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Original Articles

ADDRESS ON MEDICAL SCIENCE.*

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It is a difficult thing for a stranger, even at your invitation, to address you on an occasion like the present. So many significant events crowd in upon him, and time for reflection is needed to weld into a connected whole the impressions he would wish to offer to you. Not that the growth and doings of this University have not been followed and watched with interest by us in the Old Country. On the contrary, your activity has been felt, not only as a matter of mutual congratulation, but as a spur to arouse us to effort in our own similar pursuit of educational aims. But the stranger coming among you necessarily feels the shortcomings of his acquaintance with the details of these academic enterprises you have taken in hand. One advantage, however, is his. His view, gained from a distance, necessarily has freedom and truth of perspective that may give it a value in your eyes.

Some things lose by perspective. Some things, large, when at close to hand, dwindle when viewed from afar. Not so Canada. The perspective given by the width of the Atlantic is but an appropriate setting across which to view her greatness and her

* Delivered at the official opening of the New Medical Building of Toronto University, October 1st, 1903.

far-reaching activity. And this event, this academic celebration, this *dies festus*, in your University to-day, retains from afar off all the significance of a great event. It loses no title of its dignity and import when viewed across the ocean from the crowded turrets of the older Cambridge, or the hoary spires of Oxford. It shines, I assure you, like a beacon to the new University whose buildings are as yet unfinished on the hill above the port of Liverpool.

Coming from a region where history is long and the land little to this, where written history is short and the expanse of land incomparably great, one realizes how relative is size. And in regard to the event of to-day the largeness of this country rises in my thought, not as a matter of mileage, but—that with you more than with us in the Old Country, the size of to-morrow is vaster than the size of to-day. Each step of progress here, more than with us, has to be measured by its ampler consequences in a more rapidly widening horizon of the morrow. These new laboratories, to be measured by its ampler consequences in a more rapidly widening horizon of to-morrow,—these new laboratories have a field already demanding them, and a still larger lies before them in an immediate and historic future.

Biology is the study of life, in regard especially to growth and organization. Every medical man is a biologist, and as a biologist it may be but natural if I regard to-day's event from a biological standpoint, and the community as an organism, and the university as a living organ, essential to the healthy life of the community.

MEDICAL SCIENCE.

Science—especially medical science—is growing in importance to the community. We must have organization in science as in industry. This University to-day makes provisions of first rate importance for the organization of medical and allied sciences in the region which centres here. Capacity to rear and support men constitutes the extent of a country, and population is the biological measure of the social organism. The ceaseless energy of the race has begun to plant a great population in this land. Growth, great and rapid, is inevitably before it. The growth of nations as of individuals requires the vigilance of guiding hands. Growth, for it to take its course, rightly towards perfection, requires that provision for the security and expansion of the liberal arts and sciences forerun rather than halt behind the actual requirement of the hour. Not only for their direct utilitarian service, they form a whetstone for man's most universal tool, his intellect. Also a discipline for character, in the pursuit of

truth for its own sake. Scientific truth, when found, has often proved unpalatable to man—as when it dethroned him from his fancied seat at the centre of the whole perceptible universe, a universe he had imagined simply subservient to his needs—or again, as when it taught him that instead of being a creature altogether apart from brute creation, there are flesh and blood bonds between himself and them. Regardless of its cost to his cherished fancies, man strives for scientific truth. And, as the old Greeks said, this purpose puts him further from the brutes and nearer to the gods.

In nurturing science I would urge that a community cultivates more than mere utility. And even with regard to mere utility, as the fields of knowledge fall ripe under the ceaseless husbandry of the world's thought, those who would join in the great reaping, and not only glean where others reaped before them, must cultivate for themselves. To do this requires more than the devotion of individuals. It requires the intelligent co-operation of whole groups of individuals. Organized scientific inquiry becomes in advanced countries a conscious aim of the community as a community.

THE VARIOUS WORKERS.

That society may draw due benefit from wells of natural knowledge, three kinds of workers have to stand side by side. First, the investigator, who, pursuing truth, extends discovery, with little or no reference to practical ends. He constitutes the fountain-head of the knowledge that is for distribution. Other hands may reap the harvest, but his sets and rears the seed.

After the investigator comes the teacher. To him it belongs to diffuse the knowledge won. This honorable and difficult task receives its best reward in seeing the small spiritual beginnings of a pupil widen out into the spiritual beginnings of a master. Thirdly, there is the applier of natural knowledge. His part consists in making scientific knowledge directly serve practical needs. It is this work which to the popular idea often represents the whole of science, or all of it that is commonly termed "useful." The practical results of this work are often astounding to those ignorant of the steps by which they have been reached. The greatest of these steps, however, is usually the first one, made in the laborator, of the investigator. These three co-workers are co-equal in the priesthood. Science and the applications of science, are one growth, united together even as the fruit and the tree. The proper hearth stone round which the community should group these laborers, laboring for a common end, is the Univer-

sity. There the sacred flame of learning is fed from many sides by many hands.

VALUE OF SCIENCE.

It is sometime^s said that pursuit of science renders a man deaf to the appeals of practical life. That it tends to withdraw him from the everyday interests of the people. That I do not believe of any science. Certainly not of biology and the medical sciences. Why, from their very outset these subjects draw the mind toward study of an organization the most complex and the most perfect it can examine. The ancient simile that our old school classic, Livy, drew between the human body and the body politic the state, has not lost, but won significance as the centuries have run. The achievement of the microscope has been the discovery that living things, whether plant or animal—all living things of more than minutest size—are commonwealths of individually living units. These cells, as they are called, are living stones that build the house of life. In that house each stone is a self-centred individually living microcosm individually born, breathing for itself, feeding itself, consuming its own substance in its living, and capable of and destined for an individual death. Each cell lives by exchanging material with the world surrounding it. In other words, its bulk depends on its surface. Hence, surface increasing as the square, and volume, as the cube, cell-size, is circumscribed by tiny limits—microscopic limits. Had the dependence been greater than it is, and the average size of the cell less, and too small for resolution and discovery by the microscopes of seventy years ago, it is hard to imagine where biology would stand to-day. For two generations every biologist has been accustomed to think in terms of the cell-theory. Every shred of the body he knows as an intricate interlacement, embodying co-operation and mutual support of associate thousands of individually existent cells. Division of labor has gone on, and with it differentiation of function; while this group of cells combines with its own inner life some special function subservient to the needs of the great commonwealth, as a whole. Another group is specialized for another duty again subservient to the general needs. Each organism, however complex, each one of ourselves here, is built up of living myriads of cells. Each such organism consisted at outset but of a single cell, and from that in his life's growth have arisen the countless myriads composing him to-day. The blood relationship is close between all the cells of each one individual body. The cells of our nerves, or our muscles of our time-hardened bones are all blood relations through one common ancestor. Yet so far has specialization of these unit lives gone on, yet so far does function

reflect itself in microscopic form, that there is greater likeness between my nerve-cells, the nerve-cells of a fish, than between my nerve-cells and my own muscle cells—despite the blood relationship between these latter. And in the commonwealth of cells that constitutes each one of us, goes forward day long, night long, as in the body politic. The birth of new units to replace the ones outworn, the subordination of many individual purposes to one, the sacrifice and destruction of the individual life for the benefit of the many.

Trained in study of such an organism, surely the biologist and the medical man will be the last to underrate the importance of organization to the community for the commonweal. Therefore I am rejoiced, but I am not surprised that it is your faculty of medicine which to-day, in its public spiritedness, erects and installs these fine laboratories, this potent addition to the organization of your community, for its activities in medicine and biological science. I would also, as a friend among you, offer you my congratulations on the consolidation of your two schools of medicine. Union means not only greater strength, but the more effective application of strength. I need not to this assembly extol medicine. Many of her votaries are here; I venture to count myself as one. But to-day the relation toward her of education is a matter on which our minds are naturally set. Am I wrong if in regard to this it rises saliently to me that from the educational standpoint, medicine, like Janus of old, in a good sense, bears a double face. On the one hand, she is an empiric. She has learned to cure by what the comparative psychologist calls the "method of trial and error." Conquests over sickness acquired purely as result of experience, without help either from a priori or from inductive reasoning. And great and glorious is the role of her achievement on these lines. Of her humanitarian triumphs probably still—certainly until a generation ago—the greater share is assignable to this part. The use of quinine in malaria, the curative effects of the iodides and various metals, the discovery of chloroform and ether as anaesthetics, these and the names of a long line of famous physicians from the renaissance down to some as justly famous as the past, and with us now to-day, suffice to certify the inestimable gifts that medicine as empiric has given to mankind in his suffering. This face of medicine well may wear a garland.

MEDICINE A SCIENCE.

In her other aspect, medicine is not an empiric, but a scientist. Who will refute me if I assert that medicine is as well an art as a science. Somewhere it is said that woman is the last thing

man will ever civilize. So the scientific aspect, the male face of two visaged medicine, thinks of that female face, the empiric, with whom his lot is linked. He feels sometimes that his other half is the last thing science will ever render wholly rational. By dint of patient toil he improves her practice by showing her a reason now and then. No sooner that than she is off on a fresh flight into the inexplicable, and he must cudgel his brains anew to find her a fresh logical position.

The feminine, ever youthful trait in medicine, has to the student an undying charm. But on the whole, the countenance of medicine has of recent years, for the student, become masculinely severe. This head of medicine has indeed become the larger. Hydrocephalic in appearance though it may be, it is filled, not with water, but with reasoned facts. The development proceeds in the main from certain data acquired in the century just passed. For instance, the chemist, in discovering that all the million-sided chemical diversity of the perceptible universe is composed from a few—some 70—substances, therefore called elemental, discovered also that living matter, instead of containing elements different from and subtler than those of the dead world, consists of just a few of those very same ones. Further, the doctrine of the indestructibility of matter was demonstrated in a new form, namely, as the indestructibility of energy, and the convertibility of any one form of energy into other forms. Thus dead and living matter become united as subject material for study. It became really possible to consider the living body as a chemical and physical machine, a machine to which the laws of chemistry and physics can be applied.

But this scientific progress in medicine, fruitful of benefit to the community, lays on the community a burden of obligation. The empirical part of medicine is at once the most easy and the most difficult thing to teach. The preparation for learning it requires but little training in other subjects. Its facts lean on nothing but themselves.

HISTORICAL SKETCH.

With the scientific part of medicine it is different. That is based upon initiatory studies. Medicine, historically traced, we find first drawing help from the simplest and nearest at hand of these adjuvant studies. First, she bent to the study of the gross form of the parts and organs of the body. The gross form of these is significant chiefly where they are machinery for application of mechanical powers. The greater part of the corporeal machinery is, however, not destined for such work, but has its

purpose in processes chemical, thermal, and electrical, to which—marvelous appendage—mentality is adjunct. Medicine in the course of the seventeenth and eighteenth centuries sucked dry for the most part what the study of the gross form of the body's parts could yield her. She then turned to study of microscopic form—examined what Bichat first named the tissues, the fabric of the body. In so doing she came upon a great generalization, the cell-doctrine, discovering an essential and visible similarity of microscopic structure in all that has life, differentiating it from all which has not life.

But even before the advent of the cell theory, medicine had begun to ask of chemistry what it could give her. With the discovery of oxygen and of the nature of combustion the links between biology and chemistry began to be tightly drawn. The young Oxford physician, Mayon, had performed the fundamental experiments on respiration, and had discovered oxygen more than a century before Priestly and Lavoisier, but the time was not ripe until the stupendous work of Lavoisier had founded modern chemistry. The cell-theory was from the first not only morphological, but physiological. It meant for the application of chemistry to biology that the chemistry of the body or of one of its organs was a chemistry resultant from a thousand tiny living furnaces, individual seats of oxidation, deoxidation, polymerization, hydrolysis, and what not.

Not only that, but the living laboratory of the cell itself manufactures even the medium which the cells themselves exist: the saps and juices of the body. And we are beginning to know, thanks to pathology, that every species of animal produces an internal medium specific to itself. Further, your distinguished physiologist here, Professor Macallum, who has so revealed the distribution of the chemical elements within the cell, tells us that the internal medium which the cells of even the highest animal forms produce as appropriate for themselves, still approximates in its salts to the water of the ancient geologic seas in which their ancestry arose, and still reveal in fact the composition of that ancient ocean. In that respect these living cells, with all their influx of change, have been more durable and constant even than the ocean itself. The contrast brings home to us a deep distinction between dead matter and living—the latter a moving equilibrium, gaining stability from the very motion of itself.

The bond between Schwann and Pasteur has opened a new perspective, and chemistry and medicine were drawn still tighter by their discoveries concerning those subtle influences named "ferments." Pathology, the study of these processes of the body

in disease, even more than physiology, as yet has drawn help from this part of modern chemistry. If the processes of health are in fact the resultant of the due co-operation of ten million little foci of healthy chemical action in the body, the processes of disease are similarly divisible, and have to be traced to the unhealthiness of certain of these minute centres of activity. How extreme is the importance of chemistry to modern medicine, no single statement can perhaps emphasize so well as this—that is, I believe, acknowledged on all hands—that in virtue of his chemistry, a chemist, Louis Pasteur, during the latter half of last century, was able to do more to alleviate the diseases of mankind and animals than any single physician of his time.

APPEALS TO PHYSICIST.

Also medicine has made appeal to the physicist, and from him she has got understanding of the body's heat, the basis of the knowledge of fever; she has learned the intricacies of the mechanism of the eye, and refined methods of examining that organ, and of remedying many of its defects; the laws that govern the circulation of the blood, and the subtlest means of detecting the forces liberated in the working of the nervous system. In some cases, as sciences grow, their discoveries seem to sunder them the further one from another. In my belief, that merely shows they are at the outset of their career. To-day we find physics and chemistry converging and conjoining within a field of physical chemistry. It early became convenient to have a specific name for living material, wherever found. The name given was Protoplasm. It might have been better to call it x or y , so far was it in many respects an unknown quantity. Instead of looking forward to this material as a chemical entity, we incline now to regard it rather as a field for chemical action, satisfying certain particular conditions. Probably discoveries regarding these conditions will fall to the physical chemist, perhaps in a future very near at hand. Probably such discoveries will be among the most valuable that medicine has yet received from any source.

