

## DRUG DISPENSING IN A LARGE HOSPITAL.\*

BY R. S. FUQUA.

I have been asked to submit a paper to this section dealing with some of the practical problems connected with hospital drug dispensing. As many of the problems encountered in this work are peculiar to the individual hospital, or to hospitals generally, it has occurred to me that most of you would prefer a general outline of the methods followed in a large institution of this kind.

In discussing pharmaceutical work in hospitals, it may be well to remind you that dispensing methods in vogue to-day in one institution may vary widely from those employed in others of similar size and type. The need for pharmaceutical service is less pressing in some types of hospitals than in others, and in some hospitals a separate department for this work does not exist. In the very small hospital the drug-room may represent a separate storeroom for drugs and chemicals, rather than an active dispensing unit.

The hospital pharmacy as a well-equipped, efficient unit, is a more or less modern development. It has been only a few years since such departments were restricted generally to the very large, or to the well-financed institutions. To-day we find many of the comparatively small hospitals maintaining creditable pharmacies, and employing registered pharmacists to provide this needed service.

Let us look in on the hospital pharmacist to see what some of his problems are, and in what respects they may differ from those of the retail druggist. To begin with he has no complaint to offer for a lack of "customers." The hospital wards are filled with them. The operating rooms, accident rooms, laboratories, etc., all need items which he must supply from his stock of chemicals and drugs. If the hospital maintains an out-patient department, or dispensary, his problems are more complicated and the demands for service multiplied. How to supply these varied demands properly and promptly, and at the same time economically, is not a simple proposition. It should be remembered that few hospitals are financially able to provide for the operation of all of their various departments according to the ideas of those directing these separate activities. The pharmacy must cut expenses wherever this may be done without involving a sacrifice in quality of materials used, or a curtailment of necessary services. Carelessness and waste have no more place here than they have in the well-regulated retail pharmacy.

In any large hospital having numerous wards, we will find hundreds of patients being treated for various ailments. It would be an extravagant procedure for physicians to write individual prescriptions for each of these many patients; resulting not only in the waste of much unused material, but also requiring the hospital to maintain a pharmaceutical staff out of all proportion to the actual needs of the institution. Such a procedure would result, too, in a needless delay in beginning, or changing medical treatment. The usual method employed consists of keeping a well-stocked medicine cabinet in each ward, with an assortment of drugs covering a wide range of conditions. These are available for immediate single doses, or for the continuous administration of any of these standard

---

\* Section on Practical Pharmacy and Dispensing, Baltimore meeting, 1930. No discussion.

drugs or preparations. Occasionally, of course, it is necessary to have individual prescriptions prepared to provide proper treatment for unusual conditions.

The task of supplying the large quantities of drugs and chemicals used by wards and in the laboratories of a large institution is no small one, even under the conditions outlined. If the pharmacy is operated on an economical basis the manufacturing end of this work will assume large proportions. With tax-free alcohol at a cost of fifty to sixty cents per gallon available, tinctures can be manufactured at a very low cost. These tinctures in turn form the basis of numerous other hospital preparations. It may be necessary to purchase such tinctures as require a biological assay to determine their potency, but chemical assays present no great difficulty, and may be carried out with reasonable accuracy in the hospital pharmacy. Confronted with the necessity of manufacturing our own tinctures, spirits, etc., in order to obtain such economies as are offered by tax-free alcohol, we naturally turn to the manufacture of such other needed pharmaceuticals as may be produced economically. In the Baltimore institution with which I am connected, we have found it both necessary and economical to install some machinery and other labor-saving devices, in order to keep up with the demand for some of these products. Steam kettles, mixing machines, machines to grind and mix powders, an ointment mill and a small tablet-compressing machine have been found useful on occasions.

