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MEDICAL LICENSURE EXAMINATIONS

Topical Summaries and Questions

WALTER L. BIERRING

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With the Collaboration of a Review Panel



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"I owe a cock to Aesculapius—"

SOCRATES, in PLATO'S PHAEDO

Preface to the Ninth Edition

To ensure the continued usefulness of this worth-while publication, originally written and revised by the late Harold Rypins, M.D., the supervision was assigned to the present editor for the fifth through eighth editions and now for the ninth edition. This labor has been lightened greatly by the excellent co-operation of the panel of outstanding teachers and clinicians in reviewing and bringing up to date the narrative subject matter, as well as the appended questions.

The original plan has been retained—separate summaries of each subject and actual questions based on the essential facts contained in each summary.

The Table of Contents is divided into two parts. Part One, Basic Medical Sciences, includes Anatomy, Physiology, Biochemistry, Microbiology, Pathology, Pharmacology. Part Two, the Clinical Sciences, includes Surgery, Internal Medicine, Obstetrics and Gynecology, Preventive Medicine and Public Health, Psychiatry.

Several changes will be noted in the Editorial Review Panel. Dr. Arthur C. Guyton, Chairman, Department of Physiology and Biophysics, University of Mississippi, School of Medicine, has contributed an entirely new chapter on Physiology. In the preparation of the chapter on Preventive Medicine and Public Health, Dr. Ernest L. Stebbins has been assisted by Dr. Charles M. Wylie, Assistant Professor of Public Health Administration, the Johns Hopkins University School of Hygiene and Public Health. Dr. Howard P. Rome has had the help of Dr. Thomas L. Brannick, Consultant in Psychiatry at the Mayo Clinic, in the revision of the chapter on psychiatry.

The article on Medical Qualifying Examiners has been revised in accordance with the results of a series of Examination Institutes conducted by the Federation of State Medical Boards of the United States during the past three years in the testing of fitness to practice.

The further development of the objective multiple-choice form of written test and its adoption by the Educational Council for Foreign Medical Graduates is fully described.

It is hoped that this publication will continue to interest both the examiner and the examinee and enlist the co-operation of the medical educator in the broad field of licensure and other types of qualifying examinations. It also provides the undergraduate student with a compact and orderly presentation of the several fields of medicine which will permit a dependable review of the material covered in the medical course.

The Editor acknowledges his obligation to the distinguished colleagues on the Editorial Review Panel for their authoritative contributions to this ninth revised edition of Medical Licensure Examinations; to the National Board of Medical Examiners for permitting the incorporation of their study and analysis of the objective multiple-choice type of written examination; to the Federation of State Medical Boards for their study and re-evaluation of the written test in medical licensure examinations; and to the publishers, J. B. Lippincott Company, for their valuable assistance and co-operation in making this revision possible.

WALTER L. BIERRING, M.D.

Preface to the First Edition

This book is an expression of the writer's conviction that the average American medical graduate of today is well prepared for the practice of his profession and that consequently there is little basis for the obvious dread with which he approaches the ordeal of the licensing examination. It is based on fifteen years' experience as Secretary of the New York State Board of Medical Examiners, during which period he has had intimate contact not only with medical schools and boards of medical examiners throughout the country, but also with large numbers of candidates for the licensing examination.

After a critical survey of many thousands of questions actually used throughout the whole United States, a selection of typical questions has been made, and these immediately follow the review presented in each of the nine major medical subjects. By placing these questions at the end of the chapters the thought processes of the student are stimulated and his best interests more fully served than in the older forms of questions and answers.

It is the proper function of the state to submit to examination all candidates for the right to practice medicine, and the state medical licensing examination can, and in some instances does, serve as a valuable check upon the work of the medical schools. There should be, however, closer co-operation between licensing boards and medical schools. Medical faculties should recognize more clearly the function and intention of the licensing boards, and licensing boards should be more clearly aware of the progress which is being made in medical schools. It is evident that the examining boards are slowly realizing that medical schools are in better position than themselves to test the student's academic or encyclopedic knowledge of such subjects as anatomy, chemistry, and bacteriology; that such testing may be safely left in the hands of medical faculties; and that examining boards should limit themselves to inquiring into the ability of the medical graduate to apply such knowledge clinically.

As for the graduate's attitude toward the state licensing examination, his fear arises from failure to understand the point of view of the state examiners as well as from an inability to muster in due proportion the vast amount of material presented to him during his medical course.

Careful study of licensing examinations throughout the United States indicates a general agreement among examiners regarding the material essential for the candidate. It is this ground, and only this ground, that the present volume aims to cover.

