

NOTES

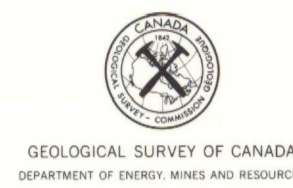
The Athabasca River sheet includes parts of Interior Platform and Cordilleran Orogen, embracing an area of about 94,000 square miles (240,000 square kilometers). The Interior Platform in the northeast are low-lying and drift-covered with some hilly areas of moderate relief. In the southwest, they merge with the northwesterly trending strike ridges of the Foothills, which in turn, merge with the higher, bare ridges of the Front Ranges of the Rocky Mountains. Rocky Mountain Trench is a deep, narrow, straight-walled valley separating the rugged, glacier-capped mountain groups of the Rocky Mountain Main Ranges from those of the Cariboo and Monashee Mountains to the southwest.

In Cordilleran Orogen, the foreland part of the Columbian Orogenic Belt consists of a deformed northeasterly tapering wedge of supracrustal rocks that unconformably overlap the crystalline basement complex which extends westward from the Canadian Shield. The supracrustal rocks occur as two distinct lithotectonic successions. The older succession of miogeoclinal and platformal sediments spans the interval from Helikian to Late Jurassic. The younger exogeoclinal succession comprises Late Paleozoic to Paleocene clastic wedge deposits that were shed from the evolving Columbian Orogenic Belt.

In the Interior Platform the older succession has thinned, generally through eastward convergence and erosion, to form parts of the Cambrian-Lloydminster Embayment, the Devonian Elk Point Basin and a late Paleozoic to early Mesozoic west-dipping homocline. The younger, northeasterly tapering, exogeoclinal succession exhibits an interfingering of marine and nonmarine shale and sandstone formations that reflect periodic uplifts within the orogenic belt and intervals of transgression and regression of the epicontinental seas. The Devonian to Upper Cretaceous strata yield oil and gas. Coal is recovered from Cretaceous and Tertiary strata of the Interior Platform and Foothills Belt.

In the Rocky Mountains Thrust Belt the strata are concentrically folded and displaced northerly on an interlocking array of thrusts, some of which are themselves folded along with the beds they cut. Within the Foothills Belt, closely spaced folds and imbricate thrust slices in the exogeoclinal succession form a superstructure that passes downward into fewer and relatively flatter thrusts in the platformal carbonate rocks that have been stripped from the undeformed basement. Moderately dipping homoclinal thrust sheets characterize the Front Ranges, whereas flat thrust sheets and broad open folds are typical of the eastern Main Ranges, the change coinciding with the transition from the thin platformal succession to a thick miogeoclinal succession. The first appearance of widespread cleavage and penetrative flow coincides with a southwestward facies change from carbonate to shale in the central Main Ranges. In the western Main Ranges, bordering a tectonic interior of remobilized basement gneisses, increasing metamorphic grade in a Barrovian facies series marks the transition to the Omineca Crystalline Belt, the core zone of the Columbian Orogenic Belt. There, polyphase deformation involving large recumbent folds is associated with upper amphibolite regional metamorphism to form a northeast plunging infrastructure that passes upward into open upright folds cut by steep faults at the level of the supra-structure.

