D. Macgillivray, J. F. Sparks, M. Lesses, B. A. Smith, J. T. Hogan, E. Sutherland, R. K. Paterson, J. W. Warren, W. A. Smith, R. W. Tennent, J. V. Ferguson,

M. Locke, D. L. McKinnon, C. B. Dear, P. A. McIntosh, A. H. Hunt, R. W. Bailey, D. G. Dingwall, C. M. Wagar, S. J. Keyes, H. J. Bennett, H. V. Weaver, R. W. Halladay, M. E. Grimshaw, E. W. Sproule, E. C. Consitt, A. W. Cumming, J. Chant, J. H. Code, W. C. Nickle, C. W. Graham, A. W. Girvin, W. M. Robb, C. Driscoll, C. R. Moxley, C. R. Reid, E. A. Gaudet, W. H. Dudley, J. Johnston, A. D. McMillan, F. C. Kinkaed, A. Y. Thompson, W. R. Mikaera, J. N. Hourigan, G. D. Gordon, A. J. Maclachlan, F. R. Nicolle, H. E. Moore, J. A. Stewart.

SANITARY SCIENCE.

J. F. Sparks, H. A. Boyce, A. C. Spooner, H. J. Williamson, M. Lesses, R. K. Patterson, D. L. McKinnon, E. W. Sproule, M. Locke, G. G. Haycock, B. A. Smith, E. Sutherland, J. J. Robb, W. M. Robb, W. A. Smith, C. B. Dear, J. Y. Ferguson, J. H. Code, J. W. Warren, J. T. Hogan, A. E. Mahood, H. J. Bennett, E. C. Consitt, H. V. Weaver, Miss V. Reid, G. D. Gordon, T. D. Macgillivray, A. H. Hunt, J. M. Hourigan, M. E. Grimshaw, J. Chant, M. E. Reynolds, C. R. Moxley, J. J. Gillespie, A. W. Cumming, G. R. Reid, A. W. Girvin, S. J. Keyes, R. W. Halladay, R. W. Tennent, A. J. Maclachlan, F. R. Nicolle, W. J. Geddes, H. E. Moore, W. C. Nickle, C. M. Wagar, E. C. Kinkead, R. W. Bailey.

JUNIOR OBSTETRICS.

H. A. Boyce, A. Girvin, A. C. Spooner, W. M. Robb, B. A. Smith, J. F. Sparks, J. W. Warren, A. D. McMillan, H. J. Bennett, M. Lesses, R. W. Halladay, M. E. Grimshaw, D. L. McKinnon, F. W. Sproule, H. V. Weaver, W. A. Smith, J. M. Hourigan, J. T. Hogan, J. Chant, J. H. Code, E. C. Consitt, P. A. McIntosh, S. J. Keyes, T. D. Macgillivray, C. B. Dear, M. E. Reynolds, J. J. Robb, A. E. Mahood, G. D. Gordon, J. Y. Ferguson, C. W. Graham, H. J. Williamson, C. R. Moxley, R. W. Tennent, W. H. Dudley, W. C. Nickle, M. Locke, G. R. Reid, W. J. Geddes, J. A. Stewart, A. J. Maclachlan, A. H. Hunt, C. M. Wagar, E. A. Gaudet.

JUNIOR MEDICAL AND SURGICAL ANATOMY.

H. J. Williamson, M. Lesses, M. E. Reynolds, A. C. Spooner, J. F. Sparks, A. D. McMillan, W. A. Smith, A. E. Mahood, J. J. Robb, T. D. Macgillivray, W. M. Robb, M. Locke, R. W. Halladay, J. T. Hogan, M. E. Grimshaw, D. L. McKinnon, H. A. Boyce, J. Y. Ferguson, C. B. Dear, B. A. Smith, C. R. Moxley, E. C. Consitt, A. W. Girvin, J. H. Code, P. A. McIntosh, J. W. Warren, E. A. Gaudet, G. D. Gordon, S. J. Keyes, H. J. Bennett, J. M. Hourigan, J. Chant, W. H. Dudley, A. H. Hunt, F. W. Sproule, W. C. Nickle, R. W. Tennent, G. R. Reid, H. V. Weaver.

