

In the beds immediately under the mass of the mountain little crumpling could take place, and the beds must have slid bodily or in sections at different planes. In the beds at a distance from the overlying mass some relief could be had by the beds crumpling up in front of the load. The rolls thus made would at the sliding plane be filled with broken material, and there would be a local thickening of the series along the face of the overthrust mass. The folds at Canmore are probably of this origin, but there are some in the beds at Bankhead that can be directly traced to this cause. In the prospect work at the top of the hill half a mile north of the mine, No. 3 seam apparently showed 100 feet of coal. This afterward was found to be but a mass of broken coal occupying a triangular area in vertical section. The foot wall was not disturbed but the roof had been forced back to nearly a vertical position, and below, the seam was continued with a thickness of only about five feet. In a cross cut to this same seam at the temporary entry on No. 2 seam the rocks were apparently undisturbed till No. 3 was approached, then the dip increased and the seam was found standing vertical, and farther on the dip reversed and where work was stopped the rocks were nearly horizontal. This points to a possibility of the tunnel passing beneath another of these rolls or pockets of broken coal. The foot wall of the mass was smoothed and showed small horizontal ridges, as though from the lateral pressure. Another example of buckling in the beds was observed on the walls of a gully five miles north of this place, but it can not be correlated with the same seam as at the mine. It probably is in somewhat higher beds, and if so there is some reason to think that No. 3 may as it is traced in the mine, prove to be workable in its northern part.

The effect of this buckling on the coal seams above the plane of sliding will be to form a series of waves such as are in the Canmore mine. Other sliding planes may, however, be found, but they are as likely to be in the thin bedded shales as the coal seams and will there cause no great amount of damage.

The work so far at Bankhead has disclosed two very regular and little disturbed coal seams, perhaps the best feature of the coal-field. The smashing of No. 3 seam is probably at its maximum at the south end and may diminish northward. The rolls do not seem to be horizontal, as the disturbance which is noted near the entry on No. 2 dies away farther in, but it must be admitted that the tortuous course pursued by this gangway at the entry is attributed to the proximity of a cross fault which divides the range to the east along the valley of Minnewanka Lake, and helped to make the great break between Mounts Rundle and Cascade. The section across the measures at the mine is emphasized to show the probability of portions of No. 2 being thinner opposite the extra pressure points of No. 3 or thickened by the relief of pressure opposite the pockets. One of the points where extra pressure might be expected would be between the two entries or below the temporary works. The state of this seam is no doubt already known, as there is being a slope put down on it at the mine to meet the main entry.

The thickening or apparent increase in the thickness of the measures caused by the crumpling of the strata is probably confined to the unloaded portion, and near the fault line the measures may be expected to increase their dip. A coal seam was found just under the foot of the mountain, and as it was of soft coking coal it was determined to test the seam by going down on it by a slope. Instead of a steep dip the seam started at the normal but bent downward and was carried still farther by a series of small faults which appear to

run along in front of the mass of the mountain. By this series of steps the dip was increased to about 80 deg. This seam appears to be too close to the fault plane and is probably too much crushed to be profitably worked, but there seems to be no reason to suppose that higher up it may not have some portions that will be all right.

The two lower seams are of semi-anthracite, very nearly as hard as those in the old mine at Anthracite, but from the samples taken from the outcroppings of the higher seams along the hillside softer coal will probably be found, and after the cross entries are finished the shipments may include anthracite, steam coal and coking coal. The seams at Anthracite are slightly harder, but it must be remembered that the mining there is all from below what in this section is the main entry. I need not point out the great advantage there is here in having such a great body of coal above the entry.

It may be asked, how is it that as these beds are in regular ascending order above Carboniferous limestones, the age assigned to them is so much later than the Carboniferous? Is there not a chance that they are really the upper part of the Carboniferous, or near the age of the coal measures of Nova Scotia? The answer is that in the shales below the coal of this area Belemnites and Ammonites, with a few other shells known to be Cretaceous or Jurassic, have been found. The plants also that are associated with the coal bear but distant relation to the fern trees of the Carboniferous. At Anthracite and Canmore there have been recognized five species of ferns that have survived with slight change to the present day. Of the allied species, Cycads and Conifers, which can hardly be traced back as far as Carboniferous times, eight are found and all are related to modern types.

A NEW MINISTER OF THE INTERIOR.

Elsewhere in this issue, we print a portrait of the Hon. Frank Oliver, who recently succeeded Mr. Sifton as Minister of the Interior. Mr. Oliver is a native Canadian, having been born in Peel County, Ontario, in 1853. He went to the North West at an early period in his career, and was for a number of years employed as a printer in the office of the *Free Press*. Before the rebellion he went to Edmonton, where he established the *Bulletin*, which he still owns and conducts. In 1883 he was appointed to the North West Council and was elected to the Legislative Assembly in 1888 and continued a member until 1896. At the general election of 1896 he was elected in the Liberal interests for Alberta to the House of Commons, and was re-elected in 1900, and again in 1904. At the general elections last November, he defeated his Conservative opponent, Mr. M. Macaulay, in the new constituency of Edmonton by a large majority and at the recent bye-election he was returned by acclamation.

PROSPECTS OF CANADIAN COAL.

We quote the following extremely able article from our esteemed contemporary, *The Colliery Guardian*:—

"The improved outlook in Canada cannot fail to have a beneficial influence upon the coal industry, and a more prosperous time for colliery owners may be expected. This hopeful condition is reflected from all sides, and nowhere more prominently than in the iron and steel industries, which appear to be emerging from the depression of last year. The report of the Nova Scotia Steel and Coal Company for 1904, which has recently been issued, shows that a wave of depressed trade during last year resulted in a reduced sale of iron by the