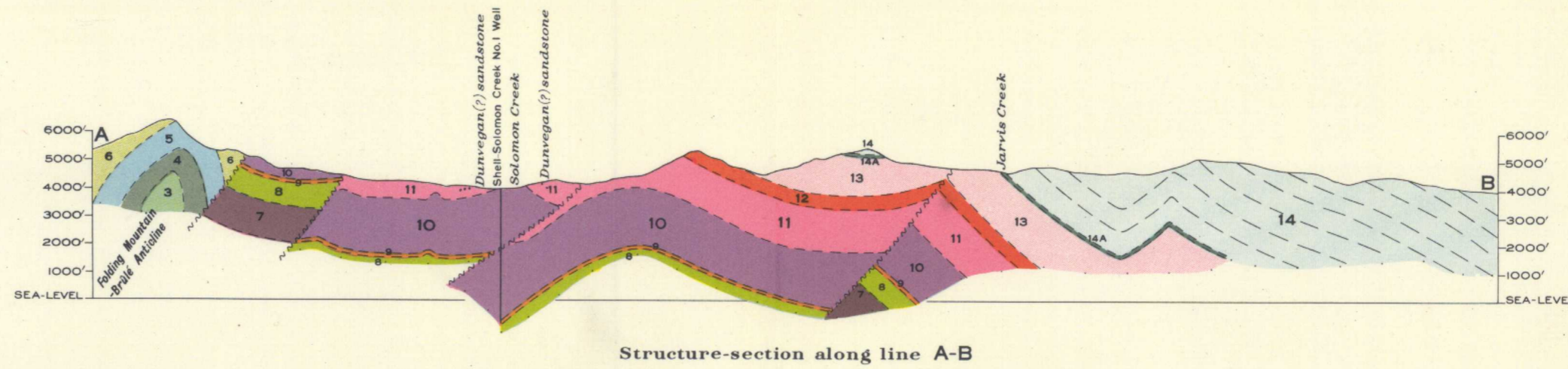
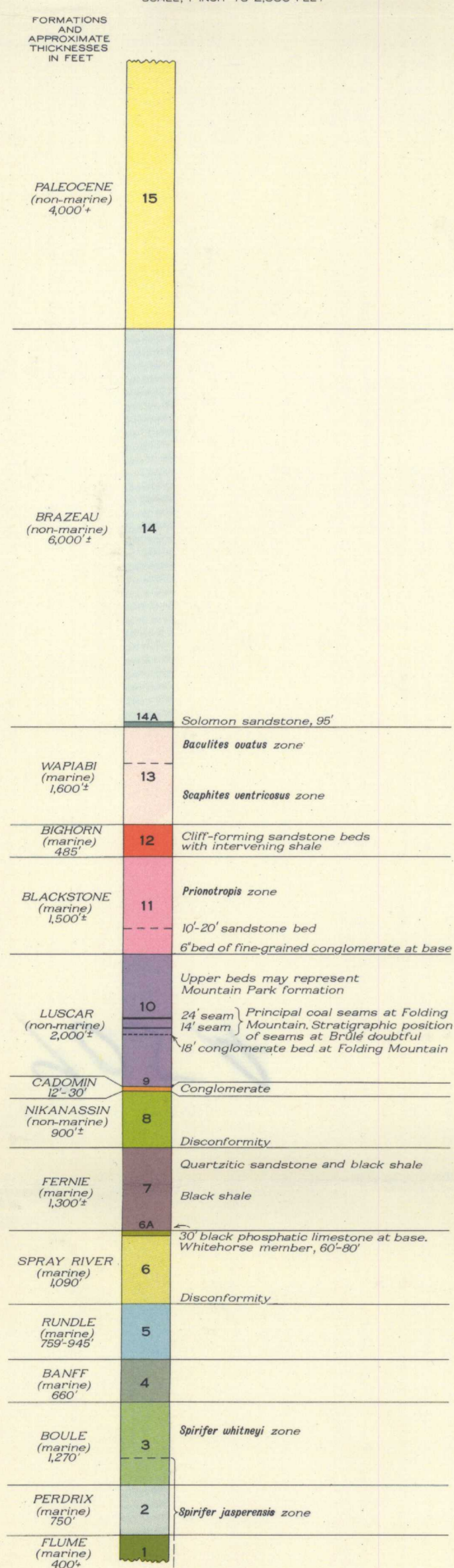


