

Structure sections along lines A-B and C-D

LEGEND

- MESOZOIC AND CENOZOIC**
- CRETACEOUS AND TERTIARY**  
**UPPER CRETACEOUS AND PALEOCENE**
- 8, 8a EDMONTON and PASKAPOO FORMATIONS  
8, soft sandstone, clayey shale; minor conglomerate; coal; 8a, chiefly conglomerate
  - 7 Entrance conglomerate member
- UPPER CRETACEOUS**
- 6 BRAZEAU FORMATION  
Sandstone, shale, pebble conglomerate
  - 5 Solomon sandstone member
- MESOZOIC**
- 4 WAPIABI FORMATION: shale, sandy shale
  - 3 BIGHORN FORMATION: hard sandstone, sandy shale, shale
  - 2 BLACKSTONE FORMATION: shale
- LOWER CRETACEOUS**
- 1 LUSCAR and (?) MOUNTAIN PARK FORMATIONS: shale and sandstone
- Heavily drift-covered area .....  
Small rock outcrop, area of outcrop .....  
Bedding (inclined, vertical, overturned) .....  
Fault .....  
Anticlinal axis .....  
Synclinal axis .....  
Coal prospect .....  
COAL MINES  
Jasper Coals Limited, abandoned .....  
Jasper Coals Limited .....  
Hinton Collieries Limited, abandoned .....  
Geology by A.H. Lang, 1943 and 1944.

DESCRIPTIVE NOTES

The LUSCAR formation (1) does not outcrop in the map-area but the results of diamond drilling indicate that this formation probably underlies the extreme southwest corner. Some 30 miles southeast of the area the Luscar is overlain by hard, green sandstone constituting the MOUNTAIN PARK formation, which thins rapidly toward the north. It is not known whether this formation occurs in Entrance area or whether it lenses out farther south.

The BLACKSTONE (2), BIGHORN (3), and WAPIABI (4) formations are exposed in the canyon of the upper part of Maskuta Creek. This canyon swings to the west immediately south of the map-area, and here the above-named formations are found to be repeated by folding. These repeated bands of the formations are assumed to extend across the southwest corner of the area.

The SOLOMON SANDSTONE (5) is a distinctive ridge-forming bed composed of grey, green to buff weathering, fine-grained sandstone and siltstone, 80 to 100 feet thick, which is mapped separately because it is a useful horizon marker. It is classed as the lowest member of the Brazeau formation.

The remainder of the BRAZEAU formation (6) consists essentially of interbedded sandstone, shale, and pebble beds, with some thin coal seams. The pebble beds are composed of sandstone containing numerous scattered quartzite pebbles, and they are most common in the lower part of the formation. Dinosaur bones found near Entrance were identified as belonging probably to two genera, *Gorgosaurus* and *Corythosaurus*, that elsewhere have been found only in the Belly River formation, the southern equivalent of the Brazeau.

The EDMONTON and PASKAPOO formations (7, 8) consist mainly of interbedded sandstone, shale, and conglomerate. These are, in general, slightly less consolidated than those of the Brazeau. The base of the Edmonton is assumed to be the base of the ENTRANCE CONGLOMERATE, a distinctive bed averaging about 20 feet in thickness which overlies a massive sandstone bed about 70 feet thick that is considered to be the uppermost member of the Brazeau. The conglomerate consists of tightly packed quartzite pebbles averaging 1 to 2 inches in diameter. This feature, and the rather distinctive bed underlying the conglomerate, make it possible to trace the latter with considerable certainty, the only doubtful occurrence being the most easterly conglomerate outcrop near the upper reaches of Hardisty Creek.

