

DR. FRED. C. ZAPF
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CHICAGO

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**ASSOCIATION OF
AMERICAN MEDICAL COLLEGES**

**MINUTES OF THE
TWELFTH ANNUAL MEETING,**

**HELD AT
SARATOGA SPRINGS, N. Y., JUNE 9, 1902.**

CHICAGO:
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1903

ASSOCIATION OF American Medical Colleges.

MINUTES OF THE TWELFTH ANNUAL MEETING,
Held at Saratoga Springs, N. Y., June 9, 1902.

MORNING SESSION.

Place of meeting, United States Hotel.

President Victor C. Vaughan, University of Michigan, in the Chair. Secretary pro tem, Dr. Seneca Egbert, Philadelphia.

Handwritten notes:
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The following colleges were represented by delegates:*

- Medical Department, University of Arkansas.
- Medical Department, University of California.
- Medical Department, University of Colorado.
- Medical Department, University of Denver.
- Medical Department, National University, Washington, D. C.
- Medical Department, Georgetown University, Washington, D. C.
- Medical Department, Howard University, Washington, D. C.
- Rush Medical College, Chicago, Ill.
- Northwestern University Medical School, Chicago, Ill.
- University of Illinois Medical School.
- Illinois Medical College.
- American Medical Missionary College.
- Medical College of Indiana, Indianapolis, Ind.
- Fort Wayne College of Medicine, Fort Wayne, Ind.
- Central College of Physicians and Surgeons, Indianapolis, Ind.
- Medical Department, State University of Iowa.
- Medical Department, Drake University, Des Moines, Iowa.
- College of Physicians and Surgeons, Keokuk, Iowa.
- Sioux City College of Medicine.
- Medical Department, University of Kansas, Lawrence, Kas.
- Kansas Medical College, Topeka, Kas.
- Hospital College of Medicine, Louisville, Ky.
- Medical Department, University of Kentucky.
- Medical Department, University of Louisville.
- Meharry Medical College, Walden University.
- New Orleans University Medical School.
- Johns Hopkins University Medical School.
- School of Medicine, University of Maryland.
- Baltimore Medical College.
- Woman's Medical College of Baltimore.
- College of Physicians and Surgeons, Baltimore.
- College of Physicians and Surgeons, Boston.
- Department of Medicine, University of Michigan.

*Listed in alphabetical order as to states.

Michigan College of Medicine and Surgery, Detroit, Mich.
 Detroit College of Medicine.
 University of Minnesota. College of Medicine and Surgery.
 Hamline University Medical School.
 St. Louis College of Physicians and Surgeons.
 Barnes Medical College, St. Louis, Mo.
 University of Nebraska College of Medicine.
 Omaha Medical College.
 Creighton Medical College.
 Columbian University Medical College.
 Medical Department, University of Buffalo.
 Medical Department, Syracuse University.
 Medical School, University of North Carolina.
 Ohio Medical University, Columbus, Ohio.
 Cleveland College of Physicians and Surgeons.
 Miami Medical College.
 Medical Department, Western Reserve University.
 Toledo Medical College.
 Medical College of Ohio, Cincinnati, Ohio.
 Laura Memorial, Woman's Medical College, Cincinnati, Ohio.
 Medical Department, University of Oregon, Portland, Ore.
 Willamette University, Medical Department, Salem, Ore.
 Jefferson Medical College, Pennsylvania.
 Medico-Chirurgical College of Philadelphia.
 Western Pennsylvania Medical College, Pittsburg, Pa.
 University College of Medicine, Richmond, Va.
 Wisconsin College of Physicians and Surgeons, Milwaukee, Wis.
 Milwaukee Medical College.

Address of President: "The Present Status of Medical Education in the United States."

SYMPOSIUM.

Requirements for Admission to Medical Colleges.

1. "Requirements for Admission to Medical Colleges." Dr. A. E. de Schweinitz, Washington, D. C.
2. "Statutory Provisions and Requirements of Individual Medical Colleges." Mr. George H. Parsons, secretary of Board of Regents of the State of New York.
3. "Standard of Requirements for Admission to Medical Colleges." Dr. R. L. Whitehead, Chapel Hill, N. C.
4. "What Should Be the Requirements in Latin, and Should These Requirements Be Waived for Any Cause?" Dr. W. E. Moseley, Baltimore, Md.
5. "Should a Knowledge of French and German Be Required for Admission to Medical Schools?" Dr. George M. Kober, Washington, D. C.
6. "Preliminary Education of Medical Students." Dr. William P. Wherry, Fort Wayne, Ind.
7. "What Should Be the Requirements in Latin, German, French, Mathematics, Botany, Histology, Physics and Electricity?" Dr. George W. Hubbard, Nashville, Tenn.

8. "Entrance Requirements for the Medical Student." Dr. U. O. B. Wingate, Milwaukee, Wis.

9. "To What Extent Should a Knowledge of Physics and Chemistry Be Demanded as an Entrance Requirement to Our Medical Schools?" Dr. William H. Earles, Milwaukee, Wis.

The discussion was participated in by Dr. Robert Weyburn and Dr. W. P. Carr of Washington, D. C.; Dr. A. T. Kerr, secretary of Cornell Medical School; Dr. Gage, president Cornell University, and Mr. Henry L. Taylor of the office of the Board of Regents of the University of the State of New York.

Besides the above symposium, there was a paper on: "The Best Method of Teaching Clinical Medicine." Dr. David Streett, professor of principles and practice of medicine, Baltimore Medical College.*

AFTERNOON SESSION.

Dr. H. O. Walker moved that a Committee of Three be appointed to consider the recommendations made by the President and report at the afternoon session. Carried.

The Chair appointed on this committee Dr. Parks Ritchie, Dr. William H. Wathen and Dr. John M. Dodson.

The following Nominating Committee was also appointed by the Chair: Dr. A. R. Baker, Dr. George M. Kober, Dr. J. M. Bodine, Dr. Seneca Egbert and Dr. J. W. Minnie.

The minutes of the St. Paul meeting, as printed in the transactions, were adopted as printed.

The report of the financial condition of the Association and the annual treasurer's report were submitted by Secretary and Treasurer Dr. Bayard Holmes. The treasurer's report was submitted to an Auditing Committee, consisting of Drs. H. D. Didama and H. O. Walker. Having received the approval of the auditors, it was adopted.

TREASURER'S REPORT FOR 1902.

RECEIPTS.

Income from 66 colleges paying dues.....	\$330.00
Less exchange.....	2.60
	<u>\$327.40</u>

EXPENDITURES.

Reimbursed president and secretary, each \$62.00.....	\$124.00
Paid Dudley Reynolds, chairman judicial council.....	137.08
Fred C. Zapffe, stenographer at St. Paul.....	35.00
University Printing Company.....	22.25
Postage on transactions and general postage.....	19.00
Typewriting and typewriting expenses.....	30.00

Total expenditure for the year ending May 1, 1902.... \$367.33

Deficit for the year.....	\$ 39.93
Unpaid printing bills for 1901.....	184.00

Total deficit to May 1, 1902..... \$223.93

*It has been possible to publish several of the papers and discussions of the symposium, beside the president's address, in pamphlet form as the proceedings of the Association.

Dr. R. H. Whitehead, chairman of Committee on Uniformity of Records, reported as follows:

Recommendation 1.—For the preservation of students' records either a ledger or the card-index system may be employed with advantage.

Recommendation 2.—These records should include the full name of the student, his age and residence, the year of the curriculum to which he is admitted, the date of admission, and the credentials on which he is admitted. They should also furnish a statement of the courses taken by the student each session, and the grades made thereon. For the latter purpose we recommend the following system of marking: *A.* Excellent. *B.* Good. *C.* Passed. *D.* Failed, must take examination over again. *E.* Must take the course over. *D* and *E* should be recorded in different colors from the others. Furthermore, dishonorable conduct should be a matter for record.

Recommendation 3.—At the end of each annual session there should be issued to each student a certificate of the work done by him that year. This certificate should be signed and sealed by the proper official; should show the dates of the beginning and end of the session, the studies pursued, the number of hours in each, divided into lectures, laboratory or clinical, and the grade made by the student.

Recommendation 4.—In case the student desires to enter another school, this certificate may serve to admit him to advanced standing conditionally; but unconditional admission may be withheld until correspondence with the proper official of the school previously attended by the student has established the genuineness of the certificate.