JUNIOR SURGERY.

C. B. Dear, H. A. Boyce, W. A. Smith, A. C. Spooner, H. J. Williamson, equal; J. T. Hogan, J. F. Sparks, A. E. Mahood, T. D. Macgillivray, G. R. Reid, A. D. McMillan, M. Lesses, D. L. McKinnon, W. M. Robb, R. N. Halladay, A. H. Hunt, H. J. Bennett, J. G. Dwyer, J. J. Robb, M.

E. Grimsshaw, S. J. Keyes, J. Y. Ferguson, J. W. Warren, H. V. Weaver, W. H. Dudley, J. Chant, J. H. Code, A. J. MacLachlan, P. A. McIntosh, J. A. Stewart, C. M. Wagar, M. Locke, W. C. Nickle, A. W. Girvin, E. W. Sproule, C. R. Moxley.

Fourth Year.

BACTERIOLOGY.

J. E. Bromley, J. A. Graham, Miss V. Reid.

CLINICAL SURGERY.

H. Tandy, W. Gibson, A. H. Singleton, J. S. Carruthers, R. A. Lee, G. C. Leach, E. Robinson, Miss V. Reid, M. E. Branscombe, A. D. Falkner, T. J. Costello, A. E. Connolly, L. W. Hoppin, J. M. Young, A. T. Munroe, A. C. Driscoll, M. McGonigle, C. S. VanNess, E. W. DeLong, J. V. Gallivan, J. C. Caskey, T. J. Gray, A. A. Ferguson, J. R. Goodfellow, E. J. Williams, W. C. Brown, S. H. Rutledge, J. Larocque, E. C. Kinkaed, J. A. Lalonde, J. A. Corrigan, N. Smith, J. W. Presault, J. E. Bromley, J. J. Gillespie, J. A. Graham, N. I. Pennock, R. W. Bailey, W. J. Geddes, F. Kingsley.

CLINICAL MEDICINE.

J. S. Carruthers, W. Gibson, F. C. McCullough, A. H. Singleton, H. Tandy, L. W. Hoppin, E. C. Kinkaed, R. A. Lee, R. W. Bailey, M. McGonigle, G. C. Leach, M. E. Branscombe, J. A. Corrigan, T. J. Costello, A. A. Ferguson, Miss V. Reid, E. J. Robinson, E. J. Williams, J. M. Young, E. W. DeLong, S. H. Rutledge, C. S. VanNess, J. V. Gallivan, J. R. Goodfellow, H. A. McDonald, J. C. Caskey, A. K. Connolly, J. A. Lalonde, N. I. Pennock, A. D. Falkner, A. T. Munroe, J. Larocque, T. J. Gray, N. Smith, J. J. Gillespie, J. A. Graham, R. H. Scott, W. C. Brown, A. C. Driscoll.

SENIOR PRACTICE OF MEDICINE.

A. H. Singleton, W. Gibson, N. Smith, J. M. Young, H. A. McDonald, A. T. Munroe, F. C. McCullough, Miss V. Reid, M. McGonigle, T. J. Gray, E. J. Robinson, G. C. Leach, H. Tandy, E. W. DeLong, J. C. Caskey, J. R. Goodfellow, T. J. Costello, E. J. F. Williams, R. A. Lee, A. A. Ferguson, W. C. Brown, J. A. Lalonde, L. W. Hoppin, J. J. Gillespie, A. B. Falkner, J. Larocque, J. V. Gallivan, S. H. Rutledge, E. C. Kinkaed, C. S. VanNess, J. S. Carruthers, A. K. Connolly, R. W. Bailey, M. E. Branscombe, N. I. Pennock, A. C. Driscoll.

SENIOR PATHOLOGY.

