

methods, and others not so well known, without a single reference being given which would make it possible to check up results, or even to secure details of the method.

In the writer's opinion, the chapter on Ultimate Organic Analysis should have been left at the beginning of the book, as in the first edition, as a few exercises in ultimate analysis give the student facility in the quantitative handling of organic substances.

We congratulate Professor Sherman on his revision of his most excellent textbook, and hope that it will find as extensive a use in class room and laboratory as it deserves.

GEO. D. BEAL.

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THE REVISED PHARMACEUTICAL SYLLABUS, as outlined by the Faculty of the Philadelphia College of Pharmacy. Mimeograph copy; 80 pages, 8 x 15 inches.

The revisions that are taking place in matters pharmaceutical are hopeful signs of the time. The interest manifested in the revision of the Pharmaceutical Syllabus portends well for the future and is important as pointing to the professional pathway that pharmacy in America is destined to travel.

The first edition of the Pharmaceutical Syllabus was intended to cover the period from 1910 to 1915, but an earlier revision was deemed necessary and this is now in process and in charge of a National Committee of 21 composed of 7 members appointed by the Conference of Pharmaceutical Faculties, 7 appointed by the National Association of Boards of Pharmacy and 7 by the American Pharmaceutical Association.

The faculty of the Philadelphia College of Pharmacy have outlined the instructions to pharmacy students as given in this pioneer of the American schools of pharmacy and present to the National Committee on Syllabus this mimeographed book of 80 pages each 8x15 inches as a basis for the proposed revision. In doing so a signal service has been rendered and this valuable "constructive criticism" merits the careful consideration of the National Committee and should have an important influence in shaping the revision.

As a preface, Mr. George M. Beringer, in his dual capacity as Chairman of the Board of Trustees of that college and as a member of the National Committee on Syllabus, contributes a letter of transmission. In this a number of general topics are presented and several important issues are raised. The use of the word "pharmacology" as synonymous with "pharmacy" as is done throughout the first edition of the Syllabus is questioned and it is argued that modern correct usage differentiates these as having separate and distinctly different applications and that pharmacology is more correctly and specially used as the synonym of pharmacodynamics.

The two years' course as outlined in the first edition of the Syllabus is characterized as a fundamental error and a plea is presented in favor of a re-arrangement of the instruction outlined into a three years' course. It is argued that the instruction necessary for pharmacy students is more than can be properly imparted by the teacher or mastered by the student in the time allotted and that the welfare and success of the student as well as the professional advancement of

pharmacy demand an extension of the course to three years. This plea is a timely presentation of a condition that confronts the schools and faculties who are honestly endeavoring to educate pharmacists. With the conditions recognized and the disease diagnosed, pleas and arguments should not be necessary to convince an intelligent committee of the necessity of correction and the application of the proper treatment.

The writer claims "that undue consideration is given in the Syllabus to the subjects of therapeutics and physiology, and that these have been treated at undue length, and from the view point of a physician rather than from the needs of a pharmacist." "We should restrict instruction in physiology to concise descriptions of functions and actions and omit the details of anatomical structure and limit therapeutics to the definitions of terms describing the actions of drugs and such explanations of these actions as are essential to the performance of the duties of the pharmacist." The time thus saved he believes could with benefit be applied to pharmacognosy.

He recommends the introduction of instruction in the physiological assaying of Drugs, and also, that an elementary course in bacteriology be outlined giving the essentials of that important branch of science.

Each member of the faculty has contributed to the body of the book a revision of that part of the Syllabus relating to the subjects that he teaches, with criticisms and suggestions for additions, deletions and changes.

Dr. C. B. Lowe in his consideration of the course in physiology suggests a number of changes in the sequence of treatment of the topics. He recommends the introduction of instruction covering the following subjects: animal heat, sight, speech, hearing, taste and touch.

He suggests that the medical terms used, especially those used to describe the reaction of drugs upon tissues should be defined, and in each case examples of drugs possessing such action be given as illustrations.

Professor Henry Kraemer presents a recast of the part of the Syllabus relating to botany and pharmacognosy. He separates as histological botany much that is included in the first edition of the Syllabus as pharmacognosy, and claims that "pharmacognosy is today recognized as a distinct science" with definite limits and with botany as a necessary preliminary study. For this reason he arranges a scheme with all botanical instruction included in the first year.

He criticizes the division of pharmacognosy into histological pharmacognosy and commercial pharmacognosy. In his opinion "it is impractical during one part of the course to consider the anatomy of drugs and then during another semester to consider commercial varieties, adulterations, etc., of the same drug." "It is self-evident that the structure, the adulteration, and also the study of the crude drug and the powdered drug should all be taught at the time the pharmacognosy of that drug is being considered." He has outlined the subjects of botany, pharmacognosy and microscopy to cover a complete course of three years and in the third year he includes instruction in the microscopic examination of urine and such clinical work as the pharmacist is commonly called upon to perform.

