

tion with this substance which we hope to be able to answer in the near future.

#### SUMMARY.

*Stylophorum diphyllum* contains at least five alkaloids as follows:

Chelidonine	$C_{20}H_{19}NO_3 \cdot H_2O$ , melting-point $136^\circ$ (uncorr.).
Stylophine	$C_{19}H_{19}NO_3$ , " 202° "
Protopine	$C_{20}H_{19}NO_3$ , " 204°-205° "
Diphylline	" 216° "
Sanguinarine	
Chelidonic acid	$C_7H_4O_6 + H_2O$
Chelidoxanthin (?)	

The study of this plant and its constituents will be prosecuted during the coming year, Professor Lloyd having again arranged for the collection of a large quantity of authentic material. We take pleasure in extending to Professor Lloyd our sincere thanks for this assistance without which the investigation would not have been possible.

We also take this opportunity of expressing our appreciation of the generosity of Messrs. F. Stearns & Co., for furnishing the funds necessary for the promotion of the work.

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### THE DISCOVERY OF NITROGLYCERINE IN AN EXHUMED BODY.

By G. G. POND.

Received October 1, 1901.

THE writer has not been able to find any record of the detection of nitroglycerine in a dead body, in cases of suspected poisoning, though this substance is included in the accepted complete schemes for toxicological examination of human organs.

On the fourteenth of March, 1901, the stomach, liver, kidneys, and spleen of a woman of twenty-two years were brought to this laboratory for examination, direct from an autopsy which had been made on that date. This woman had died on the tenth of January previous, in convulsions supposed to have been brought about by the use of instruments, or by drugs or medicines administered with intent to produce abortion. The woman had been ill for only twenty-four hours, and during this time nothing had been administered by the attending physicians through the mouth; small doses of morphia had been given hypodermically.

The body had been thoroughly "embalmed" with an arsenical formaldehyde fluid which contained some glycerine, mere traces of mercury, and a little oil of citronella, otherwise nothing of significance. The embalming fluid gave no reaction whatever for nitric or nitrous acid under the most careful tests. The embalmed body was buried January 14th; thus two months elapsed before the disinterment on the fourteenth of March. When received at the laboratory the organs were all in a state of excellent preservation. The stomach contained no appreciable contents distinguishable from the embalming fluid. A preliminary examination for volatile substances was conducted upon 91 grams of that organ, about one-fourth of the entire weight of the stomach and fluid. This examination was carried out according to Dragendorff.<sup>1</sup> The material was comminuted, acidified with pure tartaric acid, and after the addition of 50 cc. of water, was distilled with steam. Some 100 to 125 cc. of the distillate were secured which possessed a peculiar odor resembling formaldehyde but quite modified, somewhat like the lower fatty acids. It exhibited an acid reaction, and contained in suspension minute oily globules. This distillate gave no precipitate with silver nitrate, with or without nitric acid, gave reaction with Schiff's reagent (fuchsin bleached with sulphurous acid) for aldehyde, also all other aldehyde reactions. It gave no reaction for hydrocyanic acid, for chloroform, phenols, benzaldehyde, halogens, sulphur or alcohol.

The steam distillate was extracted with ether, the ether evaporated and a small residue secured possessing nearly the consistency of vaseline, slightly opalescent, and nearly colorless. This residue was free from halogens and sulphur, gave nitric acid reaction with sulphuric acid and brucine, also with sulphuric acid and diphenylamine. It had a decided taste, sweetish, spicy and slightly burning, and was explosive. Repeatedly dissolved in ether and evaporated as before, it exhibited the same properties. It exploded violently when heated on a platinum spoon or otherwise, also when struck on an anvil, etc.

Some eight or ten explosions were secured with it at the date of the analysis; three or four more at the time of the trial in April, and the last remnants exploded distinctly as late as August 21st.

The total weight, after we felt the identification as nitroglycerine to be complete, was 9.5 mg., or calculated for the whole

<sup>1</sup> Georg Dragendorff: "Ermittlung von Giften," vierte Auflage, 1895, p. 84, *et seq.*

stomach, 0.7 grain, equivalent approximately to from 1 to 1½ teaspoonfuls of the official 1 per cent. solution.

A comparative quantity of pure nitroglycerine, acidified with tartaric acid, distilled with steam in a similar apparatus, at the same rate, yielded a distillate in which oily drops were observable, and its ethereal extract when evaporated yielded a residue which exploded with the same readiness. A similar examination of other parts in our possession did not reveal any nitroglycerine, and none of the intestines had been taken at the autopsy.

The defendant was convicted of the use of instruments, and the presence of nitroglycerine was not accounted for by the testimony. It was a theory of the prosecuting attorneys, however, that nitroglycerine had been administered, in ignorance, as a heart stimulant.

I am indebted to Dr. F. E. Tuttle and to Dr. F. J. Pond, for their assistance in this work.

CHEMICAL LABORATORY OF THE PENNSYLVANIA  
STATE COLLEGE, August 21, 1901.

[CONTRIBUTIONS FROM THE HAVEMEYER LABORATORIES OF COLUMBIA  
UNIVERSITY, No. 57.]

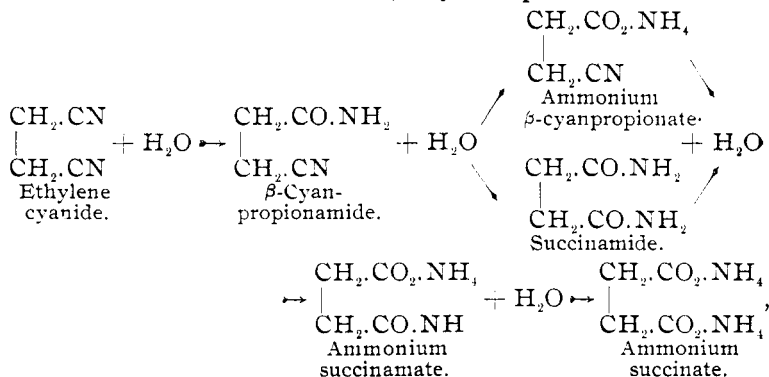
## ON THE PRODUCTION OF THE IMIDES OF SUCCINIC AND GLUTARIC ACIDS BY THE PARTIAL HYDRATION OF THE CORRESPONDING NITRILES.<sup>1</sup>

BY MARSTON TAYLOR BOGERT AND DAVID C. ECCLES.

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### THEORETICAL.

THE hydration of ethylene cyanide, by the addition of successive molecules of water, may be represented as follows:



<sup>1</sup> Read before the New York Section of the American Chemical Society, Nov. 1, 1901.