R. H. WHITEHEAD,

Chairman Committee on Uniformity of Records.

Dr. J. M. Dodson moved that the report be received and accepted and that the secretary be instructed to mail a copy of the report to each member of the Association, with the statement that the Association recommends that such a plan be followed by its members, inasmuch as it permits of modifications by individual colleges, and will do much to make the records more complete and uniform than they have been in the past.

After discussion by Drs. W. H. Wathen, P. Richard Taylor, H. W. Didama, J. M. Bodine and J. M. Dodson, the motion was carried unanimously.

Dr. Parks Ritchie, chairman of the Committee on President's Address, reported as follows:

"Your committee, to which was referred the address of the President of the Association with instructions to report on the recommendations contained therein, have considered the same, and beg leave to report that they heartily approve the recommendations of President Vaughan that the requirements for admission to the medical school, as prescribed in the con-

stitution, should be increased much more rapidly than has been the case in the last few years. The committee would recommend that a special committee of three be appointed to consider the question whether the standard of admission should not be made the full equivalent of a four-year high-school course, such committee to report at the meeting of the Association next year. This committee should be instructed to designate the branches which should be included in the high-school course and the minimum amount of time to be given to each.

"The committee would further recommend that this special committee draw up an amendment to the constitution which would place the examination of students for admission entirely out of the hands of the medical school.

"Further, that Article III, Section 3, should be amended to read 'two conditions,' instead of 'two or more conditions.'

"Your committee further recommends that a vote of thanks be extended to Dr. Vaughan for his admirable address, and that the Association heartily approves the ideas therein presented."

(Signed)

PARKS RITCHIE.

W. H. WATHEN.

JOHN M. DODSON.

On motion so much of the report as applies to the president was adopted.

Moved that the other portions of the report be considered *ad seriatim*. Carried.

On motion the recommendation of the committee with reference to making the standard of admission the full equivalent to a four-year high-school course and the appointment of a committee to consider this matter and to prescribe the branches to be included in this course and time to be devoted to each, was adopted.

It was moved to accept the recommendation that the examination of the student (for admission) be taken entirely out of the hands of the medical school. Motion amended to lay on the table. Amendment lost by a vote of 21 against and 13 for. The original motion to accept was then put and carried.

The recommendation with reference to the amendment of Article III, Section 3, was accepted on motion.

On motion of Dr. Long the report was adopted as a whole, and the committee, Drs. Ritchie, Dodson and Wathen, continued as the special committee recommended in the report, this special committee to report at the New Orleans meeting, May, 1903.

Dr. W. J. Means, chairman of the Judicial Council, reported as follows:

Mr. President, Members and Delegates of the Association of American Medical Colleges:

The work of the Judicial Council since your last annual

meeting has been, in the main, of a very pleasant character. There have been no controversies to settle and, with one exception, no charges have been preferred against members of the Association.

Communications have been received from various sources relative to admitting students to advanced standing under various conditions, but in each instance the question had been settled by former decisions, and the writers accepted them without further consideration.

The correspondence of the chairman is herewith submitted as a part of his report.

The Judicial Council has received application for membership from the Bucknell University, and recommends that this application be referred to Prof. W. W. Keen of Philadelphia for investigation and that he report his findings at the next annual meeting.

The College of Medicine of the University of Nebraska has made application for membership in the Association. After an investigation of the facilities and equipment of the college the council has recommended it to membership.

The University College of Medicine of Richmond, Va., made application something over a year ago, but owing to some misunderstanding it was not acted on at the last meeting. The college is meritorious in every way, and the council recommends it for membership.

Charges were preferred against the Baltimore Medical College of Baltimore for violation of the constitution and by-laws of the Association, Article III, Section 5, and the council recommends that the college be suspended for one year.

Respectfully submitted,

W. J. MEANS.

RANDOLPH WINSLOW.

JOHN M. DODSON.

PARKS RITCHIE.

It was moved that the finding of the council with regard to the Baltimore Medical College be eliminated from the report and be considered separately, and that the balance of the report be accepted. Carried.

The finding of the Judicial Council in the case of the Baltimore Medical College was then read.

Dr. David Streett, the dean of the college in question, appealed from the decision of the council, and stated the position of his college in the matter at length.

Dr. Robert Reyburn moved that the finding of the Judicial Council in this case be amended to read "that said college be reprimanded" instead of "suspended for one year."

Dr. Winslow, in seconding the motion, amended it as follows: "and that assurance be given by the dean of the Balti-

more Medical College that the men there illegally be dismissed from the institution and not matriculated again until the proper time for matriculation had elapsed."

Amendment carried. Motion, as amended, carried.

In the matter of the charges preferred against the Milwaukee Medical College, Dr. Dodson moved that these charges be referred to the Judicial Council for investigation, the council to report next year. Carried.

On motion the proposed amendment to Article III, Section 4, to "substitute ten dollars (\$10.00) for five dollars (\$5.00) was adopted.

The motion of Dr. Dodson to accept the proposed amendment to Article III, Section 6, was lost for want of a second.

Dr. Oliver moved that this whole matter be postponed.

Motion carried.

The Nominating Committee reported, and the annual election resulted as follows:

President for 1902-3, Dr. William L. Rodman, Philadelphia.

First vice-president, Dr. Bayard Holmes, Chicago.

Second vice-president, Dr. R. L. Whitehead, Chapel Hill, N. C.

Secretary, Dr. Winfield S. Hall, Chicago.

Members Judicial Council, Dr. J. D. Griffiths, Kansas City, Mo., term expires 1904; Dr. William H. Welch, Baltimore, Md., term expires 1906.

There being no further business to come before the Association, the meeting was adjourned.

BAYARD HOLMES, Secretary.

1902

SOME REMARKS ON THE PRESENT STATUS
OF MEDICAL EDUCATION IN THE
UNITED STATES.

VICTOR C. VAUGHAN, M.D., LL.D.
ANN ARBOR, MICH.

Gentlemen of the Association: In the first place, I desire to say that I greatly appreciate the honor that you conferred on me last year in electing me president of this body. When we compare medical education in our best schools in this country to-day with that of twenty or thirty years ago we feel that we have just cause of self-congratulation. Many of us here to-day went through the course of medicine in two years of six months each, and even then many of the lectures and demonstrations given the first year were repeated in the second. Many of us had but little, and possibly some of us no laboratory instruction other than that of the dissecting room. Now, all the colleges in this association give courses which extend through four years, none of which are less than six months in duration. The majority of these schools have graded courses, thus doing away with all repetition of lectures and demonstrations. The laboratory method has been applied to every branch of medical teaching, and the old theatrical clinic has largely been supplanted by bedside instruction. It is probably true that in no other department of learning has education advanced so rapidly as in medicine. All of this, I say, is a matter on which we as medical teachers may congratulate ourselves, and with some justness claim that we are giving to our students much more and much better instruction than our teachers gave us.

The object of my talk to-day is not to dwell on what has been accomplished in the recent past, but rather to emphasize some of the demands which the present and the future impose on us. We must not satisfy ourselves

with the thought that we are doing better work than our predecessors in medical education did, but we must seriously ask ourselves whether or not we are to-day doing all that we should do. If my remarks should appear to some as too critical, please permit me to assure you that I have the welfare of the profession at heart, and that I am not desirous of doing an injustice to anyone, nor, indeed, do I desire to criticise any individual or any school. However, we are not likely to move forward and make improvements unless we become aware of our defects. A certain amount of self-esteem and pride is desirable, but when this article is stored up in quantity sufficient to lead one to believe that he has reached perfection, we can be sure that decay is rapidly advancing. With these preliminary remarks, I am going to say a few plain words with the best of intentions.

Within the past few years much has been said concerning the commercial spirit which has apparently invaded our profession to some extent. Numerous articles have appeared in our journals bearing on this subject, and it has been discussed in nearly every possible phase. The form of commercialism which has attracted most attention is the question of the division of fees between the attending physician and the consultant. This practice has been generally condemned, and it seems to me that the condemnation has been only just. Other forms in which commercialism manifests itself have been the exorbitant fees charged by a few specialists on account of which many people in moderate circumstances have been driven to free dispensaries and free clinics; and, on the other hand, cutting of fees and the doing of professional work, as it were, in job lots, for various organizations. It is needless for me to enumerate all the evidence that might be brought forward in order to show that our profession has not wholly escaped the spirit of commercialism which has so great a hold on the people of this country, and possibly other countries as well, at present.

