

## COMBATING WAR PRICES BY THE USE OF GALENICALS.\*

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In these days of uncertainty and speculation in the drug market, it is important for the pharmacist to utilize all means at his command in an effort to meet the demands of physicians, and at the same time supply the remedies prescribed at as reasonable a price as possible.

Coöperation between the professions of medicine and pharmacy was never more urgently needed than it is to-day, and undoubtedly much good can be accomplished if the doctor and druggist will work together, while great harm may result if their paths diverge at this time.

Reports of the scarcity of some medicinal products are becoming more alarming each day, and those who have followed the situation closely feel that perhaps "the worst is yet to come." Pharmacists and physicians should therefore get together with the view of utilizing, as far as possible, those medicinal products which are at hand, and curtailing the use of those products which are scarce and high in price, either because of the isolation of the source of supply or because of artificial conditions created by speculators.

It is expected that physicians and pharmacists have the welfare of the public at heart, and while it is impossible to prepare and compound medicines without making a charge commensurate with the market prices of the drugs contained in them, it may be possible, in some cases at least, to prescribe drugs or preparations which, while giving similar therapeutic action, are lower in price than some others which are used in general practice. Of course, the selection of the drug rests entirely with the physician, for after a prescription is once written and given to the pharmacist it is his duty to furnish the articles called for and nothing else. If the components are not in stock and cannot be bought, then the doctor must decide what is to be used in place of the unobtainable article or articles. The pharmacist can make suggestions, however, which will tend to aid in relieving the situation. His intimate touch with and study of the drug market give him first-hand knowledge as to which drugs or chemicals are scarce, unobtainable, or extremely high in price, and whether or not this condition is to continue. Any reasonable physician confronted with the facts as they are will fall into line with the propaganda for cutting down the cost of medicines to the ultimate consumer—the public.

In looking over the pages of the United States Dispensatory headed "Index of Diseases," we find a list of drugs which may be used in the treatment of each ailment mentioned. Under some of these headings we have as many as one hundred suggested remedies. Surely, some of these could be eliminated at this time, if necessary, and there would still be a sufficient number left to cover the needs of the practitioner. Most authorities agree that there are very few specifics in medicine. A Public Health Officer not very long ago made the statement that there were only three specifics known to the medical man, namely: quinine for malaria, 606 for syphilis, and diphtheria antitoxin.

Of course, it is possible that some single drug or chemical which is very high in price at present may be the only one that will answer the purpose in a certain case, but such instances will be few, and when they occur it will, of course, be necessary

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to meet the market price of the article if it is obtainable, as is done in many cases at present when it is really unnecessary to go to such expense.

Our materia medica is such a large one and the armamentarium of most physicians is so small, comparatively, that we should find little trouble in adjusting things in some satisfactory way to tide us over the era of high prices.

No doubt if this matter is discussed in meetings such as these, numerous ideas will be brought out along the line suggested. The purpose of this paper is to present one phase of the matter which occurred to the writer a short time ago, namely: that many physicians have become so accustomed to writing for active principles of drugs when galenical preparations of the same will answer the purpose just as well, and perhaps better. It might be well to bring to their attention the fact that very many active principles have been made abroad and are not only high in price, but may soon be unobtainable, and that it is advisable to use galenicals wherever they can satisfactorily replace active principles.

A comparison of the percentage of increase in a few active principles and drugs, based on a comparison of prices obtaining about March 1, 1916, and June 1, 1914, might be of interest at this point.

It must be borne in mind, however, that all price comparisons are more or less uncertain at this time and the lapse of a few weeks, or even days, may make an enormous difference in the price quoted for an article.

Granulated opium has increased 48 percent, morphine 16 percent, codeine 10 percent, cinchona 40 percent, quinine 180 percent, coca 20 percent, cocaine hydrochloride 45 percent, nux vomica 33 percent, strychnine 67 percent, aconite 59 percent, aconitine 40 percent, belladonna 350 percent, and atropine 1000 percent.

These are only a few examples, and while they may not appeal to you as particularly striking in some instances, we must remember, that, with a few exceptions, the crude drug stocks in this country at present are used to a much greater extent for manufacturing galenicals than for extracting active principles. There is, therefore, more danger of a shortage of alkaloids than of drug preparations. The danger of shortage of galenicals is still further minimized by the fact that such drugs as belladonna, digitalis, cannabis, hydrastis, etc., have been grown in the United States in the past year in sufficient amounts to supply the requirements for extracts, fluidextracts, tinctures, and other preparations of these drugs, and it is safe to predict that during the coming summer the efforts expended in cultivating medicinal plants on this side of the water will be greater and more successful than was the case last year.

There was a time in the history of medicine and pharmacy—and it is not so far back—when active principles isolated from vegetable drugs were practically unknown. In those days tinctures, extracts, infusions, etc., were used exclusively when drug preparations were desired, and they produced results.

When one after another so-called active principle of the more common drugs was isolated and found to give satisfactory results, physicians naturally turned to this form of medication, and it certainly has its place in the modern materia medica.

In spite of the fact, however, that active principles of all the important drugs were obtainable just previous to the war, galenical preparations were by no means discarded. Many physicians feel that a single active constituent does not represent the curative property of a drug. Tincture of cinchona, for instance, is preferred in treating some conditions to the alkaloid quinine, which is really only one of several active constituents of cinchona bark. Likewise, tincture of opium and tincture of nux vomica are given preference to any single alkaloid obtained from these drugs in the treatment of certain ailments, and so it is with many others.

