

flow just as happens when an artesian well is bored, the force and continuity of which depend upon the pressure behind. Another thing which appears to be demonstrated in some fields is that an uplift or arch of the rock is a necessary condition of a reservoir; and in fields where there is no indication of an uplift as shown by the borings, a dip or incline of the rock appears to be a necessity. So good an authority as Prof. Lesley scouts the arch or anticlinal theory, and in one of his reports he goes so far as to say that the "popular notion that petroleum wells are dependent upon anticlinals, faults, or other disturbances, is a pure fancy of the imagination. Yet it has been conclusively shown by Orton and others, at least in Ohio, that every occurrence of gas and oil is in an anticlinal fold or uplift; and even in Pennsylvania the records of borings go to show that the best producing wells are in regions in which the sand rock has a sensible dip, in some cases as much as twenty feet to the mile. A serious rock disturbance, resulting in fracture or faulting would no doubt lead to the escape of oil or gas which may have been previously stored up; but between such a disturbance and one which produced only a moderate uplift or arch without fracture, there is wide difference. An arched rock or a rock having a long dip is certainly favorable to the storing of gas and oil, especially when it is overlaid by a thick bed of shale or other impervious covering; and these conditions appear to exist in some form in every oil-producing district where careful records of borings have been kept.

Thirty years ago, however, oil-well drillers went on the Cornish miners' theory of the occurrence of gold, viz., "where it is, there it is," and borings were made regardless of any horizons, or inclines, or arches. In the Bothwell field this was notably the case, and hundreds of wells were bored in barren ground which did not give a sign of oil, but which gave the bitter water abundantly. Even in the producing field many wells were sunk down through the oil rocks into the salt water bed. In many cases this probably happened because the driller had a good contract of a rate per foot, and there are said to be instances of the oil flow being cased off so that the drilling might go on. A serious consequence of this practice was the flooding of the oil-bearing rock with salt water, which imposed an enormous labor and cost of pumping before the oil, that had been driven back by the pressure, could re-enter the well. Particularly was this the case when the pumps had been idle over the Sunday, and old operators remember that it took from one to three days, according to the situation of a well, before the regular maximum flow of oil had been regained. And, at last, when the Fenian invasion of 1866 led many American operators to flee the country, and most of the wells were left idle, the whole territory became flooded, and before operations were resumed the great strikes of oil in the Petrolea field caused such a slump in price that no owner of a well on the Thames river would dream of starting his pumps again.

But in Petrolea, now, the average daily production of the wells is less than one barrel per day, and the improved market of last year led some enterprising men to re-prospect the Bothwell field. They were successful: a few wells were bored which have yielded twenty to fifty barrels per day; and a careful study of records has shown the existence of a clearly defined arch of oil-bearing rock within the limits of which producing wells may be got at any point. The course of this arch appears to be about due east and west, and while its width is only about half-a-mile, its length is at least five miles, and it may be much more.

The modern driller, too, knows that he must avoid tapping the salt water, and if by mistake he chances to do so he knows that self-interest requires him as speedily as possible to stop the flow. Experience has taught him, too, that there may be one or more parallel uplifts or reservoirs of oil, and he will be encouraged to thoroughly explore the region. An article so valuable as petroleum, yielding so many products useful in the arts, is worth prospecting for, and much has already been gained by prospecting intelligently.

SOMETHING ABOUT ROSSLAND.

PERHAPS most of those who invest in Rossland mines have but a very vague idea of where the famous gold field which originated the town is situated. We therefore give with some abbreviation, a few details about Rossland, from a recent issue of the *Rossland Daily Record*. The *Record* says:

Rossland is situated in British Columbia, eight miles from the international boundary line between Canada and the United States. It is reached from the north via the Canadian Pacific Railway to Arrowhead, on the Columbia River, from there to Trail by steamer and from Trail to Rossland by the Columbia and Western Railway; and from the south, via Spokane, Washington, by the Spokane Falls and Northern to Northport, and from there to Trail by steamer.

Rossland has thirty hotels, with bars, eating and lodging-rooms, and half a dozen restaurants; and all are well patronized.

There are four weekly newspapers and one daily—the *Record*. All other branches of business are well represented. The population is variously estimated at from 5,000 to 6,000.