I will ask the question whether or not our medical schools have been altogether free from commercialism. The individual practitioner places himself outside of the Code of Ethics if he advertises himself; and still if he be a member of a medical faculty he may indirectly do a great deal of self-advertising and still regard his actions as perfectly legitimate. As a rule, the better medical

schools do not resort to advertising to any great extent, and as a general proposition it is true that the real value of a school is in inverse ratio to the extent to which it advertises. Probably I should have said nothing about this had it not been that the business manager of THE JOURNAL of the American Medical Association last year sent out a request to the medical schools of the country, stating that an educational number would be issued, and it would be desirable for each medical school to place a display advertisement in that number, and I am sorry to say that several good schools yielded to the temptation. However, this a matter of but slight importance compared with some others. Dr. John Smith, as a private practitioner of medicine, would under no circumstances go to his brother practitioner's patient and laud his own ability and tell how superior his own attainments are compared with those of the physician in attendance; and yet Dr. John Smith, as secretary or dean of a medical school, does not hesitate to send circulars to students attending other medical schools, telling them of the superior advantages offered by his own institution. The same Dr. John Smith, reputable physician as he is, would hardly send a postal card to a friend in a neighboring town and ask that friend to return the postal card with the names of two sick persons, or to otherwise put him in communication with those sick in order that he might become their physician; and yet Dr. Smith, as secretary or dean of a medical college, sends out such postal cards by the hundreds. I have not known of any premium being offered for the largest number of prospective medical students about whom information could be given, but this is only one step in advance of what is being done, not by the poorest medical schools in the United States, but by some that claim a position among the best. Can it be a matter of surprise that the graduates of these schools enter the medical profession fairly well imbued with the idea that business success is the chief aim of the profession?

Turning next to the requirements for admission to our medical schools, let me ask if we live up to the requirements which we advertise; and in the second place, are our advertised requirements as high as they should be? On the first of these points I want to say that no one can conduct a fairly large correspondence with prospective medical students without becoming

aware of the fact that some of our schools do not live up to their advertised requirements for admission. For this sin on the part of certain schools there is absolutely no justification. There is at present no crying need for more medical men in this country, and certainly not for more poorly educated medical men. As to the second point, I am well aware of the fact that all medical schools can not advance the requirements for admission with the same rapidity. Harvard, with her five-million-dollar endowment, can well afford to cut the number of her students very materially, and this she has had the courage to do, but probably there is no other medical school in the country which could afford to make so radical a change in so short a time. But notwithstanding these facts, it seems to me that it is about time that this Association of American Medical Colleges should be making some advance in the requirements for admission. With the profession overcrowded as it is, with already too many ignorant men in its ranks, the demand for more must be small unless the recruits be selected with the best of care.

There are two ways of teaching medicine. These two methods require different material to start with and their finished products are radically different. Medical knowledge may be defined as embracing all information which can be utilized in the prevention or cure of disease. Physics, chemistry, anatomy, physiology, bacteriology and pathology are some of the sciences, the facts of which are utilized in medicine. Now, one way of teaching medicine consists in taking the isolated facts which can be utilized in the prevention or cure of disease from each of these sciences and teaching these to the student by rote, without ever attempting to give him any real knowledge of the sciences on which medicine is founded. A man may be taught how to fit glasses without ever having any scientific knowledge of the refraction of light or of the construction of lenses. A student can memorize maximum and minimum doses of the alkaloids without ever having any knowledge of the chemical nature of these vegetable products, and without any knowledge of the botanical classification of the plants from which they come. A man may be taught to stain tubercle bacilli, possibly to recognize diphtheria bacteriologically, and even to utilize the Widal test without knowing anything scientifically about bacteriology.

A man with knowledge thus acquired and thus limited may pass a fairly creditable examination, but he is not a man who knows anything of real value concerning the sciences on which medicine is founded, and inasmuch as medicine is progressive, such a man is sure to fall behind within a few years at most, and become not an honor, but a disgrace to his profession. He is one who has built on the sands, and the house thus constructed must surely fall. There is too much of this kind of medical teaching in our country to-day. On the other hand, chemistry, biology, physics, anatomy, bacteriology, physiology and pathology should be taught to medical students as independent sciences, and no one should be allowed to enter the medical profession unless he has a fairly comprehensive grasp of each one of these subjects, and his knowledge must not be confined to those isolated facts which at present are utilizable in medicine. Then, when advances come, when changes are made, when new discoveries open up new fields, this man is able to keep abreast of the times. He has the scientific comprehension necessary in order for him to become an intelligent student of progressive medicine.

These statements will undoubtedly be met by the assertion that no one man can hope to make himself a master of any one of these sciences, and much less can he hope to make himself thoroughly familiar with all of them. While this is true, I claim that the medical student should be made perfectly familiar with the fundamental principles of all the sciences that directly contribute to medical knowledge. A man having this knowledge is not likely to cease to be a student, nor is he likely to be imposed on by advertising drug firms, which not only present him with unlimited samples, but have the audacity to tell him all about their therapeutical uses. For instance, the medical man who has been well grounded in the science of physiological chemistry is not likely to prescribe wine of pepsin or other alcoholic preparations of digestive ferments. Neither is he likely to be misled by any of the numerous newly coined words, which mean much or little, according to the way in which they are used. It seems to me that the only sure way in which the requirements for admission to our medical schools can be rigidly controlled and honestly adhered to is by the establishment of boards, no member of which has any connection with the medical school, which shall

pass on all prospective medical matriculates. I am aware of the fact that this method is not wholly free from criticism. Such boards when composed of non-medical men do not always wisely discriminate between those subjects which best fit a man for the study of medicine, and those which, whatever their value may be in securing a broad education, are relatively of little importance in preparing one for medical studies.

It seems to me that there can be no question as to the desirability of every medical student having the ability to read either French or German, and if he can read both, his fitness for medical studies is greatly enhanced. It can not be denied that at present, at least, the most important contributions made to medical science come to us from German sources, and the man who must rely on translations in order to secure this information is, in the first place, delayed in acquiring the knowledge, and in the second place he is likely to be misled by errors in the translation. Did time permit I could point out numerous instances in which important articles in French and German have been misconstrued by the translator. There are two important sources of error in such translations. One of them lies in an imperfect acquaintance with the foreign language, and the other is due to the fact that these translations are often made by individuals who are ignorant of the subject matter involved in the contribution. Of the two languages, French and German, it is undoubtedly true that the latter is to the medical man the more important, and if knowledge of only one be demanded, German should be selected. The time may come, and I am inclined to think that it will come, when our own country will be quite abreast of Germany in scientific work, but such a time has not yet arrived, and the man who attempts to keep up with the times in a medical way without knowledge of the German language is, to say the least, heavily handicapped.

I suppose that no one will question the assertion that a fairly good grounding in the general sciences of biology is quite essential to the successful study of medicine. The preliminary work in this subject should cover a rather extensive course of reading and should always include a good drill in laboratory methods. In my opinion there is no subject so much neglected as a preparation for medicine as the study of physics and physical

chemistry. A knowledge of physics is needed in the application of all mechanical means for the correction of deformities, for the treatment of fractures and dislocations, for the study of errors of refraction, and in the use of the microscope, ophthalmoscope, laryngoscope, x-ray apparatus, etc., and yet only a few of our medical schools demand any satisfactory preliminary knowledge of physics for admission, and still fewer of them offer the student any advanced work in this branch while pursuing his medical studies. In France and Germany the importance of physics to the medical student is thoroughly appreciated. A conversation which I had a few years ago with a clinical teacher in the University of Paris greatly interested me in this matter. He remarked that he could not understand how the best medical schools in this country could afford to neglect the teaching of physics, and added that his own faculty found it necessary not only to require an elementary knowledge of this subject for admission, but to furnish their students with advanced instruction in this branch while taking their medical course. In the German universities medical students take the same work pursued by their scientific colleagues in physics.