It is interesting in this connection to repeat the words of Professor A. Tschirch, of the University of Berne, which follow:

Under the influence of the successes of the modern synthesis of medicaments, and the understood theory of the so-called active principle, we have been gradually abandoning drugs, in spite of experiments carried on for hundreds of years. Many physicians have already disaccustomed themselves to the use of drugs. But they cannot be replaced, and the wish that I expressed in London, in 1909, "Let us go back to drugs," found an echo much sooner than I expected, and in more extended circles than I had dared hope.

How can one replace rhubarb by a solution of emodin, ipecac by emetine, opium by morphine, digitalis by digitoxin, ergot by ergotoxine or by the interesting bases isolated by Barger and Dale, which, according to the recent experiments of Kehrer, do not even act on the uterus? Emodin, emetine, quinine, digitoxin, and morphine are pharmacological individuals, different from the drugs themselves, and should be numbered among remedies not to replace the drugs, but to stand beside them.

Since we know that there is in the drug a dominant principle, but that the effect is not produced by this principle alone, we are more than ever obliged to make a profound chemical study of the drug in all of its elements.

There has sprung into existence a school of "Alkalometry" or "Active-Principle Therapeutics," whose maxim is, "The smallest possible quantity of the best obtainable means to produce a desired therapeutic result."

We accept this maxim without becoming "dyed-in-the-wool" alkalometrists, for our object is to bring to the attention of the physician just what is the "best obtainable means," at this time, of producing "a desired therapeutic result."

The great objection to galenical preparations voiced by alkalometrists is that galenicals are not dependable because of the variation in active-principle content of drugs, and because of the deterioration of vegetable preparations. Modern methods of drug cultivation, manufacture, assay, standardization, and preservation overcome this objection in a large measure, if not entirely. When a vegetable drug is assayed, both chemically and physiologically, by reliable methods and skilled workers, one may rest assured that the strength of that drug is known, and when such a drug is used to make a tincture, fluidextract, or extract, and the resulting product is again assayed, chemically and physiologically, one may be assured that something is known of the strength of the finished product. Modern pharmaceutical methods carry us still farther, however, for we are not satisfied with knowing the strength of a preparation, but we adjust its strength to standards given in the Pharmacopœia or otherwise recognized, and then the physician who prescribes a dose of 10 minims of a standardized tincture, or 1 grain of a standardized powdered extract, knows just exactly how much active principle his patient will receive.

The rate of deterioration of galenical preparations is not nearly as great as some alkalometrists would have us believe. We know that fluidextract of ergot, tincture of digitalis, and strophanthus deteriorate under ordinary laboratory conditions, but this deterioration can be minimized in the first place by putting up the finished products in small containers so as to avoid frequent opening of a large container, and can be avoided entirely if air, which has been shown to be the cause of the deterioration in these preparations, is removed, both from the preparation and the container, by putting them up in ampoules and sealing them under a good vacuum. This matter was discussed fully in a paper by Pittenger and Vanderkleed, read at the meeting of the Pennsylvania Pharmaceutical Association, in June, 1912.

Another objection to the use of galenicals that is advanced occasionally is that their taste is unpleasant. This objection offers an excellent opportunity for the

pharmacist to use his professional skill in compounding. He can suggest suitable adjuvants, diluents, and flavoring agents to disguise the taste of tinctures. He can recall to the mind of the doctor that the doses of fluidextracts are so small that it is often convenient to incorporate them into a pill mass, and that this mass can either be divided and enclosed in capsules, or can be divided and rolled into pills which can be coated to preserve them until used.

Lastly, we must not forget that standardized powdered extracts of drugs give very satisfactory results, and, mixed with sugar of milk, or some other diluent, they can be put up into capsules just as easily as active principles can be similarly dispensed.

Of course, galenicals cannot replace active principles for hypodermic use, and in cases where the crude drug is scarce or commands exorbitant prices, it may be advantageous to use the active principle for oral administration also. Taken on the whole, however, the writer believes it would be of considerable advantage to recommend to physicians that they prescribe galenicals wherever possible, in place of the active principles of drugs, at least for the time being.

If the suggestion, that physicians and pharmacists coöperate in the matter of adjusting the use of drugs to meet present conditions, is to be of any practical value it must for obvious reasons be brought to the attention of the medical practitioner. This can be done in the joint meeting of pharmacists and physicians which, I understand, is being arranged by the officers of this Branch. Perhaps a surer way of reaching the majority of physicians would be to prepare a list of drugs and chemicals similar to the "Index of Diseases" of the U. S. Dispensatory, and using distinctive marks after each drug named to indicate whether it is high in price, fair in price, scarce, or unobtainable in our market.

Another method would be to group the drugs according to their therapeutic effects. The following example will serve to illustrate this plan:

*Analgesics:*

|                            | F.   | H.   | S.   | U.   |
|----------------------------|------|------|------|------|
| Opium .....                | .... | .... | .... | .... |
| Morphine .....             | .... | .... | .... | .... |
| Belladonna .....           | .... | .... | .... | .... |
| Atropine .....             | .... | .... | .... | .... |
| Cannabis Indica, etc. .... | .... | .... | .... | .... |

F., fair in price; H., high in price; S., scarce; U., unobtainable.

Perhaps an alphabetical list of drugs and their preparations with columns provided for giving the information outlined above would, in the end, be most satisfactory. Prepared in this way, such a list could be used for making notations as changes occur in the drug market from time to time, and the physician could thus keep himself posted with reference to drug prices.

The pharmacist must naturally bear the brunt of the high-price situation, and it is desirable to seek as much relief from the tension as possible. The public is being educated to the necessity of paying more for medicines through the excellent monthly press bulletins issued by the publicity committee of the Pennsylvania Pharmaceutical Association. Let us go a step further now and seek the coöperation of the physician in making the best of the situation, to our own interest, as well as to the interest of the physician and the public.