Brooks Range, which is the main site of outcrops of Jurassic and Lower Cretaceous orogenic deposits and marks the boundary between distal and nearshore facies in exposed Permian and Triassic rocks, and (4) the Brooks Range overthrust and metamorphic belt, which contains most of the known Devonian and Lower Mississippian molasse deposits, as well as the Devonian carbonates that bordered these deposits on the south, and the upper Paleozoic carbonates that succeeded the molasse deposits.

The stratigraphy records Devonian uplift of the northern high, and downwarp of a deep molasse basin on the south; a series of late Paleozoic through earliest Cretaceous marine transgressions onto the northern high from shallow basins on the sites of the present Brooks Range and Colville geosyncline; Late Jurassic to earliest Cretaceous orogeny in the Brooks Range, coupled with downwarp of successive foredeeps that migrated northward with time; the filling of the Colville geosyncline beginning in late Early Cretaceous time; and because the molasse basin was filled from the south and west and was warped in Late Cretaceous time, migration of depocenters through early Tertiary time was northward and northeastward.

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MINERAL ECONOMY OF CANADA—VIEWPOINT OF GOVERNMENT

During the last 20 years, the value of mineral production has grown from 5.8 to 7.1% of the gross national product and now amounts to almost $5 billion annually, of which 50% originates in the metallic sector, 29% in the fuels sector, and 21% in the industrial minerals sector of the industry. Minerals and mineral products account for about 33½% of the country's total export trade, 43% of all revenue freight traffic, and more than 12% of total annual capital investment. It has been largely responsible for the development of that vast part of Canada which lies above the populated area just north of the Canada-United States border.

The role of government in Canada has been to provide the legislative and taxation environment necessary to attract capital from domestic and foreign sources, and for the attainment of orderly and continuous mineral-industry growth. The role of private industry in Canada has been to supply the knowledge and capital for exploration, development, and exploitation of the nation's mineral deposits, and to market the resultant products in Canadian and world markets. The harmonious blending of these roles has made Canada one of the world's foremost producers and exporters of mineral products. A reappraisal of national objectives reaffirms the continuing important position of the Canadian mineral industry in the attainment of economic growth, expanded export markets, and regional development. The tax incentives which have in the past recognized both the importance of minerals to the national economy and the unique aspect of risk in mineral exploration and development will be continued, albeit in a somewhat modified form.

The future will call for an even greater interplay between government and industry in the solution of greater and more complex problems than have confronted the nation and the industry in the past—trade problems such as tariffs, quotas, and nontariff barriers: the location of processing facilities and degree of processing; the environmental effects of mineral operations; the supply of trained manpower; problems arising from both the growth and the decline of mineral producing areas; changing technology; and foreign ownership and control. Solutions to these and other problems must be in harmony not only with national, economic, and social aspirations, but also with external conditions and influences. On the assumption that the nation will devise generally enlightened solutions or, at least, sensible compromises to the problems of the future, the value of the Canadian mineral industry will probably rise to $12 billion in 1980 and about $17.5 billion in 1985.

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DEEP-SEA DRILLING IN NORTHERN PACIFIC: PALEONTOLOGY AND BIOSTRATIGRAPHY[1]

Cores of rocks ranging in age from Pleistocene to latest Jurassic from 17 sites in the northwest Pacific Ocean have yielded new information on the biostratigraphic relations of foraminifers, radiolarians, and nannoplankton. Areas sampled by the *Glomar Challenger* on leg 6 of the Deep Sea Drilling Project were the Horizon Ridge (Guyot), the Shatsky Plateau and surrounding abyssal floor, the Philippine Sea, and the Caroline Ridge.

Calcareous nannofossils are present in most of the recovered cores, including cores of abyssal brown clay, and are the most commonly preserved of the 3 groups. Diverse foraminiferal assemblages are associated with calcareous rocks of all ages whereas radiolarians are commonly poorly preserved or absent in highly calcareous strata. Radiolarians are more markedly affected by biogeographic variability than are the calcareous microfossils; biostratigraphy developed in equatorial regions cannot be applied in the Shatsky Plateau region (north of 30°). However, volcanic ash-rich areas of the Philippine Sea produce unusual Miocene nannoplankton similar to those in ash-rich sediments from the Caribbean, and foraminifers are sparse or absent and commonly small in size.

Biostratigraphic boundaries determined by the 3 microfossil groups are generally in accord. Stage and epoch boundaries based on nannoplankton may occur higher in cores than determinations based on Foraminifera and Radiolaria. The various effects of ecology, preservation, and drilling techniques on the development of zonal scheme based on the 3 major groups of microfossils require careful evaluation.

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MINERAL ECONOMY, INDUSTRY, AND THE GEOLOGIST

Mineral production accounts for 3% of the United States gross national product and for about 7% of the Canadian gross national product. In the United States, the value of mineral production is now approximately $30 billion annually, of which 70% is derived from fuels and 10% from metals. In Canada, metals account for more than half and fuels account for only one third of the total value of about $4½ billion.

[1] Publication authorized by the Director, U.S. Geol. Survey.