

## THE PHARMACODYNAMICS OF CAAPI.\*

BY H. H. RUSBY.

Of the therapy dynamics of Caapi we know nothing, as it has never been used medicinally, so far as known. Of its physiological action, we have considerable knowledge, derived from the accounts of travelers who have seen it used by the aborigines of South America, by whom alone it has been employed. We are to-day to have this scanty and popular information supplemented by a report of some scientific investigations made by our Dr. Pittenger, and it will be of the greatest interest to determine how far these accurate data will agree with those furnished by the aboriginal use of the drug.

Caapi may be defined as the root and rhizome of *Banisteria Caapi*, a woody vine inhabiting the central portion of the basin of the Amazon. It is apparently widely distributed and abundant, and can be supplied cheaply, if found of use in medicine. There is a host of closely similar vines in the same region, some related and some not related to it, which may very easily be mistaken for it, so that great care must be taken to identify it properly. We are, therefore, looking eagerly for the diagnostic description promised by Professor Stanford of the Cleveland School of Pharmacy, to whom this important and difficult study has been assigned.

This plant belongs to the *Malpighiaceæ*, a very large family of tropical plants, mostly woody climbers. The family is related to our *Geraniaceæ*, and is represented in the United States only by a few plants of our extreme southern region. With the exception of a few simple astringents, no member of the family is known to have medicinal properties, so that we have no *a priori* opinions on this subject.

The chemical study of this drug has been undertaken by Dr. Harvey A. Seil of the Seil, Putt & Rusby Laboratory.<sup>1</sup> The composition is complex, there being a number of alkaloids which are proving very difficult of separation. In this particular they are somewhat like those of *Nux Vomica*.

The active uses of Caapi in southeastern Colombia have been reported by Humboldt and Spruce. The latter botanist gave considerable attention to the subject and has supplied a rather extended account of it in his book of travel. It was encountered by Rice during his explorations in Colombia, though I do not know that he has ever published anything on the subject. Two German explorers, Messrs. Weiss and Schmidt, also made extensive observations on its use, and photographed some of the procedures. So far as I know, they never published their observations, but communicated them verbally to me, and I saw their photographs. It was a bitter disappointment to me when illness prevented me from visiting the region of its use, but I was fortunate in being able to send Mr. Gordon MacCreagh, of New York, an experienced oriental traveler and author, who accompanied me as a motion-picture photographer. Mr. MacCreagh performed his work very thoroughly and successfully, photographing the entire ceremony, obtaining material for study and making use of the beverage himself, so as to determine its general effect.<sup>2</sup>

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\* Scientific Section, A. Ph. A., Asheville meeting, 1923.

<sup>1</sup> See a preliminary report on the Chemical Examination of Caapi by Harvey A. Seil and Earl B. Putt in this issue of the JOUR. A. PH. A.

<sup>2</sup> The movie film illustrating his work was shown at the Asheville meeting A. Ph. A. See December JOUR. A. PH. A., p. 1123.

All this information from Colombia has been supplemented by wholly independent observations made in the extreme eastern part of Bolivia by Dr. Orlando E. White of the Brooklyn Botanic Garden. The uses of the drug in the latter region are quite different from those in Colombia, and the drug is known there by the different name, "Ayahasco."

The above reports may be summarized as follows:

In Bolivia, Caapi is used chiefly as a mere exhilarating and stimulating beverage, somewhat like tea and coffee. Its use is very limited and the amount taken at a time is very small. The decoction is always made with the addition of a certain leaf, of which I have specimens, but which I have not as yet identified botanically. There is no information whatever as to the object of adding this leaf.

In Colombia, a leaf is sometimes added, and sometimes not, and I do not know if this is the same leaf that is added in Bolivia. In that country, the object of its use is to give courage and fortitude in facing danger and enduring suffering.<sup>1</sup> The systemic effects of the drug are as follows:

Within a very short time after drinking the decoction, there is a powerful effect on the nervous system and on the circulation. The cutaneous circulation is checked, as manifested by a strong pallor. The subject is restless, and occupies a standing position. There is an intensely anxious or fixed expression to the countenance, and there are convulsive tremors. This condition lasts but a few minutes and is followed by a violent reaction, in which the blood rushes to the surface and the man becomes highly or even violently active. Fear, and even prudence, is entirely destroyed and he becomes extremely active muscularly. He is ready to fight anything and anybody, or any number of enemies and suffering is disregarded. He rushes about and seeks an enemy with the utmost eagerness. This condition lasts for hours, and is followed by more or less exhaustion and somnolence. The nature of this somnolence is in doubt. Some accounts indicate it is a narcotic effect and that there are unnatural dreams and visions. Others indicate that it is the natural reaction following weariness or exhaustion.

Mr. MacCreagh records that he had no desire to fight, and no unusual mental effects beyond that of a powerful stimulation and a desire to dance and otherwise engage in bodily and mental activity. His description suggests the effect of strychnine in some ways.

Dr. Pittenger's preliminary studies will be found to shed some light on the above reports.

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## THE CHEMICAL EXAMINATION OF CAAPI.\*

### A PRELIMINARY REPORT.

BY HARVEY A. SEIL AND EARL B. PUTT.

The Caapi for this investigation was obtained from Dr. H. H. Rusby who discovered it and other valuable botanical specimens in the Mulford Exploration of the Amazon Basin. The drug was received in fine powder from the H. K. Mulford Co.

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<sup>1</sup> See December JOUR. A. PH. A., p. 1123.

\* Scientific Section, A. Ph. A., Asheville meeting, 1923.