Professor Freeman P. Stroup outlines a short course in physics, such as commonly is given to pharmacy students where the instruction in this branch is re-

stricted to simply what is deemed necessary as a foundation for pharmaceutical chemistry. That the first edition of the Syllabus should devote so much space, for example, to instruction in physiology and therapeutics, as instruction proper to pharmacy students, and then treat within such narrow limits a science on which many of the daily operations of the pharmacist is based, appears inconsistent and open to criticism.

Professor Samuel P. Sadtler in comparing the instruction in chemistry as given in the Syllabus and as outlined in his proposed revision criticizes several of the statements of the Syllabus. The requirement for laboratory exercises in elementary physics is practical only under conditions that do not prevail in colleges of pharmacy, namely, especially equipped laboratories, small groups of students and a number of qualified instructors.

He specifically criticizes the arrangement in the Syllabus of the course in General Inorganic Chemistry with Mendelejeffs Periodic Law as the basis of the arrangement. He considers this an unsatisfactory presentation of the subject to beginners. He illustrates his criticism thus:

"The halogen group is stated to contain chlorine, fluorine, bromine, iodine, and manganese," simply because manganese in the periodic system happens to come in the seventh "natural group" with the true halogens. Boron and aluminum are considered one after the other as in the third group, although fundamentally widely different in all physical and chemical characters. The sixth group, classified as hexads without any qualification, starts with oxygen, followed by chromium and then by sulphur, selenium and tellurium. Is this a desirable way to get the young chemical or pharmaceutical student to understand the important and essential facts and relationships of these elements? Oxygen is not hexad in any of its organic compounds that we know of, and not certainly in any compound organic or inorganic. The eighth group called octads, begins with the iron family, which is made to include iron, nickel, cobalt, and copper, next the silver family, which includes silver, ruthenium, palladium, and rhodium, and then the platinum family, which includes platinum, osmium, and iridium. All these are called octads. This is in the first place a distortion of the periodic system, as taught in standard and authoritative text-books, and in the next place it substitutes a still little-understood theory for proper experimentally supported analogies with regard to these elements."

Professor Frank X. Morek outlines a course on analytical chemistry. As notable innovations, might be mentioned, "The Introductory on Analytical Chemistry Principles" and the "Course on Chemical Mathematics."

Professor Joseph P. Remington suggests a number of additions to that part of the Syllabus relating to Pharmacy, such as an article on pharmacopoeial nomenclature including orthography and definitions of pharmacopoeial terms, instruction for the correct reading of graduated measures; use of specific gravity tables; tests for complete extraction, etc.

The course in Operative Pharmacy as outlined by Professors Remington and E. F. Cook is replete with rules and regulations covering books, apparatus, cleaning, dispensing, etc. It considers each class of preparations with definitions, methods and with actual preparation of U. S. P. and N. F. formulae. It covers, as well, a number of non-official formulas including many toilet preparations.

The desirability and practical value of such instruction to the future druggist is appreciated, even though such may not be considered as properly coming within the limits of examination by Boards of Pharmacy.

A section is devoted to sterilization and the methods of accomplishing the same; a timely introduction. Compounding of prescriptions is outlined at length with rules and methods in considerable detail.

The course in commercial pharmacy has likewise been outlined by Professors Remington and Cook and is one of the features of the proposed Revised Syllabus and presents many subjects relating to the business side of the pharmacist, some of which druggists too frequently find have been sadly neglected in their early training. The student who intends to follow the drug business for a livelihood needs just such practical training for his future career. This feature of the book might well replace the isolated pages on this subject in the present book.

Space does not permit an extended review of this contribution to the revision of the Pharmaceutical Syllabus, but the above references to a number of the salient features will serve to show its value to the Committee of Revision and the consideration it merits. Whether or not we agree with the conclusions of the several authors, the suggestions obtained by a careful perusal will well repay the teacher and the pharmaceutical examiner.

J. W. ENGLAND.

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#### INHALED DUST AND THE RESPIRATORY TRACT.

Naturally enough the respiratory tract is taken to be the chief path of invasion for the dust we breathe in. The pathology of the inhalation diseases—anthracosis, siderosis, chalicosis—bears testimony to the burdens which may thus be put on the lungs. In considering palliative measures and preventive devices to be applied in industrial work it has become necessary to learn something more exact regarding the travels of inhaled dust in the organism as well as the actual quantities which represent dangerous or insanitary limits. Investigations which the Würzburg hygienist, Professor K. B. Lehmann, has conducted along these lines with his pupils have furnished some unexpected facts. They have demonstrated that the great bulk of the inspired dust finds its way into the stomach, not into the lungs, as has been confidently assumed. Obviously the dust is regularly caught by the nasal and pharyngeal mucosa and the dust-laden secretion then swallowed. All of the inhaled dust was retained by the oral or nasal passage, yet less than a quarter of it entered the lungs at the best.

In case of insoluble particles the gastro-intestinal path may furnish a most satisfactory channel for the subsequent elimination of the dust from the body; but soluble dust finds a peculiarly favorable chance for absorption along the same route, and the opportunity for chronic intoxications is thus easily established. In any event, the lungs escape the major part of the initial irritation.—*Journal A. M. A.*