Physical chemistry is becoming of more and more importance, both in the study of physiology and pharmacology. It is true that the importance of this subject has been but recently recognized, and we must allow for a certain length of time necessary for medical schools to appreciate this new information and to provide means for giving instruction in accordance therewith to their students. The instruction in chemistry given to-day in many of our best medical schools is scarcely better than a farce. It embraces a semester's—possibly two semesters'—lectures with demonstrations covering the whole range of general, analytical, physiological, pathological and toxicological chemistry, supplemented by a brief course in the analytical laboratory. How can we expect the student whose knowledge of chemistry is limited to that acquired in such a course of instruction to comprehend the significance of Ehrlich's side-chain theory, or really to have any just comprehension of the nature of food principles, to say nothing of their assimilation and utilization by the cells of the body. A knowledge of the fundamental facts of general chemistry should be required of every applicant for admission to

a medical school, and either before admission or after matriculation each student should be thoroughly grounded in the theories of organic chemistry and the general principles of physiologic chemistry, and to a certain extent in the methods of toxicologic investigation. I am aware of the fact that to do all of these things means to greatly increase the work which must be done by the medical student, and it is true already that there is no other profession, proper preparation for which demands more time, energy and devotion and costs more money; but we must remember, as I have already stated, that there is no crying demand for more doctors, and we, the medical educators of this country, should have enough professional spirit to see that unworthy men do not enter our ranks. We must not mistake bigness for greatness, and we should have more pride in the quality than in the quantity of our products.

Shall we rely on our public schools to fit young men for the study of medicine? The public school system of most of the states in the union is probably better managed and is more creditable to us as a nation than any other state function. In the majority of the northern states, at least, this system was modeled during the early part of the nineteenth century after what was then known as the Prussian system. It embraces eight years of primary work, given for the most part by underpaid but well-qualified and conscientious women. From the primary grade the child enters the high school, in which he spends four years in acquiring additional knowledge. The high schools vary greatly both in the scope and the efficiency of their work. They are dependent on the wisdom and liberality of the school board, and, as a rule, they are free from the influence of political manipulators. Unfortunately this is not always true, but so far as my observation goes the high school is generally managed by fairly competent boards composed of men and women of more than average intelligence. In some few localities the political demagogue has not even spared this institution and his corrupting influence has been felt in the selection of teachers, and in the failure to provide proper equipment. It has been a part of my duty in the past fifteen years to know something in a general way of the high schools of the northwestern states. I have personally visited many of them and have frequently come in contact with teachers from a

much larger number, and I have been frequently surprised at the excellence of these schools, even when situated in relatively small places and supported by relatively poor communities. As a rule, even in our larger cities the public school has better teachers, is better equipped and does better work than private schools in the same neighborhood, and a large proportion of our medical students have completed one of the two or three courses offered in one of these public schools. I take it for granted that no college belonging to this association will accept for matriculation anyone who has not had the equivalent of a high-school education, which, of course, means that the individual has had eight years in the primary and four years in the secondary schools.

Now the question arises, can we depend on these high schools to prepare young men for the study of medicine? In my opinion there are but few high schools which are sufficiently well equipped to prepare for the study of medicine, and that we should demand additional instruction after graduation from the high school. In many of the high schools it still remains true that the classical course is the best offered. The teacher of Greek and Latin who is frequently the principal of the school is generally paid a higher salary than the teacher of the sciences, and in a general way the classical course is the best offered in our secondary schools. In our universities the classics are no longer paramount, but in the high schools the sciences have not, as a rule, received the attention they deserve. This, of course, will gradually be changed. On account of this condition of affairs I think that it will be found to be true that graduates of classical courses of our best high schools have had all the history and classics that can be reasonably expected of the man who intends to study medicine. At least they have had all that is necessary to the successful prosecution of medical studies.

In mathematics, graduates of such schools are, as a rule, slightly deficient, for mathematics in the classical courses of most of the high schools stops with plane geometry, and I am sure that every teacher of physics will agree with me that a knowledge of plane trigonometry is essential to the successful study of physics. However, the greatest deficiency among the graduates of classical courses in the high schools lies in the modern languages and in the natural sciences. The prospects are that

more attention will be given to both of these in the future, but at present the average graduate of the average classical course in the high school has had inadequate preparation in the modern languages and in the natural sciences. I mean by this that in these branches he is not, in my opinion, prepared for the study of medicine, and he should be required to pursue these subjects in some well-equipped academy, college or university before he enters the medical school.

I should like very much to see this association make some move in the direction of advancing the requirements for admission. There has been no material advance in our requirements for the past ten years, and in this day of rapid progress ten years make a long time in which to lie dormant. I am inclined to think that unless some advance is made in the near future this association will not be able to hold together. Among its members there are schools whose requirements are much in advance of those of the association. These schools have been willing to continue as members of the association, hoping that they may be able to lend a helping hand to their weaker brethren, but they are not willing to stand much longer in this position.

I have referred to the desirability of placing the question of admission of medical schools in the hands of state boards, and I desire to say a few additional words on this subject. Of course, wherever this is done there are likely to be medical schools which will require more than the state board, but so far as I can see there is no objection to this. However, it must be admitted that such boards are likely to adjust their requirements not to the best medical schools in the state, but to the poorest, and this means that the latter receives a certain official recognition which misleads medical students and may induce them to go to an inferior school rather than to one of higher grade. However, I think that so far as we have experience with this matter in the United States the establishment of a board for the examination of medical matriculates has ultimately led to advancement in the requirements. Temporarily harm may be done. I believe that it is true, but on this point I have no exact information, that the establishment of the Ohio board has led to a great decrease in the number of medical students in the medical colleges of that state, and a corresponding increase in the number of Ohio students attend-

ing inferior colleges in other states. However, the time will probably soon come when the other states will have similar laws, and this matter will adjust itself. It is barely possible that a good school may be a little slow in advancing its requirements so long as it is able to throw the responsibility for admission on the state board, but after a while the good school will get ashamed of doing this and will advance its requirements whether the state board does so or not.

In conclusion, I wish to repeat that it seems to me that this association as a body is moving slowly in the advancement of medical education. Let us be up and doing and show some evidence of growth. The standing of our profession in the next generation and its influence on the nation will depend on those who are now entering on the study of medicine under our guidance, and we, as the medical educators of this country, will be held responsible, probably above all others, for the class of men who will constitute the profession of the next generation.

REQUIREMENTS FOR ADMISSION TO MEDICAL COLLEGES.

E. A. DE SCHWEINITZ, M.D.

Dean of the Department of Medicine of the Columbian University.
WASHINGTON, D. C.

A man who has not had a biologic training may become an excellent physician, although he will have to work harder to make up deficiencies. Some of the biologic work if not possessed by the student on entrance might well be included in the first year's course. It would certainly be a great advantage if more comparative work was required throughout the regular medical course. This could often well be done by eliminating some of the special studies which are properly post-graduate. In fact, the entire medical course could be remodeled to advantage.

It is not the business of a medical school to graduate

specialists, nor is it the business of a medical school to make the course of such a character that only a few can succeed in accomplishing the required work. We should give to each student a good, general, solid ground-work and afford him an opportunity to determine in his own mind the particular line to which he is best adapted.

So far as the Latin requirement for entrance is concerned, I think that in many cases the substitution of French or German might be allowed. To require these languages for entrance, however, would be unnecessary, while a certain amount of one or both of them might be demanded before graduation.

To the investigator and specialist a knowledge of these languages is invaluable. At the same time there are excellent abstracts of important foreign literature promptly issued by American journals which make the language requirement of less importance than formerly. Even if the practitioner has a knowledge of these languages, unless he is one of the fortunate few located in a large city, or near a large medical library, he has but little opportunity to profit by this knowledge without subscribing for a number of expensive journals. If he does this he will usually find that the half-page abstracts of the article contain all the information that he desires.

I do not wish to be understood as undervaluing the advantage given by a knowledge of the modern as well as the dead languages, as no one could appreciate more thoroughly how useful they are in practical work. We should point out to the student the advantage which will accrue not only from a good knowledge of French and German, but also Spanish, at the present time of great practical value. We should encourage him to round off his medical equipment by acquiring a useful knowledge and not a mere smattering, such as is often given him in many schools and colleges at the present day. We wish to make a man's training as complete and thorough as possible, and give him the basic work, after which he will be able to recognize his own special abilities and select the line in which he can best succeed.

For several years we¹ have refused advanced standing to graduates in veterinary medicine, dentistry, pharmacy

1. Department of Medicine, the Columbian University at Washington, D. C.

and literary colleges, although the constitution of the association permits such recognition. Such graduates are, as a rule, not better able to cope with the medical course in a shorter time than those who lack a college training. A high-school graduate usually makes a better student than the average college graduate. The law of New York forbids the recognition of colleges that grant advanced standing for the degrees mentioned and none should be allowed.

Certain medical studies should be allowed to count towards an A.B. degree. An A.B. degree should not be allowed to count towards a medical degree.

