

It is important that biologicals kept in the refrigerators of the nursing units be checked periodically to be sure that the stock is fresh. In an emergency, when these products mean so much to the patient there must be an adequate supply that is dependable.

In the smaller institutions the pharmacist may be of great help to the Administrator in the matter of purchasing surgical supplies such as sutures, cotton and gauze as well as rubber goods, glassware, syringes and needles. Chemicals for use by the laboratory and X-ray department might well be a part of the pharmacy stock since the pharmacist in many instances will be called upon to make up reagents and solutions for use in these departments.

More and more is being expected of hospitals and it is not an uncommon occurrence to have a patient go home supplied with drugs for his immediate needs as well as dressings. There are times, too, when they need items of enamel ware, syringes or other sick room supplies. To have such things for sale in the pharmacy relieves the hospital of the problem of having equipment removed or loaned from nursing units, and at the same time serves as a great convenience to the patient and the doctor.

With the knowledge that hospitals provide an excellent field of employment for the pharmacist, it would seem advisable for the student to learn something about the hospital's needs and what is likely to be expected of him. To that end, the school of pharmacy could, without much trouble, give the student an opportunity to learn more of the hospital, its equipment, its services and their relationship with the department in which he is preparing to work.

For the pharmacist who plans to work in a hospital, actual experience in the form of an internship would be most ideal. Such a program would appeal to the hospital Administrator, and at the same time lend encouragement to the scientific aspect of pharmacy, helping to maintain it on a professional basis.

Progress in the field of hospital pharmacy is likely to take a new direction shortly. In New York State, pharmacists employed by hospitals have been invited to become members of the State Hospital Association and a fair number have done so. At the 1938 convention of the ASSOCIATION pharmacists had a prominent place on the program, giving evidence that they as well as other department heads can derive benefit from an exchange of ideas, all to the end that the patients in hospitals may be served most effectively and intelligently.

MANUFACTURING IN THE HOSPITAL PHARMACY.*

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In a paper recently published in the JOURNAL OF THE AMERICAN PHARMACEUTICAL ASSOCIATION entitled "Medical Requirements of the Hospital Pharmacy," by Dr. W. J. Stainsby, the following paragraph was printed, "I feel that the pharmacist to be successful should, from time to time, critically examine the various preparations he issues to the hospital for the purpose of determining whether they

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can be simplified or improved, or whether or not he can manufacture them cheaper or better than they can be obtained commercially." I believe that every hospital pharmacist should have the above statement typed and placed on the wall of his office, so that he will be reminded continually of one of his most important functions.

From time to time we hear of, or read about the lack of interest in the pharmacy from the viewpoint of the superintendent. Inadequate equipment, improper working space and salaries, all seem to be a part of the routine complaints of a large group of hospital pharmacists. I believe that these problems could be eliminated or at least improved if more attention would be paid to the manufacture of pharmaceuticals.

The best method of attack is to tabulate the cost of the commercial preparations and compare this list with a record of the cost of products manufactured in the pharmacy. Follow this up by making a list of products which you could manufacture if more space, equipment and help were available. I have done this on several occasions and the difference in the cost figures of the commercial preparations and the manufactured products is amazing. If you want to get ideas on the preparations which could be made, make an effort to visit other hospital pharmacies. The larger teaching institutions are preferable because of the amount of work which they must handle and the necessity of working on limited budgets due to the large percentage of charity work generally done.

Most hospitals take advantage of the opportunity that they have in buying tax-free alcohol to manufacture U. S. P. and N. F. preparations. It is surprising though that quite a few simple preparations which they can easily make are purchased from commercial manufacturers.

Tablets of sodium chloride for both compresses and intravenous use are bought by many hospitals. A compress solution can easily be prepared of 18% sodium chloride and it may be sent to the wards in quart bottles and the labels marked to read, "dilute 1-20 to make physiological salt solution." If the metric system is in use in your hospital the marking could be, "dilute 50 cc. to 1000 cc. to make physiological salt solution." If sodium chloride is wanted for intravenous use, it can be bought in bulk containers and the amounts wanted to make your solution can easily be weighed on the balances in the pharmacy.

Lubricating jelly can be prepared of a good quality from a simple formula of tragacanth, glycerin, water and some antiseptic such as phenol. Large size collapsible tubes of 7 oz. capacity can be easily sterilized and filled with the jelly lubricant. The saving at our hospital amounts to more than \$350.00 per year on this preparation.

Mandelic acid therapy has been accepted during the past two years by the medical profession and working from a formula published in the JOUR. A. PH. A. by Dr. Fantus; we made a preparation of our own which has been very satisfactory. The estimated economy over a two-year period of making this preparation has been over \$1000.00.

Sometimes when we desire to make certain products we find that the proper equipment is not available. My plans to make our cold cream and to work out a new hand cream formula several years ago were frustrated when I realized that the proper mixers were not present. Upon investigating the equipment used in the

hospital kitchen, I found an electric mixer quite suitable for my purpose. The same condition may be present in other institutions so a visit to your kitchen may prove valuable.

Time is an important factor in manufacturing and preparations should be made as far in advance as it is convenient to do so. We believe that we save time in manufacturing our mouth wash by making 3-5-gallon bottles of concentrated mouth wash at one time. The ingredients are adjusted so that half a gallon of the concentrate will make five gallons of finished product. With this method the three bottles represent one hundred and fifty gallons of mouth wash. Of course if space and large storage tanks are available, another system of preparation might be preferable.

The manufacture of sterile solutions undoubtedly represents the greatest economy that can be effected in the hospital pharmacy to-day. Many preparations other than the routine saline, dextrose, procaine and molar lactate can be prepared. The recently accepted vitamins such as thiamin chloride, cevitamic acid and nicotinic acid should be added to the long list of hospital pharmacy sterile solutions which the progressive pharmacist prepares for his hospital.

A practical plan for helping the hospital pharmacist in his manufacturing would be for the Sub-Section on Hospital Pharmacy to edit an annual booklet of workable formulas. The complete directions for making the products could be listed under each formula. If the institutional pharmacists increase the number of products manufactured in the pharmacy they can easily prove the saving accomplished, and if properly managed the result will be a more wholesome respect for pharmacy and pharmacists.

PUBLIC HEALTH AND SOME HOSPITAL PHARMACIES.*

BY MORRIS DAUER.¹

The prime duty of society toward its members is the protection of their health as far as is humanly possible. Culture, habits of industry, correct attitudes in social relationships, adequate knowledge of social, historic and political backgrounds, a wholesome interest in and understanding of one's environment; all these are desirable goals of society, but even greater than these is the cultivation and the protection of health, "Mens Sana in Corpora Sano" (a sound mind and sound body).

It is interesting to note in the annals of mankind the steady progress that has been made in our lives; cultural, political, financial and scientific. As man continues in his tasks and daily work toward that ultimate goal of civilization which is perfection, he pauses at different eras long enough to give him a chance to take inventory and appreciate that which has gone before him. The advocates of Technocracy demand in one phase of their study that the machine age exerts an inhibitory force so that man will be able to appreciably adjust all his faculties gradually and in such proportion as to accommodate all changes.

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