

Section on Practical Pharmacy and Dispensing

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ALL FOOL'S DAY AT THE DISPENSING COUNTER.

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Looking backward, through the mist of four decades, at the dispensing counters of city drug stores, if one has had good digestion and has done his "duty in that state of life unto which it has pleased God to call him," he must have very happy realizations of great progress and helpful development. If he can see even small evidences of his own contributions to this progress and to this development, there is added satisfaction and added happiness. Knowing, so perfectly, all that you do not know that you might know, about dispensing and actually *feeling* the truth of Osler's sound philosophy, you still may enjoy the retrospect, and contemplate, with comfort and pleasure, the greater ease, the greater comfort and the still greater usefulness of the better-equipped counter and the better-equipped dispenser of this better day.

One hundred and two physicians' prescriptions, and about twenty, out of the hundreds of general orders, which required dispensing knowledge,—some of them of the highest kind—was not a great day, as days go in "big stores," but they offered excellent opportunity for the exercise of many of the possessed attainments and, very likely, for many more that were unpossessed.

Of course, there were very many uninteresting and very usual prescriptions and orders; the more so because they are so usual that every one has learned to do them, just as every one has learned to do usual things, no matter how difficult they may be or how stupid is "every one."

This "All Fool's Day" was not a remarkable day at the prescription counter; nor was it selected *after* its offerings were known, yet it presented almost every variety of dispensing. Strangely enough, there was not much, about which the "damned doctor"—might be criticised. One of them did prescribe a super-saturated solution of calcium lactate, which would have resulted in a solidified mass, had it been sent out as a solution. But it had been learned that when more than five per cent of this salt, compared with the water present, is prescribed in solution, no attempt should be made to dissolve the lactate. Under such circumstances, the fine, bolted powder should be simply *mixed* with the fluid, whatever it may be. The frequent mis-ordering of calcium lactate is not always the fault of the prescriber, since authorities differ as to its solubility,—the variations, no doubt, arising from the differences in the ages of the products with which the several experiments were made; the salt is most soluble when freshly prepared.

The uncertain solubility of calcium lactate; forgetting that strontium is an alkaline earth and forms insoluble carbonates and sulphates, and not knowing that sodium nitrite is very easily decomposed, especially in acid liquids, are the three items that seem to give modern prescribers more trouble than all else beside.

Naturally, there were a good many proprietaries prescribed. The best the pharmacist can get out of these is some profit—very good in comparison with the responsibility involved, the time required to dispense them and the splendid advertising that follows having them in stock, when called for by patrons or inquired about by physicians. There were also a number of copyrighted articles which, of course, are subject to the same requirements regarding dispensing knowledge as free chemicals. For instance, a dispenser should know and remember as much about aspirin as about salicylic acid. The chemical or scientific names of these copyrighted articles were used in a few prescriptions. There were but two instances of "specifications." This is most encouraging; it shows greater confidence in manufacturing and dispensing pharmacists. The specifications of forty years ago were a much greater burden on the dispensing pharmacist than are the proprietary and copyrighted articles of to-day. It is one brand of aspirin now; it was, at least, four makes of fluid extract of ergot and six makes of quinine-pills, then.—Cheer up, youngsters, cheer up!

There were but six prescriptions for ready-made pills, and all these were of strychnine. They were dispensed in screw-cap vials, the best and safest containers for strychnine-pills and the best for all gelatin-coated pills, excepting those containing odorous substances, like asafetida or the valerates, which should be dispensed in perforated boxes. The popular and most convenient gelatin capsule has certainly come to the modern dispenser's rescue. They have almost entirely replaced the ready-made coated pill in our city and are largely taking the place of tablets with *prescribing* physicians. A three-fold blessing, indeed, are capsules; they bless the physician, they bless the pharmacist and, most of all, they bless the helpless, long suffering victims of both,—the poor invalids. The dispenser of to-day must be careful that he does not, to the disadvantage of all concerned, use soluble-elastic or soft capsules, instead of the regular slip-on-kind, for liquids. The hard capsules appear to be safer and are much easier to dispense.

All the prescriptions for capsules were marked as having been filled "dry." Not bad practice, since moisture, as we know, especially when high temperatures prevail, has most to do with the deterioration of medicinal substances. With present high standards for powdered drugs, and the very efficient extracts dried *in vacuo*, there are very few instances when capsules may not be dispensed with the material in dry powder. The great advantages of this are many and obvious. An expert dispenser can generally use as small a capsule for the powder, as he could if it were massed. Odorous substances, like asafetida, the valerates, or iodoform and very difficult ones, like methylene blue, should, undoubtedly, be massed and introduced with a needle.

