

lizable basic substance (cocaina) a volatile odoriferous substance, a peculiar tannin (cocatannic acid) and a waxy body termed coca-wax. Stanislas Martin\* found a peculiar bitter principle, extractive, chlorophyll, a substance analogous to theine, and salts of lime. Maisch† was led to think that the leaves contained a volatile alkaloid. This supposition was subsequently confirmed by Lossen,‡ who isolated this principle, and, at the suggestion of Woehler, who was associated with him in these investigations, named the new alkaloid *hygrina*. Lossen also found that cocaina, when heated with muriatic acid, was decomposed, benzoic acid and a new base, *ecgonia*, being produced. This fact operates against attempts to extract cocaina with acid liquors, and its importance was recognized by Lossen who recommended the abandonment of Niemann's plan, in which acidulated alcohol was employed, and the substitution of infusion with simple water.

Thus far, then, we have as important and tolerably well established constituents of the leaves, cocaina, *hygrina*, cocatannic acid, coca-wax, and a volatile oil, to which the odor of the plant is due, of these, the first named alkaloid is undoubtedly that to which attention should be principally directed in any attempt to make a preparation representing the active medicinal properties of the plant.

The characteristics and properties of the alkaloid may be concisely given as stated by Watts:§ "Cocaina crystallizes in small, colorless, inodorous poisons; it has a slightly bitter taste, and produces temporary insensibility of the part of the tongue with which it comes in contact. It is soluble in 704 parts of water at 12°C., (53.6°F.) more soluble in alcohol, and still more so in ether. It melts at 98°C., (208.4°F.) and solidifies to a transparent mass, which gradually becomes white and crystalline. At a higher temperature, a very small portion appears to volatilize undecomposed, but the greater portion is decomposed, yielding ammoniacal products. Cocaina dissolves without color in strong nitric, hydrochloric, and sulphuric acid; the last solution becoming black when heated. It is strongly alkaline, dissolves in dilute acids, and neutralizes them completely." In most of its reactions cocaina resembles atropia,

\* Jour. de Pharm. 1859, p. 283.

† Am. Journ. Pharm. ix, p. 496.

‡ Ann. Chem. Pharm. cxxi, p. 374.

§ Dictionary of Chemistry, i, p. 1059.