NOTE.

How to Ignite a Hydrogen Jet with No Possibility of Exploding the Generator.—The following are perhaps fair samples of the directions usually found in text-books and manuals for igniting a jet of recently generated hydrogen gas:

"After the action has continued for a minute or two apply a lighted match."[1]

"When all the air is expelled, not less than ten minutes, light the jet of hydrogen."[2]

"When the gas is coming off freely, light the jet."[3]

As is well known, with any of the above directions, inexperienced students do continue to explode hydrogen generators with annoying frequency, and it is believed that a method of igniting a jet of hydrogen gas with no possible danger of exploding the generator will be welcomed generally by teachers of introductory and qualitative chemistry.

The following method, used by the writer with his classes for a number of years, is absolutely safe and causes no loss of time whatever:

As soon as the action begins collect the escaping gas in a test-tube, and when it is thought to be full of pure gas, remove two or three feet from the generator and ignite the hydrogen in the test-tube; then immediately *attempt* to light the jet of hydrogen *with the hydrogen flame contained in the test-tube*. If the gas is explosive it will explode in the test-tube and *leave no flame*. If on the other hand a flame remains in the test-tube with which the jet can be ignited, it is certain that the gas in the generator is no longer explosive. Hence, the caution: Never light the hydrogen jet except with the hydrogen flame obtained as just described. The student may try to ignite the jet by this method as often as he wishes until he succeeds, and if the hydrogen is properly generated the jet will be ignited in less than a minute.

UNIVERSITY OF ILLINOIS, AGRICULTURAL EXPERIMENT STATION.

C. G. HOPKINS.

A New Test for Cocaine.—There are two well-known tests for determining the freedom of commercial cocaine salts from other

[1] Remsen: Introduction to Chemistry, p. 64.

[2] Newbury: Laboratory Note-Book, eighteenth practice.

[3] Shepard: Elements of Inorganic Chemistry, p. 38.

coca alkaloids. These are the permanganate test for detecting cinnamyl-cocaine, and the ammonia test, popularly known as McLagan's test, for detecting the presence of the coca alkaloids which are resistant to permanganate. While it is generally admitted that the permanganate test is sufficient to detect the presence of cinnamyl compounds, chemists have expressed some doubt regarding the value of McLagan's test. The writer has for some time been conducting experiments with the object of finding a substitute for McLagan's test which would allow of the rapid and accurate determination of the presence in cocaine salts of the coca alkaloids not indicated by the permanganate test.

As the result of numerous determinations, I have devised a test based on the fact that the chromates of these alkaloids are much less soluble than cocaine chromate, both in water and in water acidulated with hydrochloric acid. The relative solubility of the chromates in acidulated water is about 1 to 500 in the case of cocaine chromate, and 1 to 5000 in the case of the residual alkaloidal chromates.

I therefore offer the following as a simple and satisfactory method of determining the purity of cocaine salts: 0.05 gram cocaine hydrochloride is dissolved in twenty cc. of distilled water, mixed with five cc. of a three per cent. solution of chromic acid, and to the mixture five cc. of a ten per cent. solution of hydrochloric acid are added. It is advisable to keep the temperature of the solution at 15° C. If the cocaine hydrochloride be pure a clear solution will result. If other than traces of foreign coca bases be present the solution becomes cloudy at once, or in a few minutes, according to the amount of impurity present.

It is advisable to make the test side by side with a specimen of known purity for comparison. GEORGE L. SCHAEFER.

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Anleitung zur Darstellung chemischer Präparate. An Leitfaden für