

## EXTRACTS FROM "SUMMARY REPORT OF THE GEOLOGICAL SURVEY DEPARTMENT FOR THE YEAR 1892."

Of the work of the division of mineral statistics and mines under his charge, Mr. E. D. Ingall gives the following particulars:—

"From the date of the last summary, 31st December, 1891, the office work of the division has been carried out as usual, the time of the staff being occupied in collecting and compiling the statistics of mineral production and general information regarding the mineral resources and mining operations and discovery, as well as in answering inquiries for such information and office routine.

"Mr. White's time was occupied in the office in plotting the field notes of his survey of the Kingston and Pembroke Railway mineral district, and in the compilation of the same. He was also engaged in revising proofs of maps, and in other work in connection with the investigation of the phosphate district of Ottawa county, Que.

"During the summer season the field work prosecuted was as follows:—

"My own time was occupied from the middle of July until my return in the middle of November, in an examination of the new and important discoveries in the mining district of West Kootenay, British Columbia. In returning, the following visits were made, viz., to the cinnabar deposit near Kamloops Lake; to Nelson and Vernon, B. C.; to the coal mines of Canmore, Anthracite and Lethbridge; and to Rat Portage, Ont., for the purpose of collecting general information regarding mining developments, and in connection with the organization of the work of the division."

"Mr. Brumell made a tour for the purpose of collecting general information regarding mining developments and discovery in Nova Scotia, New Brunswick, Quebec and Ontario."

"Mr. White was engaged in finishing the surveys for the before mentioned map, and incidentally in collecting statistics and general mining information."

"It may not be amiss to summarize the conclusions arrived at as a result of the studies prosecuted in the new mining camps of West Kootenay."

"As it was of course impossible to properly examine all the mineral deposits known to exist in any of these districts in the time at disposal, selections were made which should, as far as possible, be illustrative of the different districts and varieties of deposits. The local features of these, as far as exposed by the developments made, were carefully studied and illustrative specimens for the museum were collected, together with samples for assay. In the camps tributary to Illecillewaet, on the Canadian Pacific Railway, visits were made to the older claims in the immediate vicinity of that place as well as to the newer discoveries in the Fish River valley and around Copper Hill. These comprise the following claims, viz.:—The Lanark, Maple Leaf, Isabella, Bluebell, Jumbo, Sanquhar and Cariboo, near Illecillewaet and the Gold Hill and Copper Hill group of claims. In the Fish River valley the chief points examined were the Elizabeth, Edinburgh, King Solomon, Herringback and Fishburn claims.

"In the Illecillewaet district proper, beyond some prospecting and assessment work little was being done at the time of my visit; but development work was being conducted by Messrs. Ryckman, M. P., and Scott, and by Messrs. Fishburn & Co., in the Fish River valley. The general description of the Slocan veins given below will serve equally for those of the Illecillewaet and tributary districts.

"The Slocan district on the west side of Kootenay Lake was visited during September and October.

"These new discoveries made in the fall of 1891 and spring of 1892, are situated about the headwaters of the Kaslo River, and between there and Kaslo City on the west shore of Kootenay Lake. A number of discoveries were made later in the year on the shores of Slocan Lake between the Columbia River and Kootenay Lake. These could not, however, be visited, owing to lack of time; and for the same reason it was found impossible to visit other discoveries in the Lardo River country and at various other points in the valleys of the Lower Kootenay and Columbia Rivers about which very glowing accounts came to hand.

"Kaslo was reached in the beginning of September, and after all necessary arrangements were made the trail up the valley of the Kaslo River was followed to Bear Lake, on the divide between that valley and the watershed of Slocan Lake and River, and trips were here made to the various groups of claims distributed along the route."

"Bear Lake was reached on the 19th of September, and an attempt made to reach the important group of mines on the surrounding mountains, but this purpose had to be temporarily abandoned, owing to the early advent of snow which effectually hid everything at that elevation. Whilst waiting for the melting of the snow, a short examination was made of the Ainsworth Camp for the purpose of comparing the conditions there with those of the Kaslo-Slocan camps, and thus connecting the work with that done by Dr. G. M. Dawson in 1890.

