

the only difficulty with which the salt makers have to contend "is the rapid incrustation of the kettles, a trouble due to the strong concentration of their brine, in connection with their peculiar system of manufacture." Under these circumstances, the salt separates in considerable amount in very fine grains, and a hard incrustation forms on the bottom and sides of the kettles, which soon becomes several inches in thickness. This not only causes a considerable waste of salt, since these crusts are not fit for market, but, what is of much greater importance, prevents the economical application of the fuel; besides, which, the necessity of a frequent removal of the crust of salt generally keeps one of each row of kettles out of service. The crust may be removed either by mechanical means, or by dissolving it out with fresh water, a process which involves the loss of time, fuel and salt. With weaker brines, on the contrary, like those of Syracuse, the fresh supplies of brine added to the emptied kettles suffice to dissolve any existing crust, and the difficulties which cause such a serious loss at Goderich are not felt."

Dr. Goessmann proceeds in describing the manufacture at Goderich:—"The salt is, after separation from the pickle, (mother-liquor) as might have been expected from a brine like that of Goderich, of a superior color, of a hard fine grain, resembling the best brands of home and foreign manufacture, and this success is attained without any but the ordinary care required for the manufacture of common fine salt. It will be noticed that the sole objection which may be raised against the Goderich brine, is merely incidental, for the brine is too strong to be worked to its full advantage by the system of manufacture at present pursued. Evaporation by more moderate heat, for instance, on the European plan of large pans, or evaporation by solar heat in wooden vats, on the Onondaga plan, would, no doubt, prove more successful. Each of these methods would produce, with less trouble, not only a very good marketable article of its kind, but secure what is most important, the full percentage of salt, which might be expected, comparing its concentration with the brines of Onondaga, to be a difference of 50 per cent."

Other plans of evaporation have been tried, as at the Stapleton Works, Clinton, where two pans similar to those in use at Cheshire, England, have been erected. These are forty feet by twenty-one, with a depth of fifteen inches. The contents of the first pan are kept in a state of rapid ebullition, producing fine salt, while the waste heat passes under the second pan, producing a slower evaporation, and consequently, a larger grained salt. The daily product of these pans is fifty barrels of fine, and twenty barrels of coarse

salt, requiring seven cords of wood. This is at the rate of fifty bushels of salt to the cord, and is a decided improvement on the process adopted at Goderich.

We recently noticed an article in the *Toronto Globe*, in which allusion was made to the defective appliances for the production of salt in this country; and the attention of manufacturers was directed to a new process of evaporation, which was said to have been tested, experimentally, with considerable success. The apparatus is described, with considerable detail, but may briefly be said to consist of a hollow iron cylinder, which is made to revolve, partly immersed in a tank of concentrated brine. A current of steam is made to pass continuously through the cylinder, which instantly evaporates the brine adhering to its outer and exposed surface. A thin layer of salt is formed, which is further augmented by the evaporation of fresh brine supplied by "drippers" placed above the cylinder. Before the dry part of the cylinder again enters the brine, it is made to pass in proximity to a stationary knife, which scrapes off the layer of salt, supposed to be in a marketable condition. The *Globe* does not pretend to say that some sanguine calculations it has seen regarding the results of the plan could be fully verified, on a manufacturing scale, but it is said that a dozen such engines, "of proper size" (!) would turn out seventy-two tons in twenty-four hours.

It is somewhat unfortunate that the size of these salt-producing engines is not specified, and the quantity of fuel stated, for therein lies the question of economy; and this is the main point. It will be obvious to any one acquainted with the subject, that the plan, however economical, could not be successfully carried into execution for the manufacture of anything but the most impure salt, and we fear that such an article would not meet with a ready sale, even for the most common purposes. The presence of impurities—as the earthy chlorides—in even the purest brines, and their non-removal by the above process, would, we fear, be insurmountable difficulties. In other methods, these bitter impurities are left, principally, in the mother liquors, which, from time to time, should be thrown away, as the value of salt mainly depends on the absence of these contaminations. Let us take the analyses made by Dr. Goessman of the brine of the Goderich Company's well, and also of a sample of manufactured salt produced by the company, and then by comparison we can easily determine the purity of the two articles, as the composition of the brine would of course represent the salt as manufactured by the cylinder process:

Analysis of Brine.		Analysis of Salt.	
Chloride of sodium.....	241.433		97.030
" calcium.....	216		007
" magnesium.....	336		031
Sulphate of lime.....	5.433		1.430
	247.418		98.498

Before concluding this article, we would draw the attention of manufacturers to the details of the manufacture of solar salt, as described by Prof. Hunt, and to the very useful table, giving a comparison of different expressions for the strength of brine, from zero to saturation, with which the Report concludes.

### CITRINE OINTMENT.

The preparation of this ointment usually falls to the lot of the druggist; very seldom is it purchased of the wholesale dealer, for everyone possesses, or thinks he possesses, some valuable secret in its manufacture, which ensures a product of better consistence, colour, and permanence, than anyone else. It may be presumed that success, in this line, is only attained after repeated failures, hence the variety of ointments termed citrine which one often meets with—ointments of every shade and character, from the cadaverous product, of ephemeral permanence, and unyielding obduracy, to the rank and oily, of pitch-like blackness, whose only claim to permanence lies in the fact that it cannot possibly become any worse.

With what timidity does the apprentice make his first attempt at this uncomprehensible unguent! He has got up the subject well by preparatory reading. The pharmacopœial directions are at his finger ends. He has read, perhaps, some dozen of the treatises "on the preparation of Ung. Hydrarg. Nit." with which our journals abound—from one he learns that if due attention is paid to a certain temperature for the reaction, success is certain; another says that the purity of the materials is the main thing; while a third asserts that he never fails under any circumstances to make an ointment that pleases his customers—a statement which may be far from complimentary to the intelligence of that class of persons. Then comes in the host of heterodox writers, who, having no fear of pharmacopœias before their eyes, boldly aver that it is perfectly impossible to succeed if officinal directions are followed, and that the best course is to double the quantity of nitric acid, divide the amount of mercury, substitute lard, neatsfoot oil, or butter, for the olive oil, or drop the lard and use the oil, or in fact, do anything but follow the book. Somewhat perplexed, our apprentice turns for counsel to an older head, and asks the advice of the chief assistant, who probably dispels the little confidence left by telling him that he will most likely make a mess of it, but that he has a form that never fails, &c. The attempt is made, however, and the ointment looks well—a little frothy perhaps. But will it keep? The next morning settles the question—the lid of the pot requires no raising, it has been lifted off by the incontrollable foaming mass within, which