I have said enough to remind us how interlocked with science medicine has become. She is applying sciences to her own problems, and they form a vast capital fund from which she can draw wealth. To give instruction in this part of medicine, to turn out men trained in it, is now one of the duties of a medical school. The earnest student has a right to expect such training from his alma mater. But for it the requirements are importantly different from those that suffice as an introduction to

empiric medicine. In the first place, as Pasteur said, we cannot have the fruit without the tree. For scientific medicine the student must, perforce, be thoroughly trained in his sciences before he can really grasp instruction or truly profit from his medical teaching. One of the aims of his instruction in empirical medicine is to teach him to observe for himself, so in his instruction in scientific medicine, one of its aims is to enable him to apply science for himself. How small a fraction of all the realities of medical practice can be met in the few years of preparation of the student in the clinic as he passes through it in his school career. His teacher knows that well, and uses the cases there as types whereby the principles of medicine can be fixed as a beginning. The rest must be accomplished by the man himself, as his life's work. The more necessary that the man go forth from his school equipped not only with the present applications of science to disease, but so possessed of root principles of the sciences adjunct to medicine that he may grasp and intelligently use the further developments of scientific medicine after he is weaned from his instructors and the school. That is a way to obtain enlightened progress in professional practice. What truer safeguard can a man have, alone it may be, and isolated from the centres of knowledge, what truer safeguard can he have against all the pseudo-scientific quackeries of the day, than some real knowledge of the principles of the sciences, along whose lines the discoveries of medicine must develop.

BURDEN ON TEACHERS.

Therefore, it is that the burden of obligation falls heavy now-a-days upon the teaching resources of every faculty of medicine worthy of the name. There is, in the first place, the burden of increased intellectual labor. For the learner and the teacher is this true. To seize the proffered assistance of these great and complex sciences is not always easy. These studies are more difficult than those that were needed once, and they take longer to acquire. The mere instrumentarium of modern chemistry and physics, as applied to medicine, and of physiology and pathology, and bacteriology and of hygiene, of itself suffices to bring conviction of the increased difficulty and longer training due for these studies now preparatory to medicine.

Further, these initiatory studies have become vastly more costly than was all that formerly was required. Experts have to be found who can devote themselves heart and soul and undividedly to their particular subject. Laboratories have to be erected

and equipped, and on a scale that makes them a distinct feature of the modern world. Those that we see now here are models of their kind; wise foresight has planned them; public-spirited enterprise has constructed them. Nor does the achievement end with their erection. The laboratories and their equipment are but the factory and the plant; both fail in their purpose if they halt for sustenance. And beyond that the likeness does not go. The factory, once started, if it be wanted, can expect to pay, to support itself. Not so the laboratory. The laboratory is both a school of instruction and a school of thought. Well, no higher instruction can be expected unaided to pay the expenses it involves; it can only do so at the expense of those who come to learn, and that is to put its teaching beyond the reach of all but the wealthier few. And the instruction is costly, for it has to be practical. And another source of expense is that the laboratory has not only to distribute knowledge, but to manufacture it. The duties of a University do not begin and end with the disciplinary and didactic. Besides schools of instruction, they must be schools of thought. To be this latter, the laboratory must pursue research. Even for the welfare of the class-teaching this is essential. Instructive lectures may be given by men of ability, the whole of whose knowledge is second-hand, but it is doubtful whether the real life of science can be fully felt and communicated by one who has not himself learnt by direct enquiry from nature. Nothing so augments the teacher's power of impressive and incisive teaching of a subject than to have faced problems in it himself as an original enquirer. And, after rudiments have been once fairly acquired, there is for good students no training equal to that given by following even a small research under an experienced leader.

SCHOOL OF THOUGHT.

So, truly does the laboratory become a school of thought. Your laboratories are arranged with admirable provision for research. The student should enter on his study of a natural science through the portal of its fundamental experiments. The attitude his mind thus takes is the true one—the only true one—for further insight into the subject. Too often humanistic studies at school have tended to kill the natural philosopher within him—that innate curiosity for facts, the healthy heritage of childhood. He leaves school a little book-man. Even as to the phenomena of nature, he has been insensibly led to ask for statements upon authority, rather than to turn his own senses and observation to the phenomena themselves. To learn a science or

acquire an art resting upon sciences, the first thing to do is to look at the fundamental facts for yourself. Our great teachers of medicine teach upon this plan. They teach where they learned, not in the library, but from the bedside of the sick. In laboratories such as those raised here for pathology and physiology and hygiene, students can learn these sciences as medicine is learned in the hospital ward, by direct enquiry into nature. The teachers you give them are men who have won widely recognized distinction as themselves direct enquirers into nature. Worthy students will appreciate the double boon their alma mater gives them—the means of learning at first hand those secrets of nature which lie at the root of his craft's skill—and to learn them under guidance by men who excel in unravelling such secrets.

ENGLISH ACTION.

Only by enabling men to continue their learning after their teaching is over can we secure the greatest advantage any educational system can afford. Your laboratories here will encourage post-graduate work. We look with keen interest to the researches that will flow from them. No subjects offer finer fields for research than do the progressive studies, physiology, pathology and hygiene, to which your new University buildings are consecrated. And of the functions of a laboratory, research is not, the least costly. We in the Old Country find that. Our central government has done little to support research. Our nation, proud of its success in things practical, has been prone to despise the abstract and the theoretical. We do so foolishly; we do so at our peril. Behind all practical application there is a region of intellectual action to which, though our practical men have contributed little, they owe the whole of their supplies. Theory, if a goose, is the goose of the fairy tale that lays the golden eggs. No more such eggs if once you let her die. To speak of theoretic knowledge slightingly is for the lips of the fool. The value of abstract research to a country is becoming more widely acknowledged among us than it was. Sir John Brunner said the other day, at Liverpool, that there was no better investment for a business man than the encouragement of scientific research, and that every penny of the wealth he possesses has come from the application of science to commerce and manufacture. And we find that munificent citizens have and do come forward among us and meet by their individual gifts the pressing needs in this respect of our community at large.

But we welcome a new era dawning on us. Liverpool, Bir-

mingham, Sheffield, and other great centres, begin to regard the local University as an institution entitled to support from the public means, for instance, by subsidy from public rates. Such subsidies can be used also for studies which do not come within allotment from the smaller subsidy from the central Government: medicine, for instance. Proud of the young universities—to which yours of Toronto is a time-honored veteran—communities and local governments are encouraging research within our universities. They do not expect such research to be able to pay its own way, but they recognize that indirectly it does pay the community that gives it a home. They feel it a duty which they owe themselves. Is not the university a party of their own life, and is not research a part of the university's life blood? They feel it a right, due to their own higher selves. It stimulates progress. Supported by the large-handed sympathy of the community and the local government it means quicker advance, both material and mental, it means invention, and it means medical discovery. And *qui facit per alium facit per se*, is a motto worthy of a State.

USES OF LABORATORIES.

What, then, are finally the uses of these laboratories now opened by your University? They will assist in training men for various honorable callings, especially for that most ancient one of medicine. They will assist, no doubt, also to render life by practical applications of science superficially still more different from what it was only a short generation ago. They will assist to bring home and distribute to your community treasures of knowledge from all the quarters of the globe. They will assist—and it is a thought dear to a high-spirited people—themselves to add to the sum total the treasures of knowledge of the whole human race. *Noblesse oblige* appeals to chivalrous nations, as well as to chivalrous individuals.

But their highest office seems to me, perhaps, not even these high ones, but a more difficult still. Genius cannot by any community, however wealthy and powerful, be made to order. In Biblical language, it is the gift of God. All a community can do toward obtaining it, be our riches and willingness a thousand-fold what they are, is to ensure the rare and glorious plant a meed of freedom, light and warmth for blossoming upon our soil. Who can doubt that in this population here genius exists—not sown, it is true, broadcast, for nowhere is it thus—yet existent, scattered up and down? This it is for the community to foster, to discover.

By help of these finely built and finished laboratories this much in one direction can be done. The problem to which a wise country turns is the discovery less of things than of men. By these laboratories, adequately supported, your community can create opportunity for the exercise of powers which come from sources within itself, but are utterly beyond its power to produce at will. Their loftiest function is creation of this opportunity. For that aim the studies in them must be followed with no single narrow technical purpose, but must be wide of scope and full of access to every rank of students. So shall these laboratories prove a corner-stone for the upbuilding of a temple of knowledge, and a touch-stone for the best ore of intellect within the bounds of this great land.

ADDRESS IN MEDICINE, CANADIAN MEDICAL
ASSOCIATION.—THE LYMPH CIRCULATION
IN MODERN MEDICINE.

BY HUGH A. MCCALLUM, M.D., M.R.C.P., LONDON.
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Owing to the illness of Dr. James Stewart the address in medicine was pressed upon me by your President and Programme Committee. In reluctantly accepting the honor, I recognized not only the short interval for preparation, but my inability to give such a popular address as the occasion calls for. In relying on your charity to day, I accepted the investment of this office, not as an honor, but as a duty.

On account of the time left I must of necessity select a subject with which I have already been familiar. In announcing it as "The Lymph Circulation in Modern Medicine," one feels that we are treading upon a new continent of thought. It is a subject that is in intimate relation with every branch of medicine and surgery. The unsolved problems of physiology, pathology and therapeutics must find their final solution here. The final contributions in these three realms must be cytological, viz., by painstaking study of the cellular elements. As cells of their own vital activity feed and oxidize themselves from the adjacent lymph stream, it must be basic to every problem in medicine how lymph is kept nutritious, and how it rids itself of its waste products. The tissue juice or lymph is not only the food of cells but their sewerage system as well.

Two hundred and fifty years ago Rudbeck discovered the general lymphatics, and gave the first conception of the irrigation theory of tissue nutrition. Hunter believed in the theory of tissue suction; Johannes Muller ascribed lymph to the vital activities of the living cells of the body (elements of physiology, Baly's trans., vol. 1, p. 248).

In 1850 Ludwig propounded the theory, which bears his name, viz., that lymph was renewed by filtration and osmosis. Twelve years ago R. Heidenhain startled the physiological world with experimental evidence, which he claimed was fatal to Ludwig's theory. He experimented with certain substances, which altered in quantity or quality the lymph coming from the thoracic duct; these he called lymphagozaes. A great deal of physiological work has been done in the last twelve years in this department, and a considerable number of physiological authorities have fallen away from Ludwig's school, although not fully accepting Heidenhain's theory of endothelial secretion from the capillary wall. The champions of Ludwig have been put to their wits' end in squaring the laboratory evidence with filtration, osmosis, and diffusion.

Before touching upon the contested theories, let us have a glance at the modern anatomy of the lymphatic system. Budge (*Arch. of Anat. and Phys. anat. abthg.*, 1880 and 1887) thought there were two lymphatic systems. One of these disappeared in development. Ranvier, W. G. Macallum, Sala, and Florence R. Sabine have separately arrived at this conclusion that the lymphatic system is a modification of the circulatory system; that it grows by budding backward from the subclavian vein and gradually invades the tissues and organs; that these buds are closed or blind at their terminals, and have no physical connection with tissue spaces. Ranvier looked upon the lymphatic system as a great gland, the blind, protruding capillaries as the secretory parts, while the ducts were the excretory canals. These lymphatic capillaries are lined by endothelial tissue. The termination of the lymphatic system in the lacteal of the intestinal villus is a fair sample of its method of termination in other tissues. There are tissues like cartilage and the cornea which are never invaded by lymphatic capillaries. The lymphatic glands seem to be an after thought in development, as they are absent till we reach birds and mammals.

These anatomical and embryological studies bring us face to face with this: That we have included as one system the tissue juices and the lymphatic when in reality they are separate. The tissue spaces and their juices are not part of the lymphatic system.

The fact that we have been considering two fluid systems as one demands strong confirmatory testimony of an evolutionary, pathological and clinical character to be weighed with laboratory evidence in reaching a working hypothesis on this circulation.

The amount of lymph in the human body is difficult of estimation. Waller (*Human Physiology* Edition, 1893, p. 116) approximately estimated it to equal three or four times that of the blood. This estimate is probably too high, but the quality of this fluid shows its marvelous importance. Florence R. Sabine, when suggesting the function of the true lymphatic system to be a system of absorbents, gives evidence obtained from a "specimen of twins prematurely born, one of which was normal, while the other was so edematous that it was simply a round ball." Examination of the edematous one showed no trace of a thoracic duct, nor lymph glands (*American Journal of Anatomy*, May 26, 1902).

The tissue juice circulation I shall call the lymph, and the other the lymphatic. As the lymphatic is one of the forces in the lymph circulation there will be no attempt made to divorce them. Are we in possession of sufficient data to indicate the method by which lymph passes over from the blood stream to the lymph circulation? Does the balance of testimony point to lymph as a secretion, a filtration, or a product extracted or sucked out by the vital activity of the tissues themselves?

If the field of inquiry be extended to embrace facts from evolutionary, embryological, physiological, pathological and clinical sources, the answer to the first question can reasonably be affirmed. The second question points to lymph as an independent circulation, and its forces are the vital activity of the tissues. It would follow that the lymph itself was an extraction product from the blood stream. The extraction process may have some of the characters of secretion and filtration. It is not to be denied that the physical laws of the liquid act in the body, but their scope in the lymph circulation is overshadowed by the selective action arising out of the vital activities of the tissues. The thing that most concerns us is that lymph circulation is an independent one.

Lymph will flow from the thoracic duct in some cases as long as four hours after the death of the animal. Ludwig long ago discovered that ligation of this duct was followed by rupture of it behind the point of ligature.

Harly's experiments (*British Med. Journal*, August 20, 1892) on the production of jaundice in dogs, found that when he ligated the hepatic lymph ducts and the biliary duct simultaneously, there was great danger of rupture of one of them. These experiments were conducted to show that bile gained en-

trance alone by way of the lymphatic circulation, but they also show an unsuspected power behind this primeval circulation.

There is evidently as many circulatory forces as there are tissues, each tissue possessing a method of its own in the selection of lymph. Easily understood examples of this may be seen in the vitreous humor of the eye, cartilage, bone, voluntary and involuntary muscles, epidermis, and hair. Their peculiarities will be discussed again at some length.

In addition to the ability of this circulation to continue for hours after cardio vascular death, and independent of the latter forces, we see it the sole circulation in the vegetable kingdom, and the mighty trees of the forest are the evidence of its powers. It is the sole circulation in the lowest forms of animal life, and executes oxidation, excretion, secretion, vital movement, reproduction and repair. It is the sole circulation in the early weeks of embryonic growth, building the scaffolding and laying down the framework of all our human system.

