THE BOSTON MEDICAL AND SURGICAL JOURNAL.

VOL. VIII.]

WEDNESDAY, JULY 31, 1833.

[NO. 25.]

CONSIDERATIONS ON THE BITTERNESS OF VEGETABLES.*

Translated for *Silliman's Journal*, by J. H. GRISCOM, M.D.

MR. GUILLEMIN is known among Botanists by many interesting works, and especially by the part which he has had in the publication of the *Classical Dictionary of Natural History*, and of the *Flora of Senegambia*. The dissertation which we here notice, shows that he has carefully studied the connections between botany and medicine, and tends to confirm the usefulness of that kind of study, which, as it is intermediate to the two sciences, more rarely makes a part of the direct studies of those who devote themselves to both. The work of Mr. Guillemin is founded entirely upon the general law of analogy of the properties of plants which belong to the same family, and becomes, consequently, a new confirmation of the principles exposed in the *Essay upon the medical properties of plants*, compared to their natural classification. (1 Vol. 8vo. Paris, 1816.) The author divides the families endowed with bitterness, into several groups, viz. : 1, the families purely bitter ; 2d, the acrid and bitter ; 3d, the astringent bitter ; 4th, aromatic bitters ; 5th, the cathartic bitters. He reviews the plants which enter into these different divisions, and analyses their modes of action, in as clear and precise a manner as our knowledge of them will permit. He enters particularly into some interesting details upon the *Gentians*, which contain bitterness in a high degree of intensity and purity ; and his chapter upon this subject is the more interesting, as it is extracted from a large work on this family, which the author has for a long time intended, and we hope still intends, to make a botanical monograph. We might direct our attention, with great interest, to many of the articles of this dissertation ; but we think, seeing the circumstances in which Europe is placed, it will be more suitable to give almost textually that which relates to the properties of aloes, and especially to its employment in the treatment of the Asiatic cholera. In inserting this article here, we shall give an idea of the wise and reflecting manner in which the author considers the subject ; we shall show how general considerations may be reduced to particular applications, and perhaps we may suggest to some physicians of infected districts, or which may be so, the idea of researches beneficial to humanity.

The author remarks (page 51) that the monocotyledones are less abundantly provided with bitter juices than the dicotyledones, but that the juice extracted from the leaves of different species of aloes makes a remarkable exception to this general observation. After relating the facts

* *Considerations on the Bitterness of Vegetables, etc.* ; by J. B. A. GUILLEMIN, Doctor in Medicine, 4to. Paris, 1832.

known upon the chemical nature of the juice of aloes, he analyses its properties as follows.

'Aloes is one of the most eminent substances employed in medicine. It exercises its action upon the organs of digestion. In very minute doses (two or three grains) it slightly excites the stomach, and facilitates digestion; it is in this way that the health grains of Dr. Frank, and the antecibum pills, etc. act. In a stronger dose (eight grains) its action, according to most authors, extends to the intestines, and is exerted especially upon the lower tract of the digestive canal. It there increases the afflux of blood, the mucous secretion, and occasions the expulsion of matter amassed in the large intestine. Finally, aloes when given in a stronger dose, and its use continued, gives rise to colics; the rectum becomes the seat of a genuine flux, the hæmorrhoidal vessels are distended, hæmorrhoidal tumors become painful, and frequently give place to an abundant oozing of blood. We have profited by the stimulating action, especially, which aloes exercises upon the rectum, and the determination which it produces to this part, in order to cure certain megrims caused by obstinate constipations. In producing a useful direction towards the rectum, it has often diminished a sanguinary congestion induced towards the head.

'Such was the general opinion of physicians upon the *modus operandi* of aloes; but we have to oppose them with more positive and totally contradictory experiments.