No college, a member of this association, should receive a student from another school unless he holds a special letter from the dean of the school from which he comes. During the past year students have come to me from other schools with clean certificates, which on inquiry proved to be falsified. Some system should be adopted which will effectually prohibit such fraudulent attempts.

REQUIREMENTS FOR ADMISSION TO MEDICAL SCHOOLS.

JAMES RUSSELL PARSONS, JR.
SECRETARY BOARD OF REGENTS.
ALBANY, N. Y.

It will aid us in discussing this topic to review briefly the quantitative requirements now exacted:

1. In accordance with statutory provision.
2. By individual medical schools.

In the state of New York a preliminary general education equivalent to graduation from a four-year high-school course after a completed eight-year elementary course is prescribed by statute as the minimum standard for license to practice medicine. Quantitatively this standard approximates that demanded in Continental Europe. Qualitatively it leaves much to be desired. The defects are being remedied, as I shall show later.

New Hampshire, Ohio and Vermont have similar re-

quirements, but they are not as rigidly enforced. Wisconsin demands the equivalent of admission to the junior year of an accredited high school. Delaware, Maryland, New Jersey and Pennsylvania prescribe a "common school education," Louisiana "a fair primary education," Illinois and Iowa less than one year of high-school work, Maine and Virginia evidence of a preliminary education, Arkansas a good literary education where a licensing examination is required, Rhode Island a high-school diploma or its equivalent under the same conditions. In remaining political divisions laws and rules are either silent in this respect or so indefinite as to be of little value.

According to the latest available catalogues Johns Hopkins and Harvard exact a college course for admission; Western Reserve, the completion of the junior year in college (really, as appears later, Harvard should also be in this class; admission to baccalaureate courses, however, is higher than elsewhere); the University of Minnesota, the completion of the freshman year; 17, 9, 14 and 90 medical schools require respectively four, three, two and one year of high-school work; 11 demand a grammar school education; in three the requirements are indefinite.

At present only four medical schools in the United States exact more in quantity than is represented by the New York state medical student certificate. Later, in speaking of qualitative requirements we must also include in this roll of honor Columbia, Cornell, Syracuse, University of Michigan and, after 1904, the University of California.

In answer to recent inquiries 79 of the 80 medical schools of the United States giving definite information on the subject report that the New York state medical student certificate is accepted at its face value for entrance.

There has been substantial progress since 1900, but it is still true that when medical schools conduct their own entrance examinations the tests are often mere matters of form, even though the standards appear satisfactory on paper.

The five subdivisions of this topic call for a discussion of qualitative requirements. Up to this point we have spoken entirely of quantitative requirements. I think, however, that we shall get a clearer conception of the

quality of the work that should be required by approaching the subject in this way.

A satisfactory uniform statutory requirement is impracticable at present, owing to varying conditions as to density of population, educational advantages and general development. It should be comparatively easy, however, with united efforts on our part, to bring about much more satisfactory conditions than those at present prevailing.

It is highly desirable that there should be a sufficient degree of uniformity in admission requirements to medical schools so that, as in other countries, students could go without inconvenience from one school to another for special lines of work.

In graduate schools it would seem sufficient to make a minimum requirement, as at Johns Hopkins, in languages, physics, chemistry and biology. It appears that Harvard, though nominally requiring college graduation, has been in the habit of accepting masters' degrees, which may represent nothing, or bachelor degrees, like the Spanish Bachillerato or the French Bachelier, which stand for little in advance of high-school graduation. Then, again, the combined course as at the Lawrence Scientific School and the medical school may be completed in seven years.

Graduate schools probably without exception will continue to be parts of great university systems, where work is organized on very broad lines, thus making it possible to vary to a considerable extent the requirements for an M.D. degree.

Next in order come those schools that demand for admission to the four-year medical course one, two or three years of college work. At present there are only two schools in this class, or three including Harvard. Here there is an excellent opportunity for work in Latin, French and German, physics, chemistry, biology and mathematics, to make good deficiencies in high-school courses.

We now reach the most important class, the schools that follow the New York statutory requirements in demanding for admission a four-year high-school course based on an eight-year elementary course. I say the most important class, though it now embraces only 17 schools, because this is the highest standard that will be obtained by a large majority of those who study medicine.

The fact that 79 out of 80 medical schools giving us information on this matter report the acceptance of our medical student certificate at its face value, shows that in this credential we have the best common basis for work toward higher standards. The New York state medical student certificate is awarded either as a result of regents' examinations or of equivalent work in an accredited school. The acceptance of equivalents involves the careful registration of schools in all parts of the world. At present the list of registered schools, which is subject to constant revision, embraces about 9,500 institutions. Our facilities for this work are unsurpassed. In fact, no work of the kind elsewhere can be compared with it even in a remote degree for thoroughness and comprehensiveness.

The New York law fixes the statutory requirement at four years of high-school work after a completed eight-year elementary course without restriction as to subjects. It is not probable that the statute will be amended to prescribe specific subjects. Columbia, Cornell and Syracuse have done so already, however, and other New York schools will soon follow their lead. Dr. Vaughan tells us that the University of Michigan now demands specific tests, which in his judgment can not be met, as a rule, before the completion of the sophomore year in college.

In 1900 the regents of the university, with the assistance of the medical council, suggested a preparatory medical course for adoption by New York secondary schools. In the report of the college department of the university for 1901 we compare this course with those of 12 leading universities of the United States, known to have special requirements for the fall of 1902. Following are the required subjects in the course recommended by the medical council: algebra, first year Latin, plane geometry, physical geography, Greek history, Cæsar's Commentaries, physics, Roman history, botany, first year German, chemistry, zoology and English history. All these subjects are found in the special requirements of Columbia, Cornell and Syracuse. The following subjects of the medical council's course are required or recommended in all the courses of the remaining nine universities: algebra, elementary U. S. history and civics, first year English, first year Latin, plane geometry, Greek history, Cæsar's Commentaries or sec-

ond year Latin, first year German, first year French, physics, Roman history, second year German, second year French. The only subjects not recommended by the medical council that are required in any of these universities are plane trigonometry by the University of Michigan and solid geometry by Northwestern University.

It is clear to me that we should not be too specific in prescribing entrance requirements. In other words, alternatives within reasonable bounds should be permitted. Our medical student's certificate accepted at its face value generally throughout the United States, now specifies exactly the subjects represented. In this way it has been materially strengthened. There is no longer any excuse for its acceptance at more than face value. Hereafter former matriculates under exemptions can not attempt successfully to represent themselves as high-school graduates. If plane trigonometry, for example, were not included on a credential presented by an applicant for admission to the University of Michigan a special examination might be demanded in that subject. To me it would seem unnecessary to do this, provided the applicant were able to offer other subjects that might fairly be considered as an equivalent. A reading knowledge of both French and German, for example, is desirable, but I should accept Spanish, or perhaps another language for either French or German. Then, again, we should remember that it will be some years before high schools generally will be prepared to teach biology, physics and chemistry. In the meantime, most of our medical schools must accept alternatives. New York secondary schools have made very rapid progress recently in teaching these subjects. In fact, I do not hesitate to say that if botany and zoology, physics and chemistry are required in the near future for admission to New York medical schools, New York secondary schools will be able to give instruction that will meet the needs of the medical school. I believe, however, that though in other political divisions there are individual schools that do work in these subjects superior to that done by the average New York school, yet the average in New York state is higher than elsewhere, mainly because in New York state only there is a central authority that insists on a satisfactory secondary school equipment and protects the public from the imposition of bad work.

It seems to be the consensus of opinion that two years work in Latin should be required, that algebra and plane geometry should be required in mathematics, that both physics and chemistry should be demanded and half a year each in botany and zoology. The uniformity already secured in the requirements of these 12 leading universities leads me to believe that with a reasonable use of the alternative plan we could agree on a preparatory medical course that would be acceptable generally throughout the United States by all schools admitting high-school graduates. Even more than this, schools that require one, two, three or four years of high-school work could admit on a part of this same course while working toward higher standards.