Without question the lymph circulation existed long before the cardiovascular, and was in possession of independent forces and functions. Can it be possible that this ancient circulation, which called into being the cardiovascular system, would lose in the newcomer its own identity and independence? Or was the cardiovascular system secured for greater importation and exportation facilities?

The studies of Dr. A. B. Macallum on the inorganic composition of certain sea forms and sea water show that the former's degree of salinity can only be explained on the ground that the cells lining their gastro-vascular channels and the covering cells have a vital selective action. Speaking of the inorganic composition of blood plasma, and its strong resemblance to ancient sea water, the author says: "These can hardly be mere coincidences, and they seem to indicate that the proportion in plasma are an ancestral feature derived from a form which had its habitat in the ocean in the earlier geological periods when ocean water was very much less rich in salts of magnesia than it is now. Just as in the Medusae of to-day the gastro-vascular fluid is but sea-water, so in the ancient oceanic prototypes of the vertebrates and of invertebrates which are provided with a distinct circulatory system, the fluid in their vascular channels which communicated with the exterior was probably but modified sea-water as regards its inorganic constituents, and in the long period of time during which the forms were exposed to the conditions of such an environment a physiological relation between the tissues and the salts in their vascular fluids, in the proportions occurring in their

environment, became so fixed and established that it was of necessity transmitted to the descendant forms living in different habitats, whether on land or in fresh water."—(Jour. Physio. vol. xxix, No. 3, page 234.)

By the blood stream, oxygen and nutrition are carried to the tissues, and waste products are carried away. If we knew how oxygen was utilized by the tissues, it would give us "scientific anticipation" of the *modus operandi* of the other functions of the lymph circulation.

The history of the physiological teaching of oxidation is interesting. The ancient belief that arteries contained air and carried it to the tissues was abandoned after Harvey, and in its place came the teaching that the lungs were two furnaces burning up the waste products carried to them. Then followed the teaching that the blood oxidized the tissues through walls of the systematic capillaries. This was replaced by the teaching that blood oxidized the perivascular lymph, and the tissues became oxidized by contact. The present day teaching is that cells oxidize themselves by their own inherent vital activity. By their own instinct they seize the oxygen in the lymph and cast back their products of metabolism, viz., products of secretion and excretion.

Internal secretion and excretion are cast from the lymph stream to the blood stream simultaneously. The giving up of lymph by way of the thoracic duct is a very remote and fractional part of the interchange (Tscherkwow Arch. F. D. Ges. Physiol., 1895, Bd. Ch. 12, S. 391, Lazarus Barlow and Starling Journal Physiol., vol. 16). The interchange is almost entirely effected between the lymph spaces and the blood capillaries. It has been found that when an animal is being bled the later portions of blood are more dilute than the first, and this is the case whether the thoracic duct is ligated or not.

Experimentally, we know that from the hind limbs of an animal at rest no lymph flows. By kneading the muscles a free flow can be induced. Passive or active movements of the limbs bring about a free flow. It is known that in the quiescent state lymph coming from the thoracic duct is from the viscera. Glandular or muscular activity takes front rank as increases of lymph flow.

In harmony with the post-mortem flow of lymph, examination of the web of a frog's foot after the heart has been cut away, or the vessel clamped, movement in the blood capillaries will continue from five to fifteen minutes thereafter; when all movement has ceased, it will return if some irritant be applied to the web.

It seems that the lymph circulation being more ancient and

stable continues after cardiovascular death. A student, whose mental make up enables him to see the other side of things, said in my quiz class that "blood was simply mixed lymph with peculiar cells floating in it." Whatever we find in the serum we know has been cast there by the lymph.

A study of the blood serum is practically a study of general lymph. All the modern studies of serum will apply to the lymph. The causes of vital movement must be analyzed before we gain a clear view of lymph circulation. Evolutionally this principle must be true, that all protoplasm not undergoing vital movement in offensive or non-nutritive media must have been lost in the evolutionary process. This must be the basic explanation of all vital movement. By vital movement is meant not only contraction, but intervening relaxations.

The contraction of voluntary muscle is a powerful expulsion force on lymph within its sheath. Now, before a voluntary muscle contracts, there is a carbohydrate explosion, giving rise to carbonic-acid, sarco-lactic acid, etc. This takes place in the latent period before the visible contraction, and changes the reaction from an alkaline to an acid reaction. The contraction which follows on this expels large quantities of lymph. Here, clearly vital movement was inaugurated by offensive lymph, and the purpose was to expel it.

Now, the great stimulus to involuntary muscle movement, is venous blood, viz., lymph obtained from venous blood surcharged with waste products—viz., offensive lymph—is the stimulus. (The meaning of vital movements, *Canadian Practitioner*, Oct., 1902).

It is interesting to note the wide distribution of involuntary muscle. We find it composing largely the walls of hollow viscus. It is fully distributed in the stroma and capsules of glands and organs. And I would venture to say that more than one-half the involuntary muscle of the human body would be found to be in the immense area of the skin. Its slow rhythmic contractions with intervening relaxation suggest a tardily beating heart. The attachment of the arrector pili muscle to the root sheath of the hair in such a way as to pump nutritive lymph into the hair shaft, and the acting of the ciliary muscle on the canal of Schlemm, are two examples of this involuntary muscle acting as lymph pumps without doing so directly. This variety of muscle has a tendency to have associated with it in this action white fibrous and yellow elastic. In the lungs the lymph circulation is almost wholly effected by voluntary muscle, during inspiration, producing vacuum in the chest cavity, which would favor lymph entrance

into lymph spaces and reservoirs. The expiratory effort effected in natural breathing, almost entirely by the elastic recoil, would act as a pump to expel.

I have said enough to show how varied are the ways in which the forces act. Vital movement is best seen in muscular tissue, but is not peculiar to it, as doubtless all tissue is capable of some degree of vital movement. Vital movement does not always take the form of contraction, thorough relaxation may fill the enclosed spaces with lymph and dilute the offending lymph.

The lymphatic glands, spleen, uterus, intestines, ureter, and bladder undergo variation in volume rhythmically due to their involuntary muscle, and this will continue even when removed from the body. The rhythmic flushings of transparent parts (albino rabbits' ear or bats' wing) and periodic variations in volume of one's arm (when in aplethysimograph) are explained as arising from this smooth muscle tissue. Traube-Herring blood pressure, curves seen in states of asphyxia are similarly induced. We have the same rhythmic contraction of the walls of the lymphatic duct, and the intestinal lacteal is emptied by this tissue.

Offensive lymph inaugurate the respiratory and cardiac movements. Note how both will speed in states of asphyxia. A piece of steel embedded in the cornea has long taught us that this non-vascular structure can vascularize itself. This can only be explained on the theory that the tissues effected this by suction. Inflammation under such a view of lymph circulation would be simply excessive selection or extraction of fluid and cells from the blood. In states of asphyxia the lymph coming from the thoracic duct is often bloody, an effect to be expected if the tissues secured their own lymph.

Now, what does one mean by offensive lymph? Lymph may be offensive in being devoid of oxygen and nutrition, or containing metabolical and chemical products; high or low temperature would be an offense (to warm blooded animals), high or low pressure, vibrations and certain electrical variations. It is one's right to question why? as often as how? Adaptation of pathological process is an axiom in pathology, but there are countless examples in physiology. The adjustment of the iris to varying degrees of light is one of these. Here we see involuntary muscle adapted to expel offense. Heidenheim gave two divisions of lymphagogues, those increasing the water and those increasing the solids. I need not burden you here with details, except to say certain salts like magnesium are powerful lymphagogues. This agent acted first as a lymphagogue, and secondly as a purgative. It is well that internal excretion should precede external excretion.

The lymph passing over to the blood stream contains defensive fluids, as well as waste products. Hence purging within certain limits may be a form of serum therapeutics (see excretion in the treatment of acute infectious diseases, Philadelphia Med. Journal, Jan. 13, 1900.)

The action of the secretions of the ductless glands have not been brought into this discussion, but they vitally act on the tissues, and consequently on this circulation. The two most powerful agents in interchange of lymph are the muscular systems. They voluntarily expel lymph from their own body, and their sheaths, tendons, and attachments, and place, as far as the limbs are concerned, this circulation almost wholly under control of the will. The influence of the brain over the movements of the involuntary muscles is less than over the voluntary. The emotions can play upon this circulation almost past belief in some individuals.

To consider the skin as a system of external drains is to consider it not an important organ. The enormous amount of involuntary muscular tissue; the ability to corrugate itself to resemble "goose skin" in states of chill and fever, myodema and dermograph from strong or weak strokes to its surface, and the experimental evidence that stimulation of the pilomotor nerves causes contraction of the skin, especially over the genital region (Langley and Anderson, Journal Physio, vol. 20, Ph. 85) will justify one in speaking of the skin as a great lymph heart. The skin's elasticity alone would make it that. One can scarcely separate the lymph heart action of the skin from some of its several other functions, it being sensory surfaces upon which are inaugurated impulses of pressure, temperature, pain, etc., which in turn set up reflexes of various kinds that keep the body adapted to environments. If the skin be considered the external body world, it arouses, defends, and stimulates the inner mechanism more than can easily be conceived.

In order that I may not be charged with running thoughts till they are out of breath, I may bring forth Heads' conclusions (Brain, London, 1893, vol. 16, p. 129) that each viscus had a definite segment of skin that would show sympathetic pain when the former was irritated. He assumed that impulses can reflex the other way, viz., that irritation of the skin over these areas would have tropic influences on the corresponding viscus. The so-called "Lung reflex," described by Abrams (N. Y. Med. Journal, Jan. 13, 1900), shows that this is true. By irritating the skin over the lung by means of cold friction or Farradic currents, dilation of the lung ensues, and an increase of the blood in that lung follows.

This is evidenced by obliteration of apex beat, cardiac and splenic dullness along with the appearance of hyper-resonance or percussion, and a more definite lung outline under X-rays.

Whether intra spinal or intra ganglionic, excitement inside is communicated to the skin outside, and vice versa. Beneath the skin, both superficially and deep, are great laboratories that can be aroused to feverish activity by stimulus applied upon the cutaneous surface.

By contraction of this great lymph heart interchange of lymph passing over is a mixture of excretion and secretion, waste products and proteids, to defend the whole organism. It appears that the outer world excitement is accompanied by increased activity inside, else we had never been in possession of a heat regulating mechanism.

You well know the nervous mother who will make a hot-house of her child. There comes a day of exposure, and the child has "caught cold"—has bronchitis, pneumonia, nephritis or gastro-intestinal catarrh. The *modus operandi* of "catching cold" is this: The lymph stagnates from want of proper skin stimulus (which would be cold). The application of cold to the skin produces a powerful interchange, driving the excrementitious organs to over work. Over stimulation, from clinical evidence, we know can end in inflammation. The child who has daily exposures has his waste products sent into the blood circulation in dosage. The daily exposure is itself a tissue arouser and tonic.

No biological worker now-a-days denies organic evolution, but for the reason that the "How?" entirely dominates the "Why?" it has not been pushed into the explanations of purposeful phenomena. From the inception there were certain forces that act upon organic growth, and will continue to act for all time.

Shall we ever know the full meaning of "sunlight," giving us light and darkness; air, with its varying shades of dissipation of heat from objects; and the medium of vibrations; the changing seasons with their variation of heat and cold; the cold and warm rains cleansing the air, plants and animals, and furnishing fluid for internal use to all? What a cluster of blessings. Try them on the human organism, and everyone plays on its cutaneous surface. Without the sunlight we had no eyesight; without vibration in the air we had no hearing; without the whole group we had not our cutaneous sensations.

In the open air, sunlight, and forced feeding treatment of phthisis, we go back to the primal forces of organic evolution, and we have staggered upon them, not by intelligent grasp, but

by accident. Have we conceived the full range of possibility of the skin as an inaugurator of impulses, and movements, and the uses of these in maintaining normal health, and in treating diseases? We use in typhoid fever the cold bath and secure rhythmic discharge in dosage of the harmful toxine and of defensive proteids into the blood circulation. In typhoid fever the height of the temperature is merely the indication, the reduction merely, the accident of the treatment. We use massage to remove stagnant lymph in conditions of neurasthenia, melancholia, Glenard's disease, and other forms of mal-nutrition.

The relation of the modern treatment of tuberculosis to the lymph system is easily indicated. The forced feeding enables the cells' inherent activity to obtain the material for the formation of the defensive proteids. The sunlight and fresh air stimulates the skin not hourly, but almost continuously to activity, that defensive proteids may constantly flow into the blood stream to enable the long drawn out battle to be won on the side of life. Stagnation of lymph can occur from both warmth and cold. This is overcome in typhoid tubbing by friction.

If one concedes so much to the skin as an inauguration of defensive process, what shall we concede to the great master tissue, the central nervous system in this regard. The influence of mind on the body has not yet attained its full recognition in medicine. The invigorating effect of sane courage in arousing the whole bodily forces is a medical axiom from the beginning of time.

" Know then, whatever cheerful and serene
Supports the mind, supports the body too,
Hence the most vital movement mortals feel
Is Hope ; the balm and life blood of the soul."

The splendid practice of training the sick mind is far too little used. The neurotic should be taught to cease complaining, to minimize his actual objective symptoms, and to train his body and mind to gradually increasing periods of alertness, as well as periods of absolute repose. Had this been more generally done by the profession there had not arisen in the land a cult who appeal to the mystical to heal disease.

I shall not stay to discuss the relation exercise, inflammation, hypertrophy, atrophy and repair bear to this hypothesis. You will doubtless see that our attention must be fixed on cells, and the best method of securing their fitness to fight morbid changes. Chemistry and physics give many phenomena a meaning adaptive to our understanding, yet there are innate properties in cells put there by evolutionary factors that must be baffling to all science.

As one understands more of the whole biology of the human body he turns less to drugs for curative agencies. The body must be considered as a community of cells, and as a united state, possessed of a wonderful ability to organize its land and sea forces. All therapy must be measured by its effect on the organization of these forces. In treatment, the great object is to make the human body into the very best fighting machine against the invading enemy: primary or terminal infections. More terrible to a waiting camp than the enemy's weapons are water and food, famine and stagnant sewerage. Mal-nutrition and stagnant lymph mean to the human body what famine, polluted sewerage, and destroyed ammunition mean to a regular army—capitulation without terms.

