

DETECTION OF HYDROCYANIC ACID IN TRACES. By THOS. C. VAN NUYS AND
SHERMAN DAVIS.

The detection of HCN in traces in the presence of hydroferro- and hydroferricyanic acid, according to the method of Otto, is attended with many difficulties. In our laboratory practice we have failed to find it sufficiently delicate and reliable. The distillation at 50, 60, or even at 80 per cent. often fails to drive over the free *hydrocyanic acid*. As a substitute for this method we cheerfully recommend the following method:

I. When a large quantity of organic matter in a *coarse* condition is present, introduce it into a fine-meshed silk seive. Moisten it all over with a 10 per cent. sol. tartaric acid and wash into a 500cc. cylinder, glass stoppered, with distilled water, until the total vol. amounts to 200–250cc. If the organic matter is very finely divided, introduce the substance at once into the cylinder, dilute with water to 200cc. Make acid with a 10 per cent. sol. tartaric acid, add 100cc. ethyl ether, and shake the mixture for some time. Let the ether separate and pipette it off into an evaporating dish. Repeat the process of extracting with the ether, the second, and if necessary, the third time, using smaller quantities of ether. Unite the ether extracts. Render the ether sol. *slightly* alkaline with an alcoholic solution of KOH, stir very thoroughly, and allow the ether to evaporate *spontaneously*. This leaves the trace of hydrocyanic acid in combination with potash, as, a fixed salt. Transfer the residue from the ether extract to a large test tube. The tube should be provided with a stopper with double perforations. Through one pass a *well fitting* glass tube, and terminate it at the under surface of the cork; through the other perforation pass a well fitting glass tube whose lower end is drawn out to a very fine point, and let it extend to the bottom of the test tube. Connect the tube which reaches to the bottom of the test tube with a hydrogen generator. The other and shorter tube is connected with a Liebig's bulb containing 25cc of a mixture of 3 pts. of yellow amononia sulphid and one pt. NH_4OH . Make the ether residue in the test tube acid with tartaric acid. Make the connections as above described, and pass a slow stream of hydrogen through the sol. for 30–45 min. Break the connection after the gas has passed sufficiently long, transfer the am. sulphide sol. to a large watch glass, and allow it to evaporate high over a free flame. By this process the hydrocyanic acid which passes over with the hydrogen gas is transformed into am. sulphocyanate. When the am. sulphide sol. has been completely decomposed by evaporation, take up with distilled water

(10cc), filter through a small filter, if necessary, and test the sol. for am. sulphocyanate with ferric chloride. By this process we have succeeded in finding one part of hydrocyanic acid in 200,000 parts of water and organic matter. The method is especially recommended in cases of toxic analysis, where the ferro and ferri-cyanides may be present.

1.4 DIAMINO-CYCLOHEXANE. By W. A. NOYES AND H. H. BALLARD.

[ABSTRACT.]

The chloride was prepared from succinylosuccinic ester by saponification with sulphuric acid formation of the dioxime, and reduction with sodium and alcohol. Solutions of a mixture of equivalent quantities of the amino-chloride and sodium nitrite evolve on heating nearly two atoms of nitrogen. The same is true of a solution of the amino nitrite, prepared by adding silver nitrite to the amino chloride.

The products of the reaction as deduced from their chloroplatinates are 1.4 amino-hydroxy-cyclohexane and L^3 tetrahydro-aniline.

ON A CASE OF STEREO-ISOMERISM IN THE HYDRAZONES OF BENZOIN. By ALEXANDER SMITH.

Only four or five cases of isomerism have as yet been discovered among the hydrazones. In each case the two isomers are made in a similar manner and possess similar chemical properties, indicating identity in constitution. In each case, however, the isomers may be distinguished by difference in solubility, melting point and stability. The two hydrazones of benzoïn described in this paper are related to each other in the same way, and, therefore, fall into line with the previously described cases.

Both are formed when benzoïn and phenylhydrazine are heated in alcoholic solution, while the β -hydrazone alone is produced when the ingredients are heated without any solvent.

The α -hydrazone melts at 158° - 159° , is very stable in comparison with the other variety, and is only one-fourth as soluble in alcohol.