

precipitate will subside and will change to a white on the addition of a little hydrochloric acid. It discovers the poison in 20,000 parts of water, but, according to Pereira, "the results are not sufficiently striking, and the inexperienced manipulator may fail in getting any evidence of hydrocyanic acid."

4. *Tincture of Guaiacum and Sulphate of Copper*.—When the tincture is added the hydrated resin of guaiacum falls down, and, by the subsequent use of the sulphate, a blue solution is produced. The propriety of considering this a test is, I think, questionable, since the effect of adding tinct guaiacum to any aqueous menstruum is that just mentioned; and the result of adding Co. Tr. guaiacum, which contains ammonia, to copper, is a blue solution. Spt. nitric ether also strikes a blue color with tinct of guaiacum.

5. *Sulpho-Cyanid of Ammonium* when added to a persalt of iron as the muriated tincture, causes a very deep blood red color. This reagent may be prepared by adding a drop of sulphuret of ammonia to a very weak solution of prussic acid, and heating it until it becomes colorless. It was proposed by Liebig in April 1847; is very simple, characteristic, unobjectionable and delicate, succeeding where the protoxid of iron fails; so that Liebig has "done for prussic acid what Reinsch has recently done for arsenic." Mr. Taylor (*Medical Gazette*, April 1847), offers a modification of the above, which consists in preparing the sulpho-cyanid of ammonium by exposing hydro-sulphuret of ammonia to the vapors of prussic acid. The advantages of this latter, "are the avoidance of heat, and the objections to which its employment gives rise, and its applicability to organic substances, even in a state of putrefaction." I may add, that the blood red color above mentioned is quickly removed by a few drops of bichlorid of mercury.

*Procedure for the Detection of Prussic Acid*.—Exclusive of the ordinary observances and precautions that should be enforced at every important sectio-cadaveris, particular attention must be directed to the state of the eyes, lips, face, muscles and general surface, to any odor that can be detected from the mouth, nose, &c., and the cavities immediately after they have been carefully disclosed. The gastric and other veins are to be incised and their contents minutely examined. The state of all the internal viscera, particularly that of the larynx, fauces, œsophagus and intestines is then to be ascertained, but the stomach is the organ to which we are chiefly to look for evidences of the poison; very great care must therefore be observed during its removal, before doing which, it should not be neglected to apply ligatures to its orifices, or, perhaps more correctly, to the lower part of the œsophagus and duodenum as well as to the bile and pancreatic ducts. On opening the stomach the odor is first to be obtained, if present; and, for the sake of certainty, it is advisable that our opinion concerning it be confirmed by the testimony of other witnesses; the contents are then to be preserved as well as the products obtained by washing its cavity with water and alcohol. The fluid portion of these is to be separated by filtration from any insoluble matters, and is finally to be tested. Unless it be colored where it should, as Orfila proposed, be agitated or digested with charcoal and

refiltered before the application of the reagents. If no indication be afforded from the liquid being complicated with organic matters, these are to be isolated by placing the mixture into a retort and distilling 1-8th of it, by the heat of a vapor bath into a receiver kept cold; when it is alkaline, from decomposition, it must first be neutralized by sulphuric acid. If there should be any vomited matters, which is very unlikely, or if any of the poison or liquid in which it was taken remain unswallowed, and be attainable, they are to be treated in the above manner. An objection has been raised to the employment of heat, owing to prussic acid being generated by the decomposition of animal matter. "This," says Dr. Guy, "is a mere conjecture, altogether unsupported by experiment." It has also been contended that hydrochloric acid might pass over and embarrass the results. But this can only occur when the liquid is highly acid, and it is then avoided by neutralizing it by potassa and adding acetic acid before commencing the distillation. Assuming, then, that a clear liquid has been obtained, how should it be tested for prussic acid? The following procedure would be, I conceive, most appropriate and conclusive. Having marked its odor, divide the liquid into two portions, from one of these obtain cyanid of silver. Expose a portion of it to heat and either inflame the escaping gas or convey it into an alkaline solution of the mixed oxides of iron; after the decomposition remove the surplus oxid of iron by sulphuric or hydrochloric acid, and prussian blue will be left. Treat the remaining cyanid of silver in the way recommended by Mr. Austin. Obtain sulpho-cyanid of ammonium from the other portion of the liquid, either by Liebig's or Taylor's method, and add to it a persalt of iron: lastly, remove the blood red color thus caused by bichlorid of mercury. If the liquid originally obtained be in large amount, and smell strongly of prussic acid, all the tests may be applied in the order given in a preceding page. If the results of these procedures be those previously recorded, the evidence of prussic acid in the fluid, is indubitable. But it is from the integral and not from the integrant portion of the analysis that this conclusion must be deduced, as thereby any fallacies which append to the latter are averted.

Before proceeding with the above measures, trial tests may be instituted by dipping strips of white paper in the liquid, and afterwards moistening them with the reagents, or a little of it may be put into the bottom of one watch glass, while that of another is moistened with a strong solution of the test. The concave surfaces of the two are to be brought, vis a vis, and left so for a short time, when, if the acid be present, it will have come in contact with the test and produced the specific change. The volatility of the acid may be accelerated by the application of the flame of a spirit lamp to the convex surface of the glass containing it.

Besides these manipulations with the liquid, the stomach is to be placed in water for some time, and then transferred to a bottle having a wide mouth, over which there is placed a watch glass moistened with nitrate of silver on its concave surface, or that looking to the interior of the bottle. In ten minutes a film of cyanid of silver has frequently formed. After this another glass,