Glomerate with a cumulative thickness locally exceeds and Jurassic-Cretaceous argillite, graywacke, and subaerial tholeiitic basalt flows and marine limestones sediments and limestones, Triassic carbonaceous shales, of Pennsylvanian (?) or Permian volcanics and volcan-igneous rocks, Precambrian to Devonian in age. Highly deformed metamorphosed sedimentary and mi-}

**STRUCTURE AND STRATIGRAPHY OF EASTERN ALASKA RANGE AND ALASKA PENINSULA**

Potassium-argon mineral ages and reconnaissance mapping of approximately 30,000 sq mi of the central and southern Alaska Range and Alaska Peninsula indicate that there were 3 major plutonic episodes during the Mesozoic and Tertiary. The first began in the Early Jurassic (about 180 m.y. ago) and continued for about 25 m.y. No plutonic rocks older than Jurassic have been recognized. Plutons of Jurassic age form an accu- rate belt about 600 mi long which roughly parallels the Talkeetna geanticline and Matanuska geosyncline, major tectonic elements of south-central Alaska. Jurassic plutonic rocks are largely diorite and quartz diorite with minor granodiorite. Late Cretaceous and early Tertiary plutons (83-55 m.y.) occur locally within this belt, but in the southern Alaska Range these plutons characteristically form north-trending belts transverse to the earlier tectonic elements and locally extend out into what was probably a more stable area bordering the earlier tectonic features. Composition of these plutons ranges from diorite through granite, but granodiorite and quartz monzonite predominate. Isolated granitic stocks of this age also extend eastward into the central Alaska Range. The data suggest that this period of magma generation and emplacement may be separated into Late Cretaceous (70-85 m.y.) and early Tertiary (50-65 m.y.) plutonic episodes. Middle Ter- tary plutons (34-41 m.y.) form a north-trending belt about 100 mi long in the central part of the southern Alaska Range. These rocks, characteristically granites and quartz monzonites, are flanked by more mafic early Tertiary and Late Cretaceous plutons. Small plu- tons of middle Tertiary age also are present locally in the central part of the Alaska Peninsula. A still younger plutonic episode (25-30 m.y.), perhaps a later phase of the middle Tertiary episode, is repre- sented by small isolated granitic stocks. The plutonic rocks of the central and southern Alaska Range and Alaska Peninsula are more silicic with decreasing age.


**STRUCTURE, STRATIGRAPHY, AND ISOTOPIC COMPOSITION OF ROCKS OF S.WARD PENINSULA, ALASKA**

The Seward Peninsula consists principally of meta- morphic rocks of Precambrian age, of less metamor- phosed pelitic and carbonatic rocks of mid-Precambrian age, and of thick carbonate rocks of Paleozoic age. These rocks are intermixed in extensive thrust plates of two ages: the earlier (eastward thrusting) is probably pre-middle Cretaceous, and the later (northward thrusting) is older than 74 m.y. Stocks and batholiths of granitic rocks, containing alkalic rocks locally, and gneissic structures intruded the older thrust plates, whereas stocks of biotite granite with associated tin and beryllium deposits intruded the younger thrust sheets. Extensive andesitic volcanic rocks on the eastern Seward Peninsula are of Late Jurassic to Early Cretaceous age; they grade upward into graywackes and siltstones of Cretaceous age which are tightly folded. Tertiary rocks are coal bearing and deformed and crop out in small areas; they are most probably of late Tertiary age. Extensive volcanic fields of latest Tertiary to Holocene age cover large areas of the central and eastern Seward Peninsula. Many terranes older than Sangamon are warped, and a range-front fault along the Kigluaik Mountains offsets moraines of Wisconsin age.

Early attempts to date the Precambrian rocks by K- Ar and Rb-Sr dating of micas failed because of ther-