If "new clerks" and students with drug store experience, are "straws that show the way the wind blows," there is a great deal of bad pharmacy practiced in the mere dispensing of capsules. It must not be forgotten that gelatin capsules, as now made, are wonderfully transparent and plainly show imperfections in the

mixing of the ingredients and the irregular colors of the mass. These capsules must be full and full alike; if the powder or the mass does not fill the capsules, then make either large enough with inert material to fill them. But the capsules must never be too full, (it is always bad to be "too full"), they must not be so full that the caps may not be pushed *all-the-way* on, for this is the only test by which the capsules may be made uniform. The capsules should be as bright, as glossy, and as clean, after they are filled, as they were when sent out by the manufacturer. This requires some effort, some care, but it may be accomplished, and should be accomplished, even with sodium salicylate.

In a general treatment of the day's requirements, reference might be made to the folding of powder papers; to the keeping of the powder within the paper,—a difficult accomplishment with bulky, light substances. This may be done by making an *extra* complete, but *very narrow*, fold at the beginning of the folding. This will be found to be wonderfully helpful. In the distribution of small quantities of extracts through bulky powders, there comes up a question as to whether or not it is desirable to improve the final appearance of the mixture of powders by using the pilular extract, softened with alcohol or dilute alcohol, as the case may require. This treatment with extract of belladonna, brings about almost startling comparative results. Konseals, too, may be made to advertise a store, either advantageously or disadvantageously. So many dispensers use much larger cachets than necessary; easily seen by holding the konseal, edge up, tapping it and looking through it toward light. Failing to seal them effectively, as witnesseth the box containing them and the disgust of the patient, is equally hurtful to the dispenser's reputation.

The mixing of fluids of varying alcoholic strength, was an oft requirement of the day. By simply following an order of mixing that made the dilution of the stronger alcoholics as *gradual* as possible, many troubles were avoided. "The order of mixing" is really the "IT" in dispensing-pharmacy, as stock-keeping is the "IT" in commercial-pharmacy.

Solutions, making up a large proportion of our "April Fool Day" work, are always the most interesting class of prescriptions. They require the bringing to bear of all our knowledge of chemistry and of physics and, more lately, of bacteriology. Asepsis and sterilization must, now, be considered, and a fair comprehension of mass-reactions and the dissociations of elements, must be enjoyed to make the intelligent and successful dispensing of solutions possible. The dispensing of perfectly clear, reasonably sterile solutions for eye instillations, and the dispensing of ointments for the applications to eye-lids, were the most exacting features of the day's work. Yet, it was this work that had stimulated the greater confidence enjoyed. Incidentally, it may be asked, "Would it not be wise to have the Pharmacopœia standardize the strength of yellow mercurial ointment for eyes?" The present official ointment would not be what is generally wanted by oculists; about two to four per cent is usually desired by them, one or two grains to the dram.

Weighing and measuring, with the mathematics involved, are still problems that test the wits of the apothecary. He must have sufficiently accurate appliances. How, without these, could he get one eighty-fifth of a milligram of tuberculin, in

a cubic centimeter of normal salt solution containing one-half of one percent of phenol? This was one of the problems of our day and such, are of frequent occurrence in modern pharmacy. One third of a grain of strychnine sulphate to be dissolved in four fluid-ounces of compound tincture of cardamon; one-fourth of a grain of glyceryl nitrite and one-half a grain of strychnine sulphate in a three fluid-ounce mixture of tincture of strophanthus and wine; one fluid-ounce of glycerin containing five per cent of phenol, were not all of the more or less difficult problems that came to this store on this day.

Weighing and measuring and, consequent calculations, bring up the question of stock-solutions, dispensing tablets and percentage-solutions. One must be careful that he is not too conservative, too straight-laced or too hard to convince in these regards, but the actual dispenser *must know*, for he is finally responsible. If percentage by weight is wanted, and that seems to be the only way that "parts" may be compared in making definite volumes of percentage-solutions, much thought, figuring and, sometimes, valuable material, may be saved by using a method which may be illustrated by our order for "one fluid ounce of carbolized glycerin, five per cent." It is not necessary to know or to think about the specific gravity of glycerin; simply balance a bottle, fill it to the desired point and weigh the glycerin. Divide the weight of the glycerin by nineteen and the quotient will be the *exact* amount of phenol required; the plan can be used for oil-solutions or any fluid, distilled water included, if desired. The proposition may be stated in this manner:—If five per cent is to be one twentieth, then the vehicle—the glycerin in this instance—must be nineteen twentieths. If a ten per cent solution is required, divide the weight of the vehicle by nine; if a twenty per cent is wanted, divide by four.