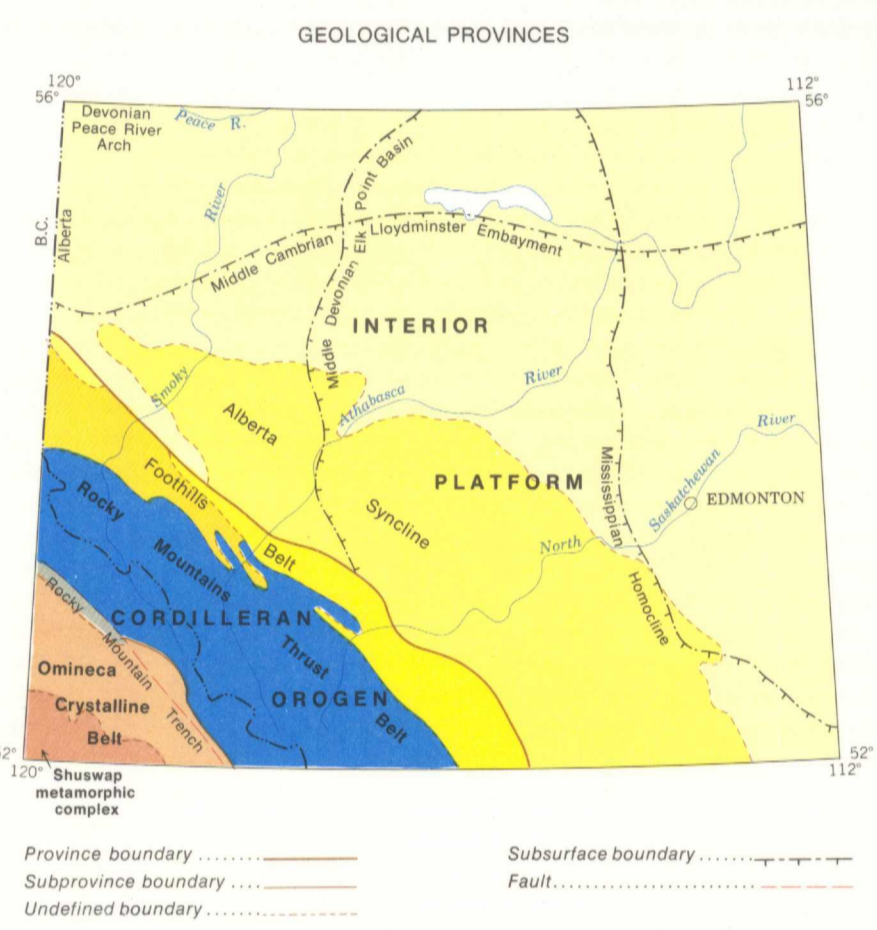
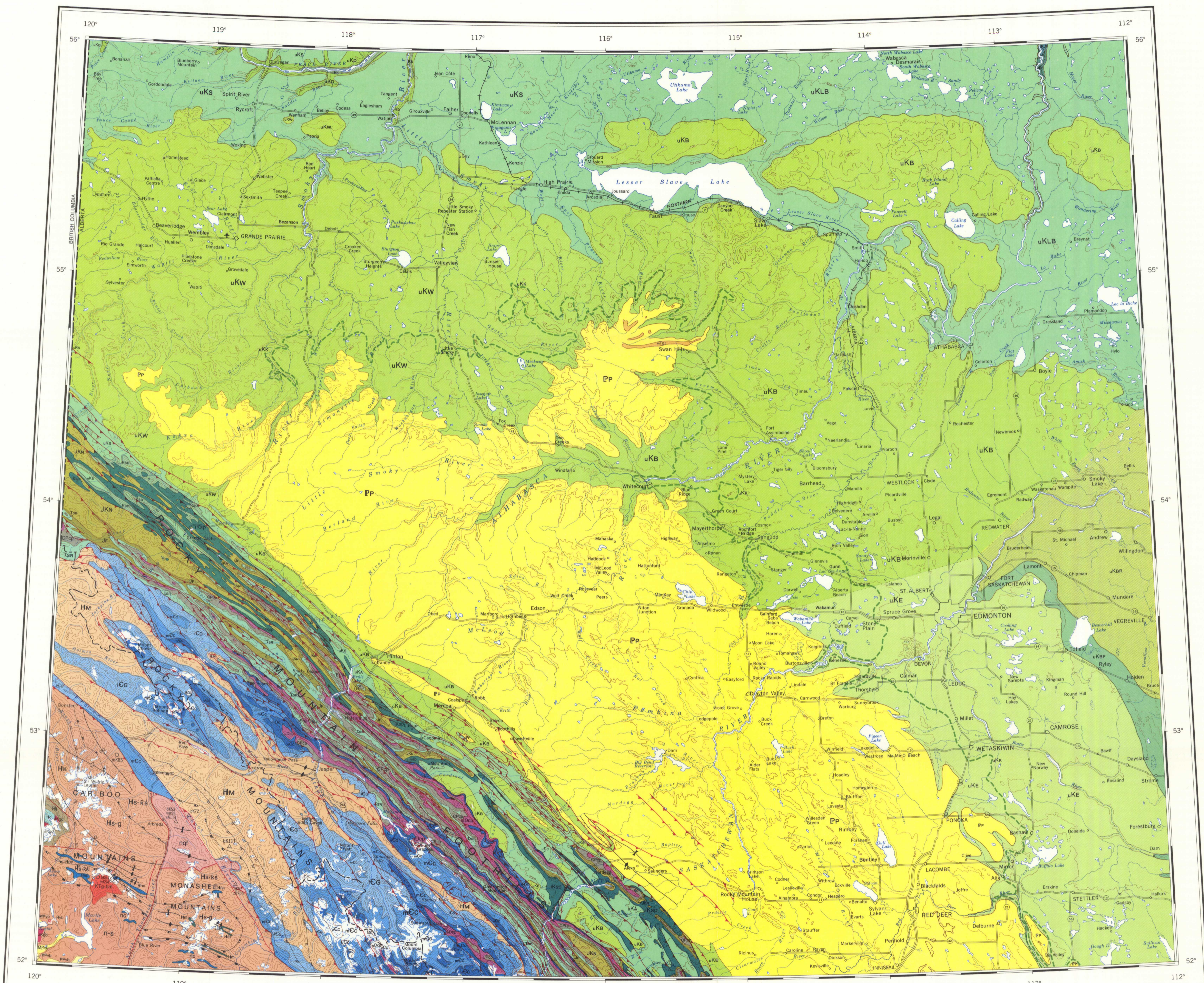
Deformation in the core zone may have begun during the Devono-Mississippian Cariboo Orogeny, but most of the regional metamorphism and folding there, as well as the thrust faulting in the Main Ranges of the Rocky Mountains, occurred during the Jura-Cretaceous Columbian Orogeny. Deformation in the Front Ranges and Foothills dates from the Late Cretaceous and Paleocene, Laramide Orogeny. The southwesterly dipping faults along the Rocky Mountain Trench are late, probably post-tectonic, normal faults.