CANADA  
DEPARTMENT OF MINES AND RESOURCES  
MINES AND GEOLOGY BRANCH  
BUREAU OF GEOLOGY AND TOPOGRAPHY



LEGEND

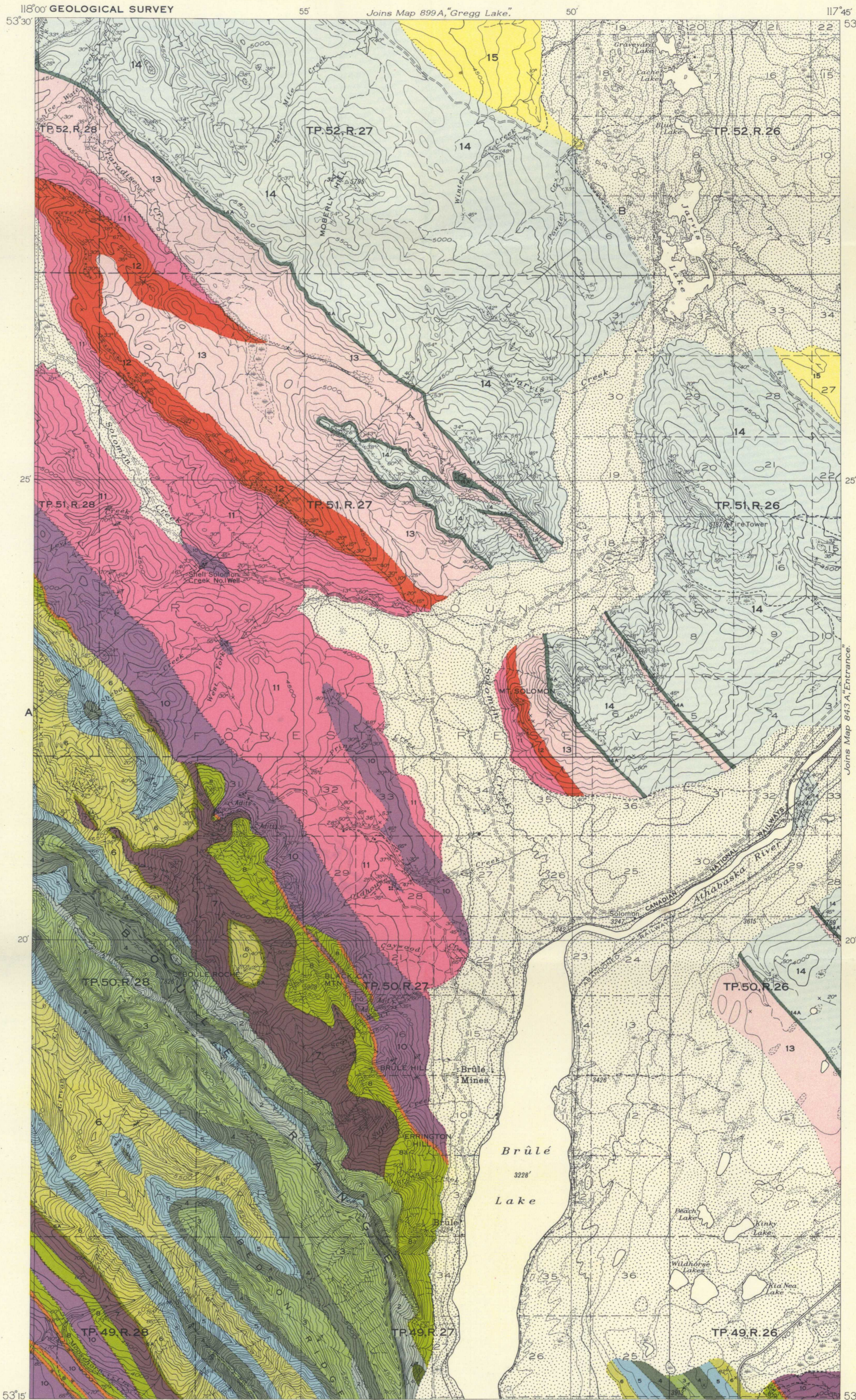
GENERALIZED COLUMNAR SECTION  
SCALE, 1 INCH TO 2,000 FEET



- CENOZOIC**
- 15 TERTIARY PALEOCENE**  
Sandstone, shale, conglomerate
- 14 UPPER CRETACEOUS**  
BRAZEAU FORMATION: sandstone, shale, pebble-conglomerate; 14A, Solomon sandstone member at base
- 13** WAPIABI FORMATION: shale, sandy shale
- 12** BIGHORN FORMATION: hard sandstone, sandy shale, shale
- 11** BLACKSTONE FORMATION: shale, sandy shale, calcareous siltstone; sandstone; fine-pebble conglomerate at base
- 10 LOWER CRETACEOUS**  
LUSCAR AND(?) MOUNTAIN PARK FORMATIONS: shale, sandy shale, sandstone, conglomerate, coal
- 9** CADOMIN FORMATION: hard, massive conglomerate
- 8** NIKANASSIN FORMATION: quartzite, sandstone, and sandy shale; 8a, probably includes some Fernie beds
- JURASSIC**  
**7** FERNIE GROUP: black shale; minor quartzitic sandstone and limestone
- 6 TRIASSIC**  
SPRAY RIVER FORMATION: siltstone, sandstone, calcareous siltstone, 6A, Whitehorse limestone member, at top
- CARBONIFEROUS MISSISSIPPIAN**  
**5** RUNDLE FORMATION: limestone and dolomite, abundant small chert masses
- 4** BANFF FORMATION: calcareous shale and thin-bedded limestone
- DEVONIAN UPPER DEVONIAN**  
**3** BOULE FORMATION: limestone and dolomite, abundant small chert masses
- 2** PERDRIX FORMATION: calcareous shale
- 1** FLUME FORMATION: limestone and dolomite

