pleuritis and peritonitis, often of a gelatinous character, but the anatomical picture is exceedingly variable. Microscopically, there is an intense myocarditis, exudations in the lungs, marked degeneration in the liver and kidneys, and more or less enteritis, all being changes that indicate an acute, violent, general infection.

(To be continued.)

REQUIREMENTS FOR ADMISSION TO MEDICAL SCHOOLS.

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During the last decade no question has excited more discussion among medical teachers than what should be the requirements for admission to college. These requirements have been steadily advanced, but as yet there is no settled conviction as to how far they shall be advanced. In other words, it has not been determined what are the ideal entrance requirements.

In this country the existing requirements vary from what must be studied to complete the eighth grade of the grammar school to what is embraced in the complete curriculum of a college of arts or sciences. At least, the mean between these extremes is reached by all of the best schools of the country. It will not be long before a satisfactory completion of the subjects of a four-year high school course will be demanded for admission to all medical colleges, because the laws of many states under which physicians are licensed to practice now demand this amount of general education. Schools which do not meet the standard set by these laws are not in good standing, and their graduates can practice their profession only in a limited portion of the country.

Entrance requirements are needed (1) to make sure that medical students and graduates shall have enough general education to enable them to mingle with the best people of the land on an intellectual level; (2) to make sure that such subjects have been thoroughly learned as are essential to an understanding of what is taught in a medical curriculum.

It may be said at once that to meet the first of these needs a full college course in arts or science or its equivalent should be taken, but it must not be forgotten that four years devoted to the study of medicine is as liberalizing and as sure to give mental culture as the same amount of time in a school of science, provided the same preliminary education has been had. This fact seems to have been forgotten or overlooked by many who have recently discussed the subject.

In regard to the second need, it may be urged that many of our medical leaders had only a grammar school course, and had no difficulty in understanding the subjects of a medical curriculum and of keeping *au courant* with the advances made in their profession. It must not be forgotten, however, that conditions have changed; that the medical curriculum contained few subjects fifty, nay even thirty, years ago, and that their literature was small, for of them comparatively little was known. Moreover, a kind of preparation is required for the laboratory methods by which medicine is taught to-day that was not formerly. For instance, a boy who has never worked in a laboratory, who has not been taught to reason from what he sees, or even to use his eyes accurately, can not get from the work of the first year of a medical course, as it is now taught, what he should, for much time will be lost in teaching him how to do these things.

It is also necessary that certain subjects be required of those about to study medicine, because many of the more recent discoveries in the fundamental subjects of a medical course have been made possible by earlier but recent discoveries in ancillary sciences. These sciences, therefore, must be studied before medicine is.

I believe that graduates of our best high schools and preparatories have as much general education as need be demanded. They should be capable of expressing themselves clearly and correctly in their mother tongue; should have mastered the tools by which an education is to be acquired; should have powers of mental concentration and enough varied information to be appreciative of all kinds of knowledge. However, only the courses offered by colleges of arts or sciences furnish the kind and grade of instruction which is requisite for an understanding of portions of a modern medical curriculum; therefore, at least a part of a college course must be required for entrance to the medical college. President Hadley has said that just such subjects as are necessary to understand medicine as it is now being taught, and no more or less, should be required. This is pedagogically correct. Therefore, I do not feel in full sympathy with those schools which have nominated as their entrance requirement an A.B. or B.S. degree, or a certificate of having completed one or two years of a course leading to such degree. A bachelor's degree or a fixed period of time in college does not necessitate a proper preparation for the study of medicine, for a student to-day may graduate from any of the leading colleges of arts without having taken chemistry, physics or any biologic course. Such a graduate is no better prepared for medicine than when he entered the college of arts, except that he is more mature and better trained to do hard mental work.

Moreover, the degrees of B.S. and A.B. mean very different things, according as they are obtained from one of the small and inadequately equipped degree conferring institutions or from one of the great universities of our land. For these reasons the indefinite requirement of so many years in a college of arts or science is not satisfactory.

The following subjects are the ones of college grade which it is most important for students and graduates of medicine to know: Inorganic chemistry and qualitative analysis; mechanics, light, heat and electricity; general biology; some comparative anatomy, particularly of vertebrates; German and French, and such botany as will acquaint them with the more important groups of plants; experimental psychology and logic.

These subjects are not all equally important, and if medical schools which now require four years of high school work for entrance are to gradually increase their requirements, the most important should be added first.

A medical curriculum can not be properly graded until chemistry and physics are demanded of those who undertake it, for they are so essential to an understanding of physiology and physiologic chemistry. Therefore, they should be among the first required college courses.

Harvard demands of those entering the medical school a complete course in a college of arts or science, but specifies that they must have studied chemistry. Johns Hopkins goes further in requiring physics, some biology, and German and French. Other medical colleges which have required a part of a bachelor's course have not specified these or other subjects.

