

INTRODUCTION

The Attitti Lake Area, West Half, is bounded by latitudes $55^{\circ} 00'$ and $55^{\circ} 15'$ north and longitudes $102^{\circ} 15'$ and $102^{\circ} 30'$ west and covers approximately 170 square miles. The centre of this tract lies 32 air miles northwest of Flin Flon. The main topographic features in the area are Wildnest Lake, the north half of which lies in the extreme southeast corner of the area; Kakinagimik Lake, which trends north-south through the eastern one-third of the area; and Attitti Lake, which trends north-northeast through the western one-third of the area.

GENERAL GEOLOGY

The area is underlain by an intricately folded, intercalated assemblage of metamorphic rocks intruded by granitic sill-like bodies, and forms part of the Precambrian Kisseynew complex. The metamorphic rocks consist of interlayered fine-to medium-grained, biotite, hornblende, and pyroxene gneisses and granulites, any of which may contain garnet. Genetically they represent an interlayered sequence of metamorphosed argillaceous sandstones, sandstones, greywackes, calcareous greywackes, and minor argillaceous limestones. In part the hornblende gneisses and granulites may be of volcanic origin, however, any primary structures that may have been present have been obliterated. Generally, these metamorphic rocks are well layered and may contain up to 50 per cent granitic and pegmatitic material. Areas of mixed rocks or migmatites are common in the vicinity of granitic intrusions and in places the metamorphic rocks have been almost completely granitized. The lithology of these metamorphic rocks indicates that they belong to the amphibolite facies of regional metamorphism.

The intrusive rocks are dominantly sill-like bodies of granodiorite and quartz diorite which comprise approximately one-third of the area. The mafic constituents of these rocks are hornblende and/or biotite which occur as planar-oriented, isolated grains or knots, which impart a pronounced foliation to the rock. The foliation in

these granitic rocks is conformable with the gneissosity in the adjacent metamorphic rocks. The contacts are usually sharp, except in areas of migmatization where they are gradational. Two small boss-like bodies of massive, decussate meta-pyroxenite intrude the metamorphic rocks in the central and west part of the area. Pink and white pegmatite dykes and sills, containing biotite and hornblende, intrude all rock types.

STRUCTURAL GEOLOGY

Tight folds are the dominant structural features in the area, the lineaments of which are easily discernible from aerial photographs. Lineation in the southeast corner of the area strikes east-southeast and in the remainder of the area strikes north. A few of these folds are isoclinal and overturned to the east. There are two major longitudinal fault zones situated in the west-northwest part of the map-sheet, which cut the metamorphic and granitic rocks. These zones are approximately two miles apart and strike a few degrees west of north. The eastern fault zone may be traced over a length of six miles; the western fault zone for a length of 14 miles. Both faults are marked by topographic lineaments, in the vicinity of which there is intense schistosity, pegmatization, mylonitization, and traces of sulphide mineralization. A third shear zone was traced for approximately two miles along the north-west shore of Wildnest Lake. Gold, copper, and zinc values have been reported from this zone. Minor shearing in the metamorphic rocks parallel to the foliation is very common throughout the entire area.

ECONOMIC GEOLOGY

Observed mineralization in the area is of two types: (1) disseminated and fracture-fillings of chalcopyrite and pyrite associated with pegmatites, breccias, and crush zones, along major fault zones; (2) disseminated iron sulphides observed in trace amounts, locally, within all the metamorphic rocks. Rusty weathered, friable, limonitized outcrops of hornblende gneiss and granulite are common. The rusty weathering is presumably due to leaching of disseminated iron sulphides.