A word in closing as to admission to advanced standing. In 1902 the New York medical law was amended so that hereafter the regents may, in their discretion, accept as the equivalent of the first year of the four-year medical course evidence of graduation from a registered college course, provided that such college course shall have included not less than the minimum requirements prescribed by the regents for such admission to advanced standing. Those who favored this amendment to the medical law argued that a three-year medical course based on a satisfactory four-year college course was preferable to a four-year medical course based on high-school work only. This allowance of one year means frequently rather the shortening of the college course than of the professional course, i. e., universities maintaining medical departments are permitting seniors in the baccalaureate courses to elect the regular medical course. In January, 1899, a committee of the faculty of medicine at the University of Pennsylvania reported, after an exhaustive study: "It is evident that the trend of higher medical education and also the sentiment of the medical profession is that four full years shall be spent in a purely medical school." The dean of the faculty of medicine at Yale writes: "We believe that four years is not too much time for even a college graduate to devote to his medical course, and that three years is a sufficient time to put on his general college course."

It is believed that seven years for the combined baccalaureate and medical course represents the highest practicable standard for those students of medicine that are able to take college work, and that this fact will be

generally admitted as time goes on. In 19 departments of universities both baccalaureate and medical degrees are obtained on three years in the baccalaureate course and four years in the medical course. In 21 departments of universities the baccalaureate course is four years in length and the medical course three years in length. Forty-three independent medical schools make an allowance of one year to graduates in arts and science of reputable colleges. In 28 medical schools less than seven years are required for both baccalaureate and professional degrees. Forty-four do not give us satisfactory information on this subject.

In 79 medical schools an allowance of one year is also made to graduates in dentistry, in 70 to graduates in pharmacy, in 59 to graduates in veterinary medicine, in two to graduates in osteopathy. In 68 there is no evidence of allowance in these classes.

It is my present opinion that the regents should be somewhat elastic in registering college courses under the amended law. It should be sufficient for them to require that the college work be of such a character as will fit students for admission to advanced standing in medicine. It will be contended that only those medical schools that are wealthy enough to provide many courses from which candidates have the privilege of election within certain limits can admit to the second year of medicine without disorganizing their work, students with baccalaureate degrees representing only a broad training in Latin, French and German, physics, chemistry, biology and mathematics. It may be that many schools now giving generally an allowance of one year to college graduates may be driven, like Yale and the University of Pennsylvania, to abandon this plan and to admit to the second year only such students as have covered satisfactorily the work embraced in the first medical year.

As medical school faculties are strengthened, however, and as faculties increase, they can admit to the second year of medicine more and more freely those with baccalaureate degrees that embrace a general training in Latin, French and German, physics, chemistry, biology and mathematics. In other words, I believe that at present the regents should look at it from the broad standpoint that a three-year professional course based on a four-year college course is preferable to a four-

year medical course based on high-school work only, and that the responsibility for the necessary rearrangement of work must rest with the medical schools.

STANDARD OF REQUIREMENTS FOR ADMISSION TO MEDICAL COLLEGES.

R. L. WHITEHEAD, M.D.
CHAPEL HILL, N. C.

All of us, I am sure, who were present at the last meeting of the Association, will remember Professor Vaughan's discussion of the topic now under consideration. His views were presented with great clearness and vigor, and at the same time with much reasonableness. While there may be some difference of opinion as to details, I take it that we all accept, in the main, his conclusion that it is desirable that the preliminary education of medical students should include the study of mathematics through trigonometry; German or French, or both, sufficient to confer facility in reading; Latin for one or two years; physics, general chemistry, organic as well as inorganic, and general biology, including embryology. The statement that the student who possesses this amount of preliminary education is better prepared to enter on the difficult study of medical science than one who lacks it seems scarcely open to doubt. If any criticism is to be made of these requirements, it would seem to be that possibly they do not go far enough; probably Dr. Vaughan himself does not regard them as ideal. They amount practically to the studies of the freshman and sophomore years of good college curricula for the B. S. degree. Would not the quality of the students be much improved, with respect to mental training as well as from the standpoint of utility, by the work of the junior year, particularly in such studies as psychology and logic? Moreover, there is reason to believe that at least some colleges which are loath to surrender to us both the junior and senior years, might be induced to give up the senior year to the extent of making certain medical studies elective in that year.

There are some things which may be said on the other side of the question. It has been said, and, I think, truly, that the chief function of medical schools is to train men to be capable, useful practitioners of the art of medicine; and it can not be denied that a great many men who have not enjoyed any degree of collegiate education have measured fully up to the standard. A strong mind, good common sense, and earnestness of purpose can accomplish wonders. It is often extremely gratifying to see how men thus endowed grow during their medical course, not only in the knowledge of medicine, but in culture and mental power as well. So that I do not believe that the facts would justify a statement that preliminary collegiate education is essential to one's becoming an efficient practitioner of medicine.

Yet, after all that may be said along this line, the advantages of such preliminary education as Dr. Vaughan advocates are so great that the question of its requirement seems to me to be merely one of feasibility. I think all schools which can afford it would profit by the maintenance of such requirements; there is nothing more conducive to the success of a school than good quality in its students. Those of us who can not adopt them may at least regard them as something to be hoped for, and an end to be worked for; even though, for many of us, the hope must remain for the present, at least, a "devotion to something afar."

"WHAT SHOULD BE THE REQUIREMENT IN
LATIN AND SHOULD THIS REQUIRE-
MENT BE WAIVED FOR ANY
CAUSE?"

WM. E. MOSELEY, M.D.
BALTIMORE, MD.

As I understand it the province of this Association, in the premises, is to establish a *minimum* requirement in the preliminary education of those entering on the study of medicine, any school having the privilege of raising this standard as it pleases. If this be true, your standard must be one adapted to the *unendowed* medi-

ical schools, the schools which are to-day training men to fill the position of general practitioners, especially in rural and sparsely settled districts. Our country is so large and so young that for many years to come the great majority of medical practitioners must be content to occupy the position of plain country doctors. Such being the case, it seems to me that a concise consideration of the subject of medical education from the point of view of the unendowed medical schools will not be amiss.

That the best unendowed schools hold a high rank in teaching qualities, and that they have and still are meeting "the enormous expenses of a modern first-class medical school" goes without saying, as both facts have been amply demonstrated. Take the Baltimore Medical College, with which I am connected, as a fair example. We are teaching classes averaging over a hundred men in each of the four years. In the biological and pathological laboratories each man has his individual desk and locker, microscope, including a high-power immersion lens, and an ample outfit for the staining and mounting of specimens. Each laboratory is presided over by a head and an ample corps of assistants, all men trained for their special work. An equally complete equipment is to be found in our anatomical and chemical laboratories. The same can be said of many other unendowed schools throughout the country.

Dr. Bowditch of Harvard has said: "We may expect in the near future to find all the better class of medical schools under the Ægis of a university, and we may reasonably hope that this change will be associated with a diminution of the total number of medical schools now so greatly in excess of the needs of the country." If this prophecy is realized, will the real needs of the country be supplied? I think not. That there are useless medical schools I have no doubt, but it is because of the inferior quality of their teaching, not of their number. The quality of the instruction and the advantages given, the character of the teachers and of the men graduated and their capabilities as physicians; the power and willingness to reach men whom God intended for physicians, and not those only to whom fortuitous circumstance has given a college education, these are the considerations which demonstrate the usefulness or needlessness of any given medical school.

It is very true that many a good farmer or mechanic

is lost in a poor doctor; but it is also equally true that many a good doctor is lost in an indifferent farmer or mechanic, and were it not for the unendowed schools this latter truth would be of much more general application than at present.

What are the "needs of the country" from a medical point of view? Have those who advocate the annihilation of the unendowed schools ever thought of the thousands on thousands of small hamlets and cross-roads districts whose inhabitants are just as greatly in need of competent medical advice and practice as are the larger towns and cities? That in these sparsely settled districts the doctor holds the same intimate relationship to his patients that the "old doctor" did fifty years ago, and is a greater factor for good than he can possibly be in the city? That only men bred in the country could be induced to live these lives of self-abnegation? How many graduates of Harvard or of Hopkins do we find or shall we ever find in these country places? How well does their training fit a man for such a practice?

The union of medical with general university instruction has had two influences. It has increased the cost to the student of getting a medical education, and has raised the standard of preliminary preparation beyond the reach of the masses. It has barred all from the study of medicine except the few to whom circumstances have given a collegiate training. Far be it from me to undervalue the benefits of a most thorough preliminary education, but, although we strive for the ideal, we must meet the necessities of every-day life as best we can.