The confusion of the Metric system with the Apothecaries' weight and the wine measure, continues, as witnesseth a prescription for dilute hydrocyanic acid 3.0, codeine sulphate 0.32, syrup of wild cherry and water sufficient to make 100.0, with a teaspoonful as the dose. The usual two per cent of metric prescriptions prevailed.

Ointments, as usual, required all the art of the apothecary and much of his science, as well. The introduction of pyrogallol into one of these, with its tendency to darken, causes much speculation as to what would be the color of the last portion used, and leads to the thought, that much real, helpful knowledge would follow the practice of putting up additional quantities of unusual prescriptions for observation. No doubt, many of our thought-to-be successes in dispensing, would disappoint us if we could see them after a few days. It is really remarkable how frequently salicylic acid is used in ointments, and nothing requires more care in its manipulation, considering the difficulty of entirely destroying the sharp crystals and its extreme sensitiveness to iron. Resorcinol is much used in ointments and its satisfactory introduction is only possible through the water-carrying properties of wool fat, a not yet fully appreciated pharmaceutical help. This should, certainly, be a constituent of all ointments containing appreciable quantities of resorcinol, iodine and rose water. It is strange that pharmacists should use the hydrous varieties when the anhydrous is much better for these "holding in" purposes. The failure to mix the required amount of oil

with lanoline, before it is dispensed, and the inherent differences and different tendencies of the yellow and white solid petroleum vehicles, are thoughts suggested by the ointments of one "All Fool's Day."

Not the least interesting in dispensing problems of the day, were those connected with a laboratory-order from a physician,—such orders as every ambitious pharmacist should be prepared to fill and to enjoy the profit and the good advertising that follows the successful filling. Besides many simple chemicals, it called for two volumetric solutions, two microscopic stains and three special re-agents, used in stomach analysis. The difficulty in securing correct formulas for these stains and re-agents is generally the most difficult part of their preparation and makes it appear that, if they are not of a kind desirable for the National Formulary, they might find place in the proposed Recipe Book, although, they are, in no way, out of date or un-ethical.

If what has been written for a review of one day's dispensing at one store, is interesting, then more than as much more could be written upon the identical review. It is not for want of material, by any means, but a want of faith in the greater forbearance of those before me and who have suffered, that brings the *finis*.

DISCUSSION.

Mr. Raubenheimer said Prof. Hynson had again demonstrated to the members that the every day practice in the drug store, brought things which are of interest to one and all. The most common incompatibility which they had to contend with was sweet spirits of nitre. It was an unstable preparation because no matter what one mixed it with, it will decompose. Another item was potassium iodide, particularly if there is any acid to decompose it.

He agreed with Prof. Hynson that the cleanliness of capsules is somewhat neglected in the average store. The physician prescribed capsules, in order that the patient might not taste the drug, be it quinine, valerate of zinc, ammonia or iron, and the druggist should use all precaution to have the capsules properly dispensed. According to his recollection, Prof. Lascoff had advocated the use of rubber gloves, but he thought that not to be a good practice. Mr. Raubenheimer believed that mercuric oxide ointment would be used 100 years from now because of its medicinal value. Dr. Hynson's statement was that the ointment was too strong. Mr. Raubenheimer said nobody ever thought of using a ten per cent mercuric ointment in the eyes, but that it did serve as a base to be diluted with petroleum or whatever the physician desired.

Speaking of anhydrous lanoline he reminded the members present that lanoline was originally a trade-mark name for hydrous lanoline, but was not any more. Lanoline meant hydrous wool fat and he made it himself. He never bought any hydrous wool fat. He asked why he should import water from Germany? (Laughter.)

Mr. Hynson said, in regard to oxide of mercury ointment, that it was a more serious matter than Mr. Raubenheimer would have them believe. It was his opinion that a man might have some experience, but that his judgment might not be quite matured, and he would get a prescription for ointment of oxide of mercury, to apply to the eye lids; that one might not remember that the exact strength of the official ointment. Such things did happen.

He said Mr. Raubenheimer did him an injustice as he did not say a word about lanoline; he had specifically mentioned wool fat. Whenever he got a prescription for lanoline he used the copyrighted article because he thought that was what the doctor wanted.