The Canadian Journal of Medicine and Surgery

A JOURNAL PUBLISHED MONTHLY IN THE INTERESTS OF MEDICINE AND SURGERY

VOL. XVIII. TORONTO, NOVEMBER, 1905. NO. 5.

Original Contributions.

SOME NEW CONCEPTIONS OF THE LIVING CELL; ITS CHEMICAL STRUCTURE AND ITS FUNCTIONS.*

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Mr. Chancellor, Members of the Faculty, and Students,—When I received from my friend, your worthy Dean, an invitation to address you on this occasion, I delayed my reply for some days, during which I seriously debated the question with myself. On the one hand, the memory of previous delightful visits to you and the anticipation of again being with you urged me to accept; while the consciousness that I was not prepared with an address suitable to the occasion, admonished me that the proper thing to do was to decline. However, when I recalled the indulgence with which you had received my former efforts, the decision was reached, and I now have to offer you my best, fully conscious that it is not good enough, and that you will again have opportunity to exercise your charity.

Something more than fifteen years have passed since I had the honor of being the guest of the University of Toronto, and I wish to say that it is with great pleasure that I have to-day seen the great advance that has been made by this noble institution during that time. I first came here to rejoice with my friend, Prof. Ramsay Wright, on the completion of his biological laboratory, and it is a gratification now to see that this laboratory has more than fulfilled the promises made at that time. The research work of its eminent director, of Prof. McCallum, and others,

*Opening Address before the Medical Department, University of Toronto, Oct. 4, 1905.

have carried the name of the University of Toronto around the world. I have had great pleasure in going through his new building with Prof. Ellis, and in recognizing that a chemist, whatever may be the fate of prophets, is not without honor in his own country.

I also rejoice in your splendid new Medical Building, and I envy the freshman of to-day, who comes filled with the earnest intention to do his work well, and who, under these favorable conditions, in the well-equipped modern laboratories, with such able masters to direct, begins the study of the beneficent science of medicine. I was greatly rejoiced on reading in the papers this morning of the munificent gifts that have been made for the new university hospital. Surely the people of Toronto are both wise and generous. He who aids in building a hospital, where human suffering may be relieved, is a practical Christian, whatever his theological dogma may be. We know not whence we came, nor can we name the country to which we journey, but we do know that the burdens placed upon the shoulders of those who travel along life's highway are not equally distributed, and he who helps his fellow-man who is growing faint serves his God. There is an old legend concerning the origin of the medical profession, which I may, I hope, be permitted to repeat. It runs thus: In the olden days when the world was yet young, a young Hindoo prince, who had all that the world could give, entered a temple and, prostrating himself before the image of Buddha, besought his god to instruct him in the ways of righteousness. His prayer ended, he felt upon his shoulder a hand as light as that of a child, and a voice as sweet as that of an angel asked, "Wouldst thou most acceptably serve thy god? If this be thy desire, go forth and serve thy fellow-men," and the prince went forth, the first physician to walk among men.

My visit is not without its tinge of sadness. I miss several faces that were familiar to this campus fifteen years ago. Of two of these I must be permitted to say a few words. There was a sweet-mannered man, gentle in voice and kind even in reprimand, an eminent ethnologist, an able historian, whose memory has always been to me a charming recollection. Such a man was Sir Daniel Wilson. The other was a professional brother, whose life was a help to those of his own generation and an inspiration to the young. Such a man was the late Dr. Graham, of this city and university.

I have decided to briefly discuss "Some New Conceptions of the Living Cell: Its Chemical Structure and Its Functions." No one can question the importance of this subject, involving, as it does, biological problems, which lie at the foundation of all our conceptions and theories concerning cellular life and cellular activity.

To start *ab initio*, the cell is made up of matter, and the newer views on matter must be taken into consideration in formulating a conception of the cell. When matter becomes endowed with life it does not cease to be matter; it does not lose its inherent properties; it is not released from the laws that govern its structure, its attractions, and its motions. In studying the organized cell of living things, whether vegetable or animal, it should always be borne in mind that it is material in composition and subject to the fundamental laws that govern matter, and possessed of those properties essential to matter. In order that this point, so essential to a proper understanding of the subject, should be thoroughly appreciated, it may be best to recall some of the properties of matter as taught by the most advanced science of the day.

Tait says: "Matter is that which can be perceived by the senses, or is that which can be acted upon by or can exert force." Since force is the result of motion, we may say that anything and everything that moves or can be moved, or whose position in space may be changed, is matter. There are many forms of matter that cannot be seen or felt, and can be recognized only by their motions.

Matter is indestructible; it may be successively solid, liquid and gas, but in undergoing these changes it neither gains nor loses. It has always been, and it always will be. It is without beginning and will be without end. Matter consists of infinitely small particles, called atoms. According to the computation of Lord Kelvin, the diameter of an atom is not greater than 1-50,000,000 of an inch; however, all atoms are not of the same size or weight. When like atoms combine they form chemical elements, of which about seventy are known. The hydrogen atom is the lightest of all known elements, and it therefore is taken as the base or standard in the determination of atomic weights. When unlike atoms combine, chemical compounds are formed, and the number of these is beyond computation. It was supposed, until the discovery and study of radium, that one chemical element is never converted into another, and consequently that the number of kinds of atoms is fixed and unchangeable. However, it has been found that the α-rays of radium consist of most minute particles, which, when confined in glass, condense and form another element, helium. With this demonstration of the formation of one element from another it is within the range of sanity to suppose that all the elements have been developed from a primordial ancestor, probably from the universal ether which pervades all space. Nothing has been created; everything has grown. Even silver, iron, and other metals came into existence by being cast off from some common ancestral element. The atomic weight of radium is 225 and that of helium 2.02.

It would seem from this that an atom of the former breaks up into about 100 atoms of the latter, and in this way a new element is born, although in this case it is probable that the mother atom is split into two or more kinds. It will be seen from this that even atoms may be split up. Indeed, there are reasons for believing that the hydrogen atom consists of a nuclear ion about which some 700 particles or electrons revolve, and an atom of mercury is believed to consist of not less than 100,000 electrons. Atoms and electrons are in constant motion, and so small are they that the distances between them may be relatively as great as those between the planets of the solar system. The living cell is composed of molecules, made up of atoms, composed of electrons that are in constant and systematic motion, and may be compared to a group of stars with attendant suns, each of which is surrounded by its own planets. A molecule of albumin is of like composition.

Another property of matter is that it is gravitative. Every particle of matter attracts every other particle. When this attraction is manifest between masses it is called gravitation; between molecules, it is called cohesion or adhesion, as the molecules held together are alike or unlike; between atoms it is known as chemical affinity or chemism.

Still another property of matter is inertia, by which term we indicate the inability of matter to change either its rate or direction of motion without being acted upon by other matter. It is of great importance that this property of matter be held in mind in the study of cellular chemistry, and the proper mental picture of a cell molecule represents each of the atoms in the molecule, and each electron in each atom moving each about its centre and each at a definite rate. If such a cell molecule could be cut off permanently from the disturbing influence of other matter, its atoms and electrons would continue the same motions, unchanged in direction or rate, throughout eternity, but, as we shall later see, it would be impossible for living matter to continue to live apart from other matter. Within the living cell molecule change in number, kind, and arrangement of atoms is constant; and the direction and rate of the motion of the atoms are also susceptible to the influence of other matter and are of constant occurrence. Whole groups of atoms are physiologically being dropped from the cellular molecule and being replaced by other groups split off from the pabulum upon which the cell feeds. In this way the cell renews itself and keeps itself supplied with energy.

Some of the most noted physicists are inclined to the belief that matter is made up of electric charges, but recognize that this is not a demonstrated fact as yet, and speak with caution. Lodge says: "There *may* possibly be two different kinds of inertia,

which exactly simulate each other, one electrical and the other material; and those who hold this as a reasonable possibility are careful to speak of electrons as 'corpuscles,' meaning charged particles of matter of extremely small size, much smaller than an atom, consisting of a definite electric charge and an unknown material nucleus; which nucleus, as they recognize, but have not yet finally proved, may quite possibly be zero."

The only essential and constant difference between living and non-living matter is that within the molecules of the former there is constant metabolism, while in the latter no such process occurs. We are to conceive of the living molecule as made up of numerous atoms and each atom surrounded by its electrons: atoms and electrons in ceaseless motion, and groups of atoms being constantly cast out of the molecule and replaced by new groups split off from matter outside the molecule. As soon as a molecule becomes the seat of assimilation and excretion, it is no longer dead, it lives. As a result of assimilation it acquires the property of building up its own tissue; then polymerization follows and reproduction in its simplest form begins. The one phenomenon always manifested by living matter, and never exhibited by non-living matter, is metabolism. Verworm says: "Vital motion, metabolism, is a complex motion very strongly characterizing the living organism; it consists in the continual self-decomposition of living substance, the giving off to the outside of the decomposition products, and, in return, the taking in from the outside of certain substances which give to the organism the material with which to regenerate itself and grow by the formation of similar groups of atoms, *i.e.*, by polymerization. This is characteristic of all living substance."

I have promised to give you some of the *new* conceptions of the living cell, and yet I must admit that Aristotle apparently recognized that metabolism is the one characteristic of living matter, for he says: "Life is the assemblage of the operations of nutrition, growth and destruction." Of course, this Greek philosopher did not know about cells, molecules, atoms and electrons what is to-day known, but it must be acknowledged that he had a clear conception of the most essential characteristics of living matter. Herbert Spencer has given three definitions of life, and either may be applied to the conception which I am trying to present to you. The first is: "Life is the co-ordination of atoms." The co-ordination between assimilation and excretion is certainly essential to life, and failure of this co-ordination leads to death. The second is probably the best definition of life ever given, and fits our conception perfectly. It is: "Life is the definite combination of heterogeneous changes, both simultaneous and successive, in correspondence with external coexistences and sequences." The third is practically the same as the second,

expressed in simpler terms, but in my opinion not so satisfactorily. It reads: "Life is the continuous adjustment of internal relations to external relations." Matter is alive when it feeds and excretes. Crystals grow and in a sense they multiply, but their growth is not intramolecular, it is by accretion. The living molecule not only absorbs, it assimilates. It chemically alters what it absorbs. The atomic groups taken into the living molecule enter into new combinations. The living molecule is not stable, but is highly labile. Its composition is never constant and it is never in a condition of equilibrium. There is a constant reaction between the living molecule and other molecules. Apart from other matter it could not exist. There is a constant interchange of atoms between it and other molecules. A condition best designated as latent life may exist without interchange of atoms between molecules. This is seen in spores, seeds and ova. Matter existing in this form may be awakened into activity by proper stimuli; active life begins with the interchange of atoms.

Why is there this constant atomic group interchange between the living molecule and outside matter? It is for the purpose of supplying the living molecule with energy. Allen has so ably expressed this fact that I make the following quotation: "The most prominent and perhaps most fundamental phenomenon of life is what may be described as the *energy traffic* or the function of *trading in energy*. The chief physical function of living matter seems to consist in absorbing energy, storing it in a higher potential state, and afterwards partially expending it in the kinetic or active form. We find in living matter a peculiar proneness to change its composition under the stimulus of slight changes in the energy-equilibrium between itself and its surroundings, energy being readily absorbed and readily dispersed. The absorption of energy coincides with deoxidation and the building of large molecules; conversely the dispersion of energy coincides with oxidation and the disruption of the large molecules. The building of these large molecules is always accomplished by slow steps; but when formed, the said molecules are very unstable, irritable, or in modern phrase, *labile*. They may break down by degrees in some instances; in others their structure may be so precarious as to collapse on the slightest disturbance."

"The lability of such a molecule may be compared to that of a house of cards, which can be taken to pieces card by card, or may collapse at once. But the word *lability* is applied, not only to *de*-structive, but also to *con*-structive instability. The molecules of living substance are prone to constructive as well as destructive changes; but, as in the house of cards, the constructive changes are the most gradual; and as the structure grows more complex, construction becomes more difficult, and collapse is more

imminent. It should be distinctly understood, however, that it is not the mere size of the molecules that makes them labile, but rather the manner in which they are linked together, and the amount of potential energy which is included in the molecule."

It is probable that in the absorption of energy by the living molecule oxygen is relieved from its combination with carbon or hydrogen and is attached to nitrogen, while in the liberation of energy the reverse takes place. Nitrogen and phosphorus, sometimes with iron and possibly manganese, seem to be, as it were, the master elements within the living molecule. It is by virtue of their chemism that groups are torn from extra-cellular matter, taken into the living molecule and assimilated by an atomic rearrangement; and furthermore, it is on account of the lability of the compound thus formed that potential energy is converted into kinetic and cell work is accomplished.

The question of the origin of life on this world has been ably discussed by eminent chemists, physicists and biologists. The cosmozoa theory proposed by Richter holds that cellular life has always existed, and has been transferred from one planet to another by meteors and cosmic dust. Richter says: "*Omne vivum ab aeternitate e cellula.*" Helmholtz and Lord Kelvin have pronounced this theory not unscientific, and the former makes the following statement: "Meteoric stones sometimes contain hydrocarbon compounds; the intrinsic light of the heads of comets shows a spectrum that is very similar to that of the incandescent electric light in gases containing hydrocarbon. But carbon is the characteristic element of this organic compound, of which living bodies are composed. Who can say whether these bodies that swarm everywhere through space do not spread also the germs of life whenever a new world has become capable of affording a dwelling-place to organic creatures? And this life we might, perhaps, have reason to regard as even allied to our own in germ, however various may be the forms in which it might adapt itself to the conditions of its new dwelling-place."

Preyer objects to the cosmozoa theory that it only sets the question back to, How did life originate in the universe? and Helmholtz says: "The true alternative is evident; organic life has either begun to exist at some one time, or has existed from eternity."

Pflüger's theory of the origin of life is the most scientific yet proposed. He argues that living proteid differs from dead proteid by the existence in the former of a cyanogen radicle. He says: "In the formation of cell substance, *i.e.*, of living proteid out of food proteid, a change of the latter takes place, the atoms of nitrogen going into a cyanogen-like relation with the atoms of carbon, probably with the absorption of considerable heat." Pflüger calls attention to the resemblances between cyanic acid

HCNO and living proteid. Both easily polymerise, the living proteid growing and the cyanic acid forming the polymeric cynamelid $HnCnNnOn$. Both yield urea on dissociation; both are liquid and transparent at low temperature, and both coagulate at higher temperature. Pflüger concludes that the beginning of life depended upon the formation of cyanogen, and then he reminds us that cyanogen and its compounds are produced only at incandescent heat. He summarizes as follows: "Accordingly, I would say that the first proteid to arise was living matter, endowed in all its radicles with the property of vigorously attracting similar constituents, adding them chemically to its molecule, and thus growing *ad infinitum*. According to this idea, living proteid does not need to have a constant molecular weight; it is a huge molecule undergoing constant, never-ending formation and constant decomposition, and probably behaves towards the living chemical molecules as the sun behaves towards small meteors."*

It will be seen that according to Pflüger life is a molecular phenomenon, and it seems to be that this must be true. Non-living matter, whether it be inorganic or organic, is relatively stable intramolecularly, while living matter is never stable within its molecule, which is constantly casting out and as constantly absorbing atomic groups. It assimilates and it excretes, and these phenomena are its essentials. Deprive the living molecule of food, and it dies; prevent its excretion, and it dies. Reaction between the living molecule and outside matter is constant, and is necessary to the continuance of life. The fact that life resides in the molecule is, as I have stated, taught in Pflüger's theory. It is also recognized by Allen, who, in speaking of living proteid, says: "It is a molecule of enormous size, and (so far as the dynamic elements are concerned) its various groups are linked together by many nitrogen atoms, but not in a chain. It is not a proteid, a cyan compound, an amid, an amine, nor an alkaloid, but something that can yield some of them during life and others at its death. Death consists in the relaxation of the strained relationship of the nitrogen to the rest of the molecule. When thus 'the silver cord is loosened,' the relaxed groups fall into a state of repose. Most of these groups are proteids in which the N is peripheral, triad and unoxidized, having yielded its O to some other element. If, however, such a proteid molecule be applied to a living cell, it can be linked on again by its N, which thus once more becomes central."

In his very interesting monograph on the Biogen Hypothesis, Verworm objects to saying that a molecule lives. He states that it is illogical. "A living thing is only that which demonstrates

*The different theories of the orgin of life are ably discussed by Verworm in his General Physiology.

the phenomenon of life—something that changes itself. A molecule of a given compound, so long as it remains unchanged, cannot be said to be living." Then, in order not to speak of living molecules, he introduces the term "biogen molecule," instead of the living molecule. Surely this is a distinction without a difference. I certainly agree that a molecule of a germ compound, *so long as it remains unchanged,* cannot be said to be living, but the point is that living molecules do not remain unchanged. When life is latent, as it is in seeds and spores, the molecules cannot be said to be alive; but when placed under suitable conditions, then the change between atomic groups in the molecular and the external food substance begins, and life first manifests itself. However, it matters but little, I suppose, whether we speak of living molecules or biogen molecules.