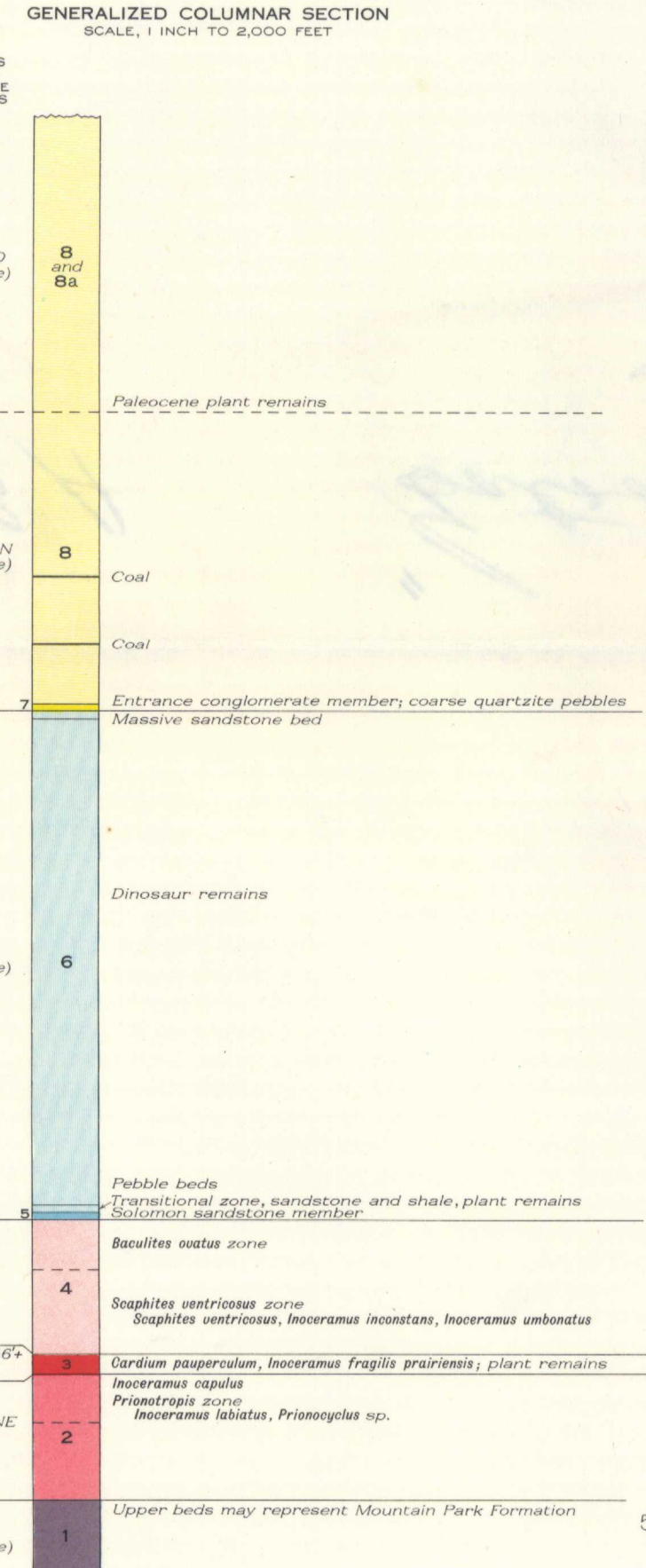
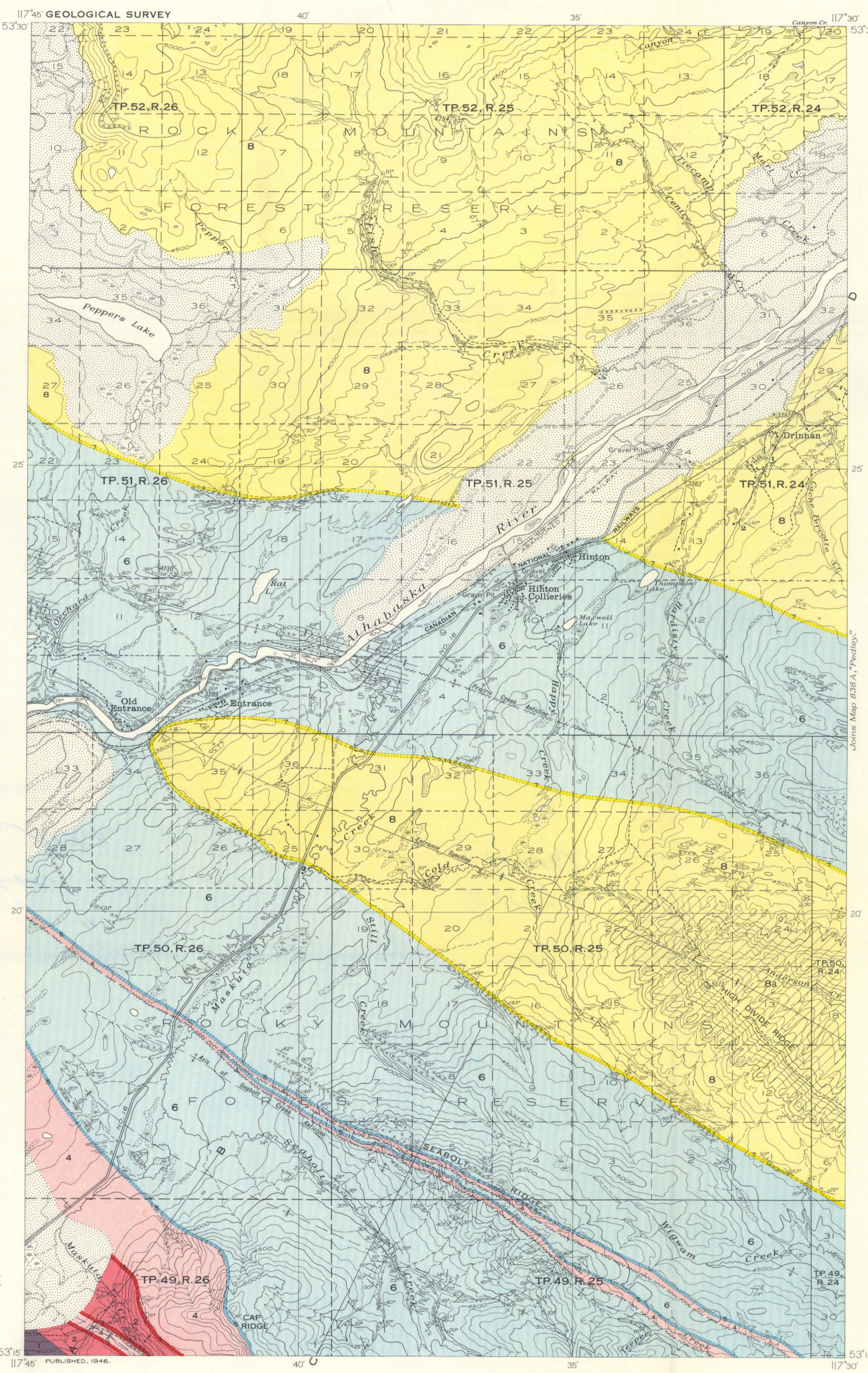
Fossil leaves classed as probably of Paleocene age were found on Fish Creek about 3,500 feet above the Entrance conglomerate; it is assumed, therefore, that the strata above and including this fossiliferous horizon belong to the Paskapoo formation. No unconformity was found between these and the Edmonton beds, nor was any lithological distinction recognized.

