NOTE ON THE PURIFICATION OF GLUCINUM SALTS.[1]

BY EDWARD HART.

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TWENTY years ago I found glucinum in a clay brought to Dr. Drown's private laboratory, in Philadelphia, for analysis. The experience gained then in making the separation from alumina showed clearly that none of the methods then known gave a satisfactory separation. In dissolving the carbonate we found that alumina also dissolves, and that in treating the oxides with solution of ammonium chloride, alumina as well as glucina dissolves.

In beginning the purification of glucina from beryl, which I have undertaken for a more careful study of the metal and its alloys, I determined, if possible, to prepare it in some other way than by the use of the time-honored ammonium carbonate method which, besides giving a material of doubtful purity, is expensive and tedious. Such a method has been found based on the properties of the mixed sulphates from beryl, and which seems not to have been used for this purpose. Perhaps it will be best to describe the method now used in full, without describing the failures through which the work passed.

The powdered beryl is first fused with mixed carbonates and then ground and washed with water. The powdered mass is then mixed with sulphuric acid and evaporated to make the silica insoluble. The sulphate solution obtained from this material is evaporated and treated with an excess of potassium sulphate. Alum crystallizes out and is purified by recrystallization. The mother-liquor contains the glucinum along with the iron and alkaline sulphates. Potassium chlorate is added in excess, and the solution heated to peroxidize the iron. Sodium carbonate solution is now added, little by little, the solution being boiled after each addition until a filtered sample shows no yellow color. The whole solution is then filtered, and the glucinum which will be contained in the filtrate is precipitated by further addition of sodium carbonate.

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[1] Read at the Boston Meeting, December 28, 1894.

The method, of course, depends upon the fact that it is impossible to throw down the glucinum until the greater part of the acid has been saturated, the glucinum remaining in solution as basic sulphate. Iron and aluminum, on the contrary, are easily separated. Some care is needed in order to get rid of the last trace of iron, which persistently remains in solution until the point at which the precipitation of glucinum begins is almost reached.

A sample prepared in this way was perfectly soluble in hydrochloric acid, gave no reaction for iron with potassium ferrocyanide, was completely soluble in an excess of ammonium carbonate and caustic potash. The ammonium carbonate solution gave no precipitate on the addition of ammonium oxalate. The method is exceedingly simple, convenient and cheap, and leaves nothing to be desired.

THE COMPOSITION OF THE TUBERCULOSIS AND GLANDERS BACILLI.

BY E. A. DE SCHWEINITZ AND MARION DORSET.

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WHILE many examinations of the products of bacilli have been made during the past years comparatively little attention has been paid to a comparison of the proximate and ultimate analyses of the germs themselves that are morphologically different, and produce different pathological changes.

Cramer[1] gives the results and analyses of cholera germs from different sources, and concludes that upon easily assimilable media the composition of the bodies of the same germ from different sources, and which vary in virulence, is about the same. Where, however, the media supply food that is but difficultly assimilable the composition of the bodies of the germs will vary. The comparison which he makes between these and several other species shows a variation which indicates a distinct and characteristic composition for each germ.

We have had occasion to collect large quantities of the tuberculosis and glanders bacilli, and have submitted the germs, grown both on the ordinary glycerol beef broth and on artificial

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[1] *Arch. f. Hygiene*, 16.