Every effort has been made to treat as concisely as possible those portions of the medical curriculum generally selected for use by the various examining boards. Repetition and overlapping have been avoided. Where a subject such as rabies, for example, has been covered in the chapter on Preventive Medicine, it is not repeated under the consideration of the Filtrable Viruses in Bacteriology. The arrangement of the material emphasizes the relation of the whole and its parts. It is taken for granted that the student has been adequately trained in the medical sciences and there is no attempt to teach him anything new. The object is, not to cram his mind, rather, to assist him in selecting and rearranging his material intelligently and practically.

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Deliberate omission has been made of nearly all technical procedures, such as physical diagnosis, blood-counting and blood-chemistry, basal metabolism, x-ray, or surgical technic. Technical procedures cannot be taught in books and the ability to employ them properly should be assumed in the modern graduate. For similar reasons there is no separate section on materia medica or prescription-writing. References to the use of therapeutic agents are included in the consideration of the disease for which they are indicated.

To the authors in the various fields of medicine from whose books and articles he has freely drawn, the author desires to express his appreciative thanks. His gratitude to Miss E. Marion Pilpel, Miss Florence S. Muffson, and particularly to his wife, Senta Jonas Rypins, for invaluable secretarial assistance, he is most happy to acknowledge.

HAROLD RYPINS

Albany, N. Y.

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Medical Qualifying Examinations

BY WALTER L. BIERRING, M.D., EDITOR

The testing of knowledge before certifying for public responsibilities is an age-old practice. The Chinese were examining candidates for public service at least 3,000 years ago, and their examinations were much the same type that we use today. While formal examinations may not be necessary where a teacher has only a few pupils and is thoroughly familiar with each one, they are the only adequate means of measuring achievement and establishing minimum standards for large numbers of students or applicants. Therefore, they are a proper method of qualification in all fields of medical service. Medical-licensure examinations have been instituted to protect the public from the charlatan and the incompetent. In the 70 to 80 years of their existence in the United States, examinations have reflected the rising standards of medical care and, in turn, have helped to maintain these standards.

Examinations form an important and integral part in the program of education and training. Osler has well said: "Examinations may be the best part of an education or the worst." In their provision for review, and as a test of knowledge, they are likened by Karsner to "the roof of a house or the capstone on the chimney." The late President Eliot of Harvard once stated: "Examination is the most difficult of the educational arts and its influence on both students and teachers may be very great."

On the part of the examiner, the choice and the phrasing of questions for any examination require not only broad knowl-

edge of the subject concerned but also accurate judgment of relative values, as well as a keen appreciation of the purposes of examinations. On the part of the examinee, this demands a correct attitude toward the examination and an appreciation of the opportunity that it affords for analysis of his own powers.

Examinations during the medical course are given at varying periods for review and to stimulate the student to keep up with his work. Incidentally, they are a test of the quality of the teaching if the results are interpreted correctly. The carefully prepared final examination is to the student the most valuable educational exercise of the course.

In a number of medical schools an intermediate, or comprehensive, examination is given after the completion of the basic science courses to determine the fitness of the student to enter upon the instruction of the latter half, or clinical years, of the curriculum. Such an examination permits the correlation of the different fundamental sciences and their proper application to clinical conditions. A separation of the several clinical subjects has become more marked in recent years, and this, with the unusual accumulation of knowledge in each subject, has forced teachers into greater specialization, lessening their capacity to deal with the relation to subjects other than their own. This tendency likewise has influenced the final examinations for the degree of Doctor of Medicine.

There is an increasing tendency on the part of American medical schools to

2 Medical Qualifying Examinations

recognize the need of correlating clinical knowledge with that of the basic medical sciences. This is resulting in marked changes in the curriculum for the undergraduate years in order to accomplish more adequate training in the field of general medicine before graduation. The present consensus is that the training of physicians for specialized practice should be deferred entirely to the postgraduate period.

Unfortunately, the examinations for licensure have not always kept pace with the remarkable advances in medical knowledge and the resultant changes in methods of training for the practice of medicine, so that many of the examination methods framed under simpler conditions have become inadequate.

The purpose of the licensure examiner is not so much to test the knowledge of the candidate as to determine his or her ability to apply this knowledge to the diagnosis and the treatment of disease and to determine his or her general fitness to practice the art and the science of medicine.