Thick beds of conglomerate composed of large cobbles and boulders outcrop on High Divide Ridge. The surface of the ridge is covered with loose cobbles, suggesting that the mountain is composed largely of conglomerate. The few outcrops exhibit low dips, conformable with the underlying Edmonton beds, and the curved shape of the upper part of the ridge, as illustrated by the contours, corroborates the view that the conglomerate is folded. The lowest outcrops are about 3,500 feet stratigraphically above the Entrance conglomerate; therefore, it appears that the strata forming High Divide Ridge are equivalent to the beds classed as Paskapoo in other parts of the area, and that the preponderance of conglomerate is due to a local condition of sedimentation.

The area is crossed by three major anticlinal structures, and a complementary syncline lies to the southwest of each. The most northerly fold, the Prairie Creek anticline, is the continuation of a similar structure near Coalspur, to the southeast of the map-area. In the western part of the map-area, at least, this structure consists of a series of minor anticlines and synclines, which are well exposed in the canyon of the lower part of Maskuta Creek. At the east side of the map-area the Edmonton-Brazeau contact is so much nearer the anticlinal axis on the southwest limb of the fold than on the northeast limb as to suggest that the anticline is faulted, with the southwest limb depressed or underthrust. This is in accordance with evidence of faulting near Coalspur. Such a fault would probably dip northeast, but definite evidence is lacking. The curved trace of the Entrance conglomerate indicates that the adjoining Entrance syncline pitches to the southeast, and it is likely that all the major structures of the area pitch in the same direction.

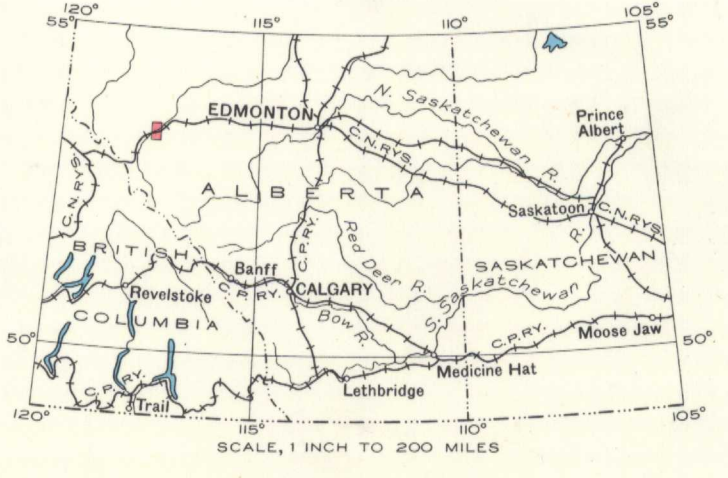
No wells have been drilled for oil or gas within the map-area, but there are three wells in adjacent areas. Imperial Coalspur No. 1 is being drilled near Coalspur, 22 miles southeast of the area, in L.S. 10, sec. 3, tp. 49, rge. 21. The present depth of this well is reported to be 12,151 feet. Shell Solomon Creek No. 1 was drilled in 1942, in tp. 51, rge. 27. Drilling was suspended at a depth of 4,774 feet. This well is about 10 miles northwest of the map-area, on the Solomon Creek anticline, which is probably the northwesterly continuation of the anticline that crosses the southwest corner of the Entrance area. Jasper Syndicate No. 1 is being drilled at Folding Mountain, 2 miles west of the southwest corner of the map-area, in L.S. 2, sec. 19, tp. 49, rge. 26. The present depth of this well is reported to be 4,365 feet.

Domestic coal is being mined near Drinnan, and steam coal was mined a few years ago at Hinton. The Drinnan seams lie about 800 to 1,600 feet above the Entrance conglomerate, and appear to be the continuation of seams at the Bryan and Balkan mines near the "Coal Branch" railway. The continuation of the Drinnan seams may occur in the Entrance syncline, corresponding to the seams at Mercoal and Coalspur.



MAP 843A  
**ENTRANCE**  
WEST OF FIFTH MERIDIAN  
ALBERTA  
Scale, 1 inch to 1 Mile  
Approximate magnetic declination, 26°30' East.

- LEGEND
- Provincial highway
  - Road not well travelled
  - Road along township boundary
  - Trail
  - Building
  - School
  - Post Office
  - Triangulation station
  - Adit
  - Forest Reserve boundary
  - Township boundary (surveyed)
  - Township boundary (unsurveyed)
  - Section line
  - Intermittent stream
  - Sand bar
  - Marsh
  - Contours (interval 100 feet)
  - Depression contour
  - Height in feet above mean sea-level



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