That life resides within the molecule and that metabolic processes are intramolecular, are shown by numerous investigations, some of the most important of which may be briefly stated as follows:

1. As long ago as 1867 it was shown by Hermann, in his studies on the metabolism of isolated muscle, that the carbonic acid and lactic acid that are formed by muscular contraction result from the action of intramolecular or combined oxygen. This was demonstrated by the fact that when a muscle was freed from all its uncombined oxygen under an air pump and then caused to contract in an oxygen-free medium, it gives off carbonic and lactic acids. Contraction, a vital muscle phenomenon, is thus shown to result from intramolecular changes.

2. In 1875, Pflüger kept a frog at a temperature of a few degrees above zero in an atmosphere free from oxygen for twenty-five hours, and found that during that time the animal continued to give off carbonic acid. From this Pflüger concluded that the living content of the organism consists of proteid, which he designates "living proteid," in contradistinction to dead proteid, and that the carbonic acid gas results from the decomposition of a labile proteid molecule, the nitrogenous constituents of which are capable, with the help of the fats and carbohydrates of the food, to regenerate "the living proteid molecule."

3. It has been shown by recent research in my own laboratory that both the toxin and the carbohydrate of the cell of the colon bacillus are held in chemical combination with other constituents of the cell. This micro-organism will grow in a medium which contains organic nitrogen only, as amino compound, and with this nitrogen and inorganic salts as its sole food, it builds up by synthetical process a complex glyco-nucleo-proteid, forming a large molecule which contains as atomic groups, pentose, nuclein bases, amino and diamino compounds. These constituents are held chemically in the cell. They cannot be washed

out by physical solvents, and can be isolated only by chemically breaking down the cell molecule.

Besides the above mentioned experimental data showing that life manifests itself by intramolecular reaction, the following general considerations indicate the same thing:

(*a*) In taking its food the cell, whether it be vegetable or animal, whether it be that of a unicellular or that of a multicellular organism, manifests a selective action which can be best explained—indeed, I might say, can only be explained—on the ground that it is due to chemical affinity. Mass and molecular attractions are not specific, while atomic attraction, or chemical affinity, as it is usually designated, is specific, or at least selective. This fact, as is well known, is the basis of the side chain theory of Ehrlich, who, upon this principle, explains the nutrition of cells, the action of many therapeutical agents and the production and action of antitoxins. It is well known that certain poisons have a selective action for certain tissues, and this means that the chemical affinity between the poison and the constituents of certain cells is greater than that between this poison and other cells. If pharmacology and toxicology ever become exact sciences it will be, most probably, through investigations directed along this line.

(*b*) The fact that the secretions of cells are specific is a strong argument for the theory that action on the pabulum upon which they feed is intramolecular. The liver cells produce bile pigments and acids, each of the digestive fluids elaborates its specific products, the specific secretions of the adrenals and the thyroid gland have been studied and are now largely and successfully employed therapeutically. And still all these organs are supplied with the same blood and lymph. Certainly the only possible explanation for these well-established facts is that of a chemical reaction, or an intramolecular reaction, between the cells and the constituents of the substances with which they are brought into contact.

While other arguments might be adduced to show that metabolic processes, the only phenomena with which we are acquainted, that are characteristic of all living matter and which do not occur in dead matter, are due to intramolecular reactions, it seems to me that those already given are sufficient to establish my thesis, *i.e.*, life is molecular.

If I have made good my contention so far, it follows that life begins with the first molecule that is endowed with the capability of growth and reproduction. The life of such a molecule would depend upon its continued reaction with matter outside of itself, or, in other words, it must feed; and reproduction in its simplest form would depend upon polymerization. In this way the wonderful experiments of Loeb upon the artificial fertilization of certain ova

are easily explained. The ovum is not alive; it possesses only latent life, and when acted upon by certain stimuli it begins active life. This stimulus may be a spermatozoön or some inorganic salt in a certain definite strength of solution.

If life be molecular, it is possible that its lowest manifestations are without form. They may be infinitely small, and it is not beyond the range of possibility that they may exist as solids, liquids, or gases.

Spontaneous generation has never been proved to be impossible; indeed, it will not be easy to disprove spontaneous generation. I agree with Naegele in the following statement: "One fact—that in organisms inorganic substance becomes organic substance, and that the organic returns completely to the inorganic—is sufficient to enable us to deduce by means of the law of causation the spontaneous origin of organic nature from inorganic. . . . If in the physical world all things stand in causal connection with one another, if all phenomena proceed along natural paths, then organisms, which build themselves up from and finally disintegrate into the substances of which inorganic nature consists, must have originated primitively from inorganic compounds. To deny spontaneous generation is to proclaim a miracle."

The experiments of Tindall, Pasteur, and others, which were supposed to completely and forever overthrow the doctrine of spontaneous generation, in my humble opinion, did no such thing. They simply demonstrated that bacteria do not spontaneously generate in meat infusions and similar media, nothing more. Now, it seems to me that bacteria, which we frequently call the lowest forms of life, are by no means certainly entitled to this distinction. They may be the lowest forms with which we are acquainted, the smallest living things that we can see with our best microscopes. But chemically they are composed of extremely complex molecules, as has been shown by recent research in my laboratory. As I have already stated, the cell of the colon bacillus consists of a highly complex glyco-nucleo-proteid, yielding, on chemical disintegration, a carbohydrate, pentose, the nuclein bases, the monamino and diamino bodies, as tyrosin, leucin, lysin and arginin. In other words, chemically the colon molecule is quite as complex as that of the lower grade tissues in man. Now, if there has been a chemical, as well as a morphological, evolution, the colon bacillus is not the lowest form of life; indeed, it must be far removed from the first molecule that manifested metabolic activity.

The following quotation from Nussbaum, as given by Loeb, shows that the biologist recognizes that the cell is not the unit of life: "The cell is not the ultimate physiologic unit, even though it must remain such for the morphologist. We are, how-

ever, not able to tell how far the divisibility of a cell goes, and how we can determine the limit theoretically. Yet for the present it will be well not to apply to living matter the conceptions of atoms and molecules, which are well defined in physical chemistry. The notion, micella, introduced by Naegele, might also lead to difficulties, as the properties of living matter are based upon both nuclein and protoplasm. . . . The cell, consequently, represents a multiple of individuals."

Pflüger has shown that the egg, which has been thought to be a unit, can give rise to many individuals, and Loeb states that his own experiments, as well as those of Driesch, confirm this finding.

It is highly probable that the lowest forms of life cannot feed upon proteids. This is true of the yeast cell. These cells grow rapidly when placed in a solution of sugar and nitrates, but proteids must be broken up by putrefactive bacteria before the yeast germs can feed upon them. Indeed, many of the cells of the body of man cannot feed upon proteids, which must be split up by the digestive enzymes into much smaller and much simpler groups before the cell molecules can assimilate them. Even the carbohydrate, starch, must be hydrated before it can become a source of energy in muscle. Proteid solutions injected into the blood of man are poisonous, but the same substance, after being properly split up, is an essential cell food. There are weighty reasons for believing that proteid is not produced by the lowest forms of life. However, as proteid, or cellular life, is the only form of life that we know, it would be quite useless to attempt to go further along this line.

I have probably said enough concerning spontaneous generation to bring down upon myself the anathemas of the orthodox in science, and since my opinion on this subject does not have any essential relation to the important thesis of this paper, I will leave this point without further discussion.

If the characteristic phenomena of life are due to intramolecular reactions, we must conceive the living cell, whether it belong high or low in the scale of development, as consisting in its essential or vital part of a chemical compound made up of complex molecules, composed of atoms, each surrounded by its electrons, all in motion, and with a constant absorption of atomic groups from other molecules, and with a like constant casting off of atomic groups.

This molecule feeds by splitting off such groups as it may need from the pabulum within its reach, or it may absorb whole molecules, at the same time rearranging the atoms and making them a part of itself.

When, in ordinary physiological function, a portion of this molecule, which we may designate its chemical nucleus, remains

undisturbed and regenerates the whole, supplying its waste by the absorption of new matter.

Cellular assimilation consists in properly locating the recently acquired groups within the molecule.

Certain cell molecules, under proper stimuli, rearrange their atomic grouping, polymerise, and thus multiply. This multiplication may be physiological or pathological. Rapid proliferation may tend to inability to function or to react with the food supply, and consequently destroy the molecule or lead to the death of the cell.

With this conception of a living cell, its secretions consist of the atomic groups cast out as a result of its reactions with external matter, and as the cells of different organs are unlike in their chemical composition, it follows that the secretions are specific. Outside the body hemoglobin breaks up, or may be broken up, chemically, into hematin and globulin. In this case the colored split product contains the iron. But the liver cells produce from hemoglobin bilirubin and an iron containing proteid. In this reaction the line of cleavage is quite different from that followed in the ordinary decomposition of hemoglobin. The secretions of some cells enter into a more or less energetic reaction with certain extra-cellular compounds with which they come in contact. This is true of the digestive enzymes. Other secretions apparently are made for the purpose of reacting with or at least affecting the reactions of the molecules of other cells. This seems to be true of some at least of the so-called internal secretions, such as those of the thyroid and adrenals.

A most important group of cellular secretions is made up of the ferments or enzymes. Without going into the history of the theories that have been advanced concerning the nature of these bodies, it seems to me that we are no longer justified in speaking of "organized and unorganized" ferments. All the ferments are cellular products. The work of Buchner on the ferment of the yeast plant seems to be positively convincing on this point. Oppenheimer has defined a ferment in a manner that seems to me to be quite in accord with the latest and best experimental investigation. His definition is as follows: "A ferment is a catalytically-acting substance which is produced by living cells, to which it is more or less firmly bound, whilst its action is not associated with the vital processes of the cells (which produce it); ferments are capable of inaugurating chemical processes which take place spontaneously (without the presence of the ferments), but proceed much more slowly. In this process the ferment, itself, remains unchanged. Ferment action is specific, *i.e.*, each ferment manifests its activity only on substances of certain structural and stereochemical arrangement."

I am conscious that my translation of this definition is not altogether satisfactory, and in order to give a more exact interpretation of it, as I understand it, I offer the following explanatory statements:

1. Every ferment is a cellular product; it is a cellular secretion; a substance of definite chemical composition formed by the rearrangement of the atomic groups within the cellular molecule.

2. The action of the ferment, while it is determined by the cell which produces it, is not concerned in the "energy traffic" constantly going on between the molecules of the cell which produced it and other molecules external to this cell. With our present limited knowledge of the chemistry of the cell molecule it is impossible, in many cases at least, to distinguish between the chemical reactions resulting from cell metabolism and those due to ferments. I am inclined to the opinion that more exact knowledge will show that the autolytic changes that take place in many cells after death, and which have furnished the theme of so many papers recently, will be found not to be due to ferments at all, but to the cessation of metabolic reaction.

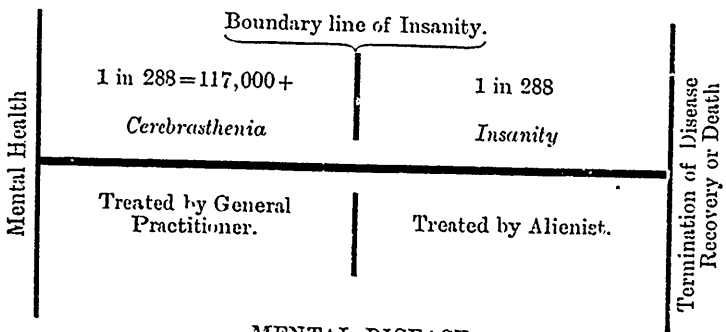
3. The function of a ferment is to hasten chemical reactions which take place, but much more slowly, without the presence of the ferment. It seems to me that a clear conception of this point gives one a key to the action of ferments in general. I have, in the first part of this paper, called attention to the fact that inertia is a universal property of matter; that the direction and rate of movement in matter can not be altered spontaneously. A ferment is a substance which by its presence changes the *tempo* of chemical reaction. I am fully aware that this does not explain *why* the ferment acts by its presence, but it is worth much to have a conception of *how* it acts, provided, of course, that this conception be correct. Furthermore, it must be admitted that the *modus operandi* of ferments is still beyond our ken. Some think that certain atoms or atomic groups are detached from one of the substances, combine with the ferment, and then are passed on to the other substance. On this supposition the ferment does enter into the reaction, but is constantly regenerated. Others hold that the ferment combines with the fermentable substance, making its molecule so labile that it falls to pieces, and that in the dissociation the ferment is again set free. There are weighty objections to either of these theories, but time will not permit me to state them in this paper, which is intended to be suggestive rather than exhaustive.

THE PREVENTION OF INSANITY.*

BY CAMPBELL MEYERS, M.D., M.R.C.S. (ENG.), L.R.C.P. (LOND.),
Neurologist to St. Michael's Hospital, Toronto.

Mr. Chairman and Gentlemen,—The prevention of insanity is so important a question at the present time, when insanity is so rapidly on the increase, that any contribution to its study, however slight, must meet with the consideration of the entire medical profession.

In a recent paper by Dr. Robert Jones, Superintendent of the London County Asylum of Claybury, he states that on January 1st, 1904, 1 in every 288 of the entire population of England and Wales were certified as insane. Startling as these figures are it is not to them but to a subsequent remark in his paper that I would like to direct your attention, viz., that, "We also know that possibly the same number are on the borderland of certification and are being daily precipitated into the asylums." This means that 1 in 288, or a total of 117,199 persons are daily crossing the boundary line and contributing to increase the number of insane in the above-mentioned countries.



MENTAL DISEASE.

How are these 117,000 persons who are on the borderland being treated? Clearly not by alienists, since they have not yet crossed the boundary line and been certified to as insane. Hence, the only treatment they can receive, if they receive any, must be by the general practitioner. But what preparation has the general practitioner received in order to treat these patients? The answer to this is, I believe, the crux of the whole question.

*Read before the first meeting of the Medical Superintendents of the Asylums of Ontario, Sept. 20th, 1905.

As is well known by all examiners in medicine, the graduating student has a most imperfect knowledge of neurasthenia and insanity, a defect which is the more striking when compared to his present knowledge of disease of any other organ than the brain; as, for example, that of the heart. Why should this be so? The medical superintendents of asylums have, for many years, done all in their power to disseminate a knowledge of insanity. One reason is the belief on the part of the student that there is a chasm of greater or less dimensions between the general practice of medicine and the treatment of insanity, and the impression that the latter must always be treated by an alienist and in an asylum; hence, no practical benefit will be derived from its study. Another is that there is a lack of realization on the part of the student that insanity is "brain disease with mental symptoms." Again, the situation of asylums is so frequently a long distance from the scene of the student's daily work, and the immense number of patients and the intricate classification of insanity tend rather, during his occasional visits to the asylum, to confuse his ideas and leave him with an ill-defined knowledge of the subject. But how about his instruction in those functional nervous troubles which often, for a long period, precede insanity, of which Krafft-Ebing (whose work as a neurologist lent a great aid to his success as an alienist) says in his last work, "Seldom does insanity come like a thunderbolt from a clear sky, much oftener its development requires months and even years"? Naturally the student has no such instruction in the asylum, since he can see there only cases in which the boundary line of insanity has been passed. As I have already said, his instruction about them in the general hospitals is at best but scanty, owing to the lack of clinical subjects. From what has been said I hope I have made clear that the first step in the prevention of insanity must be taken by providing better facilities for clinical instruction in functional nervous diseases, for the medical student—the future general practitioner—*under whose care such cases must inevitably first come.*

If lack of education is really the cause, the remedy at once becomes apparent, viz., to increase the facilities for the instruction and study of these diseases. How is this to be accomplished? For some years past three suggestions have been before the medical world: (1) To convert our asylums into hospitals in the strict sense of the word, admitting cases of neurasthenia without certificate; (2) to establish psychopathic hospitals as separate institutions, and (3) to establish in connection with the general hospitals one or more wards, or a separate pavilion, in which these patients could be received. In regard to the first, much as I should like to see in every asylum a well-equipped hospital for

acute cases, and, firmly as I believe that the worthy efforts of alienists will certainly be rewarded in time, I do not think this solution offers most advantages for the initial step. How would such a hospital be filled with such cases as we are discussing? By voluntary patients, without certification? One can at once see how inadequate would be the supply, if only on account of the prejudice which now exists in regard to asylums. By cases from the general profession? But how is the general profession to recognize the urgent need of treatment in these cases without further opportunity for observation than has been given it in the past? Or, granted that these hospitals were filled with a sufficient number of these neurasthenic patients, would not the distance at which asylums are so often placed form a tremendous barrier to the instruction of the average student, whose time is already so fully occupied? Moreover, that this distance has to be travelled to see only one class of disease is also an important consideration.

In regard to the establishment of psychopathic hospitals I do not think the suggestion is at present the most useful or practicable one for this country, as the initial expense alone would delay their construction for an indefinite number of years.

It is rather to the third suggestion above mentioned that I think we must turn for an immediate and practical solution of the difficulty, a solution which I advocated at the annual meeting of the Ontario Medical Association in June, 1904, viz., the establishment of wards or a separate pavilion in connection with general hospitals, and, especially at first, in connection with those general hospitals where clinical instruction is constantly given. Has this plan been tried, and with what success?

