

ALOEAS AS A MEDICINE.*

BY BERNARD FANTUS, M.D.

The therapeutic use of aloe dates back to the days of classic Greece, though curiously enough, "The Father of Medicine," Hippocrates (5th century B.C.) does not speak of it; and it seems improbable that he did not know of it, if it had been in general use among his contemporaries. The earliest medical writer to mention aloe is Dioscorides, a Greek physician of the first century A.D., though, of course, its use must have been established among the Greeks considerably earlier than this. It must have been sometime between the period of Hippocrates and that of Dioscorides; and it might well enough have been during the time of, or shortly after the conquests of Alexander, The Great. This is attested to by a legend given in the writings of an Arabian geographer, according to which Alexander, after he had conquered Persia (about 333 B.C.), was advised by his teacher, Aristotle, to seek the island that produces aloe. Having finished his conquests in India, he returned by way of the Indian Sea and arrived at length at Socotra, the fertility and climate of which he admired. He removed the original inhabitants and put in their place Ionian Greeks whom he commanded to preserve carefully the plant yielding aloe because, without it, certain sovereign remedies could not be compounded. The Greeks remained under his protection and that of his successors, acquired riches, and in course of time they became Christians. It is believed that this account is a fable invented to explain the fact that the Mohammedans of the 9th, 10th, and 11th centuries found Christian Greeks in possession of the island; but, if it be a fable, it bears a strong resemblance to probability.

With the Arabian physicians aloe was a favorite drug; and they passed the Greek and Roman formulas for aloetic compounds, together with some new ones, on to the doctors of the Middle Ages. It is quite probable that aloe was the chief ingredient of the "Elixir Proprietatis" of Paracelsus, which according to this boastful quack would prolong life to its utmost limits, though he did not deign to divulge the composition of this wonderful remedy. This became known through a pupil of his, who published the formula for it, which ultimately became the tincture of aloes and myrrh. This shows that the idea that the period of life could be lengthened by keeping the bowel clean, long antedates that of Metchnikoff though the latter, characteristically for modern times, advocates diet (buttermilk and lactic acid bacilli) rather than medicine for this purpose.

The liquid preparations of aloes did not long enjoy popularity and extensive use. They are too nasty, and pills perform the work of aloes just as well. Hence we may consider all of the liquid aloetic formulas for internal use relics of a barbarous past, doomed to deletion, which, by the way, has been the fate of the sole pharmacopoeial survivor of these, the tincture of aloes in the present pharmacopoeial revision. The only rational use for a liquid preparation of aloes is externally as a sedative to itching or burning sensation. This effect of aloes is evidently the reason for the presence of a considerable quantity of this drug in the compound tincture of benzoin, the official representative of the famous old "Friar's Balsam," which was a popular and efficient application to bites and wounds of all sorts long before the chief reason for its efficiency—the antiseptic action of the balsamic

* Read at the May meeting of the Chicago Branch of the American Pharmaceutical Association as a part of a symposium on Aloes.

resins contained in it—had become known. F. W. Cook¹ advocates this tincture or, because pleasanter, a saturated solution of aloes in tincture of tolu, as, so far as he knows, the only thing that relieves the virulent itching of bites of the harvest bug.

The disfavor under which aloes labors by reason of its disagreeable flavor, is well illustrated by the advocacy of P. E. Hommell that myrrh be substituted for aloes in the compound tincture of benzoin, for this would constitute an improvement when this tincture is employed as an inhalant in bronchitis or croup. While the elimination of the peculiarly disagreeable odor of aloes, which persists for a long time after the pleasantly aromatic portion has volatilized, may seem desirable when the compound tincture of benzoin is used as an inhalant, the elimination of aloes from the formula would probably render this preparation less efficient in its historic use as a vulnerary. But why use the compound tincture of benzoin as an inhalant? Have we not in tincture of tolu or tincture of benzoin just as efficient and much more pleasant preparations for inhalation? For, after all, the sole virtue of the addition of a spoonful of any one of these tinctures to a pint of steaming water is to perfume the really active ingredient of the treatment, the steam.

