

quantity at the same time. The structures observed appear to indicate that the mineralizing solutions at first were relatively very rich in arsenic and during this time intergrowths of diarsenides-smaltite and chloanthite—were chiefly precipitated. The arsenic content of the solutions gradually diminished and monarsenides-nickolite and breithauptite—were for a time predominately deposited. The arsenic continued to decrease in amount and sulphur became prominent, so that sulpharsenides, such as cobaltite and arsenopyrite, were deposited. Finally, the arsenic in solution was reduced to a very small quantity, and calcite was deposited. A period of fracturing ensued and the solution which may now have been of either a sulphate or carbonate character circulated through the fractured veins. From this solution native silver and argentite were precipitated by the action of arsenides and calcite, resulting in such silver replacement structures as we have seen (Fig. 30).

It is believed that the process of deposition of the various arsenides and sulpharsenides was more or less continuous, and that, though a period of maximum deposition for any one of these minerals may be distinguished, there is, nevertheless, no sharp dividing line between the different periods.

The apparent order of deposition from the writer's observations may be indicated in tabular form as follows:

I. Arsenides and Sulpharsenides	{	1. Diarsenides	{	NiAs ₂
		2. Monarsenides	{	CoAs ₂
		3. Sulpharsenides	{	NiSb
			{	NiAs
			{	CoAsS
			{	FeAsS

II. Calcite, followed by fracturing.

III. Native silver and argentite, native bismuth, sulphides and sulpho-salts.

IV. Decomposition products—arsenates of cobalt, nickel, iron, copper, and calcium.

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