H. Tandy, A. H. Singleton, W. Gibson, F. C. McCullough, A. T. Munroe, Miss V. Reid, M. McGonigle, J. R. Goodfellow, S. H. Rutledge, J. V. Gallivan, J. M. Young, A. K. Connolly, A. J. Lalonde, R. A. Lee, N. Smith, J. S. Carruthers, T. J. Costello, L. W. Hoppin, E. J. Robinson, A. A. Ferguson, E. J. Williams, W. C. Brown, M. E. Branscombe, F. Kingsley, J. C. Caskey, C. S. VanNess, E. A. Ferguson, J. A. Corrigan, A. C. Driscoll, G. C. Leach, T. J. Gray, H. A. McDonald, N. I. Pennock, E. W. DeLong, R. W. Bailey, A. D. Falkner, J. J. Gillespie, J. Larocque, J. W. Presault, E. C. Kinkaed.

SENIOR MEDICAL AND SURGICAL ANATOMY.

T. J. Costello, M. McGonigle, A. H. Singleton, W. Gibson, H. Tandy, A. T. Munroe, J. M. Young, A. K. Connolly, H. A. McDonald, F. C. McCullough, J. S. Carruthers, J. R. Goodfellow, S. H. Rutledge, J. A. Lalonde, T. J. Gray, C. S. VanNess, E. W. DeLong, J. C. Caskey, R. A. Lee, E. J. Williams, J. V. Gallivan, J. Larocque, L. W. Hoppin, G. C. Leach, M. E. Branscombe, N. I. Pennock, J. A. Corrigan, A. D. Falkner, Miss V. Reid, J. J. Gillespie, A. A. Ferguson, C. J. Austin, W. J. Geddes, E. A. Ferguson.

EYE, EAR, NOSE AND THROAT.

E. J. Robinson, E. C. Kinkead, W. Gibson, A. K. Connolly, F. C. McCullough, J. A. Lalonde, M. E. Branscombe, A. H. Singleton, H. A. McDonald, N. Smith, M. McGonigle, R. W. Bailey, H. Tandy, G. C. Leach, T. J. Costello, J. V. Gallivan, W. C. Brown, J. R. Goodfellow, J. C. Caskey, J. J. Gillespie, S. H. Rutledge, E. W. DeLong, L. W. Hoppin, Miss V. Reid, W. H. Lavell, A. T. Munroe, R. A. Lee, J. S. Carruthers, N. I. Pennock, C. S. VanNess, A. A. Ferguson, J. M. Young, A. D. Falkner, E. J. Williams, J. E. Bromley, A. C. Driscoll, J. Larocque, T. J. Gray, J. W. Presault.

SENIOR OBSTETRICS.

A. H. Singleton, H. Tandy, W. Gibson, G. C. Leach, R. W. Bailey, R. A. Lee, J. R. Goodfellow, E. J. Robinson, T. J. Costello, Miss V. Reid, A. D. Falkner, J. S. Carruthers, T. J. Gray, F. C. McCullough, W. C. Brown, J. A. Lalonde, L. W. Hoppin, A. T. Munroe, E. C. Kinkead, J. J. Gillespie, A. A. Ferguson, J. C. Caskey, A. C. Driscoll, H. A. McDonald, J. M. Young, A. K. Connolly, E. J. Williams, W. H. Lavell, C. S. VanNess, J. V. Gallivan, N. I. Pennock, J. E. Bromley, S. H. Rutledge, J. W. Presault, E. W. DeLong, N. Smith, M. McGonigle, J. A. Corrigan, M. E. Branscombe, W. J. Geddes.

SENIOR SURGERY.

William Gibson, A. H. Singleton, L. W. Hoppin, H. Tandy, E. J. Robinson, J. V. Gallivan, M. E. Branscombe, H. A. McDonald, A. A. Ferguson, J. C. Caskey, F. C. McCullough, G. C. Leach, T. J. Gray, A. T. Munroe, A. D. Falkner, T. J. Costello, N. Smith, S. H. Rutledge, J. R. Goodfellow, J. W. Presault, Miss V. Reid, A. K. Connolly, J. Larocque, A. C. Driscoll, R. A. Lee, J. S. Carruthers, A. J. Lalonde, R. W. Bailey, J. J. Gillespie, M. McGonigle, E. W. DeLong, F. Kingsley, E. J. Williams, F. C. Kinkead, R. H. Scott, W. C. Brown, C. S. VanNess, J. M. Young, N. I. Pennock.