- Deeply drift-covered area
- Small rock outcrop, area of outcrop
- Note: Outcrops not shown in Boule Range
- Bedding (inclined, vertical, overturned)
- Fault (position defined, position approximate)
- Fault (assumed)
- Anticlinal axis
- Synclinal axis
- Abandoned coal mines and coal prospects
- Well drilled in search of oil (abandoned)
- Borehole

Geology by A. H. Lang, 1944 and 1945.



DESCRIPTIVE NOTES

Most of the map-area is in the Foothills belt of high, wooded hills and deep valleys. The southwestern part is in Boule Range, an outlier of the Rocky Mountains, characterized by high, rugged ridges formed of resistant Paleozoic limestone and Triassic sandstone. The boundary between the Foothills and Boule Range is marked by a steep escarpment of Devonian limestone that has been thrust upon younger strata. The extreme southwest corner of the map-area is in the wide, intermontane valley of Moosehorn Creek, which separates Boule Range from the first range of the Rocky Mountains proper.

The principal valley of the region, occupied by Brulé Lake and Athabasca River, trends northeasterly, and its main tributary valleys parallel the northwest strike of the bedrock formations.

The strata in Boule Range are on the whole well exposed, as much of this part of the map-area is above timber line, but owing to the excessive time and expense that would have been involved in precise mapping of this structurally complex area, the formation boundaries have only been sketched approximately. The remainder of the area, which is of greater economic importance, contains only scattered rock exposures. This part was traversed carefully to locate as many outcrops as possible, and these are indicated on the map.

Brulé map-area is accessible by road across the Athabasca near Entrance 2½ miles east of the area, whence a road follows the north-west side of Athabasca Valley to Brulé Station on Brulé Lake. A branch from this road follows Solomon Creek and extends beyond the map-area to Wildhay River. Another road, recently improved by oil companies and extending from Entrance to Muskeg River, crosses the northeast corner of the area.

The map-area is underlain by sedimentary strata that have been folded along northwesterly trending axes parallel with the mountain trend, and are exposed in several more or less parallel bands, due to repetition by folding and faulting.

The oldest strata correspond to three formations, named the Flume, Perdrix, and Boule, in the Roche Miette region 6 miles south of the map-area. Only the upper part of the FLUME formation (1) is exposed, in an anticline west of Brulé Lake, near the south boundary of the area. The PERDRIX formation (2) outcrops at the same locality, and extends northward for several miles along the mountain front where, in places, it is much distorted by crumpling and faulting. The BOULE formation (3) forms high cliffs in many parts of Boule Range.

Argillaceous limestone correlated with the BANFF formation (4) conformably overlies massive limestone at the top of the Boule, apparently without the intervening, thin Exshaw formation distinguished in other areas to the southeast. The best sections of the Banff are at the head of Supply Creek and the north branch of Oldhouse Creek. The best sections of the succeeding RUNDLE (5) and SPRAY RIVER (6) formations are on the north branch of Oldhouse Creek and on the ridge between Sheba Creek and the West Fork of Solomon Creek. At the latter locality the base of the Spray River is a conglomerate containing subangular fragments from the Rundle formation. Wherever the uppermost sandstone beds of the Spray River are exposed they are overlain by about 60 feet of limestone (6A) correlated with the Whitehorse member of the Spray River formation near Cadomin.

The FERNIE group (7) is generally poorly exposed, the best section being seen at the head of Prine Creek. The upper part contains numerous beds of quartzitic sandstone similar to that of the overlying NIKANASSIN formation (8). At Prine Creek the contact was drawn at the base of the lowest thick sandstone bed, where there is a slight erosional unconformity. Elsewhere its position is only located approximately. West of Brulé Lake, the strata (8a) beneath the Nikanassin-Boule thrust are mostly Nikanassin beds, but include some that appear to belong to the Fernie.

The LUSCAR and (?) MOUNTAIN PARK formations (10) are poorly exposed, and are known chiefly from scattered exposures along creeks and from coal workings and drilling.

