

more general satisfaction if men could be engaged to carefully examine the different claims for roads and trails and applications for water rights, and then to choose and lay out such as would be of service to the greatest number, and open the most country; such men to be familiar with this work and able to locate such lines of trails as would benefit the greatest number of mining claims, be suitable for the transport down of ore, and be extended as further claims are proved up. The present agents have done good work, but they are unable with so much other work demanding constant attention, to give that personal oversight necessary. It may happen that by special representation a trail may be built to a single group of claims, while another district that would be much more benefited by the opening of a wider field, would be denied, or the trail or road would not be built to serve as a main outlet, but be deflected to favor some particular property, instead of being located so that many more claims could easily connect with it by other trails.

MONEY WELL SPENT.

"Well directed assistance in this line is money well spent, as the more accessible this country is made the more rapid will be its certain development, as not only are the prospectors and miners better able to reach their finds, and to spend the slight capital many can command in actual work on their claims, adding materially to their value if such work shows up favorably, but investors and men with capital able to move quickly and thoroughly develop these locations can reach and examine properties more expeditiously and with less difficulty. Now that special interest is aroused and capital is here seeking investment, the more the country is opened up the more rapid and substantial will be the advance."

RAILWAY FACILITIES.

While on the subject of transportation and communication, Mr. Carlyle touches on the demand for more railways facilities, and goes on to say:—

"The ultimate benefit to our country and province of some new lines now projected, and their own financial success, are in the judgment of many acquainted with conditions, assured. These new lines, while having engineering difficulties to overcome, should open up a large part of the southern part of British Columbia now lying practically dormant, and make possible not only the development of resources now almost inaccessible and valueless, but known to exist, and the easy assembling at large smelting centres, of the different classes of ores and fuels, but also the fostering of a large demand for agricultural produce, for which no better market can be found than in these mining centres. For the agriculturist or rancher there can be no better market than will be found in these mining centres, where there is a large consumption of all they can produce, and where the best is demanded and readily paid for. With good railroad facilities the coast will be a very favorable point for large smelting works, where can be assembled the different classes of inter-fluxing ores, iron and lime fluxes, and the coke, now being made at the Union colliers at Comox, on Vancouver Island, which large and prosperous smelting works demand; and moreover, the refined products, base, bullion and matte, by reason of the very low ocean freights, will be able to enter the other markets of the world, without paying the excessive duties now imposed when shipped across the line to the south. England is the largest buyer of foreign lead, and much of this metal is imported into China, Japan, and other Asiatic ports, and Australia is exporting her desilverized lead to all of these buyers."

HOW THE VEINS RUN.

The report deals briefly with the geological formations and then gives a more particular description of the ore and ore deposits of the three districts, describing each of the many mines visited and the work that has been done on them. In the Slocan, while most of the veins are narrow, varying from two and three inches to 15 and 20 inches, with occasional widenings to three or four feet of solid ore, the richness of the ores compensates for this as shown by actual smelter returns of the ore. A number of these examples are given as: Slocan Star 80 to 95 ounces silver per ton, and 70 to 75 per cent. lead, Reco, 83 to 730 ounces silver, 19 to 67 per cent., lead; Two Friends, 248 to 380 ounces silver, 38 to 52 per cent., lead; and many others. Mr. Carlyle advises that it might be well to be on the lookout for gold in the Slocan, remembering the good values found in the galena ores of the Monitor mine, which yield from \$2 to \$14 per ton in gold. Referring to individual mines in the Slocan, it is stated that the Slocan Star has not only paid a larger amount of dividends (\$300,000) than any other mine in the Province, apart from coal or placer mines, but it is the largest silver-lead mine yet developed in the Province.

"From the rival towns of Slocan City and Brandon at the foot of the lake, trails lead off to the country drained by Ten Mile, Springer and Lemon creeks, and in this part of the district many locations have been made, some on galena veins, but many others on 'dry ore' veins, and the gold-bearing quartz leads, all in the granite. Much prospecting was being done and considerable development work; but as many investors have recently been securing bonds and options on many locations, the coming season promises much greater activity and certainly the careful attention of mining men is warranted by the very favorable results already attained by the as yet very small amount of work. Twenty miles south of Nakusp, Cariboo Creek, on the east side of the river, flows into the Columbia at a small settlement, Burton City. A trail leads thence through an area of granite six miles to the junction of Mineral Creek, at a point known as Mineral City, and thence trails lead farther on up Cariboo Creek, crossing over to Snow Creek, and also up both sides of Mineral Creek, one crossing over the divide to Blue Grouse Creek. Most of the area is the regular Slocan granite, but isolated areas of stratified rocks as slate, etc., can be seen, especially up Mineral Creek. A number of properties are reported to have been sold during the past season, and much more work will be done this year to prospect many of the claims now located."