General biology is almost as important as chemistry and physics. However, the information which this study insures one is not of so much use as is the

training in a biologic laboratory, for this furnishes the student of anatomy and physiology with such skill as will enable him at once to get the most that is possible out of these subjects as they are taught in the best university medical schools. A knowledge of comparative anatomy will make human anatomy easier and more interesting. It is not, however, as essential for the beginner in medicine as the subjects just mentioned. For the graduate, French and German are essential, in order to keep abreast of professional progress; therefore, they should be acquired preparatory to medicine. Botany, psychology and logic, like comparative anatomy, make the acquirement of other medical subjects easier and increase the pleasure and interest of the student in them.

If four of the most important of these subjects are added to existing entrance requirements, they will rarely be acquired by students in less than two years in colleges of arts or sciences, for, although in themselves they do not make more than a year's work, the schedules of colleges are so planned that they can not be taken simultaneously; and if all the subjects named were required, a college residence of at least three years would be needed. Almost without exception, therefore, other and less technical subjects will be studied as well.

A change in the entrance requirements of medical colleges which is needed, and which will do more to improve the quality of the student body than almost anything else, is to stop admitting on certificates, and to require of all who enter thorough examinations in a few required subjects.

The ideal course for medical students is a combined one of six years, leading to both the degrees of B.S. or A.B. and M.D., which such universities as Michigan, Northwestern and Chicago have been offering. Three years are spent in Michigan and Northwestern in the college of arts, during which time almost or quite all of the freshman course in medicine is completed. Three years more are spent in the medical school. At Chicago University two years are spent in the arts department and four in the medical. Harvard and Cornell make a seven-year combined course. It is so usual for all the best graduates in medicine to spend eighteen months or two years in post-graduate work that these combined courses should be made no longer than is absolutely necessary, for it is as much a detriment to the beginning practitioner to be too old as to be too young. A combined course should be completed, if possible, when the student is 24 or 25 years old. For many years a longer period of education has been required of students of medicine than for those preparing for other professions, although the emoluments of practitioners are no greater, nor as great, as those which the practice of law makes possible. Therefore, neither preparation for the study of medicine nor the arrangement of subjects in the medical curriculum should be allowed to too greatly prolong the student's period of academic and college work.

Method of Arresting Epistaxis.—Matthews is quoted by the *Journal Méd. de Paris* as advocating a condom for arresting hemorrhage from the nose. (This has been mentioned before.) The condom is oiled and inserted in the nose on the end of a catheter. The latter is then partly withdrawn, and through it the condom is inflated. The outer end is then tied around the catheter, and thus forms a "balloon tampon," which can be easily removed at any time without disturbing the clots, by allowing the air to escape first.

CO-OPERATIVE METHODS FOR IMPROVING THE USEFULNESS OF STATISTICAL CLASSIFICATIONS OF CAUSES OF DEATH.*

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One of the most important matters involved in the administration of a registration office is the selection and proper use of a statistical classification of causes of death. The mortality from various diseases must be known in order that the value of methods adopted by sanitary officers for their prevention and restriction may be appreciated, and it is important for many reasons that accurate and fully comparable statistics of causes of death be published. This presupposes the use of some classification of causes of death.

It may be said that the use of a formal classification is unnecessary, as the causes returned by physicians might be stated in alphabetical order. This would be possible for only the smallest areas of registration, and for short periods of time. For a large city, a state, or for the country as a whole, the number of different terms returned as causes of death would be so numerous that it would not be feasible to give each one a separate line in statistical tables. Even where it has been attempted to make use of the alphabetical arrangement numerous terms have usually been condensed under single titles, so that a method of classification was actually in use. Where this is not the case the statistics may be very misleading, and may give rise to annoying blunders on the part of those consulting them unless they first complete the work of proper statistical compilation that was left unfinished by the registration office. As an amusing instance, I may quote the following from a recent issue of *THE JOURNAL* of the American Medical Association, under the heading, "Clippings From Lay Exchanges":

Tuberculosis of the lungs carried off twenty-five of the victims of disease last month. Seven others died of tuberculosis and four of phthisis.

It may be well at this point to call attention to the limited sense in which the word "classification" is now employed in this connection. It does not refer to a broad and comprehensive philosophical arrangement of diseases, based on general principles and intended to show the natural or scientific relations of the diseases or causes of death. If this were the object of a statistical classification of causes of death at the present time, it would be necessary to acknowledge failure from the start. No ideal classification fully exhibiting the natural relations of diseases and meeting the demands of all classes of scientific workers is yet possible. The tendency is strongly in the direction of doing away with all so-called "groups" or "classes" of diseases and of placing stress chiefly on the definite meaning and inclusion of the individual titles. "Classification," said Dr. Farr, "is another name for generalization." Our object at the present time in statistical classification of causes of death is to do away with generalization as far as possible. The old statistical groups of "zymotic diseases," "constitutional diseases," "diathetic diseases," and the like, have disappeared, or remain only as belated relics of a former nomenclature. Even the distinction between "general

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