The tendency of the endowed medical schools to-day is to make either laboratory investigators, teachers or specialists. Where does the general practitioner, and especially the country physician, come in? What is the man who, alone, has the welfare of a sparsely settled community, scattered over a territory of from ten to twenty miles in diameter, to do? Can he call in Dr. Blank, the eminent surgeon, to operate on his case of strangulated hernia? Can he call in Dr. Blank, the eminent obstetrician, to apply forceps in his complicated cases, and Dr. Blank, the eminent gynecologist, to repair any damage done by the eminent obstetrician? Can he call on his friend, Dr. Blank, the eminent alienist, to treat the young mother suffering from post-partum

insanity. He must be surgeon, obstetrician, gynecologist, alienist, and much more; he must be a general practitioner, a good all-around country doctor, able and ready to act intelligently and promptly in a thousand different emergencies, and such doctors you are forced to develop from the material which comes from the country districts, men who have never had even a possible chance of getting a classical education. You must make your standard one which these men can reach.

The general plea for the study of Latin preparatory to a medical course has been that Latin is the language of medicine—but is this the fact? Let me quote from Dr. Achilles Rose's article, "Greek in Medicine," in the *Johns Hopkins Hospital Bulletin* for May, 1902: "The number of Latin medical terms is inferior to the number of words from the Greek, and medical writers, when they coin new words, prefer to borrow from the Greek." "Greek has been the international language of the world, and Virchow, in his inaugural address as rector of the University of Berlin, said that it was from the beginning a weak side of the humanistic educational institution to favor Latin as the international language of scholars." "In the year 1895 the new Anatomical nomenclature—*Nomina Anatomica*—as the title is, was published, and whoever chooses may accept the names of this onomatopoeia. Most of these names are by no means Latin, but Latinized Greek, or they are unscientific hybrids. In some of them of more than two syllables we find the syllables alternately taken from one and the other language."

"Professor R. Kossman of the University of Berlin says: 'In forming our pathological and surgical technical terms as we can by no means dispense with Greek, and so long as we admit that the retention and introduction of Greek synonyms for pathological and surgical expressions is a necessity, we have, for the sake of correctness and beauty of language, to decide to go a step further to do away with hybrid terms and establish pure Greek synonyms in the place.'"

I have quoted rather freely from Dr. Rose's article in order to more fully demonstrate what probably most of us have known for years, that so-called Latin medical words and terms are in many, if not in most cases, not pure Latin, but Latinized.

Again, a thorough familiarity with the Latin classics

will not aid a student in the comprehension and use of, so-called, medical Latin any more than an equal familiarity with German classical prose and poetry will help him in medical German—all his *direct* aid will come from a thorough study of the Latin or German grammar followed by a special vocabulary.

At no time in the history of modern teaching has the general average of preliminary education been as high as at present, and still every one of you knows that today there are fewer correct Latin prescriptions written than at any previous time. The reason is not that our students have studied less Latin than their predecessors, but that medical Latin has to be taught as a specialty and our teachers have not as a rule taught or insisted on proper prescription writing.

Now, if the ordinary high school or the more extended college course in Latin is of little *direct* value to the student in his medical course, what part does it play in his preliminary education? Simply as a means of effecting mental development, and as such it should be considered. The direct value of a thorough course in Comparative Anatomy and Biology to the medical student, both as regards its effects in mental training and its application to medicine, is infinitely greater than either Latin or Greek, and if we confine ourselves to the question of languages alone, practically the same mental discipline can be gained from a study of French, German or English as from Latin or Greek, and their application in every-day life is infinitely more practical.

I would not for a moment belittle the value of Latin as a most important factor in a liberal education, but when we consider specifically the medical student we have to consider the average young man; not necessarily one of average intellect, but of average opportunity. The question to settle in the individual case is not whether this young man has completed a certain specified curriculum, but rather has he the mental and moral capacity and development to successfully study and practice the healing art.

Make your preliminary requirements sufficient to accomplish this, but not so narrow that they will shut out bright and worthy men who have not had certain specified opportunities.

In conclusion, What should be the minimum requirement in Latin?

Just so much as gives a man a familiarity with Latin forms and construction, i. e., just so much as is gained from a thorough study of a good Latin grammar, including the exercises for translation to be found in it, and any bright young man can easily make up this condition during his first year of medical study.

“Should this requirement be waived for any cause?”

Yes. For an exceptionally thorough English education. For a reading and speaking knowledge of French or German, except it be the individual's native language. For a knowledge of one or more of the liberal sciences other than those included in the medical curriculum.

SHOULD A KNOWLEDGE OF FRENCH OR GERMAN BE REQUIRED FOR ADMISSION INTO MEDICAL SCHOOLS?

GEORGE M. KOBER, M.D.

DEAN, SCHOOL OF MEDICINE, GEORGETOWN UNIVERSITY.
WASHINGTON, D. C.

The question of what preliminary education best fits a man for the study of medicine has occupied the attention of this Association as well as that of the American Academy of Medicine for a number of years, and, on the whole, it may be said that the standard for admission into medical schools is sufficiently high to insure an educated class of young men, provided the requirements are strictly enforced and that we take pains to inquire what the certificates from high schools and colleges really mean.

My brief experience as dean satisfies me that the standard in our educational institutions varies so greatly that too much importance should not be attached to these certificates or even the degrees of A. B. or B. S. Their value depends on the standard of the institution from which they emanate and on the man, especially the latter, and it seems to me very desirable to inquire in every instance into the significance of these certificates and degrees. Whatever the previous opportunities of our students may have been, it is painfully apparent that a large percentage lack the ability of expressing themselves properly in their native tongue. This may

be due to a deficient training in the English language, want of practice, or personal environment, but whatever the cause, something must be done to correct the evil.

With this object in view, the school with which I am connected requires frequent written examinations, reports of clinical and post-mortem cases, and brief biographies of leading medical authors and teachers. Perhaps one of the most promising fields lies in the establishment of students' medical societies. Such a society was recently inaugurated in our school. The essays are prepared by members of the senior class and discussed by the third and fourth year students under the supervision of the professor of the department to which the subject under discussion belongs. It was my great pleasure a few weeks ago to listen to a paper on the prevention of tuberculosis by state methods, and after the reading of the essay and the discussion the subject had been so completely covered that there was no room for adverse criticism. At the close of the meeting I requested each participant in the discussion to reduce his remarks to writing, and I am convinced that this method will not only afford the necessary training in composition, but will also be an important factor in medical education and research work.

In the preparation of these essays the student naturally avails himself of the opportunities afforded by the library of the Surgeon General's office, and on more than one occasion the student has expressed his regret at his inability to consult the original references in the French or German literature. I believe that when such a desire is awakened in the student, that particular student may be safely trusted to acquire a reading knowledge of these languages. Nevertheless, the question arises whether the preliminary education in our colleges and high schools should not be so directed as to obviate the necessity for subsequent study of these languages.

It seems to me a waste of time to devote five or six years to the study of Latin or Greek and pay so little attention to the modern languages which possess a decidedly practical value. To most of our young men the study of the dead languages is not attractive and a fair knowledge is acquired only with difficulty. As a matter of fact, the Latin grammar is more easily acquired by the younger boys and might with considerable propriety

be taught between the ages of 9 and 12, as was the custom in Germany when I was a boy.

A fair reading knowledge of either French or German may be acquired in the course of one year; at all events, I have observed high school students making translations with fluency and ease from German into English after nine months' study. The desirability of a knowledge of either or both of these languages can not be questioned; for, apart from their value in research work, they possess advantages to the practitioner of medicine whose clientele may include foreign-born citizens. Moreover, we are training to-day not only practitioners, but also future investigators and teachers. To the latter a knowledge of these languages is desirable and to the former it is indispensable.

In spite of these advantages I am not prepared to insist that a knowledge of French and German should be required for admission to the medical school without giving several years' notice.

On the whole, I agree with our president that all medical schools that can afford to do so should require of their students a reading knowledge of either French or German, and I hope that in the course of the next eight or ten years this requirement will be made obligatory in even unendowed medical colleges. In the meantime let us endeavor to secure a more rational preliminary training for men destined to study medicine, so that they may devote more time to the study of modern languages and biological work and less time to Latin and Greek, and let us keep in mind that the best results in all studies are obtained by emphasizing the utilitarian object.

DISCUSSION

ON PAPERS OF DRs. DE SCHWEINITZ, PARSONS, WHITEHEAD, MOSELEY AND KOBER.

By MR. HENRY L. TAYLOR OF ALBANY, N. Y.

(By Invitation.)