The existence of separate licensing boards in the District of Columbia, all the states and the Territory of Puerto Rico, each determining its own type of qualifying examination for licensure, has worked against unity of procedure and standards. Again, the establishing in 20 states and the District of Columbia of separate boards of examiners in the basic medical sciences, has added a confusing element in the operation of medical licensure. Certification by the basic-science boards is required to obtain admission to the medical-licensure examinations. In most instances these boards comprise teachers in the basic sciences not connected with medical schools or licensed in any of the so-called healing arts. The purpose of their examination is to determine whether the examinee has sufficient knowledge of the several fundamental sciences to be admitted to the licensing examination of the particular healing art that he or she expects to practice. At best, these tests are elementary when compared with the comprehensive

training in the basic medical sciences in the approved schools of medicine. The consequent repeating, or duplication, of the examination by the licensing board concerned has complicated further the entire procedure of licensure qualifications.

The prevailing type of licensure examination is the written test, using the so-called essay type of questions. This includes description, explanation, definition and discussion of normal structure and function, of pathologic changes, and the etiology, the diagnosis and the treatment of special disease conditions. It is recognized generally that the written test permits opportunity for more thoughtful consideration of the problem involved, tests the descriptive ability of the candidate and permits a better expression of general scholarship, as well as an exhibition of penmanship, spelling, composition and neatness of execution, always desirable accomplishments for every physician. Also, the written examination with answer papers forms a definite record for future reference for purpose of review by other examining bodies.

In view of the continued extension of medical knowledge in every field, it is recognized that a limited number of essay-type questions does not always permit as adequate a testing of the candidate's knowledge as may be desired. In a few states, an oral or a practical test has been added to the licensure examination. This usually consists of the physical examination of a patient, writing a brief clinical history, followed by an oral quiz on the diagnosis and the treatment of the disease condition, to which may be added the interpretation of laboratory tests and the gross and the microscopic diagnoses of pathologic specimens.

A more comprehensive examination was instituted with the organization of the National Board of Medical Examiners in 1915. Its membership has been enlarged gradually and now includes representatives from the faculties of leading American medical schools, the Federal

medical services, the Association of American Medical Colleges, the Council on Medical Education and Hospitals of the American Medical Association, the Federation of State Medical Boards of the United States and prominent practicing physicians and surgeons.

Initially, the examination procedure was patterned largely after those of the Conjoint Examining Board of England and the Triple Qualification Board of Scotland, which comprise a written test and final oral and clinical examinations. A successful completion of this examination places the candidate on the British Register for the practice of medicine, surgery and midwifery.

The examination of the National Board of Medical Examiners is divided as follows:

Part 1 (written) in the 6 basic medical sciences of anatomy, biochemistry, physiology, bacteriology (microbiology), pathology and pharmacology, which may be taken at the completion of 2 years in an approved medical school of the United States or Canada.

Part 2 (written) in the 5 clinical sciences of internal medicine, pediatrics, surgery, obstetrics and gynecology, and preventive medicine and public health, to be taken after the completion of 4 years of undergraduate study in an approved medical school in the United States or Canada, or when the candidate is eligible for the degree of Doctor of Medicine.

The written examinations (Parts 1 & 2) are given in a great many centers, usually in medical schools, with an appointed proctor in charge.

Upon successful completion of the Part 2 written test, the candidate is eligible to take Part 3, after the completion of a 1-year internship in an approved hospital in the United States or Canada. This examination is held in about 35 large medical centers, where a local subsidiary board conducts a practical, or bedside, examination. This practical; or clinical, test covers 1 day and usually is conducted in a large hospital

where every laboratory facility is available.

The examinations of the National Board have become recognized as the most comprehensive test of knowledge of the medical sciences and their clinical application developed thus far in this country. This test has served further as an index of the medical training of the period and has distinctly influenced higher educational standards in each of the medical sciences.

The certificate of the National Board is accepted by 45 licensing authorities in the states, the District of Columbia and the Territory of Puerto Rico in lieu of the examination usually required for licensure.

In several states an additional practical test is required, and quite a number of licensing bodies require a personal interview with the applicant before the license is granted.

In the American Medical Directory, the Diplomate, or certificate holder, is designated with the suffix D.N.B.

The certificate also admits the applicant to the final examination of the Conjoint Examining Board of England and the Triple Qualifying Board of Scotland.

During the first 33 years of the operation of the National Board of Medical Examiners, the essay type of written test was used in its Parts 1 and 2 examinations. In 1949 this Board instituted a careful study of the merits of a newer method of written test, known as the objective, multiple-choice examination. Two years later it was used in two of the basic sciences and one clinical subject, at the same time continuing several questions of the essay type. The results proved to be so satisfactory that 2 years later the entire written examination in Parts 1 and 2 was changed to the objective, multiple-choice method. Within recent years a slight change has been made in the Part 3 examination by adding several questions of the essay type in each of the 4 clinical sciences.

During the past 12 years several specialty certifying boards, medical schools, a limited number of medical licensing