I imagine that pill form for the administration of aloes, commenced to become popular with the dawn of the age of reason, the Renaissance. In 1624, Raymond Mindererus published an entire book, the "Aloedarium" devoted to a description in loving detail of the virtues of each one of nine ingredients of a pill, the lineal ancestor of the compound rhubarb pill. Like Paracelsus, Mindererus, did not recommend his pills merely as a cathartic, but as a general tonic.

As reason became more and more dominant over tradition, the complex polypharmacy of the dark ages of medicine slowly gave way to the comparatively simple medication of to-day. The scholastic physician of the middle ages knew nothing about his remedies excepting by hearsay. The better training he had, the more medicines he knew of that might fit a certain case. He considered it his duty to make use of this knowledge for the benefit of his patients. These, indeed, were the days when doctors poured medicines of which they knew little or nothing into bodies of which they knew little or nothing. We still stagger under the inheritance of that past. How otherwise could be explained the composition of the Compound Cathartic Pill with its eight ingredients? No doubt the pill is powerful; but what proof have we that each and every one of its ingredients is indispensable for its full action. It would require more than fifty different sets of experiments in which aloes and each of the other ingredients would have to be compared when given separately and when combined with each other in all possible variations;—each set of experiments including at least 50 to 100 observations—to demonstrate that such combination is really advantageous.

At present the value of such formulas is explained on the entirely plausible theory of heterotopic synergism, which postulates that drugs acting on different portions of a functional system mutually reinforce each other. We may understand that aloes which acts chiefly upon the lower portion of the large intestine may take up the load carried to it by the calomel, which sets chiefly upon the upper portion of the small intestine; and it may very well be that there are one or more drugs pres-

¹ *Brit. Med. Jour.*, Sept. 7, 1918.

ent in these pills that act as "middlemen" between the two. Are all of them necessary? No one knows. It is to be regretted that these calomel-containing pills were not deleted in the ninth revision of the U. S. P., instead of the vegetable cathartic pills, as certainly, for popular and habitual use, the vegetable cathartic pills are much less dangerous than the compound cathartic pills, which are only too liable to produce salivation when employed in a careless manner, as I can testify from clinical experience. An attempt is being made in the present revision to remedy this error by coining a name for the C.C. pill that will divulge the presence of calomel in its composition. It is probable that the complex new name—and it must be complex to be scientific—will sound the death knell to the popularity of this sure shot shot-gun preparation.

What has been said must not be construed as a sweeping condemnation of drug combinations. Rational and successful combination is the mark of mastery in therapeutics, which few of us achieve. The combination, for instance, of aloes and podophyllum, which—besides clever advertising—is the secret of success of certain "patent" pills is quite rational. We may imagine that the action of aloes commences where the action of podophyllum, "the vegetable calomel," leaves off. Combination with intestinal carminatives, such as myrrh or asafetida, may advantageously antagonize the griping tendency of aloes by favoring expulsion of gas from the bowel. The combination of aloes and iron might be a capital prescription for the amenorrhœa and constipation of chlorotic girls.

A good example of an unsuccessful attempt at "rational" combination is the "A. S. and B." pill. Nothing may seem more logical than to add to the aloin some strychnine for the purpose of increasing the irritability of the motor neurons on which the aloin is to act; nor might it seem that anything would be more suitable to counteract the reputed tendency of aloes to produce griping than the powerful antispasmodic, belladonna. Unfortunately, by giving them at the same time, they cannot possibly act together, because of the different speed and duration of action of the three agents. Aloin is slow in action, requiring from ten to twelve hours—that is why it is generally given at bedtime. Strychnine and atropine on the other hand, are rapidly absorbed and rapidly excreted, having but a brief duration of action. No experienced clinician would expect either of these alkaloids to act for more than four hours. By the time the aloin gets in action, the alkaloids have long since left the system by excretion into the urine.

