

When the above train of symptoms is present it is not difficult to make a correct diagnosis; but, in the early stages of the malady, many are absent and those present are not always noted, if observed, not correctly interpreted, especially in the face of the most positive denial of fact by the patient. By means of urinary analysis, any doubts that may exist can be dispelled.

The method by which I have succeeded in extracting this alkaloid from the urine of those using the drug is as follows: To a suitable quantity of urine (10 to 20 ounces) add sodium, or potassium carbonate, until the mixture is very distinctly alkaline; let it stand for half-an-hour and filter; to the filtrate add 3ij pure sulphuric ether, agitate quietly for two or three minutes then allow it to settle for half-an-hour; draw off the ether and add to it 3j, dilute hydro-chloric acid (M. x to 3j), thoroughly mix, place in an open dish and permit the ether to evaporate spontaneously; apply gentle heat to effect perfect solution of any alkaloid that may be floating on the surface or adherent to the sides of the vessel; let it then cool, the remaining liquid may now be tested for the hydrochlorate of Cocaine by any of the reliable tests for this salt. The following are quite satisfactory.

#### TER. CHLORIDE OF GOLD TEST.

To the solution thus obtained add a few drops solution ter. chloride of gold (Gr. X to 3i); if Cocaine be present a yellow, or yellowish-white, precipitate will at once be formed, which is dissolved by heat, especially in the presence of a little free acid; upon boiling the vapor given off will have the pungent and somewhat acrid though pleasant and characteristic odor of benzoic acid. The mixture can now be divided into two parts. One part is left in a test tube to cool and reprecipitate. To the other add oxalate of ammonia which will throw down the gold; filter and test the filtrate with neutral chloride of iron; a change of color to a deeper shade indicates benzoic acid in small quantities; a flesh colored precipitate indicates the presence of benzoic acid in larger proportions.

The mixture left in the test tube to cool will now have thrown down a yellow precipitate which can be collected and submitted to sublimation when the distinctive odor of benzoic acid will be noted, and the sublimate examined under the microscope for the beautiful feathery crystals of this acid. These tests show the presence or absence of benzoic acid; if present it could only come from the presence of Cocaine in the urine examined.

#### MYERS' REAGENT TEST.

To a portion of the residue left from the ether evaporation add a few drops of this test reagent, a white precipitate will at once be formed, if Cocaine is present, which dissolves by heat, and upon cooling throws down yellow crystals, which under the microscope ( $\frac{1}{2}$  objective) appear as depicted in Fig. I. If there is an excess of the precipitate the undissolved portion will fuse into yellow gummy masses upon boiling. In following out the test with Myers' reagent, should the patient be taking quinine,\* it will first be necessary to precipitate this alkaloid from the

\* (A small portion of the liquid may be tested for quinine by the chlorine water and ammonia test. The absence of the Thalleochein reaction renders the use of picric acid unnecessary.)