Analysis of silver part:

	Ag	Hg	Sb	Argentite Insol.	S	Total
Per cent.	90.54	3.08	.79	5.50	trace	99.91

The arsenate sample could not be dried at 100° C. as it loses water, at first rapidly, then slowly, but continuously at that temperature. One gram, heated for a half day at 100° C. lost 1.87 per cent.; one gram heated another half day, .22 per cent.; one gram heated another half day, .11 per cent. After allowing this dried sample to stand in the open for three days it had regained its original weight. In order to secure uniform sampling, the material, without previous heating, was all weighed out at one time into gram quantities and kept in clamped watch-glasses till required.

The duplicate analysis of the arsenate part gave closely concordant results, but there is some uncertainty as to the way in which some of the actual analytical results should be recalculated, and certain assumptions have been made which may not be altogether justifiable. For example, the total antimony found has been divided into two portions as Sb, and Sb_2O_5. The amount of antimony found in the silver part has been tabulated as such in the arsenate part, assuming it to be in the form of dyscrasite, but it is not improbable that the silver which was mixed with the arsenates was richer in antimony than the coarser, more ductile sample analyzed as part 2, and, therefore, a larger proportion of the total antimony should really be deducted to make dyscrasite. An attempt was made to analyze the silver mixed with the arsenates by extracting the arsenates with dilute hydrochloric acid, but the silver was in such a finely divided condition that even the dilute acid changed it almost completely to the chloride while mercury and antimony passed into solution. A titration with permanganate of a sulphuric acid solution of the arsenates made in an atmosphere of carbon dioxide gave almost exactly the same results for iron as the gravimetric determination. Carbon dioxide is believed to be present in much smaller amount than would be required to combine with the CaO and MgO found. The single carbon dioxide determination on about 2 grams of material could not be expected to give results of great accuracy, but the quantity found confirms the suspicion that the lime and magnesia are not present entirely as carbonates. When the material is treated in a small test-tube with strong hydrochloric acid, a slight evolution of gas can be detected with a hand lens, but would not be noticed by the naked eye. In fact, the presence of carbonates was not suspected until analysis revealed calcium and magnesium in the mixture. Calcium and magnesium are often found in considerable quantity in the arsenates of this series and no doubt in this case, also, are chiefly in the form of arsenates.

Mineral Constituents.—From the foregoing chemical data the mineral composition of the mixture has been calculated as indicated in the table. All the sulphur is combined with silver to form argentite. Mercury and the amount of antimony found in the silver part (2) are associated with the rest of the silver as dyerasite and amalgam. It may be noted that the amount of mercury relative to silver is