In a recent paper on "Wards in General Hospitals for Acute Nervous and Mental Diseases," I endeavored to show the results obtained by this means of treatment. In Germany it has been in operation more than thirty years, with most gratifying results, both in regard to clinical instruction and the prevention of insanity. In Great Britain and the United States, while the plan has not been so long in operation, the results are equally gratifying, the proportion of those discharged, recovered or relieved, being over 60 per cent. Two weeks ago I visited the General Hospital of St. Francis at Pittsburgh, Pa., on the kind invitation of Dr. Theodore Diller. Here I learned that cases of mental disease were first received about fifteen years ago in a small wooden building which served as an annex to the hospital. This branch of the work steadily increased, until the present brick pavilion, containing about one hundred beds, was constructed three years ago. I was also most interested to see among the general medical wards of the hospital certain wards in which screens were placed outside

the windows, in which, Dr. Diller informed me, cases of doubtful diagnosis could be observed until such time as the course of the disease made this quite clear. Dr. Diller further assured me that the treatment of these acute nervous and mental diseases in this general hospital had, after fifteen years' experience, proved entirely satisfactory. The reports of Pavilion F., of the Albany General Hospital, in which all forms of mental and nervous disease are received, are highly gratifying, as may be judged by a letter to Dr. Mosher, the physician in charge, from Arnold E. Smith, of the St. Lawrence State Hospital, on receipt of the first annual report. He writes: "I desire to congratulate you on the results of the first year of Pavilion F. How ideas grow and develop! How slowly and yet how surely the progress! One hundred and seventy-four mentally ill people have come *voluntarily* to the Albany Hospital for help which otherwise, as a rule, except for your Pavilion F., they would have been unable to obtain without being officially declared 'insane;' and you have demonstrated that over one hundred of the number did not deserve that mark. If nothing more, this is enough to justify your project," etc. I will not detain you with further details, but I hope sufficient has been said to demonstrate that if we are to maintain a standard in this branch of medicine in Ontario equal to what exists in other countries, such wards in general hospitals are an absolute necessity.

With the establishment of these wards in general hospitals there would result at least the following:

(1) The prevention of insanity in at least 50 per cent. of the cases admitted sufficiently early, thus affording relief to the already overcrowded asylums.

(2) Better clinical instruction to the medical student. I would like here to quote what that excellent authority, Sir John Batty Tuke, says in regard to the value of such wards for clinical instruction, viz., "That clinical instruction in an asylum is all very well, but it is not worth argument, to show the infinitely greater advantage that would accrue to all students, were such wards open to them in general hospitals." Here the student could be shown these cases in his daily routine of work, and be able to study these diseases of the brain just as he studies in a neighboring ward diseases of the lungs or of the heart.

(3) A better knowledge of these diseases would result in the whole profession recognizing the necessity, for example, of hospitalization of asylums, and instead of the scanty number of specialists who are now endeavoring to bring about this good work, there would be a solid phalanx formed by the profession, to the requests of which the government would be obliged to accede without delay.

(4) To the nursing staff of a general hospital, instruction in

such wards would be a great boon, since, frequent as these cases are in private practice, but little opportunity to learn the art of nursing them is afforded in a general hospital.

(5) By admitting patients into the wards of a general hospital on the lines suggested above, in Germany, any acute case of alleged insanity would at once be admitted without a certificate, on precisely the same conditions as though the patient were suffering from any other disease than that of the brain, and by this means the cruelty and injustice of taking these patients to a jail would be abolished. Under these conditions recourse to early treatment would be sought, since the prejudice against asylum treatment for a relative would be removed, and much better results would necessarily follow. The stigma, in the minds of the laity, of having been treated in an asylum, would also be obviated. Further, the treatment of these patients in a general hospital, by the same methods as all other patients are treated (due allowance being made for the form of their disease), would gradually lead to a more rational view of insanity in the minds of the masses, and thus gradually overcome the prejudice against asylums.

(6) A large proportion of suicides would be prevented.

From an economic point of view alone, however, the prevention of insanity merits the careful attention of the State. Since the maintenance of the insane poor must of necessity devolve upon the State, the cost of even a single individual during the long period his disease may continue (sometimes more than fifty years), would suffice to build such wards in connection with one general hospital, without mentioning the benefit to the community which might have resulted from the intellect or the skill of the individual, had insanity been prevented in this single instance.

In conclusion, I may add that the Trustees of the Toronto General Hospital, after fully discussing the subject, at once offered the use of the residence occupied by the ex-Medical Superintendent, to furnish the same and provide the necessary nurses to carry on the work, provided the Government would grant a sufficient sum of money to make the necessary alterations in the building and properly equip it for the purpose in view. While the construction of the building is such that certain objections will have to be encountered, especially in regard to the nature of some of the cases admitted, there can be no doubt that, should the Government grant the necessary funds to meet the generous offer of the Trustees of the Toronto General Hospital, a modest beginning would at once be made, which would be sufficient to demonstrate that equally good results can be obtained in Canada, as in other countries, under similar circumstances, and would, ere long, lead to the construction of a special pavilion, devoted to the study and treatment of these maladies.

The accomplishment of this good work, unequalled in importance by any other which the Government has to consider, would not only reflect the greatest credit on the State, but add another laurel to the profession which has ever made the alleviation of suffering in the poor its first duty.

The above diagram seeks to represent the entire course of mental disease, as a single entity, from health, on the one side, to its termination in recovery or death, on the other, just as all diseases are being studied; and also to show that insanity is a disease which does not begin when this term is applied to it, but that it is really only an advanced stage of a certain form of neurasthenia. This diagram applies, of course, only to the acute insanities (the psychoneuroses of Krafft-Ebing).

Selections, Abstracts, Etc.

PRESIDENT ROOSEVELT ON THE PHYSICIAN.

PRESIDENT ROOSEVELT'S address before the Associated Physicians of Long Island will bear more detailed comment than we gave to it last week. What he said of the medical profession is a decided tribute. He said that "the condition precedent on success in digging the Panama canal is having the proper type of medical work as a preliminary. He spoke of the physician's character in a most appreciative way. He said, among other things: "The doctor has, on the one hand, to be the most thoroughly educated man in applied science that there is in the country, and on the other hand the doctor gradually becomes the closest friend to more different people than would be possible in any other profession." At considerable length, the President showed that he appreciates the duties, difficulties and opportunities of the scientific physician.

Referring to the task at Panama, he indicated the dependence that must be placed on medical science to make the conditions of work such that the engineers can accomplish their task. We echo his confidence that the conditions hostile to health are going to be controlled by the sanitary authorities. The alarmist stories brought by a few panic-stricken individuals must be received at their true value. The fact is that the rainy season is never a favorable one for sanitary work in the tropics, and, further, we are still suffering to some extent, it is probable, from the dilatory and red tape methods which were denounced by Dr. Reed. If Dr. Gorgas could have had full swing from the first we may safely assume that matters would be better now, as we feel sure they will be soon. There will be difficulty, especially on the Atlantic side of the isthmus, in controlling the mosquito pest, but what has been done in other tropical countries, the confederated Malay states, for example, can be accomplished even there. We feel satisfied that the sanitary authorities on the isthmus will do their full duty if untrammelled, and that the health results will be commensurate.

In expressing his confidence in the ultimate results at Panama, the President recalled the splendid example of Cuba, and paid a well-earned tribute to the effective work there of Leonard Wood. In this connection his words of resentment at the criticism to which Wood has been subjected were keen.

"There has been no meaner and more unpleasant manifestation in all our public history than the feelings of envy and jealousy manifested toward Wood." And then came a sentence pregnant with sad thought for the men of medicine—"and the foul assaults and attacks made on him, gentlemen, were largely because they grudged the fact that this admirable military officer should have been a doctor." It is to be feared that there is herein too much truth. Why a physician should be grudged military or civil success it is not easy to reason out, but the fact seems real. Perhaps it is a popular inheritance from past ages, when medicine was not a science and when physicians were enmeshed in superstition. To what else can such prejudice be laid? Certainly the educated medical man of the present affords no excuse for such a view of his efforts. However, we need not heed it. Constantly, as we improve ourselves in education and fitness, our position is advancing. The physician of the future again will be, in a rational way, the arbiter of men's fortunes. The very words of the President are a step forward, and we should be grateful to him, not for seeing our plight, but for speaking loudly his dissent from the too-prevalent anti-medical prejudice. Surely, though slowly, we are moving forward, and for every aid are grateful. Not least among our friends and appreciators stands Theodore Roosevelt.—*Edit. Jour. of A. M. A.*

TREATMENT OF SLEEPLESSNESS AND PAIN.*

Sir Lauder Brunton opened a discussion on the treatment of sleeplessness and pain at the recent meeting of the Section of Medicine, British Medical Association. He referred first to the physiology of the living cell and of the living nerve cell. In sleep there was probably a break in the continuity between the cerebral cells and those by which the organism was brought into relation with the outer world, situated possibly in the basal ganglia. This interruption was probably due to the accumulation of waste products in their vicinity. The influence of the circulation on sleep was discussed, both in relation to contraction of the arteries and to excessive cardiac action. Where rigid arteries were a cause of insomnia the use of massage and the administration of potassium iodide were of especial value; if the insomnia were due to high arterial tension, then aperients like blue-pill and magnesium sulphate were of special use, and this might be combined with the administration of nitrites, phenacetin, and other substances with like effect; if cold feet were the cause, cold affu-

*Discussion at the annual meeting of the British Medical Association.—*Brit. Med. Jour.*, July 29, 1905.

sion followed by dry rubbing was advisable; if dryness of the skin, warm sponging; if indigestion, especially with acidity, the use of alkalies internally and such diluents as warm water. In such cases of indigestion and in others a little moderately warm food was the best remedy; and if the insomnia were due to acceleration of the heart's action by fever, the wet-pack or cold sponging was indicated. The action of such substances as tea and coffee in relation to sleep was discussed, and of alcohol in helping the linking on of other substances to the nerve cell; thus urethane—an alcohol and urea—was valuable. Chloral, the depressing effect of which on the heart was usually a drawback, was of special use for gouty people whose blood pressure was high. The value of sulfonal, trional, and tetronal, the latter being probably the less useful, was discussed, also that of valerian as a sedative, that of opium both as a direct hypnotic and indirectly as an analgesic, and of the internal administration of alkalies. For periodic headaches he had found a combination of sodium salicylate and potassium bromide of great service.

Professor Cushny limited his remarks to the hypnotics. They might in large doses lower the bodily resistance to disease, but so did sleeplessness itself. The ideal hypnotic was yet to be found. The depressing action of chloral on the heart and tissues had been over-estimated in its degree and importance; a similar influence belonged to all the chlorine hypnotics, but chloral still remained the best of them. Of the sulphur hypnotics, sulfonal was uncertain in its action and caused tissue changes, as evidenced by hemato-porphyrinuria; sulfonal and trional, he believed, were the most dangerous of all now in use. Urethane was good, but it had to be used in very large quantities. Veronal acted with comparative certainty, in small doses, and without deleterious effects. It seemed to him to be the best of the non-chlorine hypnotics, and to rank with chloral before all the others. He considered that hyoscyamus and hyoscine should be used with caution; the racemic form of hyoscine seemed to be less liable to produce untoward effects, and was of equal hypnotic value. The active principle of cannabis indica, especially if combined with bromide, might prove of service. If acute pain were present, opium was usually required, but if it arose from the nervous system itself and not from acute inflammations, the antipyrine group might serve instead.

Sir William Broadbent emphasized the importance of identifying the cause of the sleeplessness before giving drugs. It was very important to be on the lookout for indigestion as a cause of sleeplessness; its influence was often largely mechanical, and a drink of water, by displacing a few cubic inches of gas, might be effective. For high arterial tension as a cause a calomel pill

was the best remedy; it often induced sleep long before acting on the bowels. He uttered a warning as to the establishment of drug habits, and considered that the depressing effect of chloral on the heart was especially evident in such lung conditions as emphysema and bronchitis.

Hale White believed that insomnia was sometimes dreamed by patients. He referred to the sleeplessness due to worry, to indigestion, to excessive exhaustion, and to the effect of previous acute febrile disease. Where the disease was incurable and of short duration, as in cancer, or self-limited, as in pneumonia, hypnotics and analgesics were indicated. Where it was incurable and prolonged, as in tabes, morphine should not be given. The usefulness of alcohol as a hypnotic he believed to be exaggerated: too much had to be taken to produce a depressing effect; a little warm food was preferable. Chloral was good, except in the presence of sickness; chloralamide especially good in heart disease; paraldehyde and hyoscine where there was delirium or mental aberration, and heroin where there was coughing.

W. Collier alluded to school pressure as a cause of insomnia.

A. Foxwell emphasized the importance of circulatory insomnia; if due to low blood pressure he gave a full dose of strychnine; he had found dormiol and veronal of value.

THE FIRST AUTOPSY IN MONTREAL.

In the description in "Hakluyt's Voyages" of the travels of Jacques Cartier, is found the following, which describes the earliest reported autopsy performed in this city. It took place in 1535, when the winter was passed in Hochelaga and many of the crew died of an epidemic disease.

"That day Philip Rougement, borne in Ambroise, died, being 22 yeeres olde, and because the sicknesse was to us unknowen, our Captaine caused him to be ripped to see if by any means possible we might know what it was, and so seeke meanes to save and preserve the rest of the company: He was found to have his heart white, but rotten, and more than a quart of red water about it; his liver was indifferent faire, but his lungs blacke and mortified, his blood was altogither shrunke about the heart, so that when he was opened great quantitie of rotten blood issued out from about his heart; his milt (spleen, Ed.) toward the back was somewhat perished, rough as if it had bene rubbed against a stone. Moreover, because one of his thighs was very blacke without, it was opened, but within it was whole and sound, that done, as well as we could, he was buried."—*Montreal Medical Journal.*

URIC-ACID DIATHESIS—REPORT OF A SUCCESSFUL CASE.

BY WM. H. INGHRAM, M.D., PH. GR., NEW YORK.

BECAUSE of the kaleidoscopic symptomatology traceable to the hypothetical condition known as the uric-acid diathesis there is, perhaps, no causal factor more often overlooked by the general practitioner, and, if suspected, more indifferently combated. "Regulate the diet and give plenty of water" has for years been the dictum in the treatment when the presence of uric acid is suspected or established.

It was formerly almost universally held that the various conditions due to the presence of uric acid were the outcome of errors in diet. Haig, in his Epitome of the subject, classifies these conditions under two heads: (1) The local or precipitation group, due to the irritating presence of uric acid in a fibrous tissue, either in solution or suspension, as in gout, and (2) the circulation or solvent group, due to excess of uric acid in the blood (collemia) and its effects on the circulation, blood pressure, combustion, and nutrition, as headache, epilepsy, convulsions, chorea, hysteria, neurasthenia, nervousness, mental depression, and a variety of conditions. The first group, according to Haig, are relieved by solvents; the second by retentives, while both are prevented by a uric-acid-free diet.

Many eminent authorities take issue with Haig's theories concerning the treatment of these conditions, some protesting that diet does not play so important a role as has been supposed.

It is not the purpose of this brief article to combat or agree with Haig and his followers or those who hold opposing views. It may not prove devoid of interest, however, to give the history of a case in which diet played little part in the treatment, however much causal importance it may have had.

Mrs. J. G., aged 33, married, one child. First came under my care when the child was six years of age.

Family History—Negative.

Previous History—Healthy as a girl. Menstruation normal. For some months previous to marriage she suffered from so-called indigestion and developed a tendency to melancholia. Pregnancy normal except for mental depression, which, however, was not sufficiently marked to warrant interference with pregnancy. Delivery normal, child healthy. Mental depression and indigestion persisted after delivery, each growing more marked. Cystitis developed a few months after birth of child, urination being accompanied by violent pains. Became very hysterical, the attacks becoming more and more frequent. Three years before she came under my notice she was operated upon for gall-stones, several small stones being removed. This was followed by some relief as to the violent character of the pain experienced, but the cystitis and mental nervous symptoms persisted.

Present History—When patient came under my care she was so hysterical and the melancholia so marked that her family feared insanity was imminent. The violent attacks of gall-stone colic were again a pronounced symptom, and at times urination was so painful that catheterization had to be resorted to for days at a time. A small stone passed was found to contain uric acid. I immediately ordered restricted diet, exercise and quantities of Buffalo Lithia Water. I soon found that I could not control the diet to any appreciable extent. Being in her own home she had access to the table and pantry, and I found that she gratified to the fullest her almost voracious appetite: nor could I get her to take more exercise than the average woman takes. Medicines seemed to have little effect, so I fell back upon the solvent and eliminant plan, insisting that she drink abundant quantities of this water. For some strange reason this idea was the only one that seemed to impress her, and she religiously consulted, at frequent intervals, the bottle of water which she had always at hand. In a short time I noticed an abatement of all the distressing symptoms, which fact stimulated her ambition to drink more and more of this water. She gradually increased the amount to two quarts per day, and with this simple treatment improved gradually until at the end of about three weeks she was entirely free from cystitis, had no more attacks of gall-stone colic, the hysteria disappeared, and she is to-day as happy and cheerful as the average woman.