"The snow having melted sufficiently, the examination of the Kaslo-Slocan group was continued, and most of the chief discoveries were visited. The return of the snow on the 10th of October, however, again prevented the study of the surface showings at Bonanza King Claim, of which nothing could be seen but the tunnel. This was much to be regretted as it was the chief claim in the Noble Five Group, the discovery of which has led to the rush to the district, and indirectly to all subsequent discoveries. It was, however, yet found possible to see the Freddy Lee and Slocan Star mines on Carpenter Creek, owing to their being on a slightly lower level.

"In returning it was intended to visit the Wellington and White Water claims, but the snow having reached the lower levels, no further work could be attempted, and the return to Kaslo was made on the 15th of October.

"Much hopeful activity in the direction of prospecting and develop-

ment work was manifest in this district, and not without foundation, high hopes were prevalent regarding its future.

"Towns were started at Nakusp and New Denver on the proposed wagon route for providing the Slocan claims with an outlet via the Columbia River line of Steamers and also to Kaslo which is the terminus of the now completed wagon road, connecting with the Kootenay Lake steamers, by which ore can be shipped to the smelting works in process of construction at Pilot Bay or to any point in the United States via Bonner's Ferry on the Northern Pacific Railway.

"In a preliminary report such as this it would be impossible to give the results of these investigations, other than in very general terms, and all the detail of the evidence upon which these conclusions are based will be left for the complete report that it is intended to issue later.

"However, of the geological conditions of occurrence of the deposits visited and of their visible extent, etc., the main features are given below.

"Proceeding west from Kaslo, the rocks noticed seemed to belong to two distinct series. A belt of green dioritic schistose and serpentinous rocks, following west north-west along the northern side of the valley of the Kaslo River, whilst south of these rocks are for the most part black shales and slates with gray interbedded bands, which evidently consist for the most part of carbonate of lime. The general dark color of this series of rocks, varying from dark gray to black, would seem to be due to the presence of carbonaceous matter, and is in striking contrast both in color and structure, with the general green color and more metamorphic characters of the adjacent rocks to the north. The black shaly series are tilted, in places much folded, and also at times indurated. They frequently show local metamorphism, which latter phenomena will probably be found in all places, as it evidently is in some, to be due to the action of the intrusive igneous rocks which are visible as dikes and masses or areas, cutting both the before mentioned series.

"The veins examined show in general the characters of fissures cutting the formation, although sometimes conforming along the strike with the enclosing rocks for considerable distances. When occurring in connection with the calcareous bands of rock, there would seem to be a tendency to make large pockets in connection with the vein or towards widenings of the vein itself. Strippings on some of these present surfaces of considerable extent, which, however, on further development have proved not to belong to the veins proper, which, whilst generally found to be more persistent, are generally comparatively much narrower.

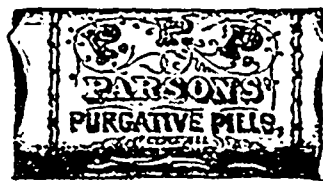
"Although they show variations in structure these fissures in general carry galena in ribs, nodules, etc., associated with an ochrey gangue locally termed carbonates. This ochrey material is said to assay well in silver in many instances, it being doubtless enriched by the presence of more or less argentiferous carbonate of lead, or, as was plainly visible in some cases, by the presence of disseminated native silver and argentite, doubtless resulting as secondary products from the alteration of the argentiferous galena.

"The galena varies much in texture from a fine blue ore of a steely grain up to coarse cube and sometimes shows a ribbed structure. With it in many cases are associated various arsenical and antimonial minerals of silver disseminated through the ore proper. The occasional presence of a certain amount of copper is evidenced by the stains of malachite and azurite, which probably originate from the weathering of the tetra hedrite as well as from copper sulphurets, which occur in slight degree. The general run of the reported assays of specimens from the district is high, averaging in the hundreds of dollars, and occasionally even reaching to the thousands, the latter results being quite possible for separate specimens when the presence of the richer silver minerals is borne in mind. At one mine which has made considerable shipments, it is claimed that these have averaged \$200 per ton, and the conclusions based on the general evidence obtainable would seem to justify the expectation that the yield of the district will be found to average high in silver.

(Continued on page 16.)

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