

With the exception of a preliminary study of the inorganic constituents and some work on the oxidase, the investigations have been practically restricted to those constituents that can be isolated from the bulk of plant material by steam distillation and can, by this simple method, be concentrated as the so-called volatile oil. The equally large, or possibly larger, field of non-volatile constituents has, as pointed out, been scarcely touched upon.

ADSORPTION MEDICINES AND SIMILAR REMEDIES WITH LOCAL ACTION:

BY H. R. JENSEN, M.S.C., A. I. C.

(From paper printed in *Chemist and Druggist*, July 24, p. 97. Presented before British Pharmaceutical Conference, Liverpool.)

The author described new types of remedies used during the war, especially at the hospitals connected with the Liverpool Tropical School. At the outbreak of the war the best treatment known for the destruction of the amoebic parasite frequenting the large intestine, more particularly in the sub-acute form of dysentery, was the hypodermic injection of emetine. On the assumption that the prolonged—as distinct from the delayed—action of the emetine was the most important factor in dosage, Dr. H. H. Dale, F. R. S., introduced the use of emetine bismuth iodide, devised by Du Mez. This compound should be practically insoluble in the acid stomach, but in the alkaline small intestine free emetine is gradually liberated, and passes through for local action on the parasites in the large intestine, where it is dissolved by the fermentation acids. This is a mechanism analogous to that of salol. Du Mez' analysis of his compound, prepared by the addition of Dragendorff's reagent to a 1 in 300 solution of emetine indicated a composition (emetine), $(5\text{HI})\text{BiI}_3$, with a content of 29 percent of emetine.

Concurrently with this use of emetine, Allan in America, and Professor Stephens at the Liverpool School of Tropical Medicine, made an extensive clinical study of the numerous cases of sub-acute dysentery, using a proprietary adsorption compound of "total alkaloids" of ipecacuanha in physico-chemical union with a hydrous aluminium silicate derived from a clay or fuller's earth, as devised by J. U. Lloyd. Chemically this compound reacts in the same way as the double iodide,

being insoluble in acid solutions, and liberating alkaloids with alkalis. In 1917, in ignorance of the extensive American master patents in such remedies, the author prepared a new series of drugs, for which purpose, as they were not otherwise obtainable, a temporary license was issued to cover use in the Government hospitals.

PREPARATION.

The simplest method is by suspension of a suitable fuller's earth in a solution of the alkaloid salt or galenical extract. On shaking combination occurs at once, when the product is filtered off, washed and dried with special precautions. Adsorption is in general greater in aqueous than alcoholic solution, and in strong than weak concentration. In practice special technique is required to obtain a product of the great lability desired, with which decomposition will not be too slow. The earth should be selected with the highest degree of hydration, and usually with high iron and calcium content. The high initial adsorptive value required, which cannot be gauged by its well-known bleaching power, but may be related to the detergent quality, must be raised by a series of lixiviations to the greatest extent. In addition the concentration in which the drug is primarily dispensed in the adsorbent, as well as the degree and nature of after-dilution, are factors.

In addition to the points set forth in the printed abstract, the author also emphasized the possibilities of partial recombination before the separate portions of the adsorptions had finally left the body. He suggested that it would be interesting to observe to what extent alkaloids oxidized or reduced while adsorbed, and that it must be determined what the adsorbing ratios were with alkaloid solutions of gradually decreasing concentrations, as must the exact quantitative reactions of a saturated adsorption to solutions of other alkaloids.