In conclusion, I trust your curiosity has been aroused, for my attempt has been merely to lead you to a hill-top in this new continent of thought, and to point out the complex landscape and the open roads. It may be true the valleys are hidden with mist, and the mountains with clouds, and the soil is yet to be enriched by the growth and decomposition of thousands of ideas, but, nevertheless, this is the land that will yield us fruit, the eternal biological verities.

Reports of Societies

CANADIAN MEDICAL ASSOCIATION.*

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(Continued from September issue.)

THE ROLE OF EYE-STRAIN IN CIVILIZATION AND MEDICINE.

By Geo. M. Gould, M.D., Philadelphia.

From biographic and autobiographic writings he had made a study of the disease of eleven patients who lived in the last century. These were De Quincey, Carlyle, Mrs. Carlyle, Darwin, Huxley, Browning, Wagner, Parkman, Whittier, Herbert Spencer, and Nietzsche. The diseases, or rather the symptoms of the one disease, common to all were headache, insomnia, biliousness, sick headache, nervousness, indescribable suffering, inability to do literary work without producing these symptoms, and relief of the symptoms whenever literary work was stopped, and the entire cessation of the characteristic symptoms at about sixty years of age. This definite clinical picture differentiates the fundamental pathological condition from that of any other disease. The symptoms were, briefly: Of De Quincey—Headache beginning at fourteen, violent twitchings of stomach during sleep at seventeen; neuralgia at nineteen; nervous horror, irritation of stomach, gastralgia, dejectedness, biliousness, dizziness, insomnia. Digestive trouble predominated. Of Carlyle—Dyspepsia, gnawing at stomach, bad health, nervous disorders, insomnia, biliousness, melancholy, cardiac symptoms. Dyspepsia was leading complaint. Of Mrs. Carlyle—Sick headache nervous sufferings, insomnia. Of Darwin—Pain and palpitation about heart, sea-sickness, inability to do literary work, disordered stomach, prostration, sick headache, vomiting, insomnia. Digestive disorder predominated. Of Huxley—Hypochondriacal dyspepsia, cardiac symptoms, prostration, headache, flatulent

*Special report for DOMINION MEDICAL MONTHLY, prepared by Dr. G. L. Clarke, London, Ont.

dyspepsia, mental depression. A case of typical sick headache. Of Browning—Headache, cerebral symptoms, depression, dizziness, deranged liver, nervous excitability. Typical case of headache. Of Wagner—Feeble stomach, sick headache, great depression, cardiac symptoms, intense irritability. A martyr to sick headache. Of Parkman—Dyspepsia, Photophobia, inability to use eyes in literary work, insomnia, threatened insanity. Mental, ocular, and cerebral symptoms dominate. Of Whittier—Poor health, great weakness, depression, heart palpitation, influenza, headache, rheumatism, cerebral symptoms, neuralgia, insomnia. Of Herbert Spencer—Insomnia and inability to use eyes, except for short periods. Of Nietzsche—Ocular and cerebral symptoms predominate, finally ending in insanity.

The strange mystery of the disease of the eleven is striking. The lack of cause seemed to them wonderful and inexplicable. They implored their physicians for relief, and some spent much of their lives in changing treatment, dipping into quackery, and changing their climate, dieting, and two tried hydrotherapy. In every case, there is one clear fact, that their sufferings were resultant upon use of their eyes in writing and reading, and yet none of them were aware of the true cause. This may seem strange, yet it is also pathetic "that lay scientists and professional observers as they were, they and their physicians were incapable of perceiving the fact. The blunder was due to three inaccuracies of the patients and of their physicians. The first was in ascribing the disease to the organ in which the symptoms appeared, or seemed to be most manifest. This mistake exists at the present day, and when we realize that distressing symptoms in an organ may have their origin in other and even in distant organs, we will remove many errors from our pathology, and make large strides in practical therapeutics. The second inaccuracy consisted in thinking that intellectual labor, or an over-amount of it, causes the symptoms. Patients and scientists forgot that in the majority of intellectual people, it was and is not so. For example, Humboldt worked twenty hours a day for about eighty years. In the eleven patients mentioned, it was not over-worked intellect that caused the trouble, but the optical part of the labor that produced the symptoms. The third mistake was caused by thinking that the constant change of scene or climate, the walking or riding caused the relief. The relief was due to the non-use of the eyes for near work, as the symptoms recurred whenever and wherever the eyes were again overstrained. The disease was functional. All the patients had more or less severe gastric

symptoms, to which various names were ascribed. The proof that they were functional is shown by the fact that they lived to the average age of seventy years, and that it disappeared at the beginning of old age, when the vital powers were weakened."

The Variation of the Symptoms.—No case in medicine is typical. The soil has as much influence in symptomatology as the seed (especially true of functional disorders). Symptoms of eyestrain are complex, and differ in every case, its effects are numerous and explainable when we realize the important connection of vision with the whole body. Its use of eyes produces any of these results, if disuse relieves, or if without disuse of the eyes proper glasses relieves, eyestrain is certainly the cause. In every one of the eleven cases, disuse of the ametropic eye gave temporary relief, and at sixty years the paralyzed accommodation gave permanent relief, and increased the power of the eye.

The Result in Lost Time and Opportunity.—De Quincey's opium-eating wasted much of his time. Three-fourths of Carlyle's working time were spent in exercise, and in recovery from eye exhaustion, and much of Mrs. Carlyle's time was spent in suffering. Darwin was able to read or write only about two hours daily. Huxley, at the height of his career, was compelled to go into retirement, after sick headache had interfered with much of his work. Browning avoided suffering by avoiding eye-work. Wagner spent most of his life in seeking relief. Parkman lost three-fourths of his time by giving up his work. Whittier was compelled to give up all his literary work except the poetical, and retire. Spencer avoided suffering by abstention from overstrain.

The Result in Suffering.—The pain of sick headache, the nausea, and intense pain in the brain, which they had to undergo, is too awful for adequate comprehension, in spite of the lack of sympathy shown by biographers, physicians, and medical editors. This physical suffering was enhanced by the thought that they were responsible for world regeneration and enlightenment, and they suffered keen mental torture seeing their life work frustrated.

Insomnia.—The chief complaint of many of the eleven; for thirty years several could only sleep two or three hours a day. The absolute necessity of sleep, and the fatality of enforced wakefulness are well known. The astigmatic and anisometric eye gets no rest from muscular or innervational strain during the waking hours, and the reflex is sent to the brain or to other

organs. In extreme cases of overuse, the fundamental conditions of organismal existence, nourishment and cerebral control, are denied, and the organism is injured. The injury to the cerebral and nervous mechanism, and its exhaustion, is so great by the sixteen-hour struggle, that at night repair is so active that there is no rest possible, and human consciousness is aroused by the activity of repair. Briefly, this is the physiology of the insomnia of eyestrain. Only in the early morning hours could all the patients find enough strength of eye to work.

The Digestional Reflex.—Most constant symptom, next to insomnia and headache, and of nearly all the most dangerous. Biliousness and dyspepsia are very important, since they make the soil more vulnerable to pathogenic processes. We are still uncertain of their etiology, but a great number of cases are cured by correction of eyestrain. The mechanism is obscure; the head is an inhibitory organ to the vegetative or unconscious processes of the body, but eyestrain is such a peculiar disturbance of cerebral function that it is doubtful if it is an exhaustion or irritation. Dr. Gould thinks eyestrain inhibits digestion. The symptoms of excess and deficiency of nerve force, of hyperesthenic and asthenic disturbance may have a confusing resemblance.

Irritability and Nervousness.—The biographies and letters of nearly every one of the eleven patients teem with evidences showing cerebral and emotional irritability, which we may designate nervousness, as shown by their desire for activity and change, which was uncontrollable, and was proportional to the amount of eye work done. Walking was their favorite physical exercise. It was this cerebral irritation which made Darwin take the "Beagle" voyage, and Huxley join the "Rattlesnake" expedition, and converted them into natural scientists. Parkman interested himself in horticulture for fourteen years, and practised light gymnastics. Nietzsche refused exercise, and eyestrain drove him insane. The fact that they all lived to old age, and improved in health as they became older, shows that they were in good physical health, possessed of abundant nerve force, and that their disease was functional. Only by physical exercise could the eyes be rested, and reflex irritation abolished. This is the explanation of the nervousness of eyestrain sufferers, and their great need for physical activity. It is possible that some cases of epilepsy are caused by eyestrain, since a percentage of them have unsymmetric astigmatism.

Apathy and Exhaustion.—At first these seem to be incompatible with symptoms of nervousness, and an impelling impulse to-

wards activity, occurring in the same individual. This depression and apathy were especially marked in Whittier, Darwin, Wagner, and Mrs. Carlyle, and produced in them a desire, or fear of death, or worse than death, insanity. The peculiar nature of eyestrain, the rapidity with which it produces morbid reflexes, and is relieved, explains the co-existence and alternation of exhaustion and irritation.

The Ocular Symptoms.—One of De Quincey's eyes was divergent, causing intense ocular strain. Wagner's left eye was turned upward and outward. Parkman's photophobia was his most constant symptom. Nietzsche had constant pain in his eyes. It is not true that these patients with pronounced ocular symptoms, more likely had eyestrain than the others without a single symptom. The law is that the more severe the reflexes, the more certainly the eyes themselves do not complain, and, on the other hand, the more the eyes suffer from ametropia, the less the reflexes are sent to other organs.

Some Other Symptoms.—In close relation to the insomnia of eyestrain, are the symptoms of night terrors, bad dreams, restlessness, marked in Wagner, and in many children at the present day. Nocturnal enuresis and anorexia of children often have eyestrain as an etiological factor. Child suicide and general insanity are proportional to the amount of school study required.

Facial Eyestrain Expression.—Characteristic of 50 per cent. of ocular patients, and is commonly seen in children with eyestrain, anemia, anorexia, and night terrors. They look haggard and exhausted with suffering. (This is seen in photographs of Darwin, Carlyle, Mrs. Carlyle, and Whittier.) Dr. Gould then attributes the growth of health resorts and sanitarium to the search for health of sufferers from eyestrain, and thinks that the attempt to treat astigmatism by ignoring it explains the success of hydropathy, quackery, Eddyism, osteopathy, and absent healing.

Intercurrent Diseases.—Several of the patients were very susceptible to influenza or colds, especially Mrs. Carlyle. Dr. Gould then quotes Sir James Crichton Brown: "Colds and influenza may be due to micro-organisms or local conditions in the air passages, but they also depend to some extent on a special predisposition in the sufferer, having its root in the nervous system, and both leave their stamp on that system, and gradually undermine it." In Mrs. Carlyle's case, the colds came on without any known cause and disappeared in old age, and exposure then had no influence, showing that they had been a reflex from eyestrain. The close relation between nasal and ocular trouble is well

known. Dr. Gould then quotes a case where a man was given two pairs of spectacles for myopic astigmatism, a stronger and a weaker pair. Whenever he wore the strong glasses he caught cold, which disappeared when weaker ones were used. The parietic symptoms of several of these patients were probably due to a reflex ocular neurosis, as were their rheumatic symptoms.

The Heredity Theory.—This is the usual resort for explanation of difficult pathological facts by some scientists. Heredity fails to explain more frequently than it explains, and it has been relied on illogically too often to explain disease.

The Climacteric Theory.—This should have been long since discarded. In women the sexual climacteric is not synchronous with the climax of the symptoms, which become more intense for ten years after the menopause. Mere cessation of function, unnecessary to life, does not produce positive symptoms. The climax of the same kind of sufferings of men comes at the same age as in women, and men have no sexual climacteric.

A Physiological Truth Ignored.—All the eleven patients needed to gain relief was optical treatment, and all except one scorned spectacles. Of the rest, none except one could have obtained scientifically correct ones. They all forgot that no muscle can be steadily and continuously innervated without pain, and that the delicacy of the mechanism of vision, and the close relation of the eye with every organ of the mind and body makes good vision essential to the life of the organism. From Darwin's own principles—"the organism with the faulty organ suffers."

The Cause of Disease and the Cure.—Dr. Gould refers to the universal demand for knowledge of the cause of cancer, and then pertinently asks if it were discovered whether our treatment would be any more successful than it is at present. We know the cause of phthisis and pneumonia, and yet their mortality has not been decreased, though laws for their prevention are better understood. Eyestrain makes the body tissues vulnerable for attacks of many infections.

Eyestrain and its results depend:

1. Upon the kind and degree of ametropia. Low and slight astigmatisms and anisometropias are more injurious than high errors. High errors change character and occupation; low ones disorder nervous control and nutrition.

2. The results of eyestrain depend upon the kind of organism in which they occur. If resistance is great, effects are slight. Reflexes follow the path of least resistance, and attack the weakest organ.

3. The morbid effects of eyestrain are greater in women;

they are more emotional and responsive to stimuli or inhibition than men, and their work and environment necessitates a greater strain. (Scientific oculists for poor would end much suffering.)

4. The preceding causes all depend on this one. Eyestrain is wholly a disease of civilization or occupation. If our patients had been barbarians, their ocular trouble would have caused no morbid symptoms, because these depend on use of eye for short distances. Civilization has multiplied many times the amount of near range work, and evolution did not foresee the future need.

"*Great Wits and Madness.*"—The little truth consists of three errors: (1) Those who accept such psychology of genius and insanity are themselves incapable of knowing in what genius or madness consists; (2) the genius may suffer dementia owing to stupid unrecognition; (3) a genius may go mad because of eyestrain. (Dr. Gould quotes a case in his own practice where a patient with intense eyestrain, developed suicidal intentions, and was cured by glasses.)

Influences of their Diseases upon the Character of their Work.—The life work of De Quincey was disappointing, eyestrain prevented him utilizing his great intellect. The pessimism, injustice, and harshness of Carlyle were due to the same cause. Darwin's slowly-formed conclusions and irresolution, and Huxley's bitterness in controversy, were results of the malady. Wagner's crudities and pessimism might have been absent if his nervous system had not suffered from nervous exhaustion. Parkman's affliction greatly limited his literary output. Herbert Spencer escaped his fate by limiting the use of his eyes, but it also limited his philosophy. Nietzsche was a German professor of philology at twenty-four, but in ten years was forced to give up, and at forty-five years of age became insane.