To put these theoretical considerations to the experimental test, more than thirty volunteers in a class of medical students were given two pills each to be taken with an interval of about a week. One of these contained aloin; and the other the same dose of aloin with some extract of belladonna in the quantities found in the A. S. and B. pills. Strychnine was omitted, to reduce the experiment to its simplest terms. The pills were called No. 1 and No. 2 pills, and the experimenters did not know which of these contained the belladonna. They were asked to distinguish its presence by difference of action. The majority could not notice any difference whatever; a few thought the belladonna containing pills were the ones that produced more griping; a few, that the simple aloin pills acted more disagreeably. Clinical use of the official pills of aloes containing 0.13 Gm. each of aloes and of soap, as compared with similarly extensive use of the A. S. and B. pills, did not demonstrate any greater tendency to griping displayed by the one than the other.

It is gratifying therefore, that the Compound Laxative Pills (U. S. P. VIII) similar in composition to the A. S. and B. pill, with the no doubt uncalled for addition of ipecac, were deleted from the present Pharmacopoeia. However, these pills as well as the Compound Pills of Aloin Strychnine and Belladonna, N. F., containing some extract of cascara, in addition, are still extensively used. Rather popular at the present time are the unofficial "Cascara Compound Pills," each containing:

	Grains
Cascara.....	$\frac{1}{4}$
Aloin.....	$\frac{1}{4}$
Resin of podophyllum.....	$\frac{1}{6}$
Extract of belladonna.....	$\frac{1}{8}$
Strychnine sulphate.....	$\frac{1}{60}$ to $\frac{1}{120}$
Oleoresin of ginger.....	$\frac{1}{8}$

One wonders whether they are popular because their formula is not contained in the U. S. P. and N. F. It has been said facetiously that the best way to destroy the popularity of a preparation is to make it official. Efficiency is, of course, granted to these as well as to all other aloes pills, no matter what their composition. The question is whether such polypharmacy is desirable or necessary.

Aloes along with other cathartics, is in danger of losing the high esteem in which it has been held. No longer is such medication considered "good for your system." We know that it is just as undesirable to acquire the cathartic habit as it is to become accustomed to a crutch, when we might just as well walk without one. It is only, when we have to choose between the crutch and not walking at all, that the crutch becomes the lesser of two evils. Much less of aloes would be used, and that, much more beneficially, if the people in general and druggists in particular would realize that cathartics, instead of curing constipation, are a common cause of it. The "good" evacuation caused by a strong cathartic may leave the bowel so empty that there is no fecal matter to remove the next day; and, if a person has the idea that a daily bowel movement is a necessity to health, he is led to take another pill with the result that he has to keep on taking them. There are people whose abdominal or intestinal musculature is so weak that they cannot have sufficient bowel evacuation without the use of medicine. For these, cathartics are just as useful as are eye glasses for those with weak ciliary muscles. Such intestinal cripples should be fitted with the proper medicament with at least as much care as should be expended on the fitting of eye glasses. The Roentgen rays enable us nowadays to discover where, in an obstinate case of constipation, the delay is located. When a resolute attempt at the cure of such constipation has failed, and the cause of the delay in evacuation is incurable colonic torpor, then we have the choice between making the patient a slave to the enema or a cathartic. The latter, being less troublesome, is generally preferred by the patient. For such individuals there is no better cathartic than an aloes pill of just such size as to give at least one and not more than two bowel movements in the twenty-four hours. The official pill may be too weak or too strong; though they form a starting point for the determination of the proper dose. In the interest of economy of drug action, and to give the system a chance to assert its independence of the need of medicine should such occur, it is best to take the pill only in the evening of any day on which there has been no evacuation. When thus used, we can say of aloes that it is a good medicine, one that does more good than harm.