

anything but an inviting prospect, as I have found by past experience the utter absurdity of trying to cram scientific matter down unscientific throats. Unfortunately various constructions may be put upon the term "semi-technical," and that which might be so regarded by the professional man, would appear in all probability very much technical to the average reader. However, ignoring difficulties by interpreting the term in the most likely sense in which our editor employs it, I should like to say a few words on the ever-recurring subject of the Kootenay silver deposits, but before commencing let me ask those whose knowledge is far in advance of these remarks to kindly bow to the wishes of the less enlightened majority, as I wish to explain in the simplest language at my command a few of the fundamental truths in connection with the mineralogy of silver as exemplified in this district.

SLOCAN "A SILVER CAMP."

Whatever subsequent developments may disclose, there is no gainsaying the fact that at the present time and from the dawn of active mining operations in Kootenay, silver has held first place among the metals in value of yearly production, despite the comparatively small amount of capital invested in this branch of the industry. The subject will therefore be of interest not only to the prospector who ought to profit directly by increased technical knowledge, but also to all having the welfare of the country at heart; bearing in mind the invitation which we have extended to anybody and everybody to come to Kootenay and investigate for themselves. There can be little doubt that anyone doing this conscientiously will go home convinced, like the Queen of Sheba, that the half has not been told them concerning its richness.

The Slocan, as everybody knows, is referred to comprehensively as a silver camp, in contradistinction to the well-known gold-bearing quality of that other famous West Kootenay mining centre, Trail Creek. In reality gold ores are becoming increasingly evident in the former, more especially in connection with the large granite area at the lower end of the lake, while in many cases silver occurs in appreciable and even paying quantities in the mines near Rossland.

It is worthy of note at the start that in this country as in others, mining for silver is not carried on as an industry by itself, by which I mean that it is so combined, or perhaps I ought to say associated in nature with other economic and commercially valuable minerals which constitute the bulk of the ore mined, that in percentage if not in actual value it plays a very insignificant part and subordinate role.

Although mining operations in the Slocan are admittedly carried on primarily for the production of silver, it is true nevertheless that fully ninety per cent. of that obtained is derived from galena or the products of its decomposition. Now pure galena as we are all aware is a sulphide of lead, therefore, properly speaking these would be termed lead mines by the mineralogist, the silver being present merely as an accessory, the extraction of which may be conveniently relegated to the region of by-products.

To observe more fully the relation existing between bulk and value, we will instance the case of a very common ore assaying, say seventy per cent. lead and a hundred ounces in silver to the ton. The latter will, of course, exceed the lead in value, yet a hundred ounces to the ton is equivalent to merely one-third per cent. of the whole or less than one-half per cent. of the lead. The commercial man may possibly retort that this is of small moment so long as we know that the value is there in some form or other; quite true, but it must be borne in mind when we come to the consideration of the condition in which the silver exists in these ores.



YUKON—FORT CONSTANTINE.

To the chemist and mineralogist the presence of sulphur in combination with the lead naturally suggests a similar association with the silver and such indeed invariably proves to be the case to some extent, particularly in those of low grade. In the Slocan, however, where the ores average a hundred and often exceed three and four hundred ounces to the ton, other causes which we shall have occasion to refer to later on must be reckoned with.

CHARACTERISTICS OF THE ARGENTIFEROUS GALENAS.

When the entire silver value of an ore is in the form of a sulphide it is most frequently so intimately associated with the lead that it is impossible to separate the two bodies by mechanical means and they are clearly identical in origin. Sometimes, however, the silver is found deposited in thin layers between the faces of the individual crystals, no matter how small they may be, and in galenas exhibiting a distinctly cubular structure the interstices caused by the natural cleavage planes are also similarly filled. Assuming this to be correct, we should expect to find the well developed varieties of a higher grade than those of finer grain, and locally this is undeniably so. We must not, however, lose sight of the fact that the presence of receptacles for the rich mineral to be deposited in is not by any means synonymous with having it deposited there, and it is frequently the case that finer grained ores more favourably situated with regard to circulating mineral solutions will eventually become of higher grade than those which are phys-