The Professional Blunder.—The medical profession has been shown the results of eyestrain on the organism for the last quarter of a century. The stomach specialist treats his organ as if it were not related to the rest of the body; dyspepsia is drugged and studied, and headache is drugged and not studied. Spectacle peddlers ruin eyes and lives, patent medicines flourish, and quackery enjoys high carnival, and much of this is due to neglect of the physiology of the eye, and its reflex neuroses, and of the functional diseases dependent on eyestrain. Not the genius alone, but the common workman and workwoman, should be in our mind. Eyestrain brings its separate tragedy to the

mechanic, sewing-woman, clerk, housewife, school-children, students and professional class. In all it morbidizes character, doubles suffering and personal burdens, lessens production, national valor and wealth, and delays the advance of civilization.

Value to Nations and to Civilization of its Great Men.—

The most valuable national assets are not material, but the few geniuses she produces in each century. How much was the progress of civilization delayed by the limitation of the intellectual output of the geniuses we have studied; how nearly each escaped total failure; and the pathos is increased when we remember that it was their intellectual task that caused the suffering. If we only had data, how many more failures of budding or blasted geniuses might be explained. For wherever intellect has tried to solve life's mysteries, wherever reason has tried to lessen the world's load of suffering and ignorance, there may the eyes have been defective, upon which all results depend. And hence it happens that genius, the makers of civilization, depend on the medical profession, and at last we are rising to our opportunity and our duty.

WEDNESDAY MORNING.

VISIT TO HOSPITALS.

Victoria Hospital.—Dr. A. H. Ferguson, Chicago, removed a cystic goitre from a woman, forty-six years of age. He first made a transverse incision across the neck, then on vertically splitting the sternohyoids, the cyst, relieved from the deep fascia, came into view. During the operation, Dr. Ferguson described not only the various steps, but spoke of the various complications that may ensue. He dwelt particularly on the danger of the operation. In patients over forty years of age with an enlarging tumor, he advised operation on account of its tendency to malignancy.

Operation 2.—He then performed his own operation for the radical cure of hernia on a young man. On being asked to explain the advantages of his own over the Bassini operation, he said that it was not a necessary procedure to lift the cord, and that the principal point was the stitching of the internal oblique to Poupart's ligament, thereby forming a new attachment in the way that normal cases are always attached.

It was the intention of Dr. McGraw, of Detroit, to demonstrate his method of gastro-enterostomy by the elastic ligature,

but unfortunately, the two cases selected were found to be unsuitable. He, however, gave a practical discussion of the needle and ligature together, with a short history of the operation. He laid stress on the fact that it was the simplest of all procedures, easy of accomplishment, and satisfactory so far as immediate results were concerned. Yet keeping in view the great fact that the reason cases were not more successful was due to the lateness of diagnosis and the delay of operation.

St. Joseph's Hospital.—Dr. Wishart performed a Halstead operation.

GENERAL MEETING.

NOMINATION OF NOMINATING COMMITTEE.

Ontario.—J. C. Mitchell, I. H. Cameron, F. R. Eccles, Gunn (Clinton), J. Herald, R. W. Powell, Sir James Grant.

Quebec.—Armstrong, Hutchinson, McPhail (Montreal).

New Brunswick.—A. B. Atherton.

Nova Scotia.—D. E. DeWitt.

Manitoba.—H. H. Chown.

North-West Territories.—T. A. Patrick.

British Columbia.—Joseph Gibbs.

ADDRESS IN GYNECOLOGY —THE EARLY DAYS OF OVARIOTOMY.

By Matthew D. Mann, Buffalo. (Read by title.) Published in full in September issue.

MEDICAL SECTION.

THE COUNTRY DOCTOR.

By J. S. Sprague, Stirling, Ontario. Published in full in September issue.

FRESH AIR *vs.* DISEASE.

By D. E. DeWitt, Wolfville, N.S.

By fresh air I mean air devoid of impurities, either from pulmonary exhalations, sewer contaminations, or decaying or animal matter. "Open air," may not always be pure air, for it may be contaminated by one of the above agents.

In our houses and public buildings much is now being done to improve sanitation and pure air supply. We may safely say that pure air is as necessary for the treatment of the sick as it is for the life of the healthy. It may be possible that most of the ailments that man is subject to have been "coddled" too much in an environment where the temperature is usually above

70 degrees. It may be unsound to advocate treatment of "fever" in the open air, but we know that nearly all bacteria are more active in a heated and vitiated atmosphere. The action of "air" in the treatment of tuberculosis is not thought to be due to direct action on the microbe, but by the oxygen carried in the blood acting on the tissues. The same procedure must obtain when the system is invaded with any germ. Again, we find that the inhalation of pure air, or the open-air treatment of consumption, has a tonic effect upon the patient; it imparts a feeling of vigor; it stimulates the vital forces to such an extent that the resisting powers of the tissues are able to cope with the invader. It also has a stimulating action on digestion and assimilation, thus also strengthening the organism. Again, how often is convalescence prolonged because the patient is unable, or unwilling, to receive the benefits of an airing. (I had a patient who had been bed-ridden five years, and who showed no signs of any organic trouble. We set the barn on fire, and it saved his life; for he found out he could enjoy air and activity, and for twelve years he did not need a physician.)

Twelve months ago I treated a patient with chronic rheumatism of the muscles of the neck by making him sleep on the verandah. He had been treated six months unsuccessfully with drugs. He made a complete recovery. I also treated successfully by the same treatment a case of toxic sciatica. In advocating the open-air treatment of other diseases than tuberculosis, I do not advocate it in all cases, but I wish to emphasize the fact that many diseases can best be treated, and recovery hastened, by the judicious use of plenty of fresh air.

THE INTER-RELATIONS OF DIABETES AND OTHER CONSTITUTIONAL STATES.

By Geo. F. Butler, M.D., Medical Superintendent of Alma Springs Sanitarium, Alma, Michigan. Published in full in a future issue of this Journal.

DISCUSSION.

Sir James Grant spoke of our lack of knowledge regarding sugar in the system, and paid honor to Bernard.

Dr. G. M. Gould (Philadelphia) thought that glycosuria and diabetes proper were often confused, and that the medical profession should take up the question of diabetic bread, flour and health foods.

Dr. Butler closed the discussion, agreeing with Dr. Gould.

The meeting tendered a vote of thanks to Dr. Butler for the excellence and interest of his paper.

THE CARDIAC COMPLICATIONS OF INFLUENZA.

By E. G. Wood, M.D., Nashville, Tenn., Professor of Medicine, University of Nashville. Published in full in a future issue of this Journal.

DISCUSSION.

Dr. Samson (Windsor) was very emphatic in condemning the use of coal-tar products in influenza.

Dr. McPhedran (Toronto) thought that in some cases they were useful. He had not seen any organic heart disease following influenza.

Dr. H. A. McCallum (London) thought that strychnia and digitalis should be used.

Dr. Hunter (Toronto) and Dr. Wood closed the discussion.

SURGICAL SECTION.

THROMBOSIS OF THE FEMORAL VEINS FOLLOWING ASEPTIC LAPAROTOMY.

By E. R. Secord, Brantford.

It is my purpose to report the following case, not on account of any peculiarities associated with the diagnosis or treatment, but entirely because of an unexpected and unpleasant complication occurring after convalescence had become well established. Mrs. V, aged thirty-five, consulted me, November, 1902, for double hernia. History.—The rupture on the left side was of twelve years' duration. It had been retained imperfectly by a truss. That on the right side was recent, only a few weeks' duration, was becoming larger, and was painful. Examination showed a double complete indirect hernia, easily returnable.

Operation, January, 1902.—Bassini's operation with McEwen's treatment of the sac was done on both sides. The round ligaments were dissected from their pubic attachment and sewn up with the sac. The sac on the right side was found adherent, and a small part was divided off to form a small hydrocele. There was much more handling of the tissues on the right side. Early convalescence was entirely uneventful. The wound was not dressed until the tenth day, when the stitches were removed. Primary union had occurred on both sides. On the next day, some slight pain was complained of in the right groin, but it disappeared without treatment. On the twelfth and thirteenth days, considerable sharp shooting pain was complained of in the left groin, popliteal space, and calf of the leg. On fourteenth day, a hard, indurated tender cord could be made out

occupying the position of the long saphenous vein. The leg was elevated, and applications of moist heat applied. The condition ran a more or less benign course, the temperature becoming normal the twenty-third day, but considerable pain and stiffness persisted for some weeks. During the height of the process, there was considerable edema in Scarpa's triangle, but at no time was there any at the ankle.

GASTRO-ENTEROSTOMY, WITH A REPORT OF CASES.

By J. I. Olmsted, Hamilton.

DISCUSSION.

Dr. Howitt (Guelph), Dr. Carstens (Detroit).

Closed by Dr. Olmsted.

The President introduced Dr. Carstens, of Detroit, to the Association.

WEDNESDAY AFTERNOON.

GENERAL MEETING.

ADDRESS IN SURGERY.

By A. H. Ferguson, Chicago.

MEDICAL SECTION.

Dr. H. A. McCallum (London) showed a case of adherent pericardium.

Dr. Dickson (Toronto) exhibited the Finsen light, explaining its mechanism and therapy.

Dr. Benedict (Buffalo) read a paper entitled "Multiple Visceral Lesion."

Dr. McPhedran (Toronto) reported an interesting nervous case.

Dr. Hodge (London) showed two cases of muscular dystrophy.

SURGICAL SECTION.

PERSONAL EXPERIENCES WITH ALEXANDER'S OPERATION, BASED ON OVER TWO HUNDRED CASES.

By H. Meek, M.D., London, Fellow Brit. Gyn. Society, Gynecologist to Victoria Hospital London.

1. *Cases Suitable for Operation.*—(a) Simple uncomplicated retroversion, with free mobility of the organs; (b) some cases complicated by disease of the appendages, non-suppurative, and where the adhesions are not too great.

2. *Unsuitable Cases.*—(a) Cases of retroversion, accompanied by suppurative disease of the appendages; (b) Non-suppurative cases with dense adhesions binding organs to neighboring viscera.

3. *Advantages of Alexander's Operation.*—The objections to the pessary treatment are: (1) It is simply palliative; (2) the instrument can never be worn comfortably for any length of time; (3) it is liable to get displaced, and cause ulceration of the mucous membrane of the vagina; (4) it may, and no doubt is, a factor in causing infection of the uterus and appendages. In my opinion Alexander's operation is superior to all other operative procedures in most cases of retroflexion. Over ventrosuspension, it has the advantage of being attended by less risk; as it also has over the operation of shortening the round ligaments by abdominal section. Shortening the round ligaments through a vaginal incision, even in the hands of one who is expert in operating by the vaginal route, is attended by risks to the future health of the woman, from more or less infection of the pelvic peritoneum, which cannot be avoided. The Alexander operation is free from such risks.

4. *Results.*—Perfect results as to mortality. If the case is a suitable one, and the operation properly performed there should be no recurrence of the displacement. I have followed several cases during subsequent pregnancy, parturition, and the puerperium, and the only thing I have heard complained of was a sensation of tightness over the region of the inguinal canals. There has been no interference with the development of the uterus during gestation, and no interference with parturition. The retroversion never recurred in these cases. I have never seen hernia in the cicatrix in any of my cases, and I do not think it should follow if the operation is properly done.

Technique of the Operation.—A purgative should be given the day previous to the operation, and the patient should have a hot soap and water bath. Abdomen, pubes, and valva should be shaved and cleansed, and a bichloride pad applied. Vagina should be swabbed out with soap and water, followed by bichloride solution, and plain sterilized water. Currettement may be done at time of operation.

Operation.—Place the uterus in its proper position, and in-

sert a pad of gauze in the vagina. An incision is made over the external abdominal ring down as far as the aponeurosis of external oblique. Locate the pillars of the ring. In order to find the ligament after the external pillar is exposed, the fascia between the pillars should be nicked with the finger; the ligament is invariably found coming over the external pillar with the genital branch of the genito-crural nerve lying in front of it. Avoiding the nerve, the ligament is caught with blunt forceps, and gentle traction applied to it. The sheath surrounding it is adherent to it, and to the parts surrounding it. When once separated from its sheath, it comes out quite easily, and getting larger, resembles in appearance a frog's leg. If any difficulty is experienced, the inguinal canal can be opened. It should be drawn out as far as possible, usually four or five inches. The peritoneal pouch accompanying it should be pulled back before ligament is fixed. The ligament is fixed by two or three sutures of fine chromic gut passed through the pillars of the ring and the ligament, care being taken not to include the nerve, and not to strangle the ligament. These sutures, when tied, bring together the pillars of the ring, fixing the ligament between them. External wound may be closed by a running suture of catgut in the deep layer of the superficial fascia, and another running suture in skin. Before closing the external wound, the excess of ligament may be cut off, and the stump buried in the superficial fascia at the lower angle of the wound. A gauze pad is placed over each wound, and held in place by strips of adhesive plaster, and a T-bandage. I do not consider a pessary necessary, if patient is kept in bed three weeks after the operation.

A CASE OF UNREDUCED DISLOCATION OF THE ELBOW.

By Dr. Wishart, London.

Male, aged nineteen. Had been injured six weeks previous to his seeing him. He found the arm in a position of extension, and it was impossible to flex it. After trying several methods of reduction, he attempted it by pulleys, but was unsuccessful. He decided to proceed by the open method. The bones were placed in position. A supracondyloid fracture of the humerus was present. Dr. Wishart could not say whether it was due to attempts at reduction or was caused at the time of injury. The arm is now in excellent position and he has good movement.

Dr. McGraw (Detroit), Dr. Eccles (London) and others congratulated Dr. Wishart.

Dr. Hadley Williams (London) presented a case in a man, aged sixty-two. He had removed a large malignant tumor from his neck five weeks previous. At the operation he had removed the whole of the sterno-mastoid muscle, and about three inches of the internal jugular vein. He had also tied the lingual artery, preparatory to excising half of the tongue. The patient had no signs from the loss of a piece of the vein. The case was examined by Dr. H. A. Ferguson (Chicago), I. H. Cameron (Toronto), Dr. Atherton (Nova Scotia), and Dr. Parker (Woodstock).

