

THE DUKE HOSPITAL PHARMACY.*

BY I. T. REAMER.¹

Twelve years ago my drug store employer made this remark when I left his employ for a hospital position: "The Hospital Pharmacist is a mere figurehead. He buys everything prepared and merely fills the small bottles from the large ones." This statement is not true, but I do believe it true that the general impression of Hospital Pharmacy twelve years ago was as he described it. The importance and prestige of the Hospital Pharmacy is on the upward curve. Let all of us who are associated with it continue to build upward from the solid foundation which is being constructed at the present time.

Six years ago I was employed to organize the Duke Hospital Pharmacy. At that time the city in which we are located had two other hospitals and neither hospital had a pharmacist. Nurses were doing the pharmaceutical work which should have been under the supervision of a pharmacist. The larger of the other two hospitals installed a pharmacy four years ago and readily saw the benefits of such a move. Recently I investigated the conditions of the drug room of the other hospital and as a result this hospital will employ a pharmacist for work beginning the first of the coming month. My belief is that quite a few of the smaller hospitals should be encouraged to employ registered druggists to take care of the drug supplies. At the present time there is a shortage of nurses throughout the nation. This is a grand opportunity to relieve nurses of their drug duties and turn the work over to persons who are better qualified to do it. If these positions are filled by well-trained men and women, the respect for pharmacy, will be increased. The backbone of ethical pharmacy responsibility lies with the hospital pharmacist to-day and we should take advantage of our present opportunity.

When our pharmacy was opened at Duke, service and courtesy became the watch-word of our department. Every opportunity to give information to doctors and nurses was taken advantage of and a complete reference file and catalog list was the first step toward this achievement. Mimeographed forms were distributed showing the lists of the expensive medications and the inexpensive ones. The comparative cost of all the vitamin preparations and the forms in which they were available were listed for their information. We published a Hospital Formulary which made quite an impression on our staff. It enabled them to prescribe medications of hospital formulas by the formulary names rather than to write out the complete list of ingredients for each prescription. The use of U. S. P. and N. F. preparations was encouraged and very few proprietary medications were dispensed.

Most of the hospital pharmacies use the tray system and each morning, except Sunday, bottles are returned to the pharmacy for refilling. This consumes quite a bit of time and in order to speed up this service, the Exchange Shelf system was adopted. On the pharmacy shelves we have filled bottles of all ordinary medications such as mineral oil, mouth wash, talcum, glycerin, etc., for each ward, and in the morning rush period the trays can be made ready for return to the ward in a remarkably short period of time with the use of the exchange system.

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The metric system is in use at our hospital. It is much simpler and is much more economical than other systems. I had worked with the apothecary system for several years and was familiar with the waste which accompanied the use of this system. For instance, one or two bottles of sodium, potassium and triple bromide would be stocked on each ward in strengths such as 5, 10, 15, 20 and 30 grains per drachm. With this method, the 15 to 30 bottles necessary for these three drugs alone would almost jam the medicine cabinet. With the use of the metric system, three bottles took the place of 15 to 30. We stocked one bottle of 10% solution of sodium, potassium and triple bromide and the label stated that one cc. = 0.1 Gm. With the label so marked it was very convenient to dispense any dose of bromide medication that would be ordered. When 0.3 Gm. was wanted, 3 cc. were measured and if 0.6 Gm., 6 cc., etc., so that it was very easy to dispense the medication properly with three bottles instead of a possible 15 to 30.

Everything possible is done to protect the medications and in doing so protect the patient against the use of deteriorated drugs. A very spacious ice-box is used for stocking all sera and antitoxin, suppositories, etc. I know from observation that this is neglected in quite a few institutions. All of our eye medications are labeled with an expiration date label as well as such solutions of silver salts or tannic acid which deteriorate on standing. Labels on all bottles are either printed stock labels or typewritten ones and then are coated with collodion and shellac. This saves label changing and makes them easy to read for a long period of time.

