On the Vesicating Action of Cantharidate of Potassa*.

BY E. DELPECH.

The author, after referring to the ordinary blistering cerate of cantharides of the Codex, and criticising its resinous and fatty ingredients and its uncertainty, suggests that we should look to cantharidin, and says that a mixture of elastic collodion 400 parts, and cantharidin one part, spread on adhesive plaster, possesses a very energetic vesicating power.

The volatility of cantharidin, even at ordinary tempratures, the author alleges as a reason for seeking some means for fixing this principle, and having found the memoir of Messrs. Massing and Dragendorff in a German journal, deems the views therein contained afford the means sought.

These same authors consider cantharidin ($C^{10}H^6O^4$) as an anhydride, which in its combinations with bases fixes two equivalents of water, and which makes the formula of cantharidic acid $C^{10}H^8O^4$, 2HO. This acid does not exist in free state, but is described as forming compounds with the metals.

The cantharidates of potassa soda, and ammonia are soluble in water, whilst the cantharidates, of the common metals are insoluble, and may be obtained by double decomposition.

Cantharidic acid is considered bi-basic. Solutions of the alkaline cantharidates, treated with acetic acid, precipitate, not cantharidic acid, but its anhydride cantharidin. This form of cantharidin is more soluble than the ordinary, due probably to its pulverulent state. The author has not directed his researches to the constitution of this acid, nor has he examined the theory of Messrs. Massing and Dragendorff, which he thinks is not supported by sufficient evidence.

Some particles of cantharidate of potassa placed on the arm caused vesication in a rapid manner, without the intervention of a solvent. A morsel of filtering paper moistened with a cold watery solution of cantharidate of potassa has, after drying, caused a vesication perfectly defined. This paper after fifteen days had lost none of its energy, from which the author infers that it is perfectly fixed and stable. It is also as vesicant as cantharidin. Three blisters were prepared, and applied simultaneously; one dry, the second moistened with vinegar, and the third with water. The first took seven hours, the other two five.

Cantharidates are prepared by the direct action of the alkali on cantharidin in the presence of water, and by the acid of heat. The solution is evaporated and crystallized. It presents the form of fine scales. The ammonia salt loses its base at 212° F.; it is acid to litmus. The cantharidate of potassa, on the contrary, is very stable, and has an alkaline reaction with litmus. The soda salt has the same characters.

The author has found another process for the preparation of the potassa salt. Two grammes of cantharidin are dissolved in 150 grammes of alcohol. Then add 1-6 gramme of caustic potassa dissolved in a very little water, and mix them, when the whole becomes a soft crystaline mass, from which the alcohol is separated by pressure.

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The composition of the potassa salt is,

$C^{10}H^6O^4$, KO HO+HO.

98 parts of cantharidin gives 163 parts of cantharidate of potassa. Boiling water dissolves 8·87 per cent.; cold water, 4·13; boiling alcohol 0·92; cold alcohol 0·03 per cent. It is also insoluble in ether and chloroform.

The author proposes the following formula for a blistering tissue, after numerous experiments:

Take of	Gelatin	30 grains.
	Water	150 "
	Alcohol	150 "
	Cantharidate of Potassa,	6 "
	Glycerine a sufficient quantity.	

This liquid is spread uniformly with a brush on gutta percha in thin sheets, so that each square of four inches will contain one centigramme (about one-seventh of a grain) of the cantharidate of potassa. The strength may be varied at will.

Note on Cod-Liver Oil and other Products from Portsmouth, N. H.*

BY W. PROCTOR, JR.

Cod-liver oil as a remedial agent continues to retain its value in the opinion of the medical profession, and any information in regard to it is interesting to pharmaceutists and physicians. Having recently had occasion to converse with Mr. T. E. O. Marvin, engaged in its manufacture under circumstances favorable to its careful production, we took occasion to elicit some facts, and since to obtain some of the by-products which may become useful in medicine and agriculture, which consist of the pulverulent oily matter, constituting chiefly the solid tissues of the cod-livers, in the form left by the press, and of the emulsive aqueous liquid separated from the same along with the oil by pressure, and which retains all the matters soluble in water that the livers contain.