Dr. Wishart presented a case of brain tumor. History—P. T., aged sixty-seven: has had good health during life, except occasional attacks of indigestion. Has been in active business life; family history, good. He has been almost a total abstainer. September, 1901, had a fall on the head; fell eight feet; was confined to bed about three weeks, but appeared fully recovered. December, 1901, had an attack of tremor and spasms; commencing in the left thigh, it extended to leg, which jerked and was painful. This attack lasted about five minutes. He returned to his usual work. Another less severe attack occurred in January, 1902. In February, he was laid up with pneumonia. April, 1902, he had a severe attack with tremors. It began on the left side, in the thigh as before, and the whole left side was involved. He experienced great difficulty in breathing. There was an attack in August, one in September, and one in October. In the last two he was unconscious. In October, he again had pneumonia, and after this his mind didn't fully recover. He had fever, and was confined to his bed; lost flesh rapidly. He saw the patient, November 13th, 1902. He could talk quite well, and gave his age, but was unable to tell the day of the week, or month, or even the year. There had been involuntary passing of the urine. Knee-jerk increased on both sides, and ankle-clonus on the left side. Babinski's sign was not present. The pupils were equal, and responded to light; discs normal; paralysis, headache, and vomiting were all absent; pulse. 89; temperature. 99 degrees; urine normal. He had not much appetite, and was troubled with sleeplessness.

Diagnosis.—Brain tumor. Trephining was done over the leg centre on right side. On removing disc, nothing was seen by the dura mater. On incising this, a tumor about half an inch in diameter was found and removed. It was hard and calcareous. Dr. C. F. New (London) on examining it, said it was psammoma. He slowly recovered from the operation, January 1st, 1903, he had regained his normal faculties. February 17th,

he had one slight spasm in left leg. During it he continued weak, and spent much time in bed; bowels constipated, insomnia, and took morphia. He lost ground after August 1st, and death occurred August 20th.

FRIDAY MORNING.

GENERAL MEETING.

The Secretary; Dr. George Elliott, read over the names of several new candidates for membership. They were unanimously elected. Dr. Powell, of Ottawa, submitted the report of the Nominating Committee, who recommended the following officers for the ensuing year:

President.—S. J. Tunstall, Vancouver, British Columbia.

Vice-Presidents.—Prince Edward Island, S. R. Jenkins, Charlottetown; Nova Scotia, DeWitt, Wolfville; New Brunswick, Blair, St. Stephen; Quebec, F. G. Finlay, Montreal; Ontario, A. McPhedran, Toronto; Manitoba, J. A. MacArthur, Winnipeg; North-West Territories, T. A. Patrick, Yorkton, Assiniboia; British Columbia, R. L. Fraser, Victoria.

Provincial Secretaries.—Prince Edward Island, A. E. Douglas, Hunter River; Nova Scotia, C. D. Murray, Halifax; New Brunswick, Crawford, St. John; Quebec, A. MacPhail, Montreal; Ontario, I. Olmsted, Hamilton; Manitoba, Wm. Rogers, Winnipeg; North-West Territories, D. Low, Regina; British Columbia, W. Brydon-Jack, Vancouver.

General Secretary.—George Elliott, Toronto, re-elected.

Treasurer.—H. B. Small, Ottawa, re-elected.

Executive Committee.—W. J. McGuigan, and Dr. Lefevre, Vancouver; J. Gibbs, Victoria.

Place of meeting, in 1904, Vancouver, B.C.

The report of the Nominating Committee was unanimously adopted.

The work of the Canadian Medical Defence Association was heartily endorsed by the meeting.

Votes of thanks were passed to the Normal School governors, to Dr. McCallum, and the Asylum staff, to railroads, to the ladies of the city of London, to the retiring president, to the presidents of the medical and surgical sections, and to the general secretary and treasurer. Dr. Riordan, Toronto, in referring to the fact that the next year's meeting is to be held in Vancouver, British Columbia, thought the association justified

in asking the Dominion Government for financial aid. He thought the Government would look on the request with favor, because it had agreed to giving \$10,000 to the Pan-American Congress if it had met in Canada. He moved that the following committee be appointed to interview the Government: Dr. Armstrong, Montreal; Dr. Lefevre, Vancouver; Dr. Adam Wright, Toronto; Dr. Powell, Ottawa; Dr. Roddick, Montreal; Dr. Geo. Elliott, Toronto; and Dr. Borden, Nova Scotia. Dr. Bruce Smith seconded the motion, which was carried with the addition of Dr. Riordan's name to the committee.

It was decided that the next convention should meet two days in Vancouver, and two days in Victoria. Dr. Armstrong, Montreal, was deputed a committee, with power to add, to wait on Sir William Van Horne regarding rates of transportation. It was decided that a committee be formed in Toronto to invite the British Medical Association to hold its meeting there in 1905.

Owing to the illness of Dr. R. Robinson, Ottawa, the acting treasurer, Dr. Elliott gave a short financial statement. The association, at the end of last year's convention in Montreal, was \$225 to the good, and at the end of the present session he hoped they would have over \$500.

EXHIBITORS.

Messrs. W. E. Saunders & Co. presented a very fine display of physicians' supplies, including fluid extracts, tinctures, syrups, and elixirs, also compressed and hypodermic tablets, and surgical instruments. Their elixir of lactated pepsin being an especially prominent feature of the display. In doing business, this firm aims first at quality, and secondly, price, although the price list will compare favorably with others.

The exhibit of Chandler & Massey was looked after by their able representatives, Mr. A. P. Watts and Mr. C. N. Wheatley. Their display was one of the best and largest on exhibition. They showed the latest medical works and surgical instruments. They are a good Canadian house, and lay special stress on their ligatures and surgical dressings.

The display of J. A. Carveth & Co. was efficiently looked after by their well-known and popular representative, Mr. Arch. McFadyen, who was kept busy showing all the latest works in every branch of medicine, surgery, and allied sciences. They represent all the different publishers, English and American, and their works were thoroughly modern and up-to-date.

When entering the building, the attention was immediately attracted by a large exhibit of pharmaceutical specialties manu-

factured by Henry K. Wampole & Co., whose Canadian headquarters are located in Toronto. The leading feature in this exhibit was Wampole's perfected and tasteless preparation of the extract of cod liver oil, so well and favorably known to the profession, and of special interest at the present time on account of the exceeding scarcity and high price of cod liver oil, which makes it almost impossible to procure the pure oil fresh and unadulterated; but apart from its purity and definite alkaloidal strength, this preparation is free from all disagreeable taste and odor. Wampole's antiseptic solution (formolid) was also in evidence, and the representatives in charge directed special attention to several new additions to their list of specialties. Creo-terpin compound, composed of creasote carbonate, terpin hydrate, heroin hydrochlorate, calcium and sodium glycerophosphate, a combination which makes an excellent reconstructive tonic and stimulant to the respiratory centres. Tonga salicyl (antirheumatic)—this preparation contains tonga, sodium, strontium and pilocarpine, salicylate, lithium benzoate, wine of colchicum and hydrangea. It will be found that this preparation does not cause the gastric disturbance and depression which other combinations of salicylates almost invariably produce, and is free from the nauseating taste so common to rheumatic preparations. Considerable interest was taken in this exhibit, the firm having already an enviable reputation as specialists in progressive pharmacy, as well as manufacturers of pills, tablets, etc. Samples of any of this firm's products, in which physicians may be interested, will be sent by applying to the Toronto office.

J. F. Hartz & Co. was represented by Mr. R. W. Campbell. He showed new patterns of axis-traction forceps, the Porter-Mathew's, and the latest model in the Milne-Murray. They also showed one of their excellent surgical tables which for convenience and price are unexcelled.

The total register of names numbered 303, the second largest meeting in the history of the Association.

The Physician's Library

The American Pocket Medical Dictionary. Fourth revised edition, greatly enlarged. Edited by W. A. NEWMAN DORLAND, M. D., Assistant Obstetrician to the Hospital of the University of Pennsylvania. Containing the pronunciation and definition of the principal words used in medicine and kindred sciences, with 566 pages and 64 extensive tables. Philadelphia, New York, London: W. B. Saunders & Co., 1903. Flexible leather, with gold edges, \$1.00 net; with thumb index, \$1.25 net. Toronto: J. A. Carveth & Co.

In this little work, now in its fourth edition, we have a pocket dictionary equaled by none on the market. It is a wonder to us how the editor has gotten so much information in such a small space. In this edition several thousand of the newest terms that have appeared in recent medical literature have been added, and the entire work subjected to a careful revision. Since the work has come to us for review, we have had many occasions to refer to it for definitions of new words, and in no instance have we been disappointed. We believe that the work in its new form will meet more fully than ever a real demand on the part of physicians and students.

Clinical Examination of the Urine and Urinary Diagnosis. A Clinical Guide for the use of Practitioners and Students of Medicine and Surgery. By J. BERGEN OGDEN, M. D., formerly Instructor in Chemistry. Harvard University Medical School, Boston; Assistant in Clinical Pathology, Boston City Hospital, etc. Second revised edition. Handsome octavo volume of 418 pages, illustrated, including 11 plates, 9 of them in colors. Philadelphia, New York, London: W. B. Saunders & Company, 1903. Cloth \$3.00 net. Toronto: J. A. Carveth & Co.

The aim of this work is to present in as concise a manner as possible the chemistry of the urine in its relation to physiologic processes; the most approved working methods, both qualitative and quantitative; the diagnosis of diseases and disturbances of the kidneys and urinary processes. It is a work eminently in demand, since most of the books on the urine are devoted exclusively to urinary chemistry, a knowledge of urinary diagnosis

being obtainable only by an extended search through works on medicine, surgery, pathology and chemistry.

In this, the second edition, special effort has evidently been directed toward making the text complete and bringing it absolutely down to the present day advances in the subject. Important changes have been made in Part I., especially in connection with the determination of Urea, Uric Acid, and Total Nitrogen; and the subjects of Cryoscopy and Beta-Oxybutyric Acid have been given a place. The changes in Part II., while not so extensive, are nevertheless numerous and practical, and show that the author has spared neither pains nor time in making the revision thorough. It is a good book, and both student and practitioner will find it a valuable aid in their clinical work. We recommend it.

A Text-Book of Pathology. Fourth edition, thoroughly revised and enlarged. By ALFRED STENGEL, M. D., Professor of Clinical Medicine in the University of Pennsylvania. Octavo volume of 933 pages, with 394 text-illustrations, many in colors, and 7 full-page colored plates. Philadelphia, New York, London: W. B. Saunders & Co., 1903. Cloth, \$5.00 net; Sheep or Half-Morocco, \$6.00 net. Toronto: J. A. Carveth & Co.

In this work the practical application of pathologic facts to clinical medicine is considered more fully than is customary in works on pathology. While the subject of pathology is treated in the broadest way consistent with the size of the book, a successful effort has been made to present the subject from a clinician's point of view. In the second part of the work, the pathology of individual organs and tissues is treated systematically and quite fully under subheadings that clearly indicate the subject matter to be found on each page. In this edition the section dealing with General Pathology has naturally received the greatest care and the most extensive revision. Several of the important chapters have been practically rewritten. Among the subjects that have received the greatest revision are: Ehrlich's Theory of Immunity and allied processes; Inflammation; The Bacterial Diseases, including Typhoid Fever, Tuberculosis, Yellow Fever and Dysentery; and Diseases of the Blood. In the second part of the book that treating on Special Pathology—the revision has also been considerable, so that this part likewise represents the latest advances in the subject of Pathology. A

very useful addition to the book is that of an Appendix, treating of the Technic of Pathologic Methods, and giving briefly the most important methods at present in use for the study of Pathology; including, however, only those methods that are unquestionably practicable. Many new illustrations, including ten excellent plates, have also been added, and some of the old replaced by new ones. We specially recommend the book to students and practitioners, as we believe it is the best we have seen.

A Text-Book upon the Pathogenic Bacteria. Fourth edition, rewritten and enlarged. For students of medicine and Physicians. By JOSEPH MCFARLAND, M. D., Professor of Pathology and Bacteriology in the Medico-Chirurgical College, Philadelphia; Pathologist to the Philadelphia Hospital and to the Medico-Chirurgical Hospital, Philadelphia. Handsome octavo volume of 629 pages, fully illustrated, a number in colors. Philadelphia, New York, London: W. B. Saunders & Co., 1903. Cloth, \$3.50 net. Toronto: J. A. Carveth & Co.

This work gives a concise description of the technical procedures requisite in the study of bacteriology, a brief account of the life histories of the important pathogenic bacteria, and sufficient description of the pathologic lesions accompanying micro-organismal invasions to give an idea of the origin of symptoms and the causes of death. Although but a short time has elapsed since the appearance of the previous edition, such rapid strides have been made in the subject of bacteriology, especially in its relation to pathology, that the author deemed it necessary to rewrite the work entirely. All the old matter has been eliminated, much new matter is in evidence, and, in fact, the subjects treated have been brought precisely down to date. What impressed us most were the chapters upon Infection and Immunity. All the new facts recently added to our knowledge of these subjects can here be found. The value of the work as a book of reference has been materially increased by the introduction of a large number of references to bacteriologic literature. These have been thoughtfully chosen, and, in nearly all cases, give the sources of the original descriptions of the micro-organisms treated, and the important methods described. Another valuable addition is a bibliographic index containing the names of over 600 authors. Altogether the work in its new edition is very commendable, and practitioners and students will find it of unusual value.

A Text-Book of Operative Surgery. Covering the Surgical Anatomy and Operative Technic Involved in the Operations of General Surgery. Wirtten for Students and Practitioners. By WARREN STONE BICKHAM, Phar. M., M. D., Assistant Instructor in Operative Surgery, College of Physicians and Surgeons, New York; Late Visiting Surgeon to Charity Hospital, New Orleans, etc. Handsome octavo of 984 pages with 559 illustrations, entirely original. Philadelphia, New York, London: W. B. Saunders & Co., 1903. Cloth, \$6.00 net; Sheep or Half-Morocco, \$7.00 net, Toronto: J. A. Carveth & Co.

This work completely covers the surgical anatomy and operative technic involved in the operations of general surgery. It is constructed on thoroughly new lines, the discussion of the subject being remarkably systematized and arranged in a manner entirely original. A feature of the work to which we would call especial attention, and for which alone it is well worth the price, is the wealth of magnificent illustrations. There are 559 of them, all entirely original. They depict the progressive steps in the various operations detailed with unusual clearness, and at the same time represent the highest artistic excellence. The text is fully abreast of the latest advances in surgery, all the recent improvements along the line of technic being adequately discussed. Another feature distinguishing it from other works on operative surgery, is the treatment of the anatomic side of the subject in connection with the operative technic. The illustration will be found of particular assistance in this connection, the muscles, bones, etc., being clearly indicated, together with the lines of incision. It is a magnificent work, and we have yet to see its equal.

