

Examination of polished surfaces etched by acid (Fig. 22) indicates that certain parts are more readily attacked than others, and that the material is far from homogeneous. After a rather severe etching one set of fibres stands in sufficient relief to be repolished by lightly rubbing on fine emery paper, while another constituent is so deeply corroded that it is not affected by moderate rubbing. In fact, three different minerals can be distinguished with certainty, and there are indications of a fourth. The two most important constituents, as will be seen from the analysis, are löllingite (FeAs_2) and cobalt diarsenide. The latter, because of the high specific gravity and the fibrous character of the intergrowth, is probably the rhombic form, safflorite. The arsenopyrite previously noted seems to be most abundant toward the outer portions of the growths.



Fig. 22. Löllingite surface strongly etched, showing three constituents. Two are bright and stand in relief. The third is deeply etched and appears black in the picture. ($\times 50$).

Analysis—At first only a small sample of about two grams was selected which yielded the following results:

	Fe	Co	Cu	As	S	Sb	Ni	Total
Per cent.	22.18	5.62	.41	70.84	.82	trace	absent	99.87
Mol. Ratio	.3972	.0979	.0064	.9448	.0256	....	....	....
Arsenopyrite Fe As S	.0256	....	....	.0256	.0256	....	....	....
Safflorite Co As ₂	....	.0979	....	.1958	....	....	....	....
Löllingite Fe As ₂	.3647	....	....	.7234	....	....	....	....
Excess	.0099	....	....	....	....	....	....	....

For convenience, the calculations have been made on the assumption that löllingite, safflorite and arsenopyrite of theoretical composition are present. The sulphur has all been calculated as arsenopyrite, but, as will be seen later, there is reason to believe that some of it should be assigned to the copper.