'In a Memoir upon the employment of the aqueous extracts of aloes, and its manner of acting, published by Baron de Wedekind (Isis 1825; 11th No. p. 1227), this physician promulgates the opinion, after multiplied experiments, that the purgative effects of aloes are not dependent upon, as is the case with other cathartics, an augmentation of the intestinal secretion, and an immediate stimulation of the contractile fibres of the intestines, but that this substance is first absorbed, carried into the circulation, then secreted in great part by the liver, whose activity it increases, and is finally ejected from the body in consequence of a purgative effect which is only secondary. In fact, the purgative action of aloes is only manifested several hours after its injection, in whatever dose it may have been taken. Individuals of bilious habits are more strongly purged by aloes. The introduction of aloes into the circulation by its external application to ulcers, is sufficient to produce a purgation, and even to give rise to hæmorrhoidal accidents or to hæmorrhages. Thus, the ointment of Arthanita, which contains aloes, purges when it is employed externally.'

From experiments made upon persons in health, and from observations collected from the sick, it appears that a purgative, as, for example, a potion composed of the *laxative infusion of Vienna* three ounces, and of *sulphate of soda* one ounce, given at once, with two or four grains of aloes, acts as it would if it were given alone; but the aloes given two hours before this potion, does not begin to operate until the effect of the dose has ceased for some hours, and this second purgation does not resemble the first in relation to the appearance and odor of the matter evacuated. When, on the contrary, the aloes is given six or eight hours before this potion, the effects of the two means coincide, and the evacuations become ordinarily very abundant.

'Icterus, which Baron de Wedekind has frequently observed in the military hospitals, has been treated with constant success by means of aloes. As long as the alvine evacuations continued white or greyish, the medicine, even in very large doses (as an ounce a day), did not purge. Its cathartic effect, on the contrary, was evinced as soon as the fæcal matter began to show the presence of bile in the intestinal canal, and this is one of the conditions necessary to its purgative operation. On the other hand, we run the risk of inducing a violent bilious diarrhœa if we give this substance in strong doses when the fæcal matters are tinged with bile.

'Finally, an ulterior fact, which proves that the ultimate action exercised by aloes upon the large intestines is not primary, is, that *lavements* of tepid water, with from two drachms to half an ounce of the extract of aloes, irritate no more than lavements of warm water, and purge, when they are not returned too soon, after an interval of seven or eight hours, consequently after the medicament has been absorbed, and has traversed the circulation. Afterwards, secreted in the liver with the bile, it augments the properties of this fluid, and it is then that it manifests its particular action upon the large intestines.

'The result of the preceding observations is, that the primary action of aloes is exerted upon the liver, that this organ is excited in the same manner as the salivary glands by mercury, and the kidneys by cantharides.

'The practical conclusions which we may therefore draw, are, that aloes is principally indicated when the biliary secretion is insufficient, when there is a complete constipation, an atonic state of the colon and rectum, in icterus, which we may attribute to atony of the liver, and against ascarides which are found principally in the rectum. It is necessary to exercise great precaution in the employment of this remedy in persons of irritable habits, and those disposed to an abundant biliary secretion, and in febrile conditions. It is decidedly contra-indicated in cases of jaundice with a spasmodic condition or inflammation of the liver, in cases of biliary calculi, in obstructions of the liver with dropsy, and in cases of abdominal plethora with a disposition to hæmorrhoids.

'It is useless to give aloes with the neutral salts and other purgatives which act promptly, at least if we wish to excite the intestinal and biliary secretions at the same time; but in that case it must be given several hours before the other medicines. In order to increase simultaneously the pancreatic and hepatic secretions, we may administer a compound of aloes and calomel.

'The reading of the memoir, a very concise summary of which I have just *exposed*, had strongly interested me; its important conclusions were fresh in my memory, when the Asiatic cholera morbus was announced among us, about the end of March, 1832. It appeared to me that aloes might be rationally employed in the treatment of this terrible disease. Indeed, the suppression of the biliary secretion* coinciding

* We know that the principal physiological difference observed between ordinary cholera and Asiatic cholera is, that in the former there is an excess of the secretion of bile, and in the latter a suppression of this secretion. We may, and perhaps we ought, to give the latter the name of *Ascholeræ*, which, in avoiding the always embarrassing employment of compound terms, will have the advantage of neatly expressing the character of the disease.

