

ture) until solution of soda ceases to cause a precipitate with the droppings. The percolate is afterward evaporated on a water bath and standardized in the usual way. Working on small quantities I have found that each pound of bark requires about four pounds of the B. P. menstruum for exhaustion, although operating on a large scale this quantity could probably be reduced. The comparative value of the two processes will be seen by the following: Two pounds of powdered red cinchona bark, practically containing five per cent. of total alkalis, was divided into two equal portions. One half was exhausted by hot percolation, the second by the B.P. process. In the first instance the standardized product was as nearly as possible sixteen ounces, in the second only a little over thirteen ounces, although it had been percolated by the full amount of liquid ordered, followed by an additional four or five pints of water. These facts appear to indicate a temperature of about 150° F. as the most suitable for complete extraction, with a reduction in the volume of menstruum and consequent shortening in the time of evaporation and exposure.

Liquorice Root (Dried).—This may be used in either the peeled or unpeeled condition. Would it not be well to insist on its being peeled, as if the cortical portion which contains an acrid principle is included the sweetness is somewhat impaired?

Rhamnus Frangula bark is ordered to be kept for at least one year before being used. Should not this direction be extended to *cascara sagrada*? It has been stated that extract made from seasoned bark is not only less bitter, but is less liable to disagree with the patient.

Glycerin of Starch was, I believe, introduced by Mr. Schacht some thirty years ago under the name of "Plasma." His original formula, which was practically adopted by the 1867 pharmacopœia, produced a fairly still translucent jelly, but now that one-third of water is substituted for an equal volume of glycerin, the product is too soft to answer the same purposes the old one was fitted for; moreover it has a great tendency to separate after being kept a short time. If made with glycerin alone the plasma does absorb moisture from the atmosphere, and a little water may be an advantage, but 33 per cent. appears far too much.

Guaiacum Resin is occasionally adulterated with pine resin. The sophistication may, however, be detected, if a terebinthinate odor is exhaled when thrown on burning coals, or if the precipitate caused by the addition of caustic potash solution to the tincture remains undissolved in excess of the alkali.

Infusions.—Bruised leaves are ordered to be used in making infusion of buchu, and the rhizome in No. 20 powder for infusion of serpentary. In the case of the first-named a mucilaginous liquid is pro-

duced, the viscosity of which at times may be so magnified as to render straining almost an impossibility; while the infusion when so made is much more liable to suffer rapid decomposition. In the case of the second, if serpentary infusion is made with bruised material, the hot water takes up an appreciable amount of starchy matter, the result being that if prescribed with tincture of iodine, as it frequently is, a turbid blue mixture is produced, owing to the fixation of the iodine, which is hardly what the prescriber intends. Under these circumstances it would appear advantageous to omit the directions for bruising either drug when ordered to be infused with boiling water.

Rhubarb in powder may be adulterated with turmeric, and it would be useful if a test were inserted for its detection. Perhaps as good a one as any is to add a little saturated solution of boric acid to a weak tincture of the suspected powder, when a brown coloration ensues if turmeric is present.

Sodium Arseniate contains more than half its weight of water of crystallization, part of which may be lost if the salt is exposed, the effloresced salt then containing a varying proportion of water. The anhydrous salt on the other hand is stable and easy to store and weigh, and it would be a distinct gain if it could be substituted for that now official.

Syrup of Phosphate of Iron is peculiarly liable to change, and in spite of many attempts no form has yet been devised yielding an unalterable preparation. In the official process sulphate of iron and phosphate of sodium react on each other, forming ferrous phosphate and sulphate of sodium, the resulting free sulphuric acid, which would keep a portion of the iron in solution, being nearly neutralized with bicarbonate of soda. After washing, the precipitate is dissolved in phosphoric acid, and this solution converted into syrup, which is therefore presumed to contain acid ferrous phosphate. But during the washing the original white precipitate has turned blue from the formation of ferroso-ferric phosphate, and this oxidation continues to some extent in the syrup, notwithstanding the protective action of the sugar, thus probably accounting for the change in color on exposure. Under such circumstances it would appear advantageous to direct a solution to be made directly from iron wire and phosphoric acid, in such proportions that, when mixed with simple syrup, one grain of phosphate should be contained in each fluid drachm. This is by no means a new idea, as it has been recommended by several very eminent pharmacists for a considerable length of time, and no doubt many chemists already manufacture their syrup thus; still it would be better if authority were given for doing this.

Tincture Quinine Ammoniated, although so useful is perhaps the nastiest medicine in the whole pharmacopœia combining as it does a sharp alkalinity with

such intense bitterness. I wish to show you a specimen containing the full amount of quinine sulphate and solution of ammonia, partially disguised by the addition of glycerin and compound tincture of chloroform. I cannot claim that its admixture with water is any more elegant than that now official, but I think it would be much more readily taken by the fastidious. A fluid drachm forms only a slightly opalescent mixture with a wineglass of water. The suggested form is:

Quinine sulphate.....	grs. 160
Diluted alcohol.....	oz. 8
Comp. tinct. of chloroform....	oz. 2½
Solution of ammonia....	oz. 2½
Glycerin to produce	oz. 20

Mix the quinine with the diluted alcohol, and add the tincture and ammonia, previously mixed together; shake and make up with glycerin to one pint. In this, as in the official form, there are nearly 8 minims of ammonia solution in each drachm. This appears somewhat large, and the mixture would be rendered much more palatable if the quantity were reduced to an ounce and a half.

Efferrescing Preparations.—The proportions of the two acids in the efferrescing preparations in the addendum require a little adjusting to secure strongly cohering granules. As now prepared, they are very apt to crumble to powder during the sifting, or even before such an advanced stage is reached. In efferrescent sulphate of magnesia the citric acid should be increased to 6½ ounces, with a consequent reduction of ½ oz. of the sugar. In efferrescent phosphate of soda the amounts of the acids would be better if more nearly equalized, thus:

Powdered tartaric acid	12 ozs.
Powdered citric acid.....	10½ ozs.

Mucilages and Injections.—In the three mucilages, and one of the hypodermic injections, distilled water is employed, the exceptions being made with camphor water, and they are all more or less prone to change if kept any length of time, even protection from light being insufficient to obviate this. Perhaps it is impossible altogether to prevent decomposition, but a vehicle might be used, possessed of such preservative powers that solutions made with it would keep unimpaired for a reasonable period. Water that has been boiled with the residue left after manufacturing syrup of tolu has one of the strongest claims in this respect, and could with advantage be employed in many pharmaceutical operations. Injections of ergotin and apomorphine hydrochlorate both keep well when made with it; while morphine injection not only does not turn brown so rapidly, but is less liable to deposit crystals of alkaloids. Mucilage of tragacanth already keeps fairly well, but the mucilages of starch and acacia are noted for their tendency to spoil. Specimens of these preparations with tolu water a month or more old, which have been kept at varying temperatures, are here, and I think they are all in a very fair state of preservation. There is perhaps one little