The tellurides of nature act towards gold solutions unlike a chemical compound of gold and tellurium, in that they throw gold out of solution.

It is not infrequent to find specimens of native gold in the same mine with the tellurides. The author has observed yellow or golden incrustations as a superficial coating on natural crystals of calaverite and sylvanite, while immediately under this coating the silver-white telluride was found ; when this white material was brought into contact with gold chloride, metal was obtained.

Professor C. R. Van Hise informs the author that he has seen many beautiful specimens of gold from Cripple Creek which are pseudomorphs after the tellurides, showing both the crystalline form and striations of the original mineral.

2. Thus far the attempts to prepare telluride of gold artificially either in the wet way or the dry way have been unsuccessful.

3. It is possible to extract the tellurium from these minerals, leaving the noble metal as a residue.

CONCLUSIONS.

In view of the facts above ascertained, much doubt seems to be cast as to whether the tellurides are definite chemical compounds. The fact that they all precipitate metallic gold from solution, and lose their tellurium with such reagents as sulphur chloride, are points which are difficult to reconcile with a chemical compound.

The observation that hydrogen telluride in contact with gold solutions instead of forming telluride of gold, acts as a reducing agent, throwing out pure gold, may also be regarded as significant, and as well the fact that the body of inconstant composition containing tellurium and gold, obtained at high temperatures, reduces gold chloride, appears to place the telluride minerals in a very doubtful light as chemical compounds.

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SOME COMPOUNDS OF PYRIDINE.

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WHEN some compounds of the metals with the halogens, in solution of that halogen acid, are brought in contact with the halogen acid compound of pyridine, addition-products are formed of a crystalline structure, the composition varying with the method of preparation.

In view of this fact the author has been able to prepare several compounds of pyridine, the following of which have not been described :

THE COMPOUND $C_5H_5N.SbBr_3.3HBr$.

Pyridine hydrobromide is prepared by adding hydrobromic acid to pyridine, an excess of acid being used to prevent crystallization. As considerable heat is evolved, the vessel containing the hydrobromide is cooled under the tap, and then a solution of antimony bromide in hydrobromic acid is added with caution.

Upon the addition of the acid solution of antimony bromide to the pyridine hydrobromide, there is more evolution of heat and the formation of a yellow crystalline precipitate. This is allowed to stand for a time to insure complete precipitation and then filtered off by means of a suction-pump. For purification the salt is stirred in a vessel with ethyl alcohol (95 per cent.), and again filtered and washed with alcohol until the filtrate contains no traces of free pyridine, antimony or hydrobromic acid.

The antimony was determined as the sulphide and the bromide by titration with decinormal silver nitrate with potassium chromate as an indicator. Pyridine and the hydrogen of the compound were obtained by difference.

An average of several analyses gave :

	Calculated for $C_5H_5N.SbBr_3.3HBr$	Found.
Antimony	17.6	18.5
Bromine	70.3	70.4
Pyridine and hydrogen	12.1	11.1

Properties.—$C_5H_5.N.SbBr_3.3HBr$ is in the form of small yellow crystals. It is soluble in dilute hydrochloric acid, insoluble in ether and benzene ; very slightly soluble in ethyl alcohol and chloroform.

When treated with nitric acid the oxide of antimony is formed; when treated with water a basic hydroxide of antimony is formed, and heating the salt dry decomposes it to the oxide of antimony.

THE COMPOUND $C_5H_5N.SnCl_2.3HCl$.

Preparation.—The process is the same as for the preparation of the antimony salt with the exception of hydrochloric acid, instead of hydrobromic being used as a solvent for the metallic salt and to form the acid halogen salt of pyridine.

The analysis gave:

	Calculated for $C_5H_5N.SnCl_2.3HCl$.	Found.
Tin	28.07	28.5
Chlorine	50.20	50.75
Pyridine and hydrogen	21.73	20.75

Properties. — $C_5H_5N.SnCl_2.3HCl$ crystallizes in small white needle-shaped crystals. It is decomposed by water into a basic hydroxide or oxide of tin, and by nitric acid into the oxide of tin. When heated, the oxide of tin is the decomposition product. It is soluble in dilute hydrochloric acid, insoluble in ether, benzene, and chloroform, and very slightly soluble in 95 per cent. alcohol.

THE COMPOUND $C_5H_5N.MnCl_2.HCl$.

Preparation.—The process is the same as for the preparation of the tin salt. A great deal of care has to be taken in the purification by 95 per cent. alcohol as the compound is quite soluble. The manganese was determined by precipitation with sodium carbonate and was weighed as Mn_3O_4.

The analysis gave:

	Calculated for $C_5H_5N.MnCl_2.HCl$.	Found.
Manganese	22.70	21.57
Chlorine	44.00	44.10
Pyridine and hydrogen	33.30	34.33

Properties.—$C_5H_5N.MnCl_2.HCl$ crystallizes in salmon-colored plates. It is soluble in 95 per cent. alcohol and hydrochloric acid, slightly soluble in ether and insoluble in chloroform. When heated, decomposition takes place with the formation of the oxide of manganese.

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COMMON ERRORS IN THE DETERMINATION OF SILICA.

BY W. F. HILLEBRAND.

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TO some it may seem as if a threadbare subject had been reopened in the above title, and that concerning a determination of such common occurrence in both technical and scientific

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[1] Read at the Philadelphia meeting of the American Chemical Society.