with the abundance of whitish or greyish dejections, is one of the most alarming symptoms. When, by the power of nature alone, or by the effect of some therapeutic agent of whose properties we are ignorant, this suppression ceases, and the dejections begin to be colored, we have then an almost infallible sign of amendment, and we may hope that the disease will not prove mortal. Indeed, if it is admissible, if it is even urgent, to make use of symptomatic medicine, it is certainly in cases like the present. To determine the intensity of a symptom whose results may be happy, is then the end of the practitioner. But, whatever may be the part which the affection of the liver acts in cholera, whether relatively to hæmaturia or to the biliary secretion, it appears to me very proper to employ aloes, either by the mouth in the form of bolus, powder or tincture, or by the anus in the form of lavements. The frightful rapidity with which the disease advances, would be the only obstacle to its employment ; for, according to what we have said above, its action is slow, and is not manifested until several hours after its administration. But, may it not still be very useful to exhibit aloes to the patient at the first onset of the disease, that is to say, as soon as vomitings, dejections, coldness of the extremities, or cramps, announce a choleric attack ? I communicated these reflections, in the early part of April, to the learned and unfortunate Dauce, one of the first victims of the scourge, as well as to M. Rostan, who objected that the inflammatory state of the intestines would not admit of the administration of so irritating a medicine as aloes. It is clear that these celebrated physicians grounded their supposition upon the general opinion that this medicament exerts a primary action upon the intestinal canal, and that they had not given sufficient attention to the researches of Baron Wedekind in this respect. I believe then that there is good reason, in regard to this subject, to institute experiments which may have an important bearing upon the interests of science and humanity.

‘ This view, which I expressed at the beginning of July, just as the cholera was disappearing, has since been set forth by one of our most able therapists. Dr. Bielt, physician to the hospital Saint Louis, immediately after the communication of my paragraph upon aloes, did not hesitate to administer this substance to some choleric, and has obtained satisfactory results. The following is the note which he has had the goodness to address to me upon this subject.

“ I have been very tardy, sir, in returning the manuscript which you have been so obliging as to lend me. Your researches upon aloes presented a great deal of interest ; you have summed up, with great conciseness and clearness, all the facts which prove the properties of this substance, and you have been led to think that this medicine might be advantageously employed in Asiatic cholera. The objections of Dr. Rostan have great force ; but in the actual state of our knowledge, it is impossible to say that all irritating substances are injurious in the treatment of this terrible malady, since we observe it modified very often under the influence of very stimulating medicines. Be this as it may, I have had recourse to aloes in three cases of very serious blue cholera, and the success has surpassed my expectations. The first case was that of a man of fifty years of age ; he was attacked in the night ; the mat-

ter vomited and the dejections were white and abundant ; the skin cold and livid ; the tongue cool, and the prostration extreme. The aloes was prescribed in doses of two grains every hour ; its action was slow, but at the fifth hour the stools were colored, not with the golden yellow of aloes, but with the greenish yellow of bile ; the matter vomited presented the same character. The urine soon reappeared, as well as the heat of skin. The livid tint was replaced by a lively red color. This state continued to improve. The aloes was continued for two days in the dose of twelve grains ; the amendment continued to advance. Cold mucilaginous drinks were continued, and shortly after some slight nourishment was allowed, by which means he was in a condition to leave the ward five days after entering it.

“ Still more prompt and satisfactory results were obtained with the two other patients. The one, named Guadin, aged thirty years, entered on the 18th of July, with the most serious and well-marked symptoms. The aloes, continued for two days in the quantity of nine grains, reduced the biliary and urinary secretions and the heat, and finally caused the rapid and progressive disappearance of all the symptoms.

‘ The other, named Clement, a young man of twenty, was equally blue, having vomitings and white dejections, with but few cramps. The aloes, given at the rate of twelve grains a day, produced the same effects.

‘ This medicament has been administered only to these three patients. Its action was noticed at the end of three or four hours ; and when once commenced, it was continued without interruption. We prefer the gummy extract, the action of which appears, in general, less irritating. These three patients did not evince *any trace of irritation*, in their convalescence. The only well-founded objection which can be made, at present, to this medicinal substance, is the slowness of its action. It has probably already been had recourse to in India, for its presence is easily recognized in the bitter drug, a composition which is often employed in India against cholera.”