AMMONIA BURNS OF THE EYE.

Edward Stieren, ophthalmologist and otologist to the Passavant Hospital, Pittsburg, directs attention to the dearth of information concerning the action of ammonia on the tissues of the eye. There are points of similarity in the action of carbolic acid and of ammonia on the tissues of the eye for the first few days following their introduction; but the author says that ultimately the prognosis regarding the vision of an eye so endangered is quite gloomy when ammonia has done the damage, but much better when the agent has been carbolic acid.

The author recites four cases of injury to the eye by ammonia, in only one of which was treatment effective, and the marked improvement that took place in this case was due no doubt, the author says, to the use of dionin, a new and valuable agent in ocular therapeutics, which has marked properties as a lymphagogue on the tissues of the eye.

Dr. Stieren, on being requested by members of the Medical Society of the State of Pennsylvania to relate his experience with dionin, spoke as follows: "My attention was first attracted to this agent in the summer of 1893, while visiting Fuch's clinic in Vienna, where they used it in cases of corneal opacities, uveitis, infected globes, and painful iridocyclitis. When first instilled,

it causes a severe smarting, lasting about a minute, followed by a general edema of the ocular conjunctiva. Usually the pain of an iritis or episcleritis is abolished in a few minutes after its use. I prescribe it in 10 per cent. and 20 per cent. solutions, dusting the pure drug into the eye in the office.

"In regard to lime burns, I cannot recall any at present where the cornea was rendered completely opaque. Usually there is more or less formation of symblepharon with marginal opacity of the cornea. Logically, dionin would be a very useful remedy in lime burns of the eye as it is an analgesic and has marked properties in promoting the flow of lymph in the anterior portion of the eye."—*Penn. Med. Jour.*, May, 1905.

THE MEANING OF SUBSTITUTION TO THE PHYSICIAN.

THE substitutor prescribes for your patient, without regard to your reputation or the welfare of your patient, assuming that you do not know your business.

Why does he do it? For illegitimate profit.

What are you going to do about it?

The substitutor—You lose your patient but you don't know why.

The substitutor—The man who sells your patient a gold brick. Your patient believes you did it.

The name of the physician who permits substitution on his prescription—E. Z. Mark, M.D.

The substitutor—The man with originality or initiative. He wants to degrade you. Will you permit it?

The substitutor—The man who sacrifices you and your patient to satisfy his avarice.

What are you going to do about it?

The substitutor—Ananias was an angel compared to him. The first stole money and then lied about it. Penalty—Death. The substitutor steals your patient's money, his chance for life and your reputation as well. Penalty—Increased bank account.

ABSTRACTS.

Pyemic Infections.—M. G. Lebredo (*Revista de Medicina y Cirugia*, Havana) draws the parallel clinical picture of three pyemic infections—glanders, general streptococcus, and general staphylococcus infection. Differentiation is difficult in the clinic, and he urges physicians to apply to the Board of Health or elsewhere for bacteriologic examination of the pus without delay, if unable personally to attend to such tests. By this means it will be possible in time to stamp out the almost invariably fatal

glanders. He mentions a case of glanders personally observed, terminating in recovery. The patient was in the hospital a year and a half. The multiple abscesses were opened in turn and disinfected. When all had healed, except a single old one, an actual intermittent fistula, as he calls it, in the left inguinal glands, this was treated by radical extirpation. The cultures from the pus of this final lesion were negative toward the last.

Serotherapy of Pneumonia.—E. De Renzi (*Riforma Medica*, Palermo and Naples) concludes from his experiences with twenty-six patients treated with Pane's anti-pneumococcus serum are that the general condition always improved under the serotherapy. The patients say they feel better after the injection of serum, and this is not due to suggestion. The pneumonia had attacked strong men and reduced them to an alarming condition. When they said that they felt much better after the injection of serum, it could not have been the effect of suggestion under these circumstances. The temperature always subsided after the injection. When made in the morning, by evening the temperature was found reduced. As the general condition and the temperature improved, the pulse and respiration became less rapid. He has never seen any evidence that the local manifestations of the pneumonia are improved by the serum, but as the general condition is so much better, the local phenomena dwindle in importance as we see that the general resisting powers have been so powerfully reinforced. Another fact noted is that resolution does not occur with a crisis, but by lysis. The serotherapy evidently reduces the intensity of the disease, while it improves the general condition. The patient recovers without such loss of strength as is usual in the disease. Further evidence of this is the approximately normal blood pressure instead of the low pressure characteristic of pneumonia. Food can be taken early with a little alcohol.

Methylene Blue Urine Test.—M. Russo (*Riforma Medica* Palermo and Naples) proposes a methylene blue test which he thinks may advantageously substitute Ehrlich's diazo reaction. It is much simpler, while he has found the results equally reliable. In typhoid it affords more information than the diazo test, as it indicates the exact phase of the disease. The reagent is readily made and keeps perfectly. Methylene blue added to typhoid urine gives a characteristic color reaction, the tint changing to a pronounced emerald green. He uses a 1 per thousand aqueous solution of methylene blue. Four drops are added to a test tube containing from 4 to 5 c.c. of urine, and if the reaction is positive the fluid turns an emerald as mint green. A light green or

bluish green represents a negative reaction. Boiling the urine or previous ingestion of quinine, salol, calomel, euchinine, caffein or digitalis does not affect the reaction. It was encountered as early as the second or third day of typhoid in many instances, and was invariably positive in the 41 cases of typhoid and in the 32 of measles examined, paralleling the diazo reaction. In 10 cases of small-pox it was always positive, while the diazo reaction was negative in 2 of these cases. It was always negative in 10 cases of pulmonary tuberculosis in the first stage, while it was positive in 10 and negative in 20 out of thirty cases in the second stage. It was invariably positive in 25 cases in the third stage, also in 6 of tuberculous pleurisy, in 5 of tuberculous empyema and in 4 of tuberculous peritonitis, and was positive in 3 out of 5 cases of glandular tuberculosis, while the diazo reaction was positive in 4 of this latter group. Otherwise the diazo reaction nearly paralleled it. The methylene blue reaction was invariably negative in cases of scarlet fever, varicella, varioloid, influenza, bronchitis, pneumonia, and in gastric catarrh, in febrile gastroenteritis, in appendicitis, in renal lithiasis, in nephritis, in articular rheumatism, in cases of abscess in the liver, in mitral insufficiency, epilepsy, neurasthenia and malarial fever. The "mint" green tint is observed first, the emerald tone appearing as the disease reaches its height, while the tint grows more and more bluish as the patient progresses toward recovery, or the emerald tint persists till death. The constant presence of the reaction in small-pox and its absence in varicella and varioloid is an important differentiating sign.

Reflexes and Tremor in Neurasthenia.—G. Severino (*Riforma Medica,* Palermo and Naples) found tremor of the fingers in 88 per cent. of seventy-five neurasthenics examnied. The tendon reflexes were increased or exaggerated in 92 pr cent., while one or more of the superficial reflexes were abolished in from 70 to 85 per cent.

Appendicostomy.—The technic employed by J. P. Tuttle, New York (*American Jour. of Surgery,* New York), is as follows: The patient having been prepared as for the "interval operation," the abdomen is opened by the intermuscular method; an incision one and one-half inches long is sufficient in all uncomplicated cases. The appendix having been found and brought out over the skin, its artery is tied and the mesentery stripped down to its junction with the caput coli; a suture is then passed at the lower angle of the wound through the peritoneum, the muscular wall of the cecum at its juncture with the appendix and back through the peritoneum on the opposite side of the

wound, a second suture is then passed about one-half inch above the other, through the same tissues but on the upper side of the appendix. These two sutures being tied, the peritoneum is closed by continuous uture and the wound is closed by through-and-through or layer sutures, as the operator prefers; finally, one suture is passed through the skin and the muscular wall of the appendix on either side of the wound. The appendix is then wrapped in protective tissue, the upper angle of the wound is sealed by protective tissue and chloroform, and a simple dry dressing is applied. In thirty-six hours the dressing is removed and the appendix is cut off, about one-fourth of an inch from the skin of the abdomen. It will usually be found more or less gangrenous at its tip on account of the main artery having been cut off. Some small dilating instrument is introduced through the caliber of the appendix into the cecum, and this followed by the introduction of a No. 10 to 12 soft rubber catheter. This should pass in about four inches; a little silk thread should then be thrown around the protruding portion of the appendix and tied firmly around the catheter in order to prevent any escape of feces or intestinal fluid along the sides of the tube. This also serves to cut off the stump of the appendix flush with the skin. The catheter should protrude from the skin about two inches and should be fastened with a safety pin in order to prevent its slipping in either direction. The operation can be done quickly; it affords ample access for irrigation and medication of the colon, and the disagreeable features of artificial anus are practically eliminated. The opening does not close spontaneously, and yet it can be closed by cauterizing the mucous membrane when advisable. Irrigation may be begun any time after catheter is introduced.

Radical Cure of Congenital Inguinal Hernia.—A. C. Smith, P.H. and M.-H. S. (*Journal of the Association of Military Surgeons of the United States*, Carlisle, Pa., June) has devised an operation for the radical cure of congenital inguinal hernia, which he employed in four cases (out of 63 hernias operated on in 60 patients). The method is as follows: After forming a tunic for the testes out of the lower end of the sac, the remainder of the sac, except the strip which lies immediately on the vas and its vessels and nerves, is trimmed away close to the abdominal cavity. The simple wound of the peritoneum which results is closed with a continuous suture, one extremity ending at the cord. The transversalis fascia is sutured either with the peritoneum or separately, and the operation is proceeded with according to the Bassini method. The strip, which is left attached to the cord, consists of peritoneal membrane and does not interfere with the

closure of the openings in the sac. There is no more difficulty in closing the peritoneal wound completely and securely than in any other situation.

Filarian Hemoptysis.—R. G. Mon and N. Carballo (*Revista de Medicina y Cirugia,* Havana) describes the case of a man of thirty-three who presented nocturnal hemoptysis on twelve occasions, and a single embryo of the *Filaria Bancrofti* was discovered in the specimen of his blood. Under treatment with tincture of iodin, the hemorrhages promptly ceased, and after slight fever for two days he rapidly recovered and has been in perfect health since, with no signs of cough, fever or hemoptysis.

Dementia Præcox.—In a paper with this title, by R. Sachs, New York (*Journal of Nervous and Mental Disease,* New York, June) especial stress is laid on the following points: There are unquestionably many cases that correspond accurately to the types described by Kraepelin and his followers. This is particularly true of the earlier forms of mental derangement occurring in members of families in which there is a very marked psychic taint. Even in such individuals, however, many years pass before appreciable dementia sets in. The term should be carefully restricted to those cases in which mental deterioration at an early stage of the disease is clearly recognizable, and should be carefully considered and if posible avoided in those cases in which a dementia may possibly be developed in the far distant future. Making the diagnosis of dementia præcox puts the stamp of an incurable malady on individuals who may be sufficiently alert to be useful to themselves and to others for a long period of years, and in that sense does them a distinct injustice. There seems to be little gain in grouping widely different conditions under one heading simply because the individuals so afflicted are in the first third of life. The older plan of clinical subdivision is more commendable, and the tendency to dementia should be insisted on only when there is reason to think that a deterioration is certain to develop at a relatively early period.

Mistaken Diagnosis of Extrauterine Pregnancy.—E. Fortun (*Revista de Medicina y Cirugia,* Havana) describes three cases, in two of which there had been abortion after a few weeks of uterine pregnancy. The signs of the pregnancy were accompanied by an abdominal tumor, a sarcoma of the broad ligament in one, and an ovarian cyst in the other. In the third case, a dermoid cyst of the right ovary, with a long pedicle, induced symptoms suggesting pregnancy. As the uterus showed no signs of such a condition, an ectopic pregnancy was assumed.

Summer Diarrheas in Infancy.—C. H. Dunn, Boston (*Archives of Pediatrics,* New York, June) states that the diarrheal diseases of infancy occurring in the summer months differ in no way, either clinically or anatomically, from the diarrheal diseases occurring in the cooler months, except in their much greater frequency. Classification on an anatomic basis, as for example into functional and organic, or non-inflammatory and ileocolitis, is not convenient for etiologic study, owing to the variety of lesions found in cases of similar etiology and similar clinical course, and to the lack of correspondence between the anatomic and clinical pictures. The following clinical classification is suggested: (*a*) Acute nervous diarrhea, characterized by loose stools of normal color and odor, without abnormal constituents. (*b*) Irritative diarrhea. Acute intestinal indigestion of the irritative type, characterized by the absence of persistent fever, and by the presence of curds and undigested masses in the discharges. (*c*) Fermental diarrhea. Acute intestinal indigestion of the fermental type, characterized by the absence of fever, and by green stools of a foul or sour odor. (*d*) Infectious diarrhea, characterized by the existence and persistence of fever, and by the tendency toward early signs of ileocolitis, as shown by the presence of blood, and excess of mucus in the discharges. When a specific organism, the *Bacillus dysenteriae,* is proved to be the cause, the case may be further particularized by the term infantile dysentery. (*e*) Rare cases occur, corresponding to the known description of heat exhaustion and cholera infantum. Of the above differentiated types, the indigestion, including the irritative and fermented cases, is by far the commonest. The chief or primary cause of all the above types is the increased heat of the weather occurring during the summer months, which probably acts in the noninfectious cases by producing functional disturbance either of the nervous system or of the digestion; and which acts in the infectious case by producing in the intestine conditions more favorable to the occurrence of infection. The name thermic diarrhea can be given to the entire group. Bacteria are the secondary cause of a certain number of cases, such cases being mainly, if not wholly, of the type classified clinically as infectious. Infection occurs by the introduction of bacteria from without, or by autoinfection with bacteria already in the intestine. The latter is probably the usual method. The *Bacillus dysenteriae* is a cause of most of the infectious cases. Whether it is the sole cause remains to be determined. The *Bacillus dysenteriae* can often be found in the intestine in cases in which it probably has no causal relation with the pathologic process. Such cases are usually clinically of the non-infectious type. Other organisms are probably a cause of some infectious cases.

The anatomic changes of various kinds included under the term ileocolitis may occur in any of the above clinical types except the acute nervous. Anatomic changes of some kind probably occur in all infectious cases.

History of Yellow Fever in Cuba.—J. Le-Roy y Cassa (*Revista de Medicina y Cirugia,* Havana) traces the history of yellow fever in the island and its extirpation a few years ago. The three years of exemption are the most eloquent proof, he remarks, of the truth of the doctrine which Finlay proclaimed in the Havana Medical Society as long ago as 1881.

Defective Hearing in School Children.—C. Compaired (*Siglo Medico,* Madrid) urges that the hearing capacity of every child should be examined when it enters school, and again at stated periods. Teachers should be informed when a child is defective in this respect, and should be instructed to favor it as far as possible. Parents should be educated to detect the early symptoms, and the children should be treated in special otologic clinics, separate from the ordinary hospital or other ear clinics. The teachers might test the hearing of the children if a simple card of instructions were given them, and by this means incipient disturbances might be detected in time for treatment to be effectual. In his own experience, out of 1,366 cases of deafness between the ages of ten and sixteen, 16.55 per cent. were due to affections of the outer ear which could easily have been cured by simple measures, and thus have saved the child's hearing. In 18.89 per cent. the deafness was due to obstructions which might readily have been removed. In 33.79 per cent. it was the result of some infectious disease, and this proportion would certainly have been less if the ear complications had received prompt treatment. He regards adenoid vegetations as one of the most frequent causes of deafness. In 320 recent cases in which adenoid vegetations were removed he found bilateral purulent otitis media in 37, and unilateral in 41, catarrh of the tube in 68, hypertrophy of the turbinates in 79, enlarged tonsils in 59, enlarged glands in the neck in 14, and nasal catarrh in 17. In his general examinations of school children he has become convinced that fully 20 per cent. suffer from some ear affection. Districts with a moist, hot climate show much the larger percentage of purulent and catarrhal affections of the nose, throat and ears.

Anakhre, Goundou.—A. Ayala (*Revista de Medicina y Cirugia,* Havana) writes from Venezuela to describe a case of this affection in a white merchant, thirty-nine years old, a resident of Caracas, previously healthy. A large lump has developed on each side of his nose. The lumps are never painful and cause no disturbances except the mechanical ones.

R. A. REEVE,

Dean of the Medical Faculty of the University of Toronto, and president-elect of the British Medical Association.

RICHARD ANDREWS REEVE, M.D., was born in Toronto in 1842. He was educated at the University of Toronto, where he secured his B.A., and the silver medal in Natural Sciences in 1862. He graduated in Medicine from Queen's in 1865, and became Fellow of the Royal College of Physicians and Surgeons at Kingston in 1866. In the same year he was appointed assistant surgeon of the Toronto Eye and Ear Infirmary, a position which he held until 1872. As a specialist in eye and ear diseases, he went into partnership with Dr. A. M. Rosebrugh. He received an honorary M.D. degree from the University of Toronto in 1889, and was appointed lecturer in Ophthalmology and Otology in the medical faculty of the university. He was elected dean of the faculty in 1896. He is a member of the university council, and has been president of the Ontario Medical Association. He is a member of the American Otological Society, of the Ophthalmological Society of the United Kingdom, and of the American Ophthalmological Society. Dean Reeve has for years been perhaps the best known member of the medical faculty, and is the idol of the generations of students who have passed under his hands.