The first condition necessary to the production of cod-liver oil in its unaltered condition is a sufficient supply of the livers in a fresh state. The position of the harbor of Portsmouth, N. H., at the mouth of the Piscataqua River, in relation to the ocean, is so convenient, and never freezes over, that it is well fitted for the fishing trade. There is a large fleet of fishing vessels here, and many more make the harbor a resort to get bait and sell their fish. The vessels run about thirty miles for fish, starting as early as one o'clock, A.M., so as to reach the fishing grounds by daylight. Each vessel carries five small boats or dories, and eleven or twelve men, who go out, two in each dory, and set their trall lines, which are strung with baited hooks about a yard apart. One man rows the boat as fast as he can, while the other "pays out" the line from the tubs wherein it lays coiled, with its thousand hooks, each baited with a piece of fresh herring. When the trall is set it lays along the bottom of the sea like the Atlantic telegraph cable, a mile long, with small anchors at each end and buoys at intervals. As soon as the trall is all down, the men row back to the first buoy, which they find by means of a small flag attached to an ever restless staff upheld by the buoy, and begin the task of "hauling in;" and as it is drawn up the fish are taken off and killed, and by the time the last buoy is reached the boat is usually loaded with noble codfish. Signal is now made to the schooner, which is hovering about the five boats as a hen about chickens. The boats are unladen alongside of the vessel, one by one, and they steer away for home, to sell the fish and bait the hooks for next day. It is in this way that the supply of crude material is obtained. In reply to our query how they made their cod-liver oil, Mr. Martin says: "It can be told in a few words. First we get the livers when they are new and sweet, and subject them to a carefully graduated amount of steam heat, using only the oil-producing healthy livers, carefully washed and drained before their tissues are broken, so that none of the slime from the stomach or intestines goes into the kettle to make the oil taste or smell badly, as it certainly will if that precaution is not observed. The livers are now subjected to a steam heat which ruptures the oil cells, and causes the oil to rise to the surface, when it is skimmed off. The residue is then put in a powerful press, under strong pressure, and allowed to remain twelve hours, by which the mixed oily and watery parts are mainly separated. Power is again applied, and more oil is obtained. The pulpy matter is then taken out almost dry. There is a yet finer pulpy matter, which oozes through the cloth of the press at the bottom and sides."

The practical details of "rendering" the oil, as it is called, involving the proper "cooking" of the livers, require some skill and experience, so as to separate it completely and yet not oxidize or expose it unnecessarily, so as to induce acridity or rancidity. That the oil should keep well it must be entirely freed from watery particles; to be but moderately heated, and the process should be executed promptly. Cod-liver oil rapidly absorbs oxygen from the air if exposed, and always should be enclosed in tight vessels immediately after its preparation. Messrs. Marvin Bros. and Bartlett bottle all the oil they make, and thus secure it from change. A sample of this oil received with the specimens was found to be sweet, and free from acridity or rancidity, with the odor and taste proper to this oil.

The pulpy matter left in the press cloth before alluded to, as we received it, was of a soft cheesey consistence, of a yellowish-salmon color, and possessing the odor of good cod-liver oil; but on keeping it with exposure to the air a few days, it acquires a rank, rancid odor of old cod-liver oil, becomes much darker in color, and contracts greatly from loss of moisture. It is strongly nitrogenous, and when distilled with caustic potassa and cloride of ammonium it yields propylamin among other products. So far its only use has been for agricultural purposes, as a manure.

The watery liquid pressed from the livers is presumed to be the material used in Paris to make the extract of cod-liver pills, of which some notice has been presented in the Journals. We had not time to examine this before it spoiled, no means having been taken to preserve it. It was our intention to examine it for iodine salts and for propylamin. If there be any merit in cod-liver oil due to iodine or bromine, it certainly ought to be found in this liquid,—yet it may be questioned whether these agents have anything to do with the therapeutic value of this popular remedy.

* From the American Journal of Pharmacy.