A Text-Book of Diseases of Women. By BARTON COOKE HIRST, M. D., Professor of Obstetrics in the University of Pennsylvania; Gynecologist to the Howard, the Orthopedic and the Philadelphia Hospitals. Handsome octavo volume of 675 pages, sumptuously illustrated with some 650 mostly original illustrations, many in colors. Philadelphia, New York, London: W. B. Saunders & Co., 1903. Cloth, \$5.00 net; Sheep or Half-Morocco, \$6.00 net. Toronto: J. A. Carveth & Co.

This latest work of Dr. Hirst's is on the same lines as his "Text-Book of Obstetrics." As would be expected from a practical teacher, diagnosis and treatment have been given particular attention. The palliative treatment, as well as the radically oper-

ative, is fully described, enabling the general practitioner to treat many of his own patients without referring them to a specialist. A feature which specially impressed us is the thorough manner in which the author has treated modern technic of gynecic surgery. An entire section is devoted to a full description of all modern gynecologic operations, illustrated and elucidated by numerous photographs taken especially for this work. The author's training in the subject of diseases of women has been like that of the specialists in the Teutonic countries of Europe, where gynecology has reached the highest level of perfection; namely, specialization in the diagnosis and treatment of diseases of women has followed a thorough training in the recognition and treatment of the complications and sequels of childbirth. This special training is evident throughout the entire work in the careful and thorough manner in which the subject is treated. The many illustrations are the most magnificent we have ever seen. With but few exceptions all are entirely original, having been reproduced from photographs and water colors of actual clinical cases accumulated during the past fifteen years. We most heartily congratulate Dr. Hirst and his publishers upon the production of such a magnificent work.

A Text-Book of Obstetrics. By BARTON COOKE HIRST, M. D. Professor of Obstetrics in the University of Pennsylvania. Handsome octavo, 900 pages, with 746 illustrations, 39 of them in colors. Philadelphia, New York, London: W. B. Saunders & Co., 1903. Cloth, \$5.00 net; Sheep or Half-Morocco, \$6.00 net. Toronto: J. A. Carveth & Co.

In revising his work for this edition, the author has spared no pains to make the book reflect the latest knowledge on the subject. He has even described and illustrated the method of using the "Neumann-Ehrenfest Kliseometer." His perfect familiarity and extensive experience with diseases of women is shown in the careful and minute manner in which he describes the various methods of treatment. As most all the diseases of women are the consequence or complications of childbirth, their preventive treatment at least is in the hands of the obstetrician, and the physician in general practice must be equally well informed in both branches of gynecology. The specialist in obstetrics must be an expert in the surgical treatment of all diseases of women. Even a specialist who confines his work entirely to this treatment, must at least have served a long apprenticeship in practical obstetrics, and have mastered its science to be adequately pre-

pared for his work. From the glimpse we have obtained of Dr. Hirst's knowledge of diseases of women, we wait anxiously for his new work on that subject. In this present work every page has been altered and bettered in some way. More attention has been given than in the previous editions to the diseases of the genital organs associated with or following childbirth, and this we think, is an excellent improvement. Many of the old illustrations have been replaced by better ones, and there have been added besides a number entirely new. The work treats the subject from a clinical standpoint, the author ever keeping in mind that the aim of all medical literature is to cure.

The American Illustrated Medical Dictionary. Third edition, thoroughly revised. For Practitioners and Students. A complete Dictionary of the Terms used in Medicine, Surgery, Dentistry, Pharmacy, Chemistry, and the kindred branches, including much collateral information of an encyclopedic character, together with new and elaborate tables of Arteries, Muscles, Nerves, Veins, etc.; of Bacilli, Bacteria, Micrococci, Streptococci; Eponymic Tables of Diseases, Operations, Signs and Symptoms, Stains, Tests, Methods of Treatment, etc., etc. By W. A. NEWMAN DORLAND, A. M., M. D., editor of the "American Pocket Medical Dictionary." Handsome large octavo, nearly 800 pages, bound in full flexible leather. Philadelphia, New York, London: W. B. Saunders & Co., 1903. Price, \$4.50 net; with thumb index, \$5.00 net. Toronto: J. A. Carveth & Co.

The rapid exhaustion of two large editions cannot but be a gratifying proof to the editor and publishers that this excellent work meets the varied needs of physicians and students better than any other dictionary on the market.

In this the third edition several hundreds of new terms that have been added to the vocabulary of medical sciences have been incorporated and clearly defined. The entire work, moreover, has evidently been subjected to a careful revision, and many of the tables, notably those of Acids, Bacteria, Stains, Tests, Methods of Treatment, etc., have been amplified, and their practical value greatly increased. It is only by such constant and careful revision that a medical dictionary can hope to reflect the progress of medical science, and the usefulness of this work by this present revision has been very largely extended.

A Text-Book of Obstetrics. By J. CLARENCE WEBSTER, M. D. (Edin.), F. R. C. P. E., F. R. S. E., Professor of Obstetrics and Gynecology, Rush Medical College, in affiliation with the University of Chicago; Obstetrician and Gynecologist to the Presbyterian Hospital, Chicago; Obstetrician to the Chicago Lying-in-Hospital and Dispensary, Chicago, etc., etc. Handsome octavo volume of 767 pages, with 383 illustrations, 23 in colors. Philadelphia, New York, London: W. B. Saunders & Co., 1903. Cloth, \$5.00 net; Sheep or Half-Morocco, \$6.00 net. Toronto: J. A. Carveth & Co.

This work has been written for the student of obstetrics, as well as for the active practitioner. The anatomic changes accompanying pregnancy, labor, and the puerperium are described more fully and lucidly than in any other text-book we have seen. The exposition of these sections is based mainly upon studies of frozen specimens, in which department the author has had a larger experience than any other worker. Unusual consideration is given to embryologic and physiologic data of importance in their relation to obstetrics. The practical aspects of the subject are presented in such a manner as to be of direct assistance to the clinician. Diagnosis and treatment are presented with rare exactitude and clearness, particular consideration being given to those methods that have proved most successful by experience. The illustrative feature of the work is far above the average. Evidently great care was taken in the selection of the illustrations, aiming to meet the varied requirements of both the undergraduate and the practicing physician. Many of the illustrations are entirely original, having been made especially for this work, and never having appeared in any other text-book. The work throughout expresses the most advanced thought of the day, and the statements can be relied upon as accurate. We heartily recommend Dr. Webster's book to student and practitioner.

A Text-Book of the Practice of Medicine. By JAMES M. ANDERS, M. D., Ph. D., LL.D., Professor of the Practice of Medicine and of Clinical Medicine, Medico-Chirurgical College, Philadelphia. Sixth edition, thoroughly revised. Handsome octavo volume of 1300 pages, fully illustrated. Philadelphia, New York, London: W. B. Saunders & Co., 1903. Cloth, \$5.50 net; Sheep or Half-Morocco, \$6.50 net. Toronto: J. A. Carveth & Co.

This is the sixth edition of this unexcelled work in as many years. Such a sale cannot but be a gratification alike to the author

and to the publishers. In this edition the general plan and principles of classification adopted in the previous editions have been preserved. The many tabular presentations of points in differential diagnosis have been retained. Differential diagnosis is a most important branch of diagnostics, and than this tabular method we know of no superior way of familiarizing the practitioner and the student with the outstanding features of simulating diseases. Malaria, yellow fever, bacillary dysentery, cholecystitis, certain animal parasitic diseases, and the use of the X-rays in diagnosis and treatment have been fully discussed, incorporating the results of the most recent investigations. Among the new subjects introduced are Paratyphoid Fever, the Fourth Disease, Trypanosomiasis Orthostatic, Albuminuria, Transcortical Aphasia, Adiposis Dolorosa and Amaurotic Family Idiocy. Every affection has been treated separately, particular attention being paid to its clinical character, diagnosis and treatment. Evidently an immense mass of literature has been thoroughly digested, no pains having been spared to bring the entire work down to date, giving special reference to the daily needs of practitioners and students. In recommending it, we believe we are recommending the best text-book on the Practice of Medicine on the market.

A Text-Book of Clinical Anatomy. For Students and Practitioners. By DANIEL N. EISENDRATH, A. B., M. D., Clinical Professor of Anatomy in the Medical Department of the University of Illinois (College of Physicians and Surgeons); Attending Surgeon to the Cook County Hospital, Chicago, etc. Handsome octavo of 515 pages, beautifully illustrated with 153 illustrations, a number in colors. Philadelphia, New York, London: W. B. Saunders & Co., 1903. Cloth, \$5.00 net; Sheep or Half-Morocco, \$6.00 net. Toronto: J. A. Carveth & Co.

The subject of anatomy, and especially clinical anatomy, is so closely allied to practical medicine and surgery that it is absolutely impossible for a physician or surgeon to practice his profession successfully unless he has an intimate knowledge of the human structure. In his preface the author states that the primary object of his work is to serve as a bridge for both the practitioner and student from descriptive anatomy, as it is usually taught in the first two years of a medical course, to its daily application at

the bedside, in the clinic, or in the operating room. The entire subject is discussed with a thoroughness and precision that spring from experience. The method of illustrating the subject is novel, special attention having been given to surface anatomy. The illustrations themselves are the result of a great deal of painstaking study, outlines having been marked upon a normal artist model, and then photographed. They are reproduced in the highest style of art, and show far better than any we have seen the relation of anatomic structures from a clinical standpoint, presenting to the practitioner a picture as met at the bedside, with the skin covering the tissue. The work is indeed magnificent, text, illustrations, paper, typography, and binding being of unusual excellence.

Nervous and Mental Diseases. By ARCHIBALD CHURCH, M. D., Professor of Nervous and Mental Diseases and Head of Neurological Department, Northwestern University Medical School; and FREDERICK PETERSON, M. D., President New York State Commissioner in Lunacy; Chief of Clinic, Department of Nervous Diseases, College of Physicians and Surgeons, New York. Fourth edition, thoroughly revised and enlarged. Handsome octavo volume of 922 pages, with 338 illustrations. Philadelphia, New York, London: W. B. Saunders & Co., 1903. Cloth, \$5.00 net; sheep or half morocco, \$6.00 net. Toronto: J. A. Carveth & Co.

This is the fourth edition of this excellent work in as many years. The revision, indeed, has been thorough, all the latest knowledge on the subjects having been incorporated, including the recent work regarding the healing of nerves. The subject of Intermittent Limping, now definitely known to depend upon a lesion of the posterior root ganglia, and Herpes Zoster have been given a section each. Another addition is a discussion of that form of epilepsy marked by myoclonus, furnishing the so-called Combination Disease. Further importance has been given to symptomatology and symptomatic disturbances, and the diagnostic value of astereagnosia and of Kernig's Sign has been elaborated.

We also find that there have been added a large number of new and excellent illustrations. A useful addition to the portion of the book devoted to Insanity is a new section consisting of a

critical review of the German Schools which have recently made such important advances in psychiatry.

In many ways this work will be found of unusual assistance, not only to the specialist, but also to the student and general practitioner.

American Text-Book of Surgery. For Practitioners and Students. Edited by WILLIAM W. KEEN, M. D., LL. D., F. R. C. S. (Hon.), Professor of the Principles of Surgery and of Clinical Surgery, Jefferson Medical College, Philadelphia; and J. WILLIAM WHITE, M. D., John Rhea Barton, Professor of Surgery, University of Pennsylvania, Philadelphia. Fourth edition, thoroughly revised and greatly enlarged. Handsome octavo of 1363 pages, with 551 text-illustrations and 39 full-page plates, many in colors. Philadelphia, New York, London: W. B. Saunders & Co., 1903. Cloth, \$7.00 net; sheep or half morocco, \$8.00 net. Toronto: J. A. Carveth & Co.

Of the three former editions of this work nearly 40,000 copies have been disposed of. Its sale, indeed, has been the wonder of the medical publishing world. In this present edition every chapter has been extensively modified, and many of them have been partially, and some entirely, rewritten. Notably among such chapters are those on Surgical Bacteriology, Tumors, the Osseous System, Orthopedic Surgery, the Surgery of the Nerves, the Joints, the Abdomen, etc. The most recent researches of Monks on the Intestines, Crile and Cushing on Shock and Blood Pressure, Matas on Neural Infiltration and Aneurysm, Edebohls on Renal Decortication, etc., have been included. The use of paraffine in nasal deformities, the methods of spinal and local anesthesia, and the newer anesthetics have also been described. And this is but an illustration of the completeness and thoroughness of the entire work.

Besides the extensive revision and amplification of the old matter, there have been added six new chapters of the utmost importance, written by men whose positions and experience especially fit them to speak with authority. These chapters are Military Surgery, Naval Surgery, Tropical Surgery, Examination of the Blood, Immunity, and Surgery of the Pancreas. Though there was a brief chapter on the Pancreas in the third edition, in

this present edition it has been expanded so greatly that it really is wholly new, the modern surgery of the Pancreas having been created since the last edition. A number of the old illustrations have been replaced by better ones, and, in addition, there have been added a number entirely new. In fact, we know of no single volume work that is even its equal in the expounding of the advanced and practical principles of modern surgery.

Analysis of the Sexual Impulse: Love and Pain; the Sexual Impulse in Women. Third volume in series. "Studies in the Psychology of Sex," by HAVELOCK ELLIS, L.S.A. (England); Fellow of the Medico-Legal Society of New York, and Anthropological Society of Berlin; Honorary Fellow of the Chicago Academy of Medicine, etc.; General Editor of "Contemporary Science Series" since 1899. Extra cloth, \$2.00 net, delivered. Sold only to physicians, lawyers, clergymen, advanced teachers, and scientists. Philadelphia: F. A. Davis Company, publishers, 1914-1916 Cherry Street.

No one will deny that whatever Havelock Ellis takes up to do will be done well. The present volume of the series is extremely well-worked out. It may be divided into two chapters or parts, the former dealing with "Love and Pain," and the latter with "The Sexual Impulse in Women." In addition there is an appendix in which will be found interesting histories of more or less normal sexual development. As the work is mainly founded on the normal sexual development, these histories are very valuable.

Desiring to make a practical, useful journal for the General Practitioner,
the Editors respectfully solicit Clinical Reports from subscribers and others.

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And Ontario Medical Journal

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VOL. XXI.

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No. 4.

TORONTO'S NEW MEDICAL BUILDINGS AND LABORATORIES OPENED.