Board and lodging at the hotels, \$2 to \$3 per day. Meals, twenty-five and fifty cents. Furnished rooms, \$3.50 to \$7 per week.

While there is not work for all who enquire, most sober, industrious persons who really wish to work have, so far, been able to obtain it.

We would not advise any man to land here "broke," without friends, although many who have done so are doing well.

The populace is engaged not only in working the mines and conducting the business of the town, but are buying, or bonding, or developing mining property; buying and selling real estate; building houses for rental purposes; prospecting and staking prospectors. Many are here simply looking on in wonderment. We believe it will go on and on until Rossland can boast a population of 50,000. After that it will probably settle down to the proposition of a pay roll, but not for four or five years.

There are millions of money from all sections of the globe, but the principal investors are from the United States, with Canada largely interested.

The town has an enviable reputation for law and order. It is supplied with water works and electric lights. The main street is graded, and ten blocks are built up with two and three-story business houses.

The *Canadian Miner* has the largest circulation of any mining paper in Canada, and it reaches miners and investors with unequalled directness and completeness.

Analytical chemists, mining engineers, practical mining men, blacksmiths, carpenters and all others useful around a mine, can by using our advertising columns, reach directly the managers of Canadian mines. Two cents per word is the cost of advertising for positions. Four consecutive figures or less are counted as one word.

PARRY SOUND MINING.

PARRY SOUND district is looming up as a mining country. It has been generally supposed to be Laurentian, but experts find appearances that suggest that Huronian rocks occupy at least portions of the district. Gold, it is said, is found on the Robert Leaks property. The McGown property, which has for some time been known to show good indications, has been taken over by a company organized at the court house in Parry Sound the other day, with Judge McCurry as president, Capt. Macfarlane as secretary, and Wm. Beattie, and other well-known Parry Sound citizens, as stockholders. The company is known as the McGown Gold Mining Company. The McGown property is about two miles east of the town. It is the intention of the company to take out the ore and see if the Ontario Government would not put in a plant at Toronto for separating the metal, or, to consider if it would be advisable to put in a plant at Parry Sound, which would be sufficient to deal with the large mineral deposits in this and other mines in the district.

John Gardiner is reported to have found gold in the rocks behind Gibraltar, on Mill Lake, about a mile and a half north of Parry Sound. The quartz contains gold and copper, and there is also iron on the ridge. Mica, some of it of good quality, is also one of the products of the district. Around Waubanick, in Ferguson township, Henry Harris has for some time been mining this mineral and, it is said, with considerable profit. The Land property, too, is said to yield mica.

The Valentine Mica Mining Company, of Toronto, says the *North Star*, of Parry Sound, has purchased an interest in the Boyne River gold mine, owned by Joseph Dwyer and Frank Lafex. The company will commence operations about June 1st.

J. O'Neil, Sudbury, commenced operations on Thos. Wilcox's gold mine at Canoe Lake, in Parry Sound, about the middle of December.

A GREAT MINE OF GRAPHITE.

THE Ontario Graphite Company, of Ottawa, have just completed their works for treating graphite ore and expect to commence operations early this year. The company's mine is situated on the south side of White Fish Lake, in the township of Brougham, Renfrew county, and about twenty-five miles south of the town of Renfrew. The vein extends under the lake north-eastward, and has a width of twenty to twenty-five feet. South-westward it has been explored for a distance of about 1,500 feet by pits in the drift, but its length is not yet known. It is, however, one of the largest deposits in the world, and the quality is excellent, much of it running from sixty to eighty per cent. The vein occurs in crystalline limestone and the walls are clearly defined. Samples of the ore sent to Germany have been made up into lead pencils, which are pronounced fully equal to the best made from Bohemian graphite. It is the intention of the company to produce three or four brands, including flake graphite for crucibles and the powdered for stove polish and pencil stock. The plant has been constructed under the direction of Mr. Cirkel, a graduate of one of the German mining schools, and it embraces the best features of the largest mill plants in Germany.

The *Canadian Miner* will help you to make money. A showing is made of the mining industries of the country every week, and the really important mining events recorded, rather than the unimportant, or rumors circulated for selfish purposes.