Ointment.	Average Cost Per Pound of Manufactured Ointment.	Cost of Ingredients Per Pound.	Saving Per Pound.
Boric Acid	$0.67	$0.31	$0.36
Rose Water	1.05	0.70	0.35
Ammoniated Mercury	1.50	0.50	1.00
Ammoniated Mercury, 5%	1.20	0.37	0.83
Strong Mercurial	2.10	1.04	1.06
Mild Mercurial	1.71	0.75	0.96
Zinc Oxide	0.60	0.30	0.30
Zinc Paste	0.60	0.27	0.33
Whitfield's	1.50	0.56	0.94
Diachylon	1.20	0.76	0.44
Compound Sulfur	1.20	0.44	0.76

OBJECTIVES OF AND BASIC MATERIALS FOR A COURSE IN PUBLIC HEALTH FOR THE B.S. IN PHARMACY CURRICULUM.*

BY FANCHON HART.[1]

The pharmacist of to-day must fulfil his obligations to society with as much intelligence and helpfulness as is expected of him. He must comprehend the hygienic measures essential for the maintenance and betterment of health in order to be of service to the public. With these aims in mind, a course in public health should embrace the following objectives:

1. The preservation of health
2. Common manifestations of disease
3. Control of the communicable diseases
4. Public health agencies
5. Vital statistics.

The first objective embraces the salient facts governing the positive side of the science of health. Personal hygiene is too superficially considered in the secondary schools to be of lasting benefit to the average individual. The necessity for personal cleanliness can be most dramatically illustrated by means of a few laboratory experiments. These and other practical exercises appear in the laboratory outline included in this paper. After due consideration to the proper disposal of excreta, secretions, fomites and other materials capable of transmitting disease, emphasis should be placed on the needs of the normal body. The principles associated with nutrition and malnutrition, both of vital interest, are particularly significant for the pharmacist. Foods, nutrients, vitamins and calories must be defined. The functions of these substances, as well as the effect of any deficiency or over-abundance of one or more nutrients in the diet, may give rise to valuable discussions. Obesity and its pernicious cures with reducing substances may be demonstrated on laboratory animals. Emphasis may be placed on dental hygiene and the importance of a proper diet in order to maintain a healthy mouth. The consequence of the proper time for and kind of exercise, as well as the deleterious effects of fatigue, can-

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not be stressed too strongly. Consideration should be given to the advantage of a specific amount of exercise as well as rest for each individual. This objective may be closed with a discussion of the proper mental attitudes and the importance of sufficient recreational activities for good health.

The common manifestations of disease include the eczematic, urticarial, pyogenic, febrile, neurotic, nutritional, gummatous, chancroid and cancroid types. Illustrations of each may be cited. The ability to recognize the danger signs and the desire to impart the necessary ethical advice will often save the patient and gain the good-will of the physician. The incubation periods and quarantine regulations of the communicable diseases are points on which the public often seeks information from the pharmacist.

The third objective dealing with the control of the common communicable diseases is most pertinent to the pharmacy curriculum. Here we are given the opportunity of dwelling on the various governmental departments that supervise our foods, drugs and biologicals. This part of the work should be undertaken from a number of viewpoints. *First*, we may consider all the transmissible or contagious diseases and discuss the modern methods of their control. *Secondly*, emphasis may be placed on the modes of transmission, acquainting the student at this time, with the water-borne, milk-borne and insect-borne diseases. The student should thoroughly comprehend the meaning of the terms infection, infestation and contagion. *Thirdly*, special consideration may be given to the bacteriological biologicals—their methods of manufacture, standardization, packaging and storage, use and dosage. The official and non-official preparations must be included as well as their methods of administration.

Although the general public is more mindful to-day than ever before of the benefits to be derived from prophylaxis, there are still some who do not appreciate the advantages of our diagnostic methods. Positive and negative reactions may be illustrated by such visual aids to the lecture material as the results of the Tuberculin, Dick and Schick tests, Wasserman and other complement-fixation reactions and X-ray diagnosis. The dangers to the public of communication and direct contact with convalescents and other carriers may likewise be illustrated here.

I wish to interject at this point the additional material to be included in this unit if a public health course is to be considered, as I would wish it to be, a part of a course in bacteriology and immunology. The cultural habits of the organisms responsible for the common communicable diseases, and the environmental influences on their resistance is demonstrated by the usual bacteriological and laboratory procedures and projects. All the accepted methods for sterilization, disinfection, antisepsis and fumigation are carried out by the student in the laboratory. The preparation of a vaccine, antiserum and bacteriophage will give the student a more comprehensive understanding of these preparations than it would be possible for him to receive through lectures or reading assignments. Epidemics, pandemics and endemics call for discussions on artificial and natural immunity. The influences of occupational and industrial conditions on the health of the community, and the disorders arising therefrom, are of extreme importance to every citizen. Knowledge of the duties and powers of the Boards of Health, Departments of Sanitation, Water Supply and Hospitals, as well as the various commissions governing the quality and

purity of the many products consumed by the public, is a rightful part of the education of our pharmacy students

A study of the vital statistics gives knowledge of the change, improvement or retrogression, of the health of a given community. For this reason it is quite proper to include sufficient data of this nature to give the student a more comprehensive idea of the significance of the work of our public health agencies. I believe that this objective can be made a fitting conclusion to the course. Many occasions may be cited to illustrate the necessity for a birth certificate and the consequent importance of recording all births. Personal comfort, insight into local economic and political affairs revolve around the size of the population. Problems may be met more intelligently if statistical data is available. Accurate records indicate the causes of the deaths over any period in a given section. They denote the environmental changes brought about through intelligent supervision. Localities retarded through lack of funds, interest or knowledge are invariably the danger spots characterized by continued high death rates.

SUGGESTED OUTLINE FOR A COURSE IN PUBLIC HEALTH.

Items marked with * are to be added in a combined course including Public Health, Bacteriology and Immunology.

I. Preparation of simple culture media
   * A. Standardization and sterilization of media
   * B. Preparation of special media in order to determine the metabolic changes brought about by the organisms.

II. Cultivation of microörganisms
   A. Aerobic organisms
      1. From the hands.
      2. From the hands after thorough washing
      3. From the scalp
      4. From the mouth
      5. From the air
      * 6. Examination of excreta and exudates.
   B. Anærobic organisms
      1. From soil
      2. From food stuffs
         (*a*) Raw
         (*b*) Canned
      * 3. From wounds.
   C. Cultivation of water-borne organisms
      1. Examination of drinking water
      2. Water from stagnant pools
      3. Water from swimming pools
      * 4. Sewage contaminated water
      * 5. Study of the enteric group
   D. Cultivation of milk-borne organisms
      1. Comparative study of the various grades of milk
      * 2. Separation of the pathogens.
   E. Examination of throat smears from the class
   * F. Examination of sputum and study of the respiratory organisms.

III. Bacteriological Biologicals
   A. Preparation of
      * 1. Vaccines
      * 2. Immune sera
      * 3. Bacteriophage.

* IV. Cultivation of some common molds.

V. Demonstrations
   A. Diagnostic tests
      1. Anaphylaxis
      2. Antibody reactions
      3. Complement fixation
      4. Agglutination tests
      5. Precipitation tests.
   B. Results of malnutrition experiments
      1. Lack of vitamins
      2. Lack of nutrients
      3. Diseases due to faulty diet.
   C. Protozoal and metazoal parasites
   D. Cultivation of some common fungal parasites
   E. Biologicals used in the treatment of animal disorders.