The Canadian Journal of Medicine and Surgery

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Advertisements, to insure insertion in the issue of any month, should be sent not later than the tenth of the preceding month. London, Eng. Representative, W. Hamilton Mann, 8 Bouverie Street, E. C. Agents for Germany Saarbach's News Exchange, Mainz, Germany.

VOL. XVIII. TORONTO, NOVEMBER, 1905. NO. 5.

Editorials.

MEDITERRANEAN FEVER (MALTA FEVER).

MEDITERRANEAN fever is a fever of long duration, bearing some resemblance to typhoid fever, but distinguished from it by the absence of rose spots, the fact that Peyer's patches are not enlarged or ulcerated, and the low mortality. It occurs along the shores of the Mediterranean, Gibraltar, Naples and among its islands, Malta, etc. It is not thought to be contagious from

person to person. Taylor (*Practice of Medicine,* 1904) think that "It is conveyed by means of drinking water," but offers n evidence for this opinion. Osler (*Practice of Medicine,* May 1905) says: "Insanitary conditions favor its spread, but w cannot as yet say whether the poison is air-borne or water-borne."

The micrococcus melitensis is said to be the pathogenic caus of the disease, and the blood serum of a patient who has Malta fever agglutinates cultures of micrococcus melitensis, in the sam way as in enteric fever the seru agglutinates cultures of typhoid bacilli. Recently, June 14, 1905, fresh lig t has been thrown on the etiology of this disease. Dr. Zammit, who was engaged in doing experimental work in Malta, took blood from six goats belonging to two different herds, and tested the action of their serum on the micrococcus melitensis. He discovered that the serum of five of these animals, when considerably diluted, caused agglutination of the microbe. This discovery was confirmed by Major Horrocks, of the Public Health Laboratory, who conducted a bacteriological examination of the milk and urine of the goats and found the micrococcus melitensis in abundance in the former fluid.

It now seems clear that goats' milk is the main source of the spread of Mediterranean fever in Malta, Gibraltar and other places. Some think (*B. M. J.,* for instance), that Malta fever is a disease of goats, not producing, as far as at present known, any symptoms in them, but capable of being transmitted to men by their milk and setting up the symptoms known as Mediterranean fever. There are, most probably, other pathogenic microbes present in the milk supply of Malta, *e.g.,* bacillus coli. While this editorial is being written, a former resident of Valletta, Malta, tells us that the milch goats of that island are rarely, if ever, cleaned, and that the hands of the goathe ls who milk them, are innocent of soap and water. "The goatherds bring their goats before your door, crying, 'Latte' (mil). If you ask for some milk, the goats are milked in your prese so that you can, from day to day, judge of the uncleanliness of the goats and the goatherd. The goats' milk always required straining." Osler writes of "A malignant type of Mediterran an fever in which the disease may prove fatal within a week or ten days—an undulatory type—the common variety, in which the fever is marked by intermittent waves or undulations of variable

length separated by periods of apyrexia and freedom from symptoms. In this really lie the peculiar features of the disease, and the unfortunate victim may suffer a series of relapses, which may extend from three months, the average time, to two years. Lastly, there is an intermittent type, in which the patient may simply have daily pyrexia towards evening without any special complications and may do well and be able to go about his work, and yet at any time the other serious features of the disease may develop." Osler's description of the clinical history of this fever seems to fit in with the theory of its etiology from the unwashed hands of dirty goatherds, who themselves suffer from Mediterranean fever in a chronic form. This theory might also explain the tendency to recurrence noted in persons suffering from this disease. Milk being the food of fever patients, patients ill with Malta fever would, according to the circumstances detailed above, receive fresh increments of the micrococcus melitensis in every drop of unboiled milk used by them.

An interesting investigation, therefore, would be a study of the bacterial flora on the hands of Maltese goatherds. It is likely that these men carry this microbe on their hands and, during oft-repeated milkings, inoculate fresh animals in their herds. These goats thus become the hosts of the micrococcus melitensis, though, possibly, not its victims. If the female goats were to suffer from Mediterranean fever, one would expect that their mammary secretions would dry up. The fact that they continue to secrete milk, while that fluid is full of micrococcus melitensis, goes to prove that this micrococcus is not pathogenic for them, though it causes fever in men who drink their milk. The cycle of events, according to this view, would be: The micrococcus melitensis present, in symbiosis probably, on the unwashed hands of goatherds; this microbe conveyed to female goats through chafing of the teats by rough usage or over-frequent milking; introduction of the microbe into the blood stream of the goat; discharge into the mammary secretions; entrance of the microbe into the intestines of men consuming such milk; resultant, fever.

This, of course, is conjectural at present, but *si non e vero e ben trovato.* At all events the prevention of Mediterranean fever should embrace: Cleanliness of the hands of the goatherds, and of the goats too, and until the disease can be suppressed, the boiling of goats' milk before consumption. J. J. C.

OPEN MEETING OF THE TORONTO MEDICAL SOCIETY.—DR. MATHEW D. MANN'S PAPER.

On the evening of October 5th, 1905, the Toronto Medical Society held an open meeting at the Lecture Room of the new Medical Building, Queen's Park. About sixty persons, some of whom were ladies, were present.

The programme consisted of the President's address by Dr. E. Ralph Hooper, Toronto, and a paper on "Pernicious Vomiting in Pregnancy," by Dr. Mathew D. Mann, Professor of Obstetrics and Dean of the Medical Faculty of Buffalo, N.Y. Dr. Hooper's paper dealt with the latest views of physiologists and clinicians as to the structure and functions of the ductless glands. He received a vote of thanks from the Society for his very able effort.

Dr. Mann divided cases of pernicious vomiting in pregnancy into three groups: the reflex, the neurotic, and the toxemic. He did not dwell on the first and second groups, attaching most importance to the third. The toxemic he subdivided into two classes, first, those depending on insufficient renal excretion, and second, those having hepatic disease for their cause. The first class, he thought, were quite common, and with them the prognosis was fairly good. The second class were more serious, and had only lately been described. The condition in some of the severe cases was similar to the pathological conditions found in cases of acute yellow atrophy of the liver. The ammonia in the urine rose to 10to 12 per cent., instead of 1.5 or 2.5 per cent. The urine also contained casts, albumen, and was of a low specific gravity. Dr. Mann favored the use of the vapor bath or hot bath, which helped the urinary functions, as well as that of the skin. He prescribed the employment of the physiological salt solution, per enema, several times a day, as a diuretic, to assist in eliminating the toxins. He did not favor nutritive enemata. As a last resort he recommended the induction of abortion, and mentioned a case in which he had employed that treatment recently with success, although the ammonia output was greatly increased.

Dr. Adam Wright, Professor of Obstetrics, University of Toronto, who concurred in the main with Dr. Mann's views, did not think favorably of the hot bath as an aid to the elimination

of toxins. He preferred calomel and sulphate of magnesia. Dr. Mann's paper was also discussed by Dr. Albert Macdonald and Dr. A. O. Hastings. A hearty vote of thanks to Dr. Mann was passed, and the hope was freely expressed by many present that the Toronto physicians would soon have another opportunity of hearing him again. J. J. C.

A CENTRAL EXAMINING BOARD FOR THE GRANTING OF MEDICAL LICENSES IN QUEBEC.

At a meeting of the Executive Committee of the College of Physicians of Quebec and the representatives of the universities of that province, held at Montreal, June 6th, 1905, the question of the establishment of a central board of examiners to grant licenses to practise medicine in Quebec was considered.

After the various questions involved had been discussed, the following resolution was moved by Dr. Brochu, and seconded by Dr. Faucher: "That the question of establishing a Central Board of Examiners, two-thirds of whom shall be professors of the universities, and one-third of physicians who are not professors, be submitted to the universities, with the reasons alleged in favor of the project, and, if the universities are in favor of considering the project, the President of the College of Physicians shall be authorized to call a meeting of the representatives of the universities and the members of the Executive Committee of the College of Physicians in order to prepare an amendment to the law of the College providing for the establishment of such a Central Board of Examiners, and that this Bill shall be submitted for the approval of the universities and the College of Physicians before presentation to the Legislature."

One of the principal reasons alleged for the establishment of such a Central Board of Examiners was to facilitate the introduction of medical reciprocity between Quebec and Ontario. In Revised Statutes of Ontario, c. 148, s. 26, we read: "When, and as soon as it appears that there has been established a Central Examining Board, similar to that constituted by this Act, or an institution duly recognized by the Legislature of any of the other Provinces of the Dominion of Canada as the sole examining body for the purpose of granting certificates of qualification,

and wherein the curriculum is equal to that established in Ontario, the holder of any such certificate shall, upon due proof, be entitled to registration by the Council of Ontario, if the same privilege is accorded by such Examining Board or institution to those holding certificates in Ontario."

The establishment of a Central Board of Examiners in Quebec would necessitate the abandonment of the privilege now enjoyed by the Quebec universities of granting to their medical graduates licenses to practise medicine in Quebec. It is true that a representative of the Quebec College of Physicians is present at these professional examinations, but he does not question the candidates. His office is to see that the oral examinations are conducted properly. In the other Canadian provinces the universities have not any such privilege as that enjoyed by the Quebec universities, and the license to practise in a province is given only after passing an examination before a Board appointed by the Provincial College of Medicine. The other provinces have frequently expressed their willingness to support interprovincial reciprocity in medicine on the same conditions as those proposed by Ontario. Hence it follows that the passing of a law providing for the establishment of a Central Board of Examiners in Medicine in Quebec would lead rapidly to interprovincial registration of medical diplomas throughout Canada.

It is possible, however, that a difficulty may arise when Laval University discusses the matriculation standard in medicine with McGill University. Laval wishes that the medical student shall have made a complete classical course—be qualified as a Bachelier ès Arts or Bachelier ès Sciences—before beginning the study of medicine. McGill University does not go so far. Her matriculation standard in medicine is similar to the matriculation of the Arts course of that university. McGill University might possibly be willing to go as far as Laval University in demanding of her medical students the title of Bachelier ès Arts before beginning medical studies, if the Ontario College of Physicians and Surgeons, equally exigent, would compel every applicant for a license in Ontario to obtain some similar academic qualification before beginning professional study. If it were otherwise McGill could not afford to do it. For if the Quebec universities were to unite in demanding a Bachelier ès Arts qualification from prospective medical students, while the Ontario College of Physi-

cians and Surgeons asked a modified form of the pass matriculation examination in Arts of the University of Toronto, English-speaking medical students from Quebec would abandon McGill, matriculate at Queen's University, or the University of Toronto, and pursue their studies at one of these institutions. Such students, it is true, could not take out licenses to practise in Quebec; but they could qualify in Ontario, and, if they wished, could pass the State Board examination in one of the United States. In fact, such a high-class matriculation standard would limit the production of doctors in Quebec, and *pro tanto* would be of decided benefit to the overcrowded profession of that province. But it would be a very unprofitable undertaking for McGill University—in fact, a form of suicide.

Ontario, therefore, holds the key of the situation. If the Ontario Council of Physicians and Surgeons will demand the equivalent of a Bachelier ès Arts qualification from future medical students, McGill can acquiesce in the programme of her French-speaking sister and do likewise.

It is not necessary that a medical student should obtain a B.A. diploma, in the English sense of that term, in order to qualify for efficient medical study. The diploma won by a Bachelier ès Arts shows that he is well skilled in some of the Latin and Greek classic authors, in French, and some other modern languages; mathematics, literature, logic and metaphysics; that he can compose well and express himself like a gentleman. The senior matriculation in Arts, or its equivalent, the pass examination in Arts of the first year in the University of Toronto, ought to be equivalent to the Bachelier ès Arts qualification. At all events, if not quite equivalent, a little raising-up or cutting down would bring these tests to the required level. If the Quebec universities would accept such a matriculation standard, the examination under which could be passed either before the examiners in Quebec or at the University of Toronto, or at Queen's, or the Western University, a student in medicine could study at the medical school of his choice, and pass the required professional examinations before the Board of Examiners of the province in which he wished to practise. As under such circumstances as these interprovincial registration would inevitably follow, a qualified Canadian doctor would be free to exhibit his sign in any part of the Dominion of Canada he might wish to practise in.

J. J. C.

EDITORIAL NOTES.

Simplicity in Surgical Dressings.—At the banquet of the Surgeons' Association, given at the Hotel Astor, New York, September 21st, 1905, Surgeon-General Suzuki, I.J.N., described the aseptic dressing of wounds in the Japanese service. "In dressing wounds," he said, "we have had the best results from the use of sterilized water. We used no carbolic acid, no antiseptic dressing of any kind. We wrapped our wounds in dry gauze." He described at great length the treatment of one of Togo's captains with this method. A perusal of the above, which appeared in a press despatch, would induce a non-medical reader to imagine that the victorious Japanese had been giving lessons to the New York surgeons as to the latest and best methods of dressing wounds. All that can be really taken from the despatch is, that Dr. Suzuki and his compeers in Japan favor the aseptic method of dressing wounds, instead of the antiseptic one. In the aseptic method no antiseptic substances are employed during the operation or the dressing of the wound, except to such factors of the procedure as cannot be properly sterilized by heat. Therefore, the field of the operation, the hands of the operator and of the assistants, and the catgut, and perhaps the drainage agent, are antiseptically prepared in both methods. In the aseptic method, sterilized water, sterilized saline solutions, sterilized wipers and dressings, prepared by dry or moist heat, are exclusively used. The advantages of the aseptic method are notable. It can be applied to all parts of the body; the wounds heal more quickly; the patient's skin is not irritated, and toxic dangers are absent. All this is well known, and was known long before the Russo-Japanese war began.

To Lessen the Prevalence of Insanity in Canada.—To judge by the number of asylum cases, insanity in Canada increased 25 per cent. in ten years, 1891-1901. In 1891, according to Dr. Burgess, President of the American Medico-Psychological Association, the insane asylums of the Dominion contained 13,342 cases out of a population of 4,719,893. In 1901, 16,662 lunatics were kept under restraint in the various institutions, and the population was 5,371,315, an increase of nearly 25 per cent. in the

number of lunatics, whereas the increase in the total population was less than 13 per cent. Dr. Burgess attributes the alarming increase in the number of the demented to immigration and the laxity of medical inspection at the various ports, which is said to be a mere formality. He asserts that the imported element —a little over 13 per cent. of the general population—furnished over 17 per cent. of so-called Canadian lunacy. This is a rather severe arraignment of the port inspectors of the Canadian Government. Dr. Chas. K. Clarke, Medical Superintendent of the Toronto Asylum for the Insane, evidently shared in this opinion two years ago, for, in a paper read at the meeting of executive officers of Provincial and Local Boards of Health, held at Peterboro', September 10th, 1903, he said, *inter alia,* "If I could show you many of the degenerates I have met who came here under the name of desirable immigrants, you would marvel that they could have passed the most perfunctory inspection, so obvious were the ear-marks of degeneracy." Dr. Clarke also mentioned a new law introduced by Congress, amending the restriction of the immigration of the defective classes, which interposes a bar to lunacy and crime coming to America from abroad. An important feature in this law is the extension to three years of the period of probation during which insane or criminal aliens, who have landed in contravention of the laws of the United States, may be deported. Suitable provision is made for obtaining information leading to the detection of defectives and the facilitation of the enforcement of the Act. Dr. Clarke suggests that similar legislation be passed in Canada. The advice is a good one, and, whether as a check on perfunctory inspection at the Canadian port of arrival, or as a reason for introducing legislation to lessen the number of defective aliens in the asylums of Canada, is worthy of the consideration of the Canadian Government.

The Treatment of Chronic Nervous and Incipient Mental Diseases in Toronto.—We notice in an article in a local paper that the residence formerly occupied by Dr. Charles O'Reilly, ex-Medical Superintendent of the Toronto General Hospital, is to be changed into an institution for the treatment of patients suffering from chronic nervous and incipient mental diseases. The building is given by the trustees of the hospital; the necessary changes

and furniture are to be supplied by the Ontario Government. In all probability, Dr. Campbell Meyers, at whose suggestion this desirable change has been made, will be the chief medical officer of the new institution. The poisons of alcohol, syphilis, morphine, etc., have long been recognized as the agents which produce certain forms of insanity. In most cases of puerperal insanity, septic infection of the genital tract is present; whilst in many acute forms of insanity the absorption of poisons from the intestinal canal is the probable mode of infection. These facts are of great significance in the prevention and treatment of certain forms of acute insanity. Intestinal antiseptics have been used with advantage in some cases. Gastric lavage and saline purgatives, together with warm shower-baths and hot packs, are still more efficacious. Bruce Smith showed (*Montreal Medical Journal,* February, 1904) that such a course frequently produces marked sedative effects in acute insanity. Similar treatment, together with careful disinfection of the genital tract, has also proved beneficial in cases of puerperal insanity. Those forms of insanity due to deficient development of the brain, or to structural lesions of the higher cerebral centres, cannot, of course, be prevented. There are cases, however, in which through the direct influence of syphilis or other toxemic conditions, together with mental strain, even a robust, nervous system may give way. Or a person predisposed to insanity by heredity may escape insanity, if instructed to avoid exciting causes, such as stress and excitement of city life and excesses of all kinds. The digestive organs must be looked after and regulated; a congenial occupation followed; sleeplessness must be guarded against. A clinic in which advice and prompt treatment will be given to patients so affected ought to be useful in overcoming the first approaches of incipient mental disease. It should also prove to be a valuable source of instruction to medical students.