Mr. President—I am especially interested in this subject and I represent another standpoint from yours. You gentlemen are administering medical lines of work; you are specialists in your particular field. My work as superintendent of schools in the state of New York brought me in close contact with the elementary and high schools of this state, and I want to say to you that

they have a good many burdens on their shoulders. If you are going to ask for new lines of work, they must have room for it, there must be correlation.

My special work during the last five years has been in the administration of the laws governing the admission to professional schools and to licensing examinations. During this time we have revised our registered schools, now numbering about ten thousand, and have passed on credentials coming up from twenty or thirty different governments and in nearly as many languages for recognition in lieu of examinations. Hence we face in this state certain problems that you as an association are attempting to solve.

Reference has been made to the work of the board of regents in this state. That body resembles the Ministry of Instruction of France or Germany, but in a modified sense. It can not say "do this" and have it done as in France, it must act according to law, it must be a guide to its affiliated institutions.

But we believe the board of regents are reaping results no ministerial body ever reaped with unlimited power at its command. For example, for three years we have been studying very carefully the question of entrance examinations, not only to medical schools, but also to schools of dentistry, of law and of veterinary medicine, at the same time recommending courses to the 750 high schools and academies of the state.

The combined medical and baccalaureate course is a most interesting question to us, because we must this year solve the problem of what recognition should be given to men from the baccalaureate courses entering on the study of medicine, and I wish to say plainly that we do not want to take any step backward nor secure any result that will enhance our standard.

I have been interested in the discussion this morning to find that no man has taken any position on the question of English, the only subject that is recognized by the colleges and universities of the United States to-day as a general entrance requirement. And English is *English* or ENGLISH, just as you emphasize it. But first we must have a unit of measure. We must know that a candidate has had eight years of grammar school work or its equivalent for admission to the four years of high school work, which is the measuring rod for entrance to the medical schools in this state.

The University of the State of New York is unique. In its advisory capacity, the regents influenced the schools and require certain standards to be met. They can say to high schools of the state you are not high schools unless you have prescribed library and laboratory facilities and the number and qualifications of your teachers must meet the required standards. They can demand, further, that the standards be met by applying certain specific tests. An inspector visits each school at least once a year, more times if necessary, in order to see that the regents' requirements are met. The regents also apply the test of examinations. The question papers are prepared and issued with the greatest care. The answers of the pupils are returned with equal care, uniformly marked and the results determined by unbiased examiners. The candidates attaining 75 per cent receive evidence thereof in the form of a certificate that shows on its face both the subjects and their values. If he attains a percentage of 90, he gets an honor. If he does not pass, he gets nothing.

Not only must these tests be met by the schools, but the courses of study accessible to high school students must be up to standard. Can one study first year Latin successfully after third year Latin? It goes without saying that he can not. Can he successfully study third year Latin and not have first year Latin at all? That also goes without saying. Should algebra follow plane geometry, or precede it, or go with it? Such questions are answered by the regents to the advantage of all the high schools and academies of the state.

Regarding English, I find in connection with this study those who say "We will have four years of English as a requirement for admission to the medical school." But it can not be done at present in the state of New York. The schools can not give them three years of English even and maintain their present courses. Catalogues say they are requiring four years of English, and yet they do not require two years of English on our unit of measure. Then, what is a year of English? What is a year of Latin that you are pleading for? What is a year's work of algebra or geometry? A year of English with us means that the student pursues the subject daily five days a week for forty weeks and gives to it at least forty-five minutes to recitation each day. You can find few schools in the United States that are giving this

time to the subject. Many schools claiming to do it show curricula calling for English three times a week in the first year, two days in the second year and a day or two in the third year. But that does not meet our unit of measure. It does not become the equivalent of a year and a half of work from our standpoint.

Notice advanced arithmetic. Your advanced arithmetic is not what we require. Our advanced arithmetic presupposes plain geometry and algebra, each pursued for forty weeks, at least forty-five minutes each school day. The arithmetic you mean is grammar school work; arithmetic that has been finished by our pupils in the eighth or ninth grammar school grade. We would rather cube root, for example, be taught in algebra than in arithmetic.

I have touched upon these problems in order to show you how in our relation to high schools we have a terminology that does not exactly fit yours. Three years ago this fall the medical council composed of representative men from various medical schools of this state took up the whole question of a preparatory medical course. They did it at a time when we in the schools and the university were carefully considering the courses of study. We have a syllabus for high schools and academies throughout the state that goes into effect for a five-year period. In 1900 the last went into effect and governs our schools for five years. We are interested in your discussion to-day, with a view to recommending at the end of this syllabus period the best course for admission to our medical schools. At that time we went over this subject very carefully with the medical council, and the same ideas and arguments that you advance this morning were made then. Deans reported that men came into the medical school that could not write an ordinary prescription in English, to say nothing of writing it in Latin; that could not parse an English sentence, to say nothing of Latin concords. So we wrestled with the question of English.

Now, how many of these subjects demanded this morning can our high schools put in and carry successfully, assuming that the high school course must be preceded by an eight-years' elementary course and that the high school must include the subjects prescribed by law?

Study the problem from another point of view. Here is Saratoga with a population of from fifteen to twenty

thousand, and it has a full high school. A little further south, Round Lake, with its little cluster of houses, first had a district school and later an academy. There came a time when they wanted to get these together and put in a full eight-year preliminary course and at least a one-year high school course. Now, what subjects ought the pupils in that school take? Such work as will enable them at the expiration of their one year to enter the nearest high school—that of Saratoga—without the loss of time. Hence we find that this correlation of work is desirable, yes, necessary, not only in our grammar schools, high schools and colleges, but away up into our medical colleges. The combined seven-year course is intensely interesting for this reason.

Can the boy in the high school take physics, chemistry and elementary sciences that will entitle him to be excused from that work in the medical school and allow him to intensify the work of the medical course? This is a simple question. If you have the funds to divide the classes it is entirely possible; if not, you must combine the two and can not get such good results. We will be very glad indeed to teach physics and chemistry as you want it if you will accept our work. Our schools are developing excellent laboratories and are expending immense sums of money for the purpose of providing the facilities to meet your requirements, both in the subject of physics and of chemistry. We think that in the physical laboratory there should be individual work. We taught elementary or inorganic chemistry, but we could not require the individual work. The students could not afford the necessary tables and paraphernalia. Then we came to a time when the regents insisted that the laboratory facilities be increased, and I suppose there are a hundred high schools in this state that have recently put in physical or chemical laboratories or both to provide students with facilities for individual work. When I wrote your president, that was the class of schools I had in mind, not the old school where the principal taught from text-book with an occasional experiment that might or might not work—would bring an air-pump out to show the class its mechanism and put a mouse under it to demonstrate its power.

From your discussion I conclude—that we must give up those things to which you can not give recognition, such as drawing, vocal music and rhetorical exercises,

and teach reading, writing and spelling, so that the student can carry three subjects a day for five days in the week and for forty weeks in the year. Even then we face this problem, at least two years of English and Latin, one each of algebra, geometry and biologic sciences; one year of physics and chemistry; two years of German, French or Spanish; two years of history; total, twelve years. It opens a wide field for discussion when we come down to it; for example, ought the student to know anything of history or should he come into the medical college totally ignorant of it? Cornell insists that this should be a part of the medical student's preparation.

We find then that we have twelve subjects of a year's length each, which, divided by three, makes a full high school course compulsory for medicine. But what about the fellow who wants to go into law or any other profession? It brings us face to face with the American school system, the best in the world. Not only is it a common school system and public, but it also provides for vertical circulation, and not horizontal stratification. This is an essential difference between the systems of the old world and the new. If a boy wants to be a doctor he must enter from the secondary and not from the grammar school, as there is no bridge between the grammar school and the medical school. But we must provide our boys with eight years of elementary work, carry him through the high school and at the last possible moment give him the chance to determine where he will go or what profession he will take up. This is what New York state is doing for her students to-day. The work is being so arranged that no matter what the boy's choice may be at the last moment, there shall be no necessity of going back and doing a lot of work over again.

In all courses there are certain essentials, such as algebra in the first year and geometry in the second. Latin should begin at the earliest moment, and physics should come in the third and chemistry in the fourth year, so that the prospective medical student can go on without taking a step backward. There must be correlation and adaptation. Not only must the medical profession be provided for, but also the legal or dental. On the regents devolves the task of bringing about greater uniformity of studies and conservation of energy in the high schools, colleges and professional schools of the state of New York.