

region, the plant is so scarce as to present no commercial possibilities, except as a result of cultivation. It is not impossible, however, that future discovery may extend the range and increase the supply.

It would appear from all the evidence at hand that this drug possesses physiological properties distinct from those of any other known.

PRELIMINARY REPORT ON STUDIES OF MIRÉ.*

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The active principles seem to be completely extracted by hot water, and by various strengths of alcohol from 10 per cent. to 95 per cent. Extraction by ether, chloroform and acetone yields weaker preparations.

Preparations, however made, were similar in action and there was no evidence of two principles differing in the nature of their effect.

The principles were not injured by boiling and were not volatile in steam.

In frogs, full doses bring on a remarkable condition, in which the frog lies extended, incapable of voluntary motion, and without respiratory movements, but twitching all over continuously and violently. All the voluntary muscles seem to be involved in these weak, irregular, spasmodic contractions. This condition may last for several days during which, in spite of the paralysis, the heart continues to beat almost normally. The heart generally stops beating after two to four days, probably as a result of exhaustion, and asphyxia.

The tremors are not influenced by decapitation, nor by section of the cord. If the sciatic nerve is cut before the injection is given, the twitching occurs, but usually less actively than in the intact leg. If the leg is ligated at the hip, leaving the nerve free, no twitching occurs in that leg, although there is loss of voluntary motion.

There is no curare action. The skin shows increased secretion of mucous.

In mice, large doses cause twitching of the leg muscles followed by jerky, irregular respiration, and finally by paralysis of voluntary muscles. Death results from respiratory paralysis, the fatal dose being about 0.3 mg. per gram.

In rabbits, intravenous injections of 2 cc. of a ten per cent. infusion per kilogram caused slowing of the pulse with slight rise of blood pressure, increase of knee jerks and salivation. In certain experiments, increased peristalsis was seen.

These experiments indicate that Miré causes:

Paralysis of voluntary motion by an action on the spinal cord.

A stimulation of the peripheral motor-apparatus, resulting in twitching of the muscles.

A stimulation of the salivary and of the sweat mechanism as seen in rabbits and in frogs.

Slowing of the heart, probably from vagus stimulation.

Stimulation of peristaltic movements may occur.

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