Let us look into the hospital dispensing pharmacy to see how some of this material is dispensed. We see lined up here on work tables quite an array of metal drug trays, or baskets, containing a varied assortment of empty bottles, boxes and jars. Each hospital ward has sent one of these down in the morning, with an order for such items as may be needed to replenish the ward drug supplies. On looking over these orders we find that some items are ordered for which no empty containers are sent: small quantities of drugs or preparations not regularly carried in ward stocks, but needed for some individual patient. We also find attached a few special prescriptions, and physicians' orders for narcotic tablets or pills. Hypodermic tablets are dispensed in small homeopathic vials; the oral tablets or pills in amber bottles. Narcotic tablets are sent up to wards in lots of twenty-five on these orders, but before any such drugs can be administered to the patient the physician must enter an order in the ward records, covering the dosage and quantity desired.

A further examination of these morning drug orders will reveal that tablets and pills constitute only a small portion of the needed drug supply. Various solutions and mixtures are ordered. Enough powders and capsules are wanted to keep one pharmacist busy all morning preparing them. We have here the gallon bottles of boric acid and phenol solutions; the jars for green soap and ointments to be filled, and the containers for disinfectants. Oral hygiene is popular in hospitals and, as a consequence, we have pint bottles to be filled with our standard mouth wash and Dobell's Solution. The patients on the free wards are supplied with tooth brushes and paste at the hospital expense. The tooth paste which we manufacture must please them, for we note that several dozen boxes are ordered. Much of this material must be previously prepared and placed in containers from which it may be dispensed quickly, or the drug trays could not be filled and returned to the wards in the allotted time. All of this work

must be done in the mornings so that drugs can be sent to the wards in the early afternoon.

The afternoon in the hospital pharmacy, however, will bring no extended periods of rest. We come back from lunch to tackle a pile of prescriptions, and orders which in the filling will require considerable time and care. Also there are the numerous solutions to be made up and filtered; and the capsules and powders which must be ready for use on the following day. We will find time, too, for making suppositories; and for filling orders from the laboratories and operating rooms. When night comes we are ready to close up shop for the day, and do so at seven o'clock. This is one feature of our work which would appeal strongly to our friends in the retail stores.

With the hospital pharmacist, however, as with the retail pharmacist, his responsibility does not cease when he parts company with his medicines. The labels on the containers which he has sent out must be legible, and the directions for use, if such are on the label, must not be confusing. We have given considerable thought at our institution to the question of proper labeling. Ambiguous or poorly written labels are fruitful sources of error—especially so in a large hospital. At present we are using printed labels on practically all hospital drug containers and, in instances where materials or names are of similar appearance, we have tried to design labels which are not likely to be confused by nurses or physicians. It has been a source of satisfaction to our department and to the hospital that errors in the administration of medicines furnished have been extremely rare. This, in spite of the fact that more than four hundred nurses are on duty in this institution.

In concluding this paper I would like to say that the present trend in hospital designing and building offers an opportunity for pharmacists to make this branch of pharmacy an important one. Modern hospitals are being built with space and equipment included for this service. The importance of the pharmacy as an adjunct to medical and surgical service, and the place we will occupy in future hospital developments, will depend largely on the energy and ability of the individual pharmacists in this field.

---

## THE HYDROGEN-ION CONCENTRATION OF AROMATIC ELIXIR.\*

BY JOHN C. KRANTZ, JR., AND C. JELLEFF CARR.

### INTRODUCTION.

The formula for the preparation of Aromatic Elixir was introduced into the Pharmacopœia of 1890. In this formula precipitated calcium phosphate is employed as a filtering agent. In the Pharmacopœia of 1900 the formula was changed to include purified talc as a filtering agent instead of precipitated calcium phosphate. It is a matter of general knowledge among pharmacists that the basic hydrated magnesium carbonate of the Pharmacopœia can be used advantageously in place of talc as a filtering agent. The filtration is more rapid and a clear finished product is obtained more readily. Magnesium carbonate has been objected to in

---

\* Section on Practical Pharmacy and Dispensing, A. P. H. A., Baltimore meeting, 1930.