The bitter drug, of which Mr. Biett speaks, is composed of the following substances : *Aloes Socotorine*, one pound ; *Myrrh*, *Mastich*, *Benzoin*, each eight ounces ; *Rad. Colomba*—*Gentiana*—*Angelica*, each four ounces ; *Alcohol aquosi* (common brandy), thirty-six pounds ; *Tincture of Juniper*, twelve pounds. Keep forty days, and filter. This preparation is given in the dose of half an ounce to an ounce, united with a camphorated portion. This drug is only the supplement to a preceding one, which consists of eighty drops of Laudanum, a wineglass-full of brandy, and two spoonsfull of Castor oil ; another dose of brandy, to which are added forty drops of Laudanum, is sometimes given. (Medical Reposit. Feb. 1826, and Bull. de Ferussac Sc. med. VIII. 149.)

The missionaries of Serampore assure us that this medicament cures in India almost all the sick when it is administered in time. I do not doubt that the action of this drug, which on all other occasions would be qualified as *inflammatory*, should be attributed entirely to the aloes, which enters into its composition in scruple doses ; the other substances, including even the myrrh, being but insignificant drugs. In the advice which I have given for the employment of aloes against cholera, I had, by induction, another practical fact, which I ought not to pass over in is-

lence. Mr. Barberet, apothecary at Baume (Côte-d'Or), has assured me that the Polish refugees, in their passage through that city, gave to their hosts the recipe of an anticholeric liquid. It was simply that of the elixir of long life or of compound aloes, which they said had always been employed with success, and which they believed even to be an excellent prophylactic. I cannot neglect these notices, for popular remedies are not always the least efficacious. They are often, it is true, the fruits of blind empiricism; but those which really exert some action, have in their favor a multiplied experience which physicians should not disdain to verify, while endeavoring to obtain a positive idea of their mode of action in diseases.—*Bib. Univ., Aout, 1832.*

CONIUM MACULATUM.

Toxicological, Medical, and Pharmaceutical Researches upon the Conium Maculatum. By PROFESSOR FODERE.

WHEN cultivated as a scientific pursuit, Botany has been said to touch upon every science at some particular point; and a pardonable enthusiasm has added, that it is capable of communicating much interesting information upon the history of the people of antiquity, which we might search for elsewhere in vain. M. Lamarck, a distinguished botanist, has asserted that exotics which have survived the desolation of cities, where they grew, may assist in making us acquainted with the locality of many places which remains a subject of doubt; and that by their means the migration of a people may be traced, by the plants which they have left upon their route. Dr. Della Cotta has likewise endeavored to support the same hypothesis; and, in his account of travels upon the coast of Barbary, he has endeavored to fix the much disputed locality of Cyrenaica, from the circumstance, that, in a particular district between Egypt and Tripoli, he had the misfortune to lose several horses, which he imagined he discovered to be owing to their eating of the celebrated poisonous plant called Sylphium by the Romans. This poison, we are told, was sold for its weight in silver, and, during the time of the empire, so high a value was attached to it, that it was kept in the public treasury, and was only sold for the service of the state, or by order of the emperor. It was so difficult to cultivate, that Pliny says it was impossible to transplant it, and that it only grew in the district of Cyrenaica. There is naturally much difficulty attached to a question of this nature, and what the sylphium really was is extremely problematical. Some have asserted that it was the plant which furnishes the assafoetida, and others that it was the saser or saserpitium, of which the Greeks and Romans made use to season their repasts. The conium maculatum has derived an interest of an antiquarian character, from the idea which has been entertained that it was by the juice of this plant that Socrates died; and, independently of this, which some may think a very inadequate matter for research, it is a subject of much interest from its frequent use in medicine. The symptoms described in the dialogue of Plato and Echecrates, the latter of whom was present, have given rise to doubts as to whether the conium maculatum was the poison employed; and it rather seemed