The Temenah, a Hygienic Salutation.—A correspondent of *La Presse Médicale,* G. V., writes an entertaining little article on the merits of the Temenah, an oriental form of salutation, which consists in placing successively the right hand over the heart, on the lips and on the forehead, meaning thereby, "Your person is ever in my heart, on my lips, and in my thoughts." The temenah, G. V. says, is the real hygienic salutation, doing

away absolutely with all contact with the hands of strangers, which are more or less soiled; and, for this reason, it merits the approval of all those who do not wish to exchange different kinds of microbes with their neighbors. To the surgeon this is a very strong argument. The public are also interested. Without mentioning scarlet fever, which may be taken or given through a clasp of the hands, many other contagious diseases are similarly disseminated. There is some reason for thinking, therefore, that this universal method of expressing civility may occasionally be a real danger. While there is a good deal to be said from the hygienic standpoint in favor of an aseptic salutation, whether it be the temenah or a simple bow, it will be a long time before the people in America will cease to express their sociable feelings by kind shakes of the hand. Besides, the risks of contagion do not seem very obvious to the ordinary individual. If one runs the risk of giving or receiving contagion in clasping the hands of a few friends of an evening, what would be the risks run by a representative personage who shakes hands with from 1,500 to 2,000 persons at a reception?

The Surgical Treatment of Vulvo-Vaginal Abscess according to Dr. Doleris.—Dr. Doleris, in *Gynécologie* (February, 1905), recommends to the general practitioner the following treatment for vulvo-vaginal abscess: (1) A free, longitudinal incision at the juncture of the muco-cutaneous surfaces of the tumor. Antiseptic lavage of its cavity and examination of its walls for indurated lobules. When the abscess is emptied, the cutaneous wall, which had been quite thin, retracts and thickens. (2) Cauterization, with the thermocautery, of the whole internal surface of the abscess cavity, carbonizing it to a depth of several millimetres, being careful to protect the edges of the incision. The cavity, which at first had been deep, becomes smaller and smaller and is reduced to a little pocket, bounded by thick walls. The carbonized surface is then powdered over with a mixture of iodoform and dermatol. (3) A vertical drain is introduced and the edges of the incision are drawn carefully together with horse-hair sutures. If the edges of the incision have been kept apart by Kocher hemostats during the cauterization, union by the first intention takes place rapidly and surely. The drain should be about three millimetres in size.

Sometimes only the lower portion of the incision is drained, the remainder having been sutured. (4) An antiseptic and isolated dressing of the region to prevent the contact of urine or utero vaginal secretions, which is easily accomplished, if the surgeon has been careful to make his incision at the junction of the skin with the vulvar mucous membrane. In a few days the elimination of the carbonized parts takes place through the drain and is soon completed. Generally after the tenth day only a thick serous fluid escapes. The drain soon becomes unnecessary on account of the rapid retraction and filling up of the little cavity. Dr. Doleris says that his operation is simple and may be done rapidly and by any physician, while the removal of the whole vulvo-vaginal gland is difficult, takes a long time, and exposes the patient to the danger of having cysts opened or to very free hemorrhage. This operation, he says, has always been successful in his hands, and the resulting deformity to the labium majus is trifling.

The Immunity Unit for Standardizing Diphtheria Antitoxin.—In accordance with the Act of Congress, approved of July 1st, 1902, no one is allowed to engage in interstate traffic in antitoxin without a license issued by the Secretary of the Treasury, on recommendation of the Surgeon-General of the Public Health and Marine Hospital Service of the United States. This license is issued only after a careful inspection of the establishment, its methods of manufacture, and an examination of its products for purity and potency at the Hygienic Laboratory, Washington. As antidiphtheritic sera, manufactured by different American firms, are used in this country, the Canadian profession will learn with satisfaction that all these products are alike subject to Government inspection and analysis, and that those which are marketed here can be depended on for strength and efficiency. Dr. Rosenau, Director of the Hygienic Laboratory, Washington, in a scholarly pamphlet, issued April, 1905, shows the importance of having a diphtheria antitoxin, the value of which has been accurately determined, and also explains at length the scientific methods by which such a standard preparation has been obtained.

J. J. C.

PERSONALS.

Dr. Frank Parsons, of Red Deer, Alta, was married in Brampton, Ont., on October 14th.

We congratulate Dr. John Wesley, of Newmarket, Ont., on the result of the suit against him for malpractice which was promptly dismissed on the 14th ultimo.

Dr. G. A. Peters has resumed practice at 102 College Street. We are glad that the doctor's health is the better for his few months' rest near London, and trust that such will continue.

We extend heartiest congratulations to Dr. W. B. Thistle on his marriage, on October 25th. Dr. and Mrs. Thistle will reside at 171 College Street, the residence the doctor purchased some little time ago.

The sympathy of the entire profession is extended to our old schoolmate, Dr. R. J. Wilson, Bloor Street West, on his recent sad bereavement. Mrs. Wilson died on October 22nd, after an illness extending over several years.

Our New Department of Dermatology.—We are pleased to announce that Dr. D. King Smith, who returned to Toronto a few weeks ago, after spending six months in London, making a special study of dermatology under such renowned men as Crocker, Sequeira, and others, has consented to take charge of a Department of Dermatology in connection with our journal. Dr. Smith intends making a specialty of cutaneous diseases, and will confine his practice to that line of work. We take this opportunity of thanking him for acceding to our request. From time to time he will give our readers contributions on this interesting branch of practice.

Obituary

DEATH OF DR. BARNARDO, THE GREAT PHILANTHROPIST AND FRIEND OF CHILD WAIFS.

DR. THOMAS JOHN BARNARDO, the well-known founder and director of philanthropic institutions, by which over 55,000 orphan waifs have been rescued, trained, and placed in life, died September 19th, after a short illness. Dr. Barnardo had suffered from angina pectoris for some years.

Very recently Dr. Barnardo was receiving congratulations upon his sixtieth birthday, and many years of active work were anticipated for him. Born in Ireland in 1845, the ninth son of John M. Barnardo, Thomas John Barnardo was educated at private schools. He studied in London, Edinburgh and Paris hospitals, and when in London in 1866 first had his attention directed to the street waifs, of whom he afterwards became the greatest friend. He spent his spare time in investigation and boarded out his first proteges in 1866-1867. A home was established in 1867, and the Village Homes for girls at Ilford, Essex, were founded in 1873. Her Majesty's Hospital for Sick Waifs followed in 1887, and the Young Helpers' League formed in 1891. Dr. Barnardo received the diploma and medal of the Paris Societe Nationale d' Encouragement du Bien in 1885. He published many articles and booklets in connection with his work and edited two magazines in its interests.

Dr. Barnardo had been in Canada several times, the last occasion being in 1901, when he visited the house at Peterboro', the head office at 214 Farley Ave., Toronto, and the homes in the West, the Farm House in Manitoba and that in Winnipeg. The Toronto home is a distributing centre, and 18,000 boys and girls have been brought to Canada by the Barnardo agencies. The head office in Stepney Causeway, London, has 121 branches in England and abroad. Last June there were 8,493 children under care, and in 1904, 10,900 had been looked after.

Of the 3,827 candidates who, being absolutely destitute and homeless, were admitted on application during 1904, 367 were babies in arms, 124 were deaf and dumb, or blind, or deformed, or little incurables, 215 were homeless youths over sixteen years of age, who were assisted to find their footing again through the labor house, while 73 were very young women from the black army of the streets.

Dr. Barnardo had a strange mixture of blood in his veins. His father was a German of Spanish descent. His mother was born in Ireland of English ancestry. He himself was born in Ireland, and was a Protestant of the Protestants. In early life he intended to become a missionary to China, but while at London studying medicine with that end in view cholera broke out. When others stampeded, Dr. Barnardo volunteered for slum work, and this led him to work in a "ragged school." Here it was that the memorable incident took place which led to the establishment of the Barnardo Home. One raw winter night a little urchin, Jim Jarvis by name, begged to be allowed to stay for shelter in the ramshackle school-room.

"What would your mother think?" said Barnardo.

"Ain't got no mother."

"But your father?"

"Ain't got no father."

"Stuff and nonsense, boy; don't tell me such stories! You say you have not got a father or mother. Where are your friends, then? Where do you live?"

"Ain't got no friend. Don't live nowhere."

Dr. Barnardo was incredulous, but continued his cross-examination.

"Tell me, my lad, are there other poor boys like you in London, without a home or friends?"

"Oh, yes, sir, lots—'eaps on 'em; more'n I could count."

Jim was put to the test that very night, and in the very first place visited eleven boys were found sleeping in the cold, on top of the roof of a shed. After further investigations, Dr. Barnardo told a party of rich friends of his discoveries. They could not believe his report, so cabs were hired and they went to see for themselves. Billingsgate was visited, and no boys were to be seen. Barnardo's heart sank, but a policeman standing by told him it would be all right. "They'll come out," he said, "if you give them a copper."

A half-penny a head was offered, and then from out of a great, confused pile of old crates, boxes and empty barrels, which were piled together, covered with a high tarpaulin, crept seventy-three boys, a sorrowful and mournful regiment of the great army of the destitute.

"I pray God," said Barnardo, "that I may never again behold such a sight."

The home was started at once on a mean street, with twenty-five boys.

News of the Month.

THE MANAGEMENT OF THE ASYLUMS.

For the first time in the history of the province the medical superintendents of Ontario's prisons and asylums met in the Parliament Buildings on September 21st, and formed a preliminary organization, after discussing many questions of interest with respect to the institutions they represent. The gathering was held on the suggestion of Hon. Mr. Hanna, Provincial Secretary, and is the forerunner of a series of meetings to be held at regular intervals, and which, it is expected, will result in increasing the efficiency of the institutions. Dr. McCallum, Superintendent of the London Asylum, presided at both morning and afternoon sessions of the meeting. Before adjournment Hon. Mr. Hanna said that the reorganization in the method of managing the institutions, which would be carried out as speedily as possible, would result in the medical staffs being called upon to do very little or no clerical work. This evoked hearty applause, as the clerical duties now devolving upon many superintendents take away much of the time that should be given to the study of the varied cases coming under their care, and to wider medical research. The next meeting will be called by a provisional committee, of which Dr. Beemer, of Mimico Asylum, is secretary.

At the morning session Dr. McCallum, who presided, said that one question to be discussed and decided upon at a future gathering would be the advisability of appointing a Provincial pathologist, whose aim should be to trace the pathology of the diseases of idiots and degenerates, and give the benefit of his advice to the superintendents. There were over 6,000 unfortunates now in the care of the Province, and the growing number demanded close study of the causes of their condition. Insanity was, he said, traceable chiefly to three causes: alcohol, heredity and syphilis. Some countries, recognizing these causes, had passed most stringent laws with a view to prohibiting the marriage of persons tainted because of them. Dr. McCallum advocated a rigorous medical inspection, by men who knew degenerates when they saw them, of the flood of immigrants coming into the Province, so that undesirables could be turned back. Nor should the wholesale immigration of children of paupers and degenerates be encouraged. "Canada," he declared in conclusion, "is at

present a dumping ground for degenerates. Our neighbors to the south get them sent over here, where they are arrested, sent to our jails, and later to our asylums, to be maintained at the public expense. I know of several cases where that has been deliberately done, and we have no means of redress. We must guard against this."

Hon. Mr. Hanna, in a brief address, told the officials that, as in the past, they would continue to receive the hearty support and sympathy of the department in their work. He paid a tribute to Mr. Christie, who recently resigned his position as senior inspector of prisons and asylums. That gentleman's work had always been well done, and his connection with the service marked by the faithful discharge of his important duties.

Dr. W. N. Barnhardt, Toronto, read a paper in which he said that in regard to pathological work the Ontario asylums were about ten years behind the worst of those of the neighboring States. This was largely due to the generosity of United States legislatures, which enabled the carrying on of continuous medical research. Excellent work might be done by the present Ontario staff, if they were relieved of some of their non-medical duties, and aided by a central bureau for collating and recording the results and the encouragement of co-operative methods.

Varied opinions were expressed in the discussion that followed, the general opinion being that, while in some respects the Ontario asylums were ahead of similar institutions elsewhere, there was lots of room for improvement in respect to scientific research.

Dr. Campbell Meyers, Toronto, in a paper dealing with the prevention of insanity, held that the first step in prevention must be taken by providing better facilities for clinical instruction in functional nervous diseases, for the medical student—the future practitioner—under whose care such cases must inevitably first come. With this end in view, he advocated the establishment of wards, or a separate pavilion, in connection with general hospitals, for the treatment of the insane. The Toronto General Hospital trustees had offered for this purpose the use of the residence occupied by the late medical superintendent, undertaking its maintenance and the cost of the nurses, provided the Government would bear the expense of required changes to the building.

Mr. J. W. Flavelle, in reference to Dr. Meyers' concluding remarks, said the hospital trustees were ready to enter upon the work immediately, if the Government thought well to bear the cost of the change in the building. This they thought they could fairly ask, because the building would have to be abandoned in a few years, when the new hospital scheme was consummated.

A discussion brought out the general opinion that much could

be done in checking insanity, if proper educational facilities were afforded the coming practitioners.

On motion of Drs. Beemer and Mitchell, the plan advocated by Dr. Meyers was endorsed by the meeting.

Among those present from public institutions were: Dr. Clarke, the newly-appointed Superintendent of Toronto Asylum; Dr. Beaton, Orillia; Dr. Beemer, who is acting as secretary, and Dr. Forster, Mimico; Dr. Russell, Hamilton; Dr. McCallum, London; Dr. Hickey, Cobourg; Dr. Moore and Dr. Mitchell, Brockville; Drs. Ross and Gilmour, Toronto; Drs. Ryan and Herriman, of Kingston, and Mrs. O'Sullivan, Mercer Reformatory. Others in attendance were: Inspectors Armstrong, Rogers and Dr. Bruce Smith, of the Prisons and Asylums Department; Mr. J. W. Flavelle, Chairman of the General Hospital Board; Dr. W. Oldright, Dr. Campbell Meyers, Toronto.

Premier Whitney and Hon. Dr. Pyne were present for a short time.

During the afternoon the question, "What limitations should be placed upon the admittance of senile cases into asylums?" provoked considerable discussion, in the course of which several speakers expressed the opinion that such cases, where the patients were indigents, should be cared for at county poor-houses. Where such homes did not exist the municipalities should bear a portion of the expense of their care at the asylums. One doctor expressed the view that "the local physician cannot be trusted; it seems to be his aim to get the patient into the asylum by hook or crook." Another suggested the examination of senile patients by asylum physicians, who should report as to their fitness for entrance to asylums and the ability of the family or relatives to contribute to their maintenance there, or whether the cases were such as could be very well cared for at home. Mr. R. Christie, former senior inspector of asylums, during his remarks said that Ontario asylums in respect to general management and results were the equal of any similar institutions in the world. Finally the subject was left to be disposed of at a future meeting.

The question, "What regulations should govern the admittance of defectives and degenerates?" was also left over.

There was a long discussion on the question, "Under what conditions should the insane be admitted to jail?" Though satisfaction was expressed at the fact that there are now fewer insane in the jails than formerly, there is still room for a considerable improvement, particularly in regard to the commitment of lunatics to jails by warrant. A resolution was adopted recommending that the system of committing lunatics to jail by warrant be simplified, and that magistrates be instructed against committing alleged insane persons to jail when application for the admittance of the same to asylums has not been made.

The question, "How best to secure proper maintenance contributions?" was also left over. A resolution placing on record the appreciation of Mr. Christie's services in connection with the public institutions of the Province was passed unanimously and appropriately responded to by the gentleman named. Hon. Mr. Hanna was also warmly thanked for the interest he had displayed.

LAYING OF CORNER-STONE OF THE NEW HOMEWOOD RETREAT, GUELPH.—DR. STEPHEN LETT'S DEATH.