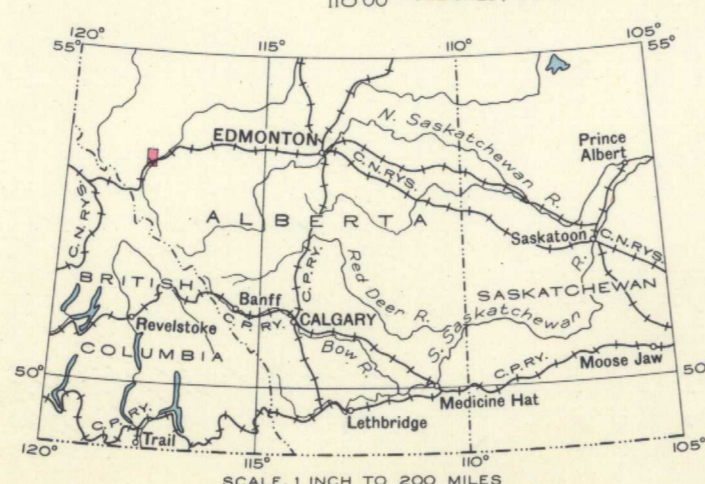
The BLACKSTONE (11) and WAPIABI (13) formations constitute thick assemblages of marine strata, chiefly soft, black shale. The best exposures of the Blackstone are along the easterly flowing part of Solomon Creek. A thin bed of sandstone in the lower part of the Blackstone, outcropping a quarter mile north of the Shell-Solomon Creek No. 1 well, may, from evidence obtained north of Brulé map-area, be the southern extension of the Dunvegan formation of Peace River district. If so, the strata between it and the Luscar may be equivalent to part of the Fort St. John group and be, therefore, of Lower Cretaceous age. The Blackstone is separated from the Wapiabi by a variable number of lenticular sandstone beds with intervening shale, grouped as the BIGHORN formation (12). The upper part of the Wapiabi, composed of dark green, sandy shale, is exposed on Mount Solomon, the ridge to the northwest known locally as Black Bear Ridge, and near the mouth of Paradise Creek. At these localities the sandy shale is overlain by a conspicuous sandstone bed mapped separately as the Solomon sandstone (14A), the lowest member of the BRAZEAU formation (14).

In Entrance map-area to the east, the base of a distinctive conglomerate bed, termed the Entrance conglomerate, was adopted as the top of the Brazeau formation. The strata immediately overlying the conglomerate were regarded as Edmonton, and still higher strata, containing fossils of Paleocene age, were termed Paskapoo. Work in Entrance area since the publication of the map (No. 843A) indicates that all the strata above the Entrance conglomerate are of Paleocene age, although some or all may be older than the typical Paskapoo of other areas. The Entrance conglomerate was not found in Brulé map-area, but two linear, drift-covered ridges are on the strike of the nearest occurrence in Entrance area. The inferred boundary between the Upper Cretaceous and the Paleocene strata (15) has, accordingly, been drawn along these ridges.

The abandoned coal mine at Brulé was one of the largest in Canada. It was closed in 1928 because of structural difficulties and areas of dirty coal. The seams are in the Luscar formation, and are related to those being mined at Luscar and Cadomin. Development work on Scovill and Oldhouse Creeks and a small abandoned mine on Prine Creek indicate that the Brulé seams or related ones probably extend across the map-area from the Brulé mine northwestward to the west boundary. Coal was also mined from the Luscar formation in Moosehorn Valley, just south of the map-area. These seams are related to those mined at Mountain Park and Pochontas, and probably cross the southwest corner of the map-area. Seams related to those formerly mined at Drinnan occur in the Paleocene strata in the northeast corner of the map-area, but are poorly exposed.

The Rundle and Devonian limestones may contain oil and gas at localities in the Foothills where structural conditions are favourable. The Solomon Creek anticline was drilled by the Shell Exploration Company in 1942-3. This well encountered structural complexities not indicated by the surface exposures, and was abandoned at a depth of 4,774 feet.

Limestone that may be of future value is exposed near the railway at the south border of the map-area. Low-grade phosphate rock occurs at the base of the Fernie group. Gypsum has been reported from the Whitehorse member of the Spray River formation in nearby areas, and may occur within the map-area.



MAP 905 A  
BRULÉ  
WEST OF FIFTH MERIDIAN  
ALBERTA

Scale, 1/3200 or 1 Inch to 1 Mile

Approximate magnetic declination, 27° E. at

- Provincial highway
- Road not well travelled
- Trail
- Building
- School
- Triangulation station
- Park boundary
- Forest Reserve boundary
- Township boundary (unsurveyed)
- Section line
- Intermittent stream
- Marsh
- Gravel bar
- Contour (interval 100 feet)
- Depression contour
- Height, in feet above mean sea level

Base-map compiled from surveys by the Topographical Survey, 1944, with information obtained from other Federal Government Surveys, and from air photographs. Cartography by the Drafting and Reproducing Division, 1947.

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