On the afternoon of the 1st of October, 1903, while the formal ceremonies in connection with the opening of the new laboratories and medical buildings of Toronto University were being proceeded with, and whilst Trinity and Toronto men sat side by side under new and happy auspices, letting bygones be bygones, and with one thought for the far-reaching and important influence which Toronto is to wield hereafter in the medical life of the American continent, another set of men with equal satisfaction and with just determination, were resolving to cast in their lot with the fortunes of the Provincial University. These were foregathered in Trinity College, granting power to the Vice Chancellor, in the absence of the Chancellor, to sign articles of agreement to federate with the University of Toronto. The array of distinguished men in their academic robes lent brilliancy to the occasion, and the effect was heightened by the cementing together of the strong men of our profession in this

city in an earnest endeavor to do all that is good and great towards making Toronto an important medical centre, second to none on this continent. The congratulations from the representatives of sister institutions, the hearty feeling of good-fellowship and God-speed manifest in their remarks and tones, the prevailing atmosphere of satisfaction at all which was transpiring there that day, surely bespoke great and constant success in the future. And, indeed, all should now put their hands to the plough and not turn back from the work to be done. Later on federation may be, as it were rounded off by following out the suggestions of Professor Osler, when the day may draw near when London and Queen's may participate with the Provincial University.

THE VISIT OF PROFESSOR SHERRINGTON.

It was a happy thought which was conceived to invite Professor Charles Scott Sherrington, of the University College of Liverpool, the distinguished director of the Thompson Yates Laboratories, and the foremost research physiologist of England, to open the new medical buildings and laboratories of the University of Toronto, laboratories, first in point of construction on this continent, destined soon, let us hope, to be the first in importance in science and discovery. That Professor Sherrington was able to fulfil the high expectations looked for in his deliverance of the opening address, no one who was fortunate to have heard or read it will doubt. Every field of physiology in which he has worked has been enriched by the researches of Professor Sherrington; but more particularly has he rendered to the physiology of the nervous system, distinct and striking services. He has secured world-wide fame from his studies of the spinal nerves and the segmental relations, but it is more especially that his work is marked in those studies and researches into the functions of the cerebrum of the vertebrates, most closely related to man. A distinct honor was, therefore, conferred upon Toronto and Canadian medicine by the presence of this distinguished scientist from the Motherland.

THE TEACHING OF MEDICAL ETHICS.

The continuous, and what we might call shameful neglect of our medical colleges in the matter of teaching medical ethics to the students, or more especially to the final men, is a subject which ought to call for serious and careful consideration at the hands of the medical faculties of the various teaching staffs of our universities. Too long has this matter been left in abeyance or perfunctorily performed by the all too eager students themselves, inviting one of the members of faculty annually to give them a general idea of their comportment when once they have been launched in to the profession. In these commercial days the young practitioner cannot be too well-bolstered up in all that makes for an honorable and upright conduct. More especially has he need of correct information and understanding with regard to his duties to himself as a practitioner, to his patients, and to his confreres. No doubt those who would be looked upon as being qualified to deliver a series of lectures on such subjects, would plead that their attention to their professorial and clinical duties already makes such inroads on their time, that it would be impossible to add further thereto, and so this most important matter must continue to drift, drift, drift. Some one in authority in the different medical faculties of the country might bring the idea to the attention of the students themselves through the medium of the president of their respective college medical societies, whereby arrangements could be made for a monthly deliverance from a given member of the faculty or several members thereof. If the Code of Ethics of the national medical organization, the Canadian Medical Association were followed, a series of seven lectures could readily be arranged for on a monthly basis before the regular monthly meetings of these medical societies, at which now but a portion of the student-body foregathers. For instance, one member of faculty might be asked to take Article I. of the Code: "Of the Duties of Physicians to their Patients, and of the Obligations of Patients to their Physician." Another could be asked to deliver a second lecture, taking for his text, Article II.: "Of the Duties of Physicians to each Other, and to the Profession at large," and so on until the whole field would be covered. The result would tend to enhance the value of the medical society to each student, and would be sure to result in a very large and enthusiastic attendance at the regular meetings. This sys-

tem, if once inaugurated in the college medical societies, would be productive of untold good in the after life of the student when he has been called to the active and responsible duties of professional life. After these matters had been brought home to him in a proper manner for four years, he would step into the ranks a master of professional etiquette, and with a thorough knowledge of all that goes to make for success, and as well a valued member of the faculty.

LIFE IS LONGER UNDER MODERN CONDITIONS.

The International Congress of Actuaries recently held a conference in New York City, when the incontestable proof for the assertion that life is longer under modern conditions, was deduced from statistics of insurance companies, extending over a period of fifty years. The conclusions of these men, men of undoubted ability and high standing in the community, are based upon extended observation and upon a careful analysis of a stupendous accumulation of insurance data. In the United States it is very remarkable how the insurance statistics show in a very constant manner that the expectation of life is increasing. The maximum of the expectation of life has risen from 46.1 to 56.4 years for men, and 48.6 to 57.8 years for women. In Great Britain, in 1838, the annual rate of mortality for all ages, in men, was twenty-three per thousand; in 1900 it had fallen to nineteen per thousand. In the same period, for women, it had fallen from twenty-two to seventeen per thousand. Writing on the foregoing, the *Scientific American* states that: "The curious fact was brought out that the most marked improvement is shown in the early years of life. From four years of age up to thirty-four the improvement is so steady that it must be regarded as the direct result of law, while the same fact holds true of female mortality for a decade longer, or up to the age of forty-four, and in a less decided degree for the male." The later years of the nineteenth century have been marked by humanity and philanthropy. There has been a tremendous growth in hospitals and organizations looking towards the amelioration of human suffering. Contemporaneously with this there has been vast strides made in sanitary science and in surgical science. These as a necessary consequence helped to extend

the period of life, and while their beneficial effects have been more pronounced on childhood and youth, there has not been lacking essential factors preserving middle life, even though the characteristic of the middle age in the modern life made greater demands upon the human system through the intenser strain and keener competition in the struggle for existence. It is comforting to know from these carefully prepared statistics and very accurate observations, that the work of preventive medicine and surgical science is telling in a very decidedly constant way on the longevity of the community.

HEADACHE POWDERS AND THEIR DANGERS.

The common habit many people have of flying into a drug-store for a headache powder, for even the most trivial discomfort in the head, is a habit which ought to receive severe and constant disapproval at the hands of the medical profession. It is altogether too common, and it is herein that the abuse of coal tar preparations brings sometimes disastrous results, and which has caused them to be condemned in some quarters. An instance now occurs to the writer, where a woman purchased in a departmental store a box of acetanilide, just like so much epsom salt, neither labelled nor directed. Suffering from a violent headache, on reaching home, she took a heaping teaspoonful of the remedy, with the result that she was nigh placed in a position from which headaches would never cause her any more suffering. In fact, it was only after prolonged rendering of medical assistance for hours, that her life was saved. No doubt every physician can relate similar instances, and some of more deadly consequences. As most, if not all, of the ordinary headache powders contain some coal tar preparation, the indiscriminate prescribing of which is often productive of unfortunate results, it is manifest how guarded should be their employment, especially where there is any affection of the heart present. Much cautioning should, therefore, not be amiss, and drugs so potent and so harmful when used unadvisedly ought not to be handed across the counter without due consideration on the part of the dispenser.

CLINICAL INSTRUCTION IN INFECTIOUS AND CONTAGIOUS DISEASES.

The action of the Medical Health Officer of Toronto, Dr. Sheard, in endeavoring to secure from the local Board of Health sanction for the students of medicine in this city to receive clinical instruction in infectious and contagious diseases is to be commended, and will be sure to be met on the part of the student-body with a considerable degree of gratification. In the past the young practitioner has been handicapped far beyond his deserts by the complete lack of facilities for instruction in these diseases; and most medical men have been graduated, carrying with them diplomas and parchments announcing them capable of handling anything of a medical or surgical character which came in their way, without having once seen or followed to a conclusion, noting and observing the various complications and sequellae of at least two dangerous and dreaded diseases, diphtheria and scarlet fever. These mostly occurring in young children, the careful and successful handling of whom has before now more than once, carried a man to success and distinction in the community, or has totally ruined his prospects in that district, surely demand all the requirements of that skill and knowledge which can be only gleaned at the bedside. To see and thus learn by practical experience how all the different phases and aspects which even these two diseases take on, to learn to meet emergencies, and to see how those emergencies are met at the bedside, will be a boon, indeed, to the future practitioners. Truly does the medical student of the present day start out with ample equipment, as he should. To be placed in charge of human life is a serious responsibility. To most men it causes great anxiety; but the laity do not believe it. The innovation is to be commended; and if proper precautions are taken there can be only a minimum of danger of spread of infection—perhaps none at all.

News Items

DR. BROWN, recently of Arkona, has located in Hamilton.

DR. G. W. FLETCHER, Blenheim, will practise in Wyoming, Ont.

MONTREAL physicians are talking of a consumption sanitarium for that city.

DR. J. A. TUCK, Gorrie, has moved to Toronto, where he will practise his profession.

DR. W. E. OL MSTED, lately of Caledonia, has established himself in Niagara Falls South.

DR. CECIL C. ROSS is opening a handsome new office at Hyde Park, opposite the Hodgins House.

DR. WILKIE, who has been a resident of Clinton for over thirty years, has gone to Germantown, Ohio, to live with his son.

DR. F. J. SHEPHERD returned to Canada from England by the *Ionian*. Dr. Wesley Mills was a passenger by the same steamer.

DR. W. A. THOMSON, of Richmond Street, London, has been appointed surgeon to the C.P.R., in place of Dr. Stutt, resigned.

DR. W. E. OL MSTED, of Caledonia, has disposed of his practice to Dr. F. G. Morrow, of Strathroy, who has assumed charge of the same.

DR. J. M. LEFEVRE, Vancouver, B.C., was in Toronto the last week in September, on his way to England. He will return in two months.

DR. J. A. WILSON, Mildmay, is taking a special course in the hospital at Chicago. Dr. Robb, of Stratford, is taking charge of his practice during his absence.

In medicine, the number registered so far at McGill, is 333, and the total is expected to be well over 400. The first year class will contain 115 or thereabouts.

DR. G. R. DEACON, Stratford, left a short time ago for three months' visit to Germany and Austria, where he will visit the hospitals and take a special course of study.

DR. S. J. TUNSTALL, Vancouver, B.C., President of the Canadian Medical Association, expects to be in Toronto and Montreal about the middle of November.

DR. J. W. ROBINSON, formerly a resident of Milton, Ont., but more recently practising in Chesley, Mich., has opened an office in Brantford, where he will practise his profession.

DR. W. F. DICKSON, 6337 Woodlawn Avenue, Chicago, is visiting the scenes of boyhood days on the farm in Oxford County, Ontario. The doctor practiced his profession for some years at Ingersoll, Ont.

DR. J. O. DUTRIZAC, late of Houghton, Mich., has commenced practise in the Sault, and has opened an office at the Park hotel, Hudson St. The doctor is an old practitioner, having taken out his diploma in '67 at the Victoria University, Cobourg.

DR. J. N. WATERS, of London, Ont., is to take up the work among the farming boys of Central India, succeeding the late Dr. Menzies, who died at Mhow recently, a victim of the plague. Dr. Waters attended Toronto University, and afterwards graduated from Trinity Medical College.

INSPECTORS Christie and Noxon and Architect Heakes, of the Public Works Department, accompanied by Engineer Fairbairn, went to Woodstock recently and arranged the preliminaries for the building of the asylum for epileptics. The foundations were staked out and work has been commenced upon the excavations. The foundations will be finished this fall, and the buildings will be ready for occupation by August 1st, 1904.

DR. MACDOUGALL KING, who is well known in Toronto, has joined the medical profession in the city of Denver, Colorado, where he has commenced practise. He has at the same time been appointed instructor in physiology, in the medical department of the University of Denver, and has entered upon his duties there. Dr. King is a graduate in medicine of the University of Toronto, of the year 1902; a licentiate of the Ontario College of Physicians and Surgeons, and served with the Canadian Field Hospital Corps in South Africa.

Obituaries

GEO. LANDERKIN, M.D.

Hon. Geo. Landerkin, M.D., South Grey, died Sunday afternoon, the 4th of October. Dr. Landerkin was a son of the late James Landerkin a native of Nova Scotia, of Irish descent, and was born July 20th, 1839, in Simcoe. He was educated at the local school, obtained the degree of M.D., Victoria College, Cobourg, in 1868, in which year he came to Hanover. He married, in 1870, Mary, daughter of Joseph Kirkendall, Elora, Ont. He was elected to the House of Commons in the Liberal interests for South Grey at the general election of 1873, as a supporter of Alexander Mackenzie's Government, defeated at the general election of 1878, and elected at the general elections of 1882, 1887, 1892 and 1896. He was appointed to the Senate on February 16th, 1901. Both in the House of Commons and the Senate Dr. Landerkin was noted as a wit, and his sallies enlivened many an otherwise dry debate. While in the House of Commons in the later years of his membership he was chairman of the Committee on Standing Orders. He practised medicine in Hanover and the surrounding district, in addition to his Parliamentary duties, and in 1897 was elected President of the Canada Mutual Mining and Development Company.

SAMUEL RICHARDSON, M.D.

Dr. Samuel Richardson, of Detroit, died recently, aged 58. Deceased practised medicine in Essex county for ten years, moving to Detroit in 1884.

RICHARD CARNEGIE, M.D.

Dr. Richard Carnegie, for ten years medical officer of an Allan liner, died recently in his berth, on board the *Bavarian*, while at the port of Montreal. Deceased was 38 years of age, and was a graduate of Trinity College, Dublin.

E. G. W. SIMPSON, M.D.

Dr. E. G. W. Simpson died in Lennoxville, Que., on the 23rd of September, at the age of 27 years. He was a graduate of McGill, and was last year an interne in the Montreal General Hospital.

W. G. MONTGOMERY, M.D.

Dr. W. G. Montgomery, of Minden, Ont., died at his father's residence, Gorrie, on the 8th of September, after a short illness. Deceased was 29 years of age. He was a most promising young man and his early demise is deeply regretted among his numerous friends.

A. C. BOURBEAU, M.D.

Dr. A. C. Bourbeau, of Ste. Agatha, died September 30th, aged 25 years. Typhoid fever was the cause. Dr. Bourbeau was born in Montreal. A medical course of great brilliancy was taken at Laval University, from which institution Dr. Bourbeau graduated in 1902, taking the highest honors.