

It is also suggested that the modified assays for silver be studied further and comparisons made with the present U. S. P. assay since the soluble chlorides present in these preparations interfere to some extent with the procedure of the latter assay

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MICROBIOLOGY VERSUS BACTERIOLOGY. PART II.

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The curriculum content and teaching methods as set forth in a previous paper,¹ by the author, endeavored to differentiate between the aims and objectives of two related courses of study. In this paper I hope to make clear the specific advantages of each course to the student, the graduate and the pharmaceutical practitioner.

Although both bacteriology and microbiology are given at the College of Pharmacy of Columbia University and although our student body consists of candidates for the Ph.G. as well as for the B.S. degrees, our major purpose as a school of pharmacy is the adequate training for the retail dispenser of pharmaceuticals. For this reason I shall consider first, the course in Microbiology which is a compulsory subject for the prospective graduate in pharmacy.

Microbiology was introduced into the Ph.G. curriculum to meet the more recent needs for a knowledge of community hygiene and the prevention and control of the common communicable diseases.

The concept of the pharmacist educating the public is not of recent origin and its intrinsic value has long been recognized by the profession. A greater knowledge of prophylaxis has fortunately brought to the pharmacist additional opportunities for purposeful health guidance and demonstrations of worthy citizenship. A neighborly interest in the well-being of those he comes in contact with is easily recognized. Rapport having once been established, the confidence of the community is in the hands of the neighborhood druggist. It is within his power to improve sanitary conditions around him, both outside of, as well as within the homes, if he apply with sympathy and consideration the knowledge gained from the course in microbiology. This is more than a foundational, orientational or single subject-matter course. The establishment of desirable attitudes, the strengthening of personalities, and a wish to help human kind, are obvious results of the educational experiences gained from its broad social and economic relationship to life around us.

It is of the utmost importance to the pharmacist that he know the phenomenon of immunity; the Board of Health regulations concerning fumigation; incubation and quarantine. He can do much to establish and preserve sanitary conditions and by so doing, cooperate with the departments of health and sanitation.

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¹ Part I, 21 (1932), 675.

The Board of Health station not only lends prestige to the pharmacy, but bestows additional advantages for contacts with an ethical clientele. Closer coöperation with the physicians is the natural outcome for the pharmacist who can speak intelligently on professional topics of mutual interest. Accurate knowledge of, and statistical results pertaining to the newer biologicals is often welcome information to the busy physician. The modern pharmacist with an understanding of allergy, bacteriophage, vaccines and anti-body preparations is an asset to his community. An ever-anxious public will be relieved to get an intelligent answer to its many questions on preventive medicine. His knowledge of asepsis makes the pharmacist a more careful dispenser of eye lotions, hypodermic and intravenous solutions and, all in all, a more scrupulous and reliable practitioner than the pharmacist with only a limited understanding of sterilization.

For the student, the subject is of great interest. Although the course is intensive and represents a vast amount of material, the appeal to the members of the class is manifested by the magnificent enthusiasm with which their work is pursued. The demonstrations from the lecture platform as well as the individual experiments by the students, impart experiences that are at once inspirational and lasting. The action of bacterio-lysins, antitoxins, hæmolysins, the characteristics of normal and pathological blood, the changes brought about by bacterial and protozoal pathogens on the human body, the various methods of sterilization and the standard methods for water and milk examination, open up new fields of thought and interest to the members of the class. The student quickly realizes that the above topics are no longer a mystery to the layman of average intelligence, and the pharmacist cannot afford to overlook this important part of his profession.

Bacteriology with its special techniques and involved phenomena has a different appeal from that of its related science, microbiology, which nevertheless, is included in the more comprehensive study of bacteria. The student upon completion of his studies is prepared to enter a clinical or bacteriological laboratory and at the close of an apprenticeship, he is qualified to take the city or state examinations which give him the necessary credentials for the directorship of a bacteriological laboratory.

Other opportunities present themselves, such as bacteriological work for the water or milk laboratories, research bacteriologist in a biological laboratory or in any one of the great number of commercial fields with which this medical science has recently been associated. The industrial plants such as those dealing in furs, skins and raw hides, vegetable and animal fibres, manufacturers of canned goods, dairy products, flavoring extracts, condiments, etc., are ever in need of a bacteriologist to solve many of their problems. Another very important outlet for the knowledge obtained in this course is that of combining the diagnostic work with pharmacy. Many a successful pharmacist has established his reputation because of his excellent clinical laboratory which is so conveniently a part of his store. The small hospital and dispensary has likewise need for a person proficient in both pharmacy and bacteriology.

The possibilities for work in this field are ever increasing and those who can combine both branches of medical science, pharmacy and bacteriology, are happier for the experiences they enjoy, the social good they are capable of accomplishing, and the greater service they render to the medical practitioner and lay public.