THE HOSPITAL PHARMACISTS' OPPORTUNITIES TO ADVANCE PHARMACY AND TO AID IN THE ATTAINMENT OF THERAPEUTIC SUCCESS.*

BY HENRY J. GOECKEL.[1]

There are certain kinds of pharmaceutical and of pharmacological investigations which the members of the Hospital Section of the American Pharmaceutical Association are best qualified to undertake. It is the purpose of this paper to bring these to the attention of the members.

It should be the aim of members employed in high grade progressive institutions to check up on the therapeutic efficiency and the comparative value of the various types of pharmaceutical products employed by the hospital staff. What is meant by this can best be illustrated by examples of instances observed by the writer in his past experience.

This work can find its greatest success in those hospitals which conform to the spirit of the standards set by the American College of Surgeons for acceptable institutions. This includes the possession of a broad-minded progressive medical staff, good pharmacy and clinical laboratory facilities and good case records, including intelligible and accurate progress notes on the cases.

On the part of the pharmacists it will require a knowledge of pharmacology and an intelligent and sympathetic understanding of what the physician aims to accomplish by the given therapeutic regimen. It will require making bed-side rounds with the physician in charge of the case at times when the results of the treatment can be evaluated. It will also require careful observation on how the product is employed—sometimes the failure is due to the technic of use and not to the product.

It will require of the pharmaceutical staff proper recording of the lot, quality, etc., of all products used and a system of accurate records of the pharmaceutical methods employed in the preparation of the medicaments.

The correct methods to accomplish this is a problem for this Section to work out. Examples of standardizing activities can be found in those of the medical profession in devising suitable case record forms; in the forms and systems of hospital case records; in those provided for recording the results of laboratory work; and in the system evolved by the Society of American Bacteriologists to standardize procedures so as to make the results of bacteriological investigations of comparative value.

ILLUSTRATIONS.

The following observations will illustrate some of the types of problems.

The first is the open question of the most practical base for ointments; whether it is a petroleum, an oleaginous vegetable or animal product; or a saponaceous or a lanolin type of base. Each one has its advantages and its disadvantages. The tendency in recent years, especially in hospitals, has been to use the petrolatum products for the base. It is the writer's opinion based upon personal observations that certain established brands have not at present the bland

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properties by virtue of which they won their reputation. This may be due to a different source of supply, or it may be the result of different methods used in the refining. Here pharmaceutical stability and elegance and the therapeutic efficiency may not coincide.

The writer knows of a case where a physician prescribed a solution of potassium chlorate and hydrochloric acid. Many pharmacists might have accepted the authority of formularies, etc., and prepared a chlorine water as no directions or instructions accompanied the prescription. Knowing the physician to be a gastro-enterologist, an inquiry elicited that he did not even know that two substances could be used to produce a chlorine water. He desired the hydrochloric acid because he was treating a case of achlorhydria and the potassium chlorate was given for its possible gland stimulating effects and to aid in clearing the fetid condition in the patient's mouth. He did not want a chlorine solution. He received what he required.

This is an instance where an established pharmaceutical procedure might have been employed hastily and it would not have answered the therapeutic end desired.

Such a simple product as a zinc oxide ointment may be the cause of a pharmacist losing his reputation for reliability. An instance of this kind occurred where the physician wished the antacid demulcent effects of such a preparation for a person having an eczema. The writer took a resublimed, highly diffused zinc oxide, rubbed it to a perfect cream with a small quantity of oil and then worked in the lard, which the physician designated for the base. Another pharmacist who considered it an unbusiness-like procedure to use a high-priced zinc oxide, when a considerably cheaper commercial article was available, and who did not approve of wasting time in triturating with oil, prepared a nice gritty ointment. The result was that the physician insisted that a serious mistake had been made in the second lot of the ointment. The inflammation, which was decidedly allayed by the applications from the first jar of ointment, was much worse after an application of the second lot.

Here in the first preparation pharmaceutical elegance and technic enhanced the therapeutic efficiency. In the second, false economy and careless technic was the cause for therapeutic failure and actual harm.

As is well known, the success of the Carrel-Dakin solution in the treatment of wounds depends as much upon the technic of administration as upon the preparation itself. The writer knows of a case where the solution was used on a heavily bandaged hand. This was kept saturated with the solution until the hand was so severely burned that the patient could not tolerate it any longer.

Here the preparation was not at fault but, decidedly, the mode of administration.

There is another instance where an elegant looking pharmaceutical product was employed. Nice shining, sharp edged salol tablets were given as an intestinal antiseptic. The interne on the service was rather skeptical of the tablets. He had the feces of the patient sent to the laboratory. As a result of this, the recovered salol tablets were returned to the physician. They were apparently unaffected by their passage through the twenty-odd feet of intestines. Their therapeutic effect was apparently nil.

This, incidentally, indicates that there is still much to learn relative to pharmaceutical technic for conserving the therapeutic properties of the medicament.

