ALKALOIDS AND THEIR SALTS.

Morphiae acetas.

Take of Muriate of morphia any convenient quantity. Dissolve it in fourteen times its weight of warm water, and when the solution is cool add Aqua ammoniæ gradually and with constant agitation until there is a permanent but faint odour of ammonia in the fluid. Collect the precipitate on a calico filter, wash it moderately with cold water, and dissolve it by means of a slight excess of Pyroligneous acid in twelve parts of warm water for every part of muriate of morphia that was used. Concentrate the solution over the vapour-bath and set it aside to crystallize. Drain and squeeze the crystals, and dry them with a gentle heat. More acetate of morphia may be obtained on concentrating the mother-liquor.

Morphiae murias.

Take of Opium, twenty ounces;
Water, eight pints;
Muriate of lime, one ounce, or a slight excess.

Macerate the Opium in fragments for twenty-four hours in two pints of the water; and separate the infusion, squeezing well the residue. Repeat the maceration successively

with two pints more of the water till the whole is made use of. Concentrate the whole infusions over the vapour-bath to the consistence of thick extract; which is to be dissolved as far as possible in warm water. Decant the clear liquid, boil it, and add the Muriate of lime dissolved in four fluidounces of water. Set the whole aside to settle; pour off the liquid; wash the sediment with a little water, adding the washings to the liquid. Evaporate the liquid sufficiently in the vapour-bath for it to solidify on cooling. Subject the cooled mass to very strong pressure in a cloth; redissolve the cake in a sufficiency of warm distilled water; add a little fine powder of white marble, and filter; acidulate the filtered fluid with a very little muriatic acid; and concentrate a second time in the vapour-bath for crystallization. Subject the crystals again to very strong pressure in a cloth. Repeat the process of solution, clarification by marble and muriatic acid, concentration, and crystallization, until a snow-white mass be obtained.

On the small scale trouble and loss are saved by decolorizing the solution of muriate of morphia by means of a little purified animal charcoal after two crystallizations. But on the large scale it is better to purify the salt by repeated crystallizations alone, and to treat all the expressed fluids, except the

first, in the same way with the original solution of impure muriate of morphia. An additional quantity of salt may often be got from the first dark and resinous fluid obtained by expression, on merely allowing it to remain at rest for a few months, when a little muriate of morphia may be deposited in an impure condition.

The opium, which yields the largest quantity of precipitate by carbonate of soda according to the formula in p. 27, yields muriate of morphia not only in greatest proportion, but likewise with the fewest crystallizations.

MORPHIAE MURIATIS SOLUTIO.

Take of Muriate of morphia, one drachm and a-half;
Rectified-spirit, five fluidounces;
Distilled water, fifteen fluidounces.

Mix the spirit and water, and dissolve the muriate of morphia in the mixture with the aid of a gentle heat.

QUINAE SULPHAS.

Take of Yellow Bark in coarse powder, one pound;
Carbonate of soda, eight ounces;
Sulphuric acid, half a fluidounce;
Purified Animal Charcoal, two drachms.

Boil the bark for an hour in four pints of water, in which half the carbonate of soda has been dissolved; strain and express strongly through linen or calico; moisten the residuum with water and express again; and repeat this twice. Boil the residuum for half an hour with four pints of water and half the sulphuric acid; strain, express strongly, moisten with water, and express again. Boil the residuum with three pints of water and a fourth part of the acid; strain and squeeze as before. Boil again the residuum with the same quantity of water and acid, strain and squeeze as formerly. Concentrate the whole acid liquids to about a pint; let the product cool; filter it; and dissolve in it the remainder of the Carbonate of soda. Collect the impure quina on a cloth, wash it slightly, and squeeze out the liquor with the hand. Break down the moist precipitate in a pint of distilled water, add nearly one fluidscruple of Sulphuric acid, heat it to 212°, and stir occasionally. Should any precipitate retain its gray colour, and the liquid be neutral, add sulphuric acid drop by drop, stirring constantly, till the gray colour disappears. Should the liquid redden litmus, neutralize it with a little carbonate of soda. Should crystals form on the surface, add boiling distilled water to dissolve them. Filter through paper, preserv-

ing the funnel hot; set the liquid aside to crystallize; collect, and squeeze the crystals; dissolve them in a pint of distilled water heated to 212°; digest the solution for fifteen minutes with the Animal charcoal; filter, and crystallize as before. Dry the crystals with a heat not exceeding 140°.

The mother-liquors of each crystallization will yield a little more salt by concentration and cooling.

STRYCHNIA.

Take of Nux-vomica, one pound;
Quicklime, one ounce and a-half;
Rectified spirit, a sufficiency.

Subject the Nux-vomica for two hours to the vapour of steam, chop or slice it, dry it thoroughly in the vapour-bath or hot air-press, and immediately grind it in a coffee-mill. Macerate it for twelve hours in two pints of water and boil it; strain through linen or calico, and squeeze the residuum; repeat the maceration and decoction twice with a pint and a-half of water. Concentrate the decoctions to the consistence of thin syrup; add the Lime in the form of milk of lime; dry the precipitate in the vapour-bath; pulverize it, and boil it with successive portions of Rectified spirit till the spirit cease to acquire a bitter taste. Distil off the spirit till the residuum be sufficiently concentrated to crys-

tallize on cooling. Purify the crystals by repeated crystallizations.

VERATRIA.

Take any convenient quantity of Sabadilla: pour boiling water over it in a covered vessel, and let it macerate for twenty-four hours; remove the sabadilla, squeeze it, and dry it thoroughly with a gentle heat. Beat it now in a mortar, and separate the seeds from the capsules by brisk agitation in a deep narrow vessel. Grind the seeds in a coffee-mill, and form them into a thick paste with Rectified spirit. Pack this firmly in a percolator, and pass rectified spirit through it till the spirit ceases to be coloured. Concentrate the spirituous solutions by distillation so long as no deposite forms; and pour the residuum while hot into twelve times its volume of cold water. Filter through calico, and wash the residuum on the filter so long as the washings precipitate with ammonia. Unite the filtered liquid with the washings, and add an excess of ammonia. Collect the precipitate on a filter, wash it slightly with cold water, and dry it first by imbibition with filtering-paper, and then in the vapour-bath. A small additional quantity may be got by concentrating the filtered ammoniacal fluid and allowing it to cool.

Veratria thus obtained is not pure, but

sufficiently so for medical use. From this coloured substance it may be obtained white, though at considerable loss, by solution in very weak muriatic acid, decolorization with animal charcoal, and re-precipitation with ammonia.