NELSON DISTRICT.

A description of the Nelson mining district comes next, with a reference to the Hall mines smelter, which smelted from Jan. 14, 1896, to Jan. 1, 1897, 60,262,405 pounds of ore, or 30,131 tons, and produced 632,060 ounces of silver, 587.1 ounces of gold and 2,262,921 pounds of copper.

AINSWORTH DISTRICT.

In the Ainsworth district it is noted that "the tide of prospectors is spreading over this district, and from the territory at the north end of Kootenay Lake, along the Lardo and Duncan rivers and their tributaries, and from Crawford and Hooker creeks and White Grouse Mountain, back from the east shores of the lake, come reports of locations of veins of high grade ore, while at Ainsworth itself new properties are being found and opened up. By the way, it will be seen that this district embraces a wide territory, and that in reality but a small part of it has become familiar to the prospector or explorer. With large smelting plants in British Columbia, the demand will vastly in-

crease for dry ores, or ore carrying a small or no percentage of lead to mix with the galena ores; and such dry ores as are found at Ainsworth will be in special demand and command favorable smelting rates when shipped in bulk, i.e., not sacked, and there will be yet shipped large quantities of low grade ore now not very profitable."

The report covers altogether 100 pages, and gives much information not only of the districts, but of the individual mines, and just the sort of information, too, that is needed to give a proper idea of the districts visited.

PETROLEUM AND OZOKERITE FIELDS IN RUSSIA.

ACCORDING to a recent German writer, says the *Paint, Oil and Drug Review*, which we quote, (giving the centigrade figures in Fahrenheit equivalents), petroleum and ozokerite have been for many years known to exist in the island of Cheleken, which is situated in the south-easterly part of the Caspian Sea, being separated from the mainland by a narrow channel, and having an area of 700 square miles. The oil is forced to the surface by numerous springs of hot sulphur water (102° Fahr.) and accumulates in wells dug by the Turcomans. Long before European prospectors set foot upon the island, the natives were engaged in the production of oil and ozokerite. The ozokerite was separated from the rock by melting and sold in the market of Baku. The oil was skimmed off the surface of the water, placed in leather bags, and taken in skiffs to Asterabad in Persia.

It is estimated that the quantity of oil produced by the Turcomans during 1860-1880 amounted to 100,000 pounds, or about 12,000 barrels. In 1876 the first attempt in the direction of a rational exploitation was made by T. Palankowski, a well-known oil operator of Baku. The attempt, however, did not result successfully, because the upper sands were almost exhausted by the digging of the Turcomans. The operations commenced by Nobel Brothers, in 1881, were also stopped after a short time, partly because of the lack of labor, as the Turcomans refused to work; partly on account of the intention at that time to concentrate the production and manufacture of petroleum on the Aspheron peninsula. This field was then forgotten, until quite recently the attention of prospectors has been called again to the island, especially by the authorities of the Trans-Caspian territory, who were looking for a cheap liquid fuel for the Trans-Caspian Railway, and caused the resumption of operations on the island, which were accompanied by favorable results. The firm of Nobel Brothers has now resumed operations.

Analytical tests made in the laboratory of the Technical Committee of Baku have shown that the crude oil of Cheleken Island possesses very peculiar properties. It is of thick consistency at 9° Cent. (48.° 2 F.) like salve, and becomes solid at a little below 0° Cent. (32° F.). Its water content is hard to eliminate, and this circumstance proves an obstacle in distillation. Its specific gravity at 15° Cent. (59° F.) is 8.868, the flashing point 51.° 5 Cent. (124.° 7 F.) The residue possesses, at ordinary temperature, 22.° 5 Cent. (72.° 5 F.) the consistency of salve or jelly, a specific gravity of 0.900, and can be worked up directly to vaseline. Another characteristic of this oil is its high content of paraffin, amounting to 5.5 per cent., which, after being refined, furnished about 3 per cent. of white amorphous paraffin wax.

For advertising boilers, engines and all kinds of machinery and supplies needed in mines, the Canadian Miner is a medium surpassed by no other, for it reaches the managers of Canadian mines.