fats, and that they are destroyed by heat. When subjected to destructive distillation they evolve an ammonical odor.

As has already been noticed the molecular structure of the members of this group is very high and as the more complex a compound is the more unstable it becomes, we find the alkaloidal solutions of the pharmacopœia are very prone to decompose, even under the influence of so lowly a form of organic force as the penicillium—one of the fungi or moulds—the hyphae of which may be frequently seen forming in a solution that has been kept standing beyond a limited time, looking like so much cotton wool. This vegetable growth thrives at the expense of the salt contained, from which it is able to abstract certain elements—similar to the action of the yeasts on sugar—so as to completely alter its composition and render it inert or even irritating. The only safe procedure then would seem to be to have all such solutions freshly made as required.

It is now well known that the alkaloids do not exist naturally in a free state, but as neutral or acid salts, combined with the plant acids peculiar to their source—as meconic acid in opium; igasuric in nux vomica; kinic or cincho-tannic in cinchona; tannic in coffee, etc.—these compounds being termed the native salts. The free alkaloids are nearly all insoluble in water, but easily dissolved by chloroform, ether, ethylic and amylic alcohols, benzol and benzine; while their salts are mostly water soluble, but insoluble in the solvents for free alkaloids.

Their salts are also precipitated from solution on the addition of an alkali. These facts then give a key to their isolation and it was by taking advantage of this that Sertürner reached his results in his early work and which still obtains to-day, now known as the "shaking out" process. It may be facilitated by the use of a glass bulbed separator with ground stop-cock and cork. The steps may be simple or more complex according as the associated constituents or plant extractives are soluble or not in the alkaloidal solvent, and so complicate the work; but the freed alkaloid may be readily run down by extending these principles a little. When it happens that two or more alkaloids exist in the one plant their separation may sometimes be accomplished by the differing solubilities of their salts, as in quinine from its many closely related fellows in the bark, or by the finding of a solvent for one not common to both, as in opium by treating first with ether which dissolves out the narcotine but not the morphine.

In order to determine the presence of an alkaloid in a given drug, a good working plan is to first macerate a ground sample for several hours in a stoppered bottle with about ten times its weight of Prollin's Fluid, shaking frequently. This is a liquid with remarkable penetrating power on the vegetable cell wall, and also an active solvent for the liberated alkaloid. It is composed of ether 325, alcohol 25 and strong solution of ammonia 10 parts. When this has been done, decant the clear liquor and agitate in a glass separator with a five per cent. solution of sulphuric acid, the acid sulphate being thus formed and held in solution in the lower aqueous layer. Separate the two layers and warm the acid solution to drive off any dissolved alcohol or ether. If any alkaloid is present, a cloudiness or precipitate will be shown on adding any of the general reagents for this class of proximate principles.