SEPTEMBER 21st, 1905, was a red-letter day in the history of the Guelph sanitarium. It is some twenty-two years since the Homewood Retreat, as it was then called, was founded under the present directorate, with accommodation for sixty patients, but latterly it became obvious that if the demands made on the institution were to be met it would be necessary to make a large addition. This work is now in progress, and the corner-stone was laid on the above date in the presence of a large company of leading people of the city. The new building is 265 x 46, three stories high and a basement, capable of accommodating one hundred patients. Next summer another addition, 45 x 45, two and one-half stories, with basement, and a boiler house, 30 x 20, will be built, so that the work when completed at a cost of $100,000, will make the institution one of the best of its kind on the continent. The platform where the stone was laid was carpeted and decorated with red, white and blue, even to the derrick. Dr. Hobbs, superintendent, was appointed chairman. He called on Rev. S. E. Marshall, Norfolk Street Methodist Church, who offered an earnest prayer for Divine blessing on the staff and the promoters of the institution in ministering to the unfortunate.

The stone, which bore the figures "A.D. 1905," was laid by Hon. W. J. Hanna. Inside it contained copies of the *Globe, Mail, Guelph Mercury* and *Herald,* Hamilton papers and current coins. The trowel, which bore the inscription, "Presented to Hon. W J. Hanna, Provincial Secretary, on the occasion of the laying of the corner-stone of the new building of the Homewood Sanitarium, Guelph, September 21st, 1905," was then presented to Mr. Hanna.

On account of the wind being so high the party adjourned to the beautiful sheltered lawn below the buildings, where a few short speeches were made. On the platform were Dr. Hobbs, Chairman; Messrs. J. W. Langmuir, R. Jaffray, Vice-President; E. Galley and F. Jarvis, Directors; J. M. Bond, Dr. Brock, County Crown Attorney Peterson, the Provincial Secretary and Mr. J. P. Downey, M.P.P.

Mr. Hanna expressed his pleasure at the honor conferred on him in being designated to lay the corner-stone. He referred to

the meeting of the heads of different asylums, held the day previous in Toronto, and the almost unanimous conclusion they had come to. He paid a special compliment to Mr. Langmuir, who had been publicly connected with this work since Confederation down to 1882, and also to Dr. Hobbs of the Sanitarium, and the directors, for their public-spiritedness in advancing such objects. Insanity was not a crime or a disgrace, but a disease, and had to be treated as such. Thirty years ago it would have been held a crime. He was glad this institution was doing a work which the Government could not afford to do, and he was pleased to understand the institution was self-supporting. The intention was to have the most modern improvements, the best treatment and accommodation.

Mr. Langmuir stated that it was an erroneous impression in the minds of many that these institutions were not under Government control. They were under the same control as any other asylum. He was conversant with the matter, having served under three administrations. He had always advocated the separation of a class which did not come under the scope of an asylum.

Mr. Peterson, Dr. Brock and Mr. J. P. Downey also spoke, and refreshments were served.

Dr. Stephen Lett, one of the founders of the Homewood Sanitarium, died at that institution on October 11th. He had been removed from the asylum at Kingston a few days before. The doctor was much respected in the city. In the fall of 1901 the doctor fell a victim to paresis. His strong constitution prolonged the inevitable ending for a longer period than usual, but he had been gradually weakening the past few weeks. Perhaps the main cause of Dr. Lett's breakdown was his courageous act in plunging into the icy waters of the river by the sanitarium to save a lad who had broken through the ice. The shock of the immersion came upon a system which had been weakened somewhat by close application and hard work, and no doubt contributed to the mental disease which made its effects apparent sometime afterward. Deceased was a son of the late Rev. Stephen Lett, LL.D., D.D., of the County of Wicklow, Ireland, and later of Toronto and Collingwood, by his first wife, Harriette Samson, of Misterton, Lincolnshire, England. He was born at Callan, Kilkenny, Ireland, on April 4th, 1847, and was educated by private tuition and at Upper Canada College, Toronto. He became a member of the College of Physicians and Surgeons in 1870, and took his degrees at Toronto University—M.B. in 1878 and M.D. in 1879. He filled positions in the asylum service at Toronto and Hamilton, etc., and was a well-known militia officer during the Fenian troubles. Dr. Lett was married in 1874 to Annie, daughter of the late John McLeod, ex-M.P., Amherstburg, who survives, with a son, Kenyon Lett, and a daughter, Miss Frances Lett. Dr. Lett was buried in the family plot in Toronto on October 13th.

Items of Interest.

Handsome New Prescription Drug Store.—Mr. G. Francis Proctor has purchased the fine drug business—perhaps the finest in Toronto—on the corner of College Street and Dovercourt Road. Mr. Proctor, who is known as a very careful and capable dispenser, is devoting his whole time in this store. Physicians prescribing for their patients in the west end will find this place a thoroughly reliable pharmacy.

New Coroners.—The *Ontario Gazette* announced recently the following appointments as coroners: Dr. Forbes E. Godfrey, Mimico, for York; Dr. J. A. C. Evans, Stroud, for Simcoe; Dr. Wm. G. McKechnie, Marmora, and Dr. H. Alger, Stirling, for Hastings; Dr. George H. Ellis, Chesterville, for Stormont, Dundas and Glengarry; Dr. Wm. Glaister, Wellesley, for Waterloo; Dr. Hiram Wigle, Wiarton, for Bruce.

University of Toronto Faculty of Medicine.—The nineteenth session of the Faculty of Medicine of the University of Toronto was auspiciously opened on Tuesday, October 3rd. The opening lecture was delivered by Professor Victor C. Vaughan, Dean of the Faculty of Medicine of the University of Michigan, in the University Gymnasium, at 8.30 o'clock in the evening. Professor Vaughan's masterly address we give our readers in this issue.

Scopolamine, a new Anesthetic.—German papers report that a new anesthetic juice has recently been discovered in Japan, the product of a plant growing in that country. The anesthetic has been named scopolamine, and is said to be superior in its effects to all other articles of this kind. It is administered hypodermically and produces a deep sleep lasting from eight to nine hours. If the assertions concerning scopolamine are confirmed it will certainly be used in surgical operations, as it is claimed that it does not produce the slightest after-effects, which are always to be feared with anesthetics hitherto used.—*Health.*

Alterations to the Western Hospital.—Important alterations to the Western Hospital are in progress. The latest addition consists of a large building in the rear, which is now occupied by semi-private wards, but will in time be used entirely for laundry purposes. Two private houses have been purchased, which have

been made into a single building, containing twenty-eight private wards, to be used for a maternity home. Another new building, to cost $10,000, will be commenced almost immediately, to be used for the treatment of infectious diseases. In addition, the erection of another new wing to the hospital proper will be commenced next summer. The estimated cost is about $30,000.

Toronto General Hospital Nurses' Graduating Exercises.—The graduating exercises of the Toronto General Hospital for Nurses took place on Friday evening, October 20th. After the opening invocation by the Rev. W. G. Wallace, D.D., Mr. J. W. Flavelle, as Chairman of the Board of Trustees, delivered a short address, after which Miss Snively, Lady Superintendent, gave the annual report of the school. Dr. R. W. Bruce Smith delivered the address to the graduating class. The doctor quite distinguished himself, and is to be congratulated upon his efforts. We hope to give our readers the benefit of this paper in a later issue. The prizes were presented by Mayor Urquhart, and a most pleasant evening brought to a close by a dance in the Nurses' Wing.

Magnificent Donations to the New General Hospital.—Over $250,000 in one day from private sources for the building fund of the new Toronto General Hospital! This was the announcement given out one day recently after a conference between the Board of Trustees of the Toronto General Hospital, and a number of private citizens, held in the board room of the Canadian Bank of Commerce. As a result of the conference the following subscriptions were received: Hon. Geo. A. Cox, $100,000, the money to build a memorial wing in memory of the late Mrs. Cox; Mr. Timothy Eaton, $50,000; Mr. E. R. Wood, $25,000; Mr. E. B. Osler, M.P., $25,000; Mr. J. W. Flavelle, $25,000; Mr. H. D. Warren, $10,000; Mr. P. C. Larkin, $10,000; Mr. B. E. Walker, $10,000. Since the conference referred to, the following additional amounts have been subscribed: Estate H. A. Massey, $100,000; Mr. Frank Baillie, $5,000; Mr. W. R. Johnston, $5,000; Mr. Fred Nichols, $5,000; Lieut.-Col. Pellatt, $5,000; Mr. W. B. Hamilton, $2,000, making a grand total to date from all sources, $979,000. As an evidence of the broad spirit manifested by the donors, it is satisfactory to note that Mr. E. R. Wood is chairman of the trustees of Grace Hospital. It is expected that still further subscriptions will be announced very soon.

Dr. Reeve's Selection as President of the British Medical Association a Wise One.—In selecting Dr. Reeve as the president of the British Medical Association for that body's Canadian meeting next year, the members of his own profession have done well. They had abundance of material to choose from. They have

fixed upon one whose services to medical education have been conspicuous, and whose rank as Dean of the Medical Faculty naturally marks him out for a representative position. The high regard in which Dr. Reeve is held, both personally and professionally, rendered comparatively easy the delicate task of singling out from a large number of eminent physicians one who would officially represent them all when the delegates from Great Britain come here. While the meeting is a scientific one, and not a popular gathering, its president should have the qualities of a presiding officer as well as professional eminence. In both respects Dr. Reeve fully sustains the choice of his brethren.—*Evening News.*

Watch and Address Presented to the Secretary of The Leeming, Miles Company, Limited.—Mr. F. L. Benedict, on relinquishing the position of secretary of The Leeming, Miles Company, Limited, which he has occupied for a considerable length of time, was presented with a handsome gold watch and address by the management and employees. The presentation took place in the main office of the company, and Mr. Henry Miles, in making the presentation, referred to the capabilities of Mr. Benedict, as secretary of the firm. The company, he said, was sorry to lose the services of such a valuable employee, but, as Mr. Benedict was establishing himself in business, he could rely on the best wishes of the company for his future in the mercantile world. Mr. Benedict made a suitable reply, intimating that it was with a certain amount of regret that he was leaving the company. He would always think of his connection with the firm with pleasure, and heartily thanked those who had made him the recipient of such tangible evidence of their esteem.

X-Ray Photography.—Some physicians who have X-Ray apparatus do not realize the great value of photography for diagnosis and as a permanent record of their work. Fluoroscopic examinations are speedy and convenient, but for many purposes are not practicable; the location of foreign bodies and the diagnosis of calculi, biliary, renal, vesicle, etc., is never satisfactory with the fluoroscope; when negatives are made, all the time needed may be taken to determine the location and nature of the trouble. It is essential that the plates used for this work be especially prepared for the purpose by a reliable manufacturer, and the best plate to use is one which the test of time and experience has shown to be good. Dr. Mihran K. Kassabian says: "I have made skiagrams on Cramer's X-ray plates which show ten separate densities; this result could not have been obtained with ordinary plates." Dr. Kassabian has written a very interesting and valuable monograph on the proper use of X-ray apparatus for

photographic purposes, telling in detail how best to make the various positions required for different portions of the body, how to make negatives and handle the plates, etc. This monograph will be mailed free of charge on application to the G. Cramer Dry Plate Co., St. Louis, Mo.

Recent Facts Concerning Diphtheritic Antitoxin.—Comparatively speaking, it has been only a short period during which curative serums have been available for scientific observation. For this reason a number of misconceptions concerning them have gained credence. One of these faulty ideas is that antidiphtheritic serum must be fresh to insure its antitoxic potency and remedial reliability. This fallacious belief has been emphasized by the practice peculiar only to the three leading American industrial serum establishments of setting an arbitrary time limit and exchanging theoretically expired serums. By inference the physician has been led to believe that such expired serum is useless. An irrational demand for "fresh" serum has been stimulated. And because of the assurance of continued exchange, druggists and physicians have readily yielded to the temptation to overstock. A hardship to all interests has arisen, and the expense of maintaining the exchange system has reacted by necessarily increasing the cost of the serum. Of late, however, scientific investigators have systematically attacked the question of the depreciation of diphtheritic antitoxin, and facts are now available to replace obsolete theories. Roux, of the Pasteur Institute in Paris; Marx, of the Royal Institute for Experimental Therapy in Frankfort, Germany; Chiadini in Italy, and Miller in the United States, are among the authorities whose researches have engaged the problem of the life of antidiphtheritic serum. Tests and retests have been made in twelve to fifteen thousand lots of serum kept under all the conditions of laboratory and field antitoxin. All the conclusions concur in sanctioning a more extended time limit, and emphatic statements are made "*that the demand for fresh serum is not justifiable,*" and that "*any mistrust of old serum is unfounded.*" The majority of serums show no appreciable diminution in antitoxic value in two, three, four and even five years. The maximum loss in the occasional serum, which *often occurs within the first year,* is 33⅓ per cent.—a loss fully compensated for by the practice of adding a precautionary excess, in vogue in the United States.

The Physician's Library.

BOOK REVIEWS.

The Principles and Practice of Medicine. Designed for the Use of Practitioners and Students of Medicine. By WILLIAM OSLER, M.D., Fellow of the Royal Society; Fellow of the Royal College of Physicians, London; Regius Professor of Medicine, Oxford Univ.; Hon. Professor of Medicine, Johns Hopkins University, Baltimore; formerly Professor of the Institute of Medicine, McGill University, Montreal, and Professor of Clinical Medicine in the University of Pennsylvania, Philadelphia. Sixth edition, thoroughly revised, from new plates. New York and London: D. Appleton & Co. 1905.

Dr. Osler is so well known as an authority in medicine that his work on the Practice of Medicine (sixth edition, rewritten and altered) may be regarded as the latest and best work of the kind for the use of practitioners and students of medicine. Having read several chapters of the work, in which gout, neuritis, syphilis, Mediterranean fever and tuberculosis are dealt with, we feel well satisfied with what we have perused. Dr. Osler is careful to confine himself to the known; in the *terra incognita* of medicine he does not roam. He is not a copyist; his individuality is clearly apparent. It would have been a source of gratification to Canadians if Dr. Osler, when occasion served, had said a good word for his native country; but in the section on the climatic treatment of tuberculosis recognition of the climatic advantages of Canada does not appear. Mention is made of Colorado, Arizona, New Mexico, as suitable high altitudes in the United States. Of resorts at a moderate altitude, Asheville and the Adirondacks are said to be the best known in America. No mention is made of Canada or any Canadian sanatorium for the treatment of tuberculosis. Now, there are climates in British Columbia just as favorable for the treatment of certain forms of tuberculosis as any in America or Europe. The climate of the Kamloops country (altitude, 4,500 feet) is superb, and it possesses the several elements proved to be of the greatest importance in the reconstruction of tissue and the restoration to health of persons suffering from consumption. The results obtained at

Gravenhurst (altitude, 750 feet) are favorable and deserve recognition.

The style of the writer is simple, direct, and free from verbosity. The book, which contains 1,143 pages, both for matter and style, deserves the cordial patronage of the medical profession. J. J. O.

Examination of the Urine. By G. A. DE SANTOS SAXE, M.D., Pathologist to the Columbus Hospital, New York City. 12mo volume of 391 pages, fully illustrated, including 8 colored plates. Philadelphia, New York, London: W. B. Saunders & Company. 1904. Flexible leather, $1.50 net.

Dr. Saxe has presented a work on examination of the urine unusually complete, absolutely up-to-date, concise, yet explicit in all its parts; and it will be found to meet fully the requirements of the student and practitioner without burdening him with unnecessary analytic procedures. Special attention has been paid to the interpretation of findings as applied to clinical diagnosis, and the student is told what each chemical element and each microscopic structure means when found in the urine. The character of the urine in various diseases is also described in detail. Descriptions of technic have been made very explicit, and the author has inserted some new methods of working developed in his own experience. Cryoscopy and other means of functional diagnosis have been given their proper places. The text is fully illustrated, including eight colored plates of the various urinary crystals. The work will be useful because it is practical.

The Diagnostics of Internal Medicine. A Clinical Treatise upon the Recognized Principles of Medical Diagnosis, Prepared for the Use of Students and Practitioners of Medicine. By GLENTWORTH REEVE BUTLER, Sc.D., M.D., Chief of the Second Medical Division, Methodist Episcopal Hospital; Attending Physician to Brooklyn Hospital; Consulting Physician to the Bushwick Central Hospital; Fellow of the New York Academy of Medicine, etc., etc. With five colored plates and two hundred and eighty-nine illustrations in the text. Second revised edition. New York and London: D. Appleton & Co. 1905.

The book of greatest value to the ordinary practitioner is the one written to assist him in his practical, clinical work. Such is Dr. Butler's "Diagnostics of Internal Medicine." It is divided into two parts, (1) The Evidences of Disease and (2) Diagnosis, Direct and Differential. In other words, it deals primarily with symptoms and their indications, and secondarily a study of diseases and their characteristics. "For example, if in Part I. it is

stated that the finding of a persistently rapid pulse may be explained by the presence of exophthalmic goitre, or of a dry tongue and an inordinate thirst, by diabetes, one can turn to Part II. and compare his case with the symptom group of the disease in question. Conversely, when in Part II. a high tension pulse is mentioned as a symptom of angina pectoris, or Kernig's sign of meningitis, a reference to Part I. will discover the method of estimating high tension or of eliciting Kernig's sign." It may be said that the book contains about all that is needful in the making of a diagnosis, very little, if any, having been overlooked.