DEPARTMENT OF ENERGY, MINES AND RESOURCES

LEGEND

Legend detailing geological units and their symbols. It is organized into columns for Quaternary, Tertiary, Paleocene, Cretaceous, Jurassic, Triassic, Carboniferous, Devonian, Ordovician, Cambrian, Hadrynian, and Proterozoic. Each unit is represented by a colored box and a code (e.g., Rvb, uKS, uKB, etc.) with a brief description of the rock type.



Geological symbols legend. It includes symbols for various geological features such as faults (normal, thrust, transcurrent), anticlines, synclines, and other structural elements. It also includes symbols for different types of metamorphic rocks and igneous rocks.

Geological compilation by R.A. Price, D.F. Stott, R.B. Campbell, E.W. Mountjoy and N.C. Ollershaw, 1973

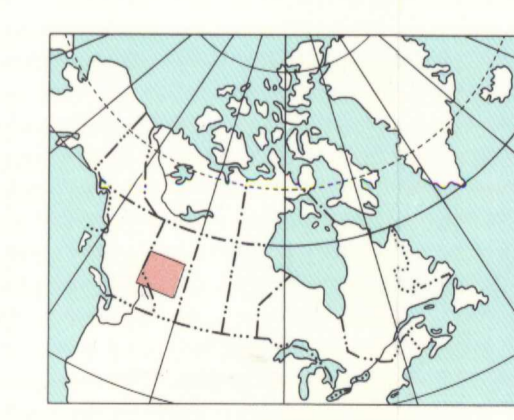
Geology of the Cordilleran Orogen was compiled from published and unpublished maps of the Geological Survey of Canada; the Rocky Mountains and Foothills by R.A. Price with contributions by E.W. Mountjoy and R.J.W. Douglas and the Omineca Crystalline Belt by R.B. Campbell. Geology of the Interior Platform was compiled by D.F. Stott and N.C. Ollershaw from published and unpublished maps of the Geological Survey of Canada and the Research Council of Alberta. N.C. Ollershaw, as project leader, was responsible for co-ordinating the compilation.

Geological cartography by J.A.Y. Pratt, Geological Survey of Canada

Computer-assisted and traditional cartographic techniques were used to produce the geological information portrayed on this map. Boundaries, faults, folds and isograds were digitized in the Computer Assisted Cartographic Unit of the Geological Survey of Canada.

Under a co-operative arrangement Geological Survey of Canada staff used data processing and plotting services provided by the Automated Cartography Unit of the Surveys and Mapping Branch to generate plot files and the final reproduction material for lithography.

Base-map assembled and generalized by the Geological Survey of Canada, from the IMV maps NN-11 and NN-12 published at the same scale by the Surveys and Mapping Branch in 1971 and 1973 respectively.



NOT TO BE TAKEN FROM LIBRARY / NE PAS SORTIR DE LA BIBLIOTHÈQUE

Map title and scale information. Title: MAP 1339A ATHABASCA RIVER ALBERTA-BRITISH COLUMBIA. Scale: 1:1,000,000 GEOLOGICAL ATLAS SHEET 83. Includes a scale bar in kilometers and miles, and the Lambert Conformal Projection details.

Index to Geological Atlas sheets and reference to National Topographic System. A grid table showing sheet numbers and names for adjacent areas like Beaton River, Hay River, Clearwater River, etc.

NOT TO BE TAKEN FROM LIBRARY / NE PAS SORTIR DE LA BIBLIOTHÈQUE