THE ACONITE ALKALOIDS.

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Dr. C. R. A. Wright, read a very important paper on the aconite alkaloids at the recent Pharmaceutical Conference, in which he suggests, and indeed almost proves, that the different alkaloids named napelline, lycoctonine, acolyctine, pseudoaconitine, &c., are really different alteration products of some one parent alkaloid common to all the species of aconites; the practice of using mineral acid to percolate the ground root, and the subsequent boiling down of the acid extract, causing alteration in the alkaloid present. On the other hand, the use of tartaric acid, and a low temperature as recommended by Duquesnel, appears from the crystallisable nature of the base thus obtained, to produce less change or perhaps none at all.

After detailing numerous experiments, which all support the author's assertion, that aconitum napellus, contains only one crystallisable physiologically active base, possessing the formula $C_{33}\ H_{43}\ NO_{12}$; the author draws the following practical conclusions:—

1. When *A. Napellus* is treated by Duquesnel's process, there are extracted (*a.*) a crystallisable alkaloid insoluble in potassium carbonate solution, which is difficult to purify by simple crystallisation from ether, but which after conversion into a crystalline salt and regeneration therefrom gives numbers agreeing with the formula $C_{33}\ H_{43}\ NO_{12}$, and (*b*) a second alkaloid or mixture of bases which does not crystallize itself, and does not yield crystalline salts, and which has a lower molecular weight than aconitine, and contains more carbon and hydrogen. (*c.*) A non-crystalline base or mixture of bases, soluble in dilute potassium carbonate solution and possibly identical with (*b*).

2. The formula assigned to "crystallizable aconitine," viz.: $C_{27}\ H_{40}\ NO_{10}$, by Duquesnel who first isolated the substance in a state of moderate purity does not exactly represent the composition of the pure base, the difference in Duquesnel's results being apparently due to imperfect purity of the substance isolated and examined by him.

3. The amorphous substance examined by Von. Planta, to which he assigned the formula $C_{30}\ H_{47}\ NO^{7}$, was probably a mixture of aconitine more or less altered during the extractive process, and the amorphous bases above-mentioned; whether this amorphous body pre-exists in the fresh roots, or whether it is formed during the extraction process, it is at present impossible to say. Probably "napelline" is identical with, or closely allied to, this body.

4. Although when alcoholic hydrochloric acid is used to extract the alkaloides from *A Napellus*, a considerable quantity of a comparatively inert base appears to be formed, and largely dilutes the crystalline nitrate of the active base, $C_{33}\ H_{43}\ NO_{12}$, yet no appreciable amount of this substance appears to be produced by Duquesnel's tartaric acid method.

5. The method that ought to be adopted for the preparation of a pharmaceutical product of constant composition and properties is: 1st. Percolation by alcoholic tartaric acid and evaporation, to a small bulk of the percolate, at as low a temperature as possible (probably in a vacuum pan would be best.) 2nd. Crystallisation from ether of the base, separated by sodium or potassium carbonate from the aqueous solutions of the extracts. 3rd. Further purification by conversion into a crystalline salt, for which purpose the hydrobromide is well fitted. The base obtained in this way is a simple body, expressed by the formula $C_{33}\ H_{43}\ NO_{12}$ in a state of great purity, and possessing high physiological activity. A. W. B.