Cleft Palate and Hare Lip. By W. Arbuthnot Lane, M.S., F.R.C.S., Surgeon to Guy's Hospital, and Senior Surgeon to the Hospital for Sick Children, Great Ormond Street. London: The Medical Company, Limited. 1905.

Mr. Lane's monograph is a *résumé* of various papers written by him on cleft palate and hare lip. A considerable portion of his essay is taken up with an interesting study of the factors influencing the growth of the naso-pharynx, of the mouth and of the bones that surround these cavities. Several figures illustrate the author's descriptions.

Mr. Lane takes issue with Treves, who expresses opinions as to the inoperable nature of cleft palate in the infant. Treves holds that it is never wise to operate for cleft palate under three years of age, "the time of election being from three up to six years." This is probably due to the fact that the death rate in cleft palate operations before the fourth month is about 50 per cent.

Mr. Lane holds that the best time for the operation is the day after birth, or as soon after that as possible, and he advances strong reasons for his opinion.

His operation is clearly described, and with the aid of the figures in the text, may be understood by the least skilled of surgeons. Mr. Lane's special instruments for his operation, gags, needles, needle-holder, cleft palate knife, and toothed forceps, are also exhibited in illustrations. J. J. C.

Introductory Physiology and Hygiene. By A. P. Knight, M.A., M.D., Professor of Physiology in Queen's University, Kingston. Toronto: The Copp, Clark Co.

To write a suitable text-book on this subject is no easy task, and Dr. Knight is the more to be congratulated on this excellent little work. It grew out of his lectures and practical lessons to the teachers-in-training in the Kingston Model School, and is intended as an aid to teachers in dealing with the new curriculum prescribed in this subject for the first four forms in our Public

Schools by the Department of Education. The latter august body is apparently somewhat wanting in common sense, or it would have been content with a somewhat more modest curriculum for children "in the fourth book." However, that is not the author's fault, and we have great hopes that the present Minister of Education will revise the curriculum. We must specially mention the admirable way in which the alcohol question is handled, chiefly by quoting a number of short, pithy, sensible remarks on the effect of alcohol from eminent authorities, whose decision on such a matter could hardly be questioned.

H. M'M.

The National Standard Dispensatory. Containing the Natural History, Chemistry, Pharmacy, Actions and Uses of Medicines, including those recognized in the Pharmacopeias of the United States, Great Britain and Germany, with numerous references to other Foreign Pharmacopeias. In accordance with the United States Pharmacopeia, 8th decennial revision of 1905 by authorization of the Convention. By HOBART AMORY HARE, B.Sc., M.D., Professor of Therapeutics in the Jefferson Medical College, Philadelphia, Member of the Committee of Revision of the U. S. P.; CHARLES CASPARI, Jr., Ph.G., Phar.D., Professor of Pharmacy in the Maryland College of Pharmacy, Baltimore, Member of the Committee of Revision of the U. S. P.; and HENRY H. RUSBY, M.D., Professor of Botany and Materia Medica in the College of Pharmacy of the City of New York, Member of the Committee of Revision of the U. S. P. Imperial octavo, 1,858 pages, 478 engravings. Cloth, $7.25, net; leather, $8.00, net. Thumb-index, 50 cents extra. Philadelphia and New York: Lea Brothers & Co., Publishers. 1905.

To practitioners of medicine and pharmacy this new work of the highest authority is of great importance. It contains, by authorization of the Convention, every article in the new edition of the U. S. Pharmacopeia, together with such explanatory notes and instructions as are necessary to a full understanding of the brief official statements. In addition it covers the essentials of the latest foreign pharmacopeias, and the very important domain of unofficial drugs and preparations so largely in use. Of its authors, Dr. Rusby has treated the department of pharmacognosy, including the minor as well as the major drugs of the entire globe, a service never before rendered; Prof. Caspari deals with pharmacy, giving full information regarding methods and products, with descriptions and explanations of the most approved apparatus and tests, and Dr. Hare has written the section on medical action and uses, giving a direct and compact presentation of modern therapeutics. An appendix of sixty pages contains

all necessary tables, formulas, tests, etc., for practical use. The general index, of about ninety pages, contains full reference to every page in the text, making it a repertory of the world's knowledge of drugs, and the therapeutical index, of about forty pages, contains, under the name of each disease, references to all the medicines employed in its treatment, leading the reader to the points in the text where the conditions indicating their employment and choice will be found. In a word, the "National Standard Dispensatory" is a new, practical and authoritative work, containing information on all substances used in medicine and pharmacy at the present day. The volume is embellished with no fewer than 478 new and instructive engravings in the text.

Practical Problems of Diet and Nutrition. By MAX EINHORN, M.D., Professor of Medicine at New York Post-Graduate Medical School and Hospital, and Visiting Physician to the German Hospital, New York. New York: William Wood & Co. 1905.

This is a neat booklet of 64 pages, being a collection of six lectures by the author, delivered at different times, on diet and nutrition. These lectures deal with faulty eating, diets in diseases of stomach and intestines, diet of dyspeptics and metabolism.

One of the most important lessons from these lectures is how to keep the normal amount of food and combat subnutrition. This is a very useful little volume and should be in every physician's library.

W. J. W.

A Text-Book of Diseases of Women. By BARTON COOKE HIRST, M.D., Professor of Obstetrics in the University of Pennsylvania; Gynecologist to the Harvard, the Orthopedic, and the Philadelphia Hospitals. Second edition, rewritten and enlarged, with 701 illustrations, many of them in colors. Philadelphia and London: W. B. Saunders & Co. 1905. Canadian Agents: J. A. Carveth & Co., Limited, 434 Yonge St., Toronto.

A noticeable feature in Dr. Hirst's work on Gynecology is the profusion of illustrations, exhibiting instruments, diseases, the various steps in operations, etc., all aiding in the reinforcement of the text. Needless to say, this adds greatly to the value of the book. One should not infer, however, from this remark, that the author does not write plainly. Even if there were fewer pictures in his book, his opinions are so clearly put, that there would be no doubt about his meaning. He is evidently a gynecologist in extensive practice, a master of his subject, and fond of the use of the knife. His style is concise rather than diffuse,

a pardonable fault. This text-book should be very instructive to students, and most serviceable, likewise, to general practitioners who have occasion to do operative or palliative gynecological work.

The descriptions of modern operative technic are terse, clear, and most instructive, revealing the latest views of a successful operator. J. J. C.

The Doctor's Recreation Series. CHAS. WELLS MOULTON, general editor. Vol. VIII. "Doctors of the Old School." Being Curiosities of Medicine and Ancient Practice. Arranged by Porter Davies, M.D. Chicago, Akron, O., and New York: The Saalfield Publishing Co. 1905.

To the younger generation of practitioners, perhaps more than to those who belong "to the old school," Vol. VIII. of this excellent series will prove keenly interesting. The editor has very evidently used a good deal of care in the collection of his matter. The volume will furnish food for thought, and be a source of amusement during the autumn evenings.

The illustration on the frontispiece of "William Harvey demonstrating to Charles I. his theory of the circulation of the blood," is very interesting.

The chapter, taken from an old copy of the *British Medical Journal,* entitled "Medical Accuracy of Charles Dickens," is one of the best of the thirty-five contained in this volume. Another, bearing the title, "Old Physicians," by Dr. J. Rutherford Russell, is worth reading, instructive, and highly interesting. The illustration, on page 74, of Edward Jenner inoculating a lad is a beautiful piece of press work. W. A. Y.

The Psychic Treatment of Nervous Disorders. By DR. PAUL DUBOIS, Professor of Neuropathology of the University of Berne. Translated and edited by SMITH ELY JELLIFFE, M.D., Ph.D., and WILLIAM A. WHITE, M.D. New York and London: Funk & Wagnalls Co.

This excellent work should be carefully read from cover to cover by every physician. The surgeon, as well, would find in it much for meditation. Professor Dubois is a psychologist, as well as a physician, and he explains clearly the intimate relationship existing between mental and physical disease. Why these two should ever have been separated is difficult to comprehend. Notwithstanding the work of Tuke, showing that mental disease is but brain disease with mental symptoms, a century has elapsed before any real recognition of the fact has been given to it by the general profession, with the result that medicine has suffered an immense loss meanwhile. The work of the last few years shows that this

chasm between mental diseases and general medicine is at last being rapidly spanned, and much of the advance in general medicine in the next few years will be due to the bridge thus formed. Every physician realizes the value of suggestion, but few have solved the question as to the exact details in which this suggestion is most beneficial and the *rationale* of it. This whole question is admirably discussed in the book before us, and the immense value of psychic treatment in nervous disorders is clearly shown. The sincerity in which the entire book is evidently written is very striking, and justifies what Professor Déférine says in the preface, in the language of Montaigne, "Here is a book of good faith."

The translators deserve much credit for the lucid manner in which they have done their work, and the publishers have left nothing to be desired. D. C. M.

Arneill's Epitome of Clinical Diagnosis and Uranalysis. A manual for Students and Practitioners. By JAMES R. ARNEILL, A.B., M.D., Professor of Medicine and Clinical Medicine in the University of Colorado, Physician to the County Hospital and to St. Joseph's Hospital, Denver. In one 12mo volume of 244 pages, with 79 engravings and a colored plate. Cloth, $1.00 net. Philadelphia and New York: Lea Brothers & Co., Publishers. 1905.

This is the most complete and concise epitome we have seen on clinical diagnosis and uranalysis. It takes up all that is necessary for practical clinical work in the laboratory. The directions for the examination of blood, urine, stomach contents, feces and sputum are clear, practical and up-to-date. This little work will be invaluable to the student and busy practitioner. W. J. W.

Hyperemia as a Therapeutic Agent. By PROFESSOR DR. AUGUST BIER, of the University of Bonn. Authorized translation. Edited by DR. GUSTAVUS M. BLECH, Consulting Surgeon, People's Hospital, Chicago. With eleven illustrations. Chicago: A. Robertson. 1905.

The author makes a distinction between active hyperemia, which is caused by an increase in the amount of arterial blood flowing into a part, and passive hyperemia, which is caused by a diminished venous outflow. He states that hot air is the most useful agent, and that it produces the most active hyperemia.

In Chapter IV., the apparatus used in treatment with hot air is illustrated and described, and in Chapter V., the local and general effects of hot-air baths on the body are given in detail.

Passive hyperemia is produced by the rubber bandage, which is applied above the place to be rendered hyperemic, in several turns, covering each other, firmly enough to compress the weaker

walls of the veins, but not the stronger ones of the arteries. Hyperemia is also produced by the suction apparatus and by dry cupping.

Descriptions are given of the treatment by means of hyperemia of various diseases, such as acute and subacute arthritis, chronic stiff joints, different forms of acute inflammation, and tuberculosis.

This work opens up a field of therapeutics that is certainly new in this country, but at the same time it is a field that appears to promise good results, especially in the treatment of chronic diseases. A. E.

A Manual of Surgery. For Students and Practitioners. By WM. ROSE, M.B., B.S. Lond., F.R.C.S., Emeritus Professor of Surgery, King's College, London, and formerly Senior Surgeon to King's College Hospital, etc., and ALBERT CARLESS, M.S. Lond., F.R.C.S., Professor of Surgery in King's College and Surgeon to King's College Hospital, London; Examiner in Surgery to the Universities of Liverpool and Leeds, etc. Sixth edition, University Series. London: Bailliere, Tindall & Cox, 8 Henrietta Street, Covent Garden. 1905. Price, 21s., net, in cloth; 25s., leather.

It is but seven years since the first edition of this book was published, so that the authors have had to revise it almost once a year, so popular as a work of reference has it become. It is dedicated by the authors to Lord Lister, "in grateful acknowledgment of the many advantages they have derived whilst associated with him in his work at King's College Hospital." In the sixth edition the make-up is different, the page being considerably wider than that of the preceding volume. Professor Carless has added a great deal of new material to this edition, and at the same time has eliminated what has become antiquated. The department devoted to pathology and bacteriology is entirely rewritten and brought up-to-date. The application of radiography in diagnosis and therapeusis is dealt with fully; in fact, almost the entire volume is new, and well worth possessing.

Exercises and Demonstrations in Chemical and Physical Physiology. By AUGUSTUS D. WALLER and W. LEGGE SYMES. Being Part II. of "Exercises in Practical Physiology," by AUGUSTUS D. WALLER, M.D., F.R.S. London, New York and Bombay: Longmans, Green & Co., 39 Paternoster Row. 1905.

These practical exercises deal with the chemistry and physics of blood, circulation, digestion, urine, and respiration, and are adapted for exact work in the laboratory. They are well planned, and the various steps in the experiments are plainly described. The illustrations are numerous and are well made. A. E.

The Archives of Physiological Therapy. Devoted to the Diagnostic and Therapeutic Uses of Electricity, Radiant Energy, Heat, Water, Mechanical Vibration, Dietary Regulation, Exercise, Psychic Suggestion, etc. Published monthly, with Illustrations. Boston: Richard G. Badger, The Gorham Press. By subscription, $3.00 a year.

This live journal is a new candidate for professional favor, the first issue having appeared in February of this year, and, judging by the initial number and those which have followed it, there is a career of great usefulness before this vigorous, handsome new-comer, whose appearance is very suggestive of the progress which physio-therapy is making as an exact science.

It is edited by Clarence Edward Skinner, M.D., LL.D., New Haven, Conn., in conjunction with a large and most capable body of associates scattered among the chief cities in the United States, as well as foreign correspondents in Paris, Bordeaux, Vienna, Frankfort-on-Main, Breslau, Budapest, Birmingham and London, which is a guaranty of its scope and worth, and an assurance that foreign, as well as home literature, will be carefully probed into for material suitable for abstracting, a feature to which much attention is devoted.

The original matter is also of a high character, such as might be expected from a journal of such a nature. The illustrations are also very commendable, and the whole get-up most attractive.

C. R. D.

A Text-Book of the Practice of Medicine. By JAMES M. ANDERS, M.D., Ph.D., LL.D., Professor of Medicine and of Clinical Medicine at the Medico-Chirurgical College, Philadelphia. Seventh edition, revised and enlarged. Octavo of 1,297 pages, fully illustrated. Philadelphia and London: W. B. Saunders & Company. 1905. Cloth, $5.50, net; sheep or half-morocco, $6.50, net. Canadian agents: J. A. Carveth & Co., Limited, 434 Yonge Street, Toronto.

A sale of over 22,000 copies and the attainment of a seventh edition seems sufficient recommendation for any book; in fact, Anders' Practice does not now need any recommendation—it is too well known. As in the former editions, particular attention is bestowed upon inductive diagnosis, differential diagnosis, and treatment. Regarding differential diagnosis, we notice with much satisfaction that the many diagnostic tables of simulating diseases have been retained. The clinical value of these tabulated points of distinction is beyond cavil. Numerous new subjects have been introduced, among which are: Rocky Mountain Spotted Fever, Examination of Patients for Diagnosis of Diseases of the Stomach, Splanchnoptosis, Cammidge's Test for Glycerose in the Urine, and Myasthenia Gravis. Certain other individual

affections have been entirely rewritten, and important additions have been made to the diseases which prevail principally in tropical and subtropical regions. The seventh edition of Dr. Anders' Practice maintains the reputation of the work as one of the best books on practice before the profession to-day.

An Improved and Accurate Method of Staining Blood Films. Yonkers, N.Y.: The Palisade Mfg. Co.

This brochure is well worth sending for. It was recently published by the Palisade Mfg. Co., of Yonkers, N.Y. It is both ethical and scientific. The illustrations alone make it valuable. The publishers will gladly send it to any physician forwarding them his card.

PAMPHLETS RECEIVED.

"The Physician and the Sunday Question." By Dr. George Richter, St. Louis. Reprinted from *The Regular Medical Visitor,* August 15th, 1905.

"Ninth Annual Report of the Commissioner of Highways, Ontario, 1904." Printed by order of the Legislative Assembly of Ontario. Toronto: Printed and published by L. K. Cameron, Printer to the King's Most Excellent Majesty. 1905.

"Yellow Fever Institute Bulletin, No. 14." Treasury Department, U. S. Public Health and Marine Hospital Service. Walter Wyman, Surgeon-General. Report of Working Party No. 2, Yellow Fever Institute. "Experimental Studies in Yellow Fever and Malaria at Vera Cruz, Mexico," by M. J. Rosenau, Passed Assistant Surgeon; Herman B. Parker, Passed Assistant Surgeon; Edward Francis, Assistant Surgeon; George E. Beyer, Acting Assistant Surgeon. May, 1904. Washington: Government Printing Office.

"Twenty-eighth Annual Report of the Board of Health of the State of New Jersey, and Report of the Bureau of Vital Statistics, 1904." News Printing Co., State Printers, Paterson, New Jersey. 1905.

"A Contribution to the Therapy of Anti-Streptococcic Serum."—H. K. Mulford & Co., Philadelphia, recently published a brochure bearing this title, which is certainly a model piece of printing. The colored illustrations, showing laryngeal diphtheria, or so-called membranous croup, and nasal, post-pharyngeal and laryngeal diphtheria, are beautifully executed. The brochure may be had by any physician sending his card to the firm named.