to extend much further east, as well as north and south. They present the same character over all the area, except that from the Atik eache eastward they are highly garnetiferous.

Petrographic Description.

Mr. G. A. Young, petrographer of this department, has examined the slides from the rocks brought in from this area, and the microscopic descriptions herein are by him. Of the gneissic rocks he says: amongst the thin sections submitted for microscopic examination a few represent undoubted granites, either virtually unchanged or partly deformed through dynamic agencies. These granites are of normal types, and in every case the coloured constituent is biotite, though this mineral is very sparingly present in three instances.

The remaining sections are of gneissic rocks, varying amongst themselves as regards texture, structure, and proportions of the chief constituents, but usually having the mineralogical compositions of normal biotite granites. In a few instances garnets are present, and in ten cases, common green hornblende accompanies or entirely replaces the mica. Some of the sections present fair evidence that the gneisses represent crushed granites, while none have any distinctive feature that would indicate a clastic origin for the rocks.

In many cases, however, the thin sections reveal gneissic structures, virtually unaccompanied by deformation due to stresses. In such rocks the chief constituents, quartz, plagioclase, and orthoclase feldspar, tend to occur in rounded or polygonal forms. Possibly the foliation, and at times pronounced banding of these varieties are original, and were assumed by the rocks as they first solidified from a state of igneous fusion. Their general appearances, however, seem to indicate that the structures are secondary, and that they were superimposed on an earlier mode, by some process of recrystallization. In many cases such gneisses exhibit cataclastic phenomena, evidently set up after the individuals of feldspar and quartz had assumed their rounded or polygonal outlines.

A few of the rocks show microscopically an augen structure with larger grains of feldspar, or composite individuals of quartz lying in a fine textured ground largely composed of the same minerals. In some instances such varieties seem possibly to have been derived from granitic types, while in other cases they appear originally to have been gneissic forms. Besides such cases there are examples of