More recently a physician prescribed ferrous carbonate in the form of Blaud's pills. Desiring to assure satisfactory results he had the patient secure the pills marketed as a specialty by one of the pharmaceutical manufacturers. It was a beautiful pharmaceutical product. If you had cut one of the pills in half, you could have convinced yourself, if you were a skeptic, that a goodly amount of ferrous carbonate was present. But alas, after having taken seven doses of the pills, the patient had an X-ray picture taken of the enteric region. This showed the shadows of the seven pills, all apparently of the same size and sharpness of outline, showing how far each one had traveled from the stomach on its journey back to the outer world. The nice shiny coating certainly preserved the ferrous carbonate, and also protected the pills against dissolution. The therapeutic effect was again nil. I endeavored to secure a print of this film to present before this Section but it had been mailed to a physician in another city.

Investigations along this line are likely to change the viewpoint of the medical profession, as well as the practice in most hospitals of dispensing pills and tablets for every possible purpose. It may have a tendency to add to the problems of the hospital administrators by increasing the cost of pharmaceutical service. It will contribute to the attainment of greater therapeutic efficiency, thereby helping to reduce the average period of hospitalization per patient, with the resulting sociologic advantages of less chronic invalidism and less pauperization.

There is a preparation which was much in use in the vicinity of New York City in the days when the writer was a pharmacist in one of the teaching hospitals of that city. This was known as the compound white lotion (Lotio Alba Co.) and has gone into the discard not because it is lacking in therapeutic value, but because some pharmacists made a product which was not satisfactory. It was either very gritty and poorly diffused or it was caustic, due to an excess of zinc sulphate in the finished product.

Some members of the medical profession, learning that the burning of the skin was due to an excess of zinc sulphate, attempted to overcome this objection by prescribing suspensions of commercial zinc sulphide. This, however, is a very different substance chemically from the polysulphide in the original preparation. It is probably absolutely inert therapeutically and about as smooth as coarsely powdered pumice stone.

The writer while at the hospital where this was extensively employed in the skin clinic produced a very finely dispersed, almost inpalpable, precipitate of the substance on which its therapeutic value depended. This was accomplished by using carefully selected sulphurated potash which was dissolved in distilled water and then heated on a boiling water-bath. Sublimed sulphur was added until it was saturated with all the sulphur it would take up in a clear solution. It was then strained and, under constant stirring, poured into a filtered solution of the zinc sulphate.

The supernatant liquid of the finished product was later tested for a possible excess of zinc sulphate. This was done by adding a few cubic centimeters of it to a solution of sulphurated potash. If by chance a precipitate was produced,

indicating an excess of the zinc salt, this was all precipitated by the additions of more sulphurated potash solution.

As is usually the case if you furnish your staff with a superior product, there was no comment by the medical staff during the entire two years in which it was prepared in this manner. It was only later, when the writer was obliged to give up the position and his successor made the lotion otherwise, that the difference was noted. The staff then insisted a mistake was being made and that the product was not the regular lotion. The improvement had been accepted without comment but the return to the original product was emphatically objected to.

This illustration shows that the investigator must make his own observations and not rely entirely on the physician's report. The members of the medical profession seldom give credit for improvement in results to the preparation, but they are very prompt in noting the results of a poor product and often blame the product when the fault is in the method of using the product or preparation.

SUMMARY.

1. The hospital pharmacist is probably best qualified to undertake pharmaceutical and pharmacological investigations along the lines suggested.
2. This is work which supplements and extends that of the pharmacological laboratories.
3. It will aid in improving pharmaceutical service.
4. It will make therapeusis as applied to the use of pharmaceutical preparations more successful.
5. It will make pharmaceutical service of more value to the medical profession.
6. It will advance scientific and professional pharmacy.
7. It will win for the pharmacist his rightful place on the professional staff of the hospital.
8. It may ultimately lead to the Hospital Standardization Committee's being just as insistent that the responsible members of the pharmaceutical staff should attend the clinical conference meetings as they now insist upon the responsible members of the pathological laboratory staff being present at these conferences.

ABSTRACT OF DISCUSSION.

J. Leon Lascoff commended the paper. **W. J. Stoneback** referred to a pharmacist of his acquaintance who prepared "White Lotion" according to the method followed by the author of the paper, and established a reputation which served as a valuable advertisement for his pharmacy.

William Gray agreed with Dr. Goeckel in general; however each physician presents a problem. The same methods cannot be employed with all physicians; some will take suggestions kindly, others will resent them; suggestions can be made too frequently and unnecessarily.

THE STATUS OF THE HOSPITAL PHARMACIST.

A REPLY BY C. DYNA.

Mr. Swallow in his article on above subject[1] has put before us again a pretty well worn proposition. Every now and then out of the wilderness comes the cry:

[1] JOUR. A. PH. A., January, 1925, pp. 40–43.