Economy is practiced wherever possible, but not by the use of cheap drugs and chemicals. Only the best quality of material is used and everything is purchased from reliable manufacturers. The cheap prices offered as bait by disreputable firms are ignored. We buy in bulk whenever possible, because this has proved to be one of the best ways to save. When new preparations are wanted, we buy just enough for our immediate needs. Our observation is that prices fluctuate very quickly on the newer popular medications. The vitamins are a good example of changing price. Every two or three months there is some revision made. The new drugs, mandelic acid and sulfanilamide, have dropped in price almost every week and the present price is practically 50% less than the prices paid three months ago. The same situation prevailed with amino-acetic acid. It was \$15.00 per pound less than eighteen months ago and it now can be purchased for \$3.00 per pound. The drug markets must be followed closely from week to week in the leading journals to keep in touch with the various changes made. Perhaps the largest saving we make is accomplished by our manufacturing a number of pharmaceutical preparations. Milk of magnesia, mouth wash, tincture of iodine, salt solution for compresses, intravenous solutions of dextrose and saline, lubricating jelly, ointments, emulsions, all preparations containing alcohol, etc., save us thousands of dollars each year. With proper mechanical apparatus all of these items may be prepared and be of the best quality. A very good quality of blue-black ink may be made for approximately twenty-five cents per gallon, and our institution uses nearly five gallons per month.

The days of mortar and pestle mixing have passed for quantity and quality manufacturing. Colloid mills for mixing emulsions and lotions, motor-driven ointment equipment and a ball mill for powder mixing are considered essential to-day in hospital pharmacy.

The use of colored solutions in hospital dispensing is also increasing so that certain widely used preparations will be easily recognized. We color our mouth wash with a red coloring, our alcohol with fluorescein to give it a green tint. Colored capsules have also found their place in modern pharmacy. We manufacture thousands of capsules of codeine, caffeine, aspirin; and codeine, caffeine, aspirin with atropine for our student health division which serves 3300 students. The capsules which contain atropine are colored with charcoal to give them a distinctive appearance. Another special formula we color with carmine to make it easily recognizable.

Our hospital is very closely allied with the Duke Medical School, and it is our good fortune to know the teaching staff of this organization. All the chemicals which are used in the medical school are purchased by our pharmacy and this contact helps us a great deal. The research problems that are under way are discussed with us when materials are purchased to carry out these projects. This knowledge gives us a keener insight into the medical problems and enables us to keep step with the advancement of medical knowledge.

Clinic patients who visit our Public Dispensary travel an average distance of 75 miles each. There are from 150 to 300 such patients daily except Saturday and Sunday. Any patient who has visited the clinic may have his prescription filled in our pharmacy. These people are treated in the same way as a person is treated who visits an ethical retail drug store. Individual attention is paid to them, and any suggestions that we can make regarding storage, proper method of taking, length of time before consumption, etc., is given them.

Another phase of our work is to teach our senior medical students practical pharmacy and prescription writing. A demonstration of the routine procedure of pharmaceutical manufacturing of the different types of preparation is given. All the drugs that are taught in lectures on prescription writing are shown to the group when the drug is discussed and a prescription for each of them is written by every member of the group. Weights and measures and incompatibilities are covered thoroughly.

We try to do a good job of promoting pharmacy interests. Our men work a 45-hour week, receive fair salaries, get a vacation of from two to four weeks and have every Saturday afternoon and all day Sunday off duty. All of our pharmacists live in the hospital and get to know the doctors personally. We never hesitate to question a physician about the medication that he prescribes and they appreciate all that we can do for them to increase their knowledge of the use of drugs. This coöperative spirit makes our work easier and never do we find pharmacy in our hospital anything other than a very interesting profession.

SOLUTION OF FERRIC CHLORIDE EASILY PREPARED.*

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It would be interesting to know how many teachers of pharmacy require the preparation of the official ferric chloride solution as a regular laboratory assign-

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