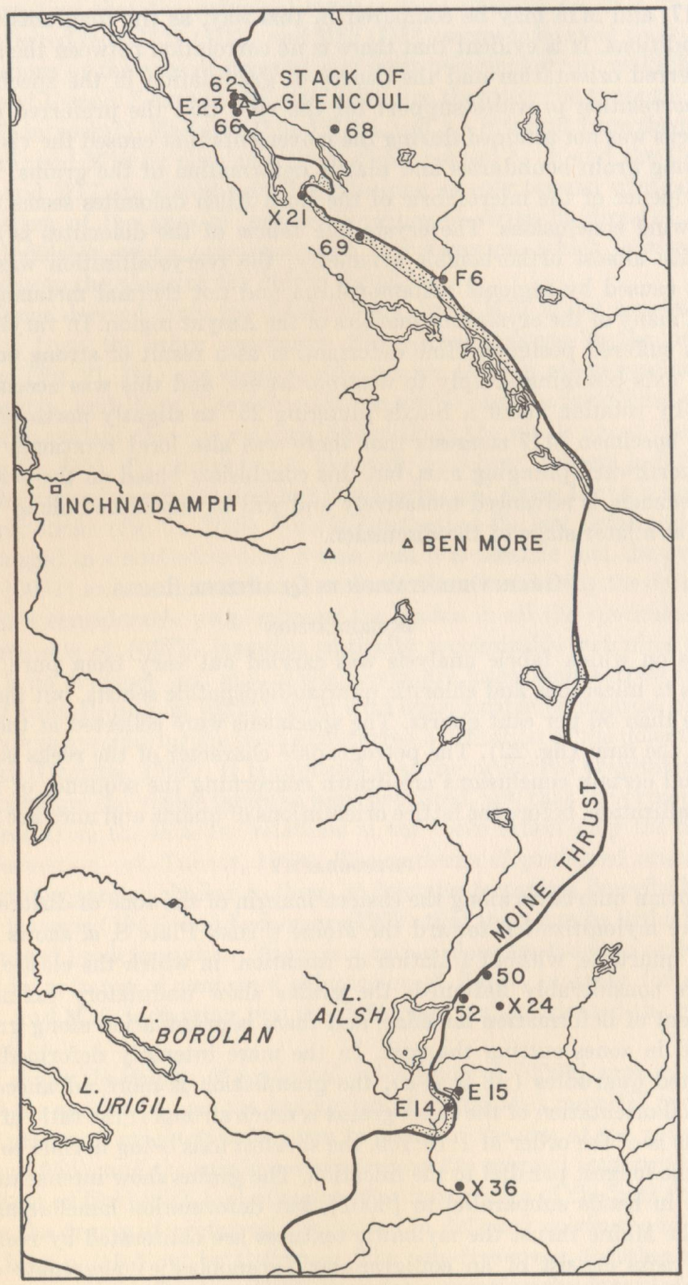

Fig. 22. Map showing localities of analyzed specimens of quartz-bearing rocks. Shaded areas are lineated Cambrian and Torridonian rocks immediately below the Moine thrust.

intense plastic deformation and granulation of grains and the other showing postkinematic crystallization, are referred to as quartzites of Type I and Type II, respectively.

The Moine schists in the area under consideration are quartzo-feldspathic rocks with small amounts of biotite and colorless mica, and traces of accessory minerals. The texture is granoblastic ("granulitic"). The small mica flakes are generally disposed along the intergranular boundaries of the quartz and feldspar grains, but are sometimes partially or wholly enclosed in them; mica flakes are mostly parallel to the foliation but are not concentrated to any great extent in layers and do not impart fissility to the rocks. The quartz and the feldspar show no trace of undulatory extinction or granulation. The rocks are texturally similar to the eucrystalline members of the primary mylonitic rocks, and differ from them only in being of coarser grain.

The petrographic character of primary and secondary mylonitic rocks is described in detail elsewhere (Christie, 1960).

FABRIC DATA

The preferred orientations of [0001] axes of quartz, measured in thirteen specimens, including Cambrian quartzites, primary mylonitic rocks, Moine schists, and a quartz vein, and the preferred orientations of {001} cleavages of mica, measured in the schist specimens, are shown in figure 23 (in pocket). In general, the primary mylonitic rocks are too fine-grained to allow satisfactory measurement of the orientation of the quartz grains with the U-stage, even with the highest-power lenses available, and the analyzed specimens are of slightly coarser grain size than average. In the secondary mylonitic rocks the quartz is reduced to a mass of minute granules (Christie, 1960, pl. VII), and for this reason it is impossible to measure the preferred orientation of quartz in the fabric by optical means. Except in quartzites of Type I, the quartz grains are relatively free from postcrystalline strain. In the quartzites of Type I, however, all the grains show a high degree of undulatory extinction, and the orientation of [0001] varies, in many instances quite considerably, over a single grain. For those grains in which the variation in orientation was slight, the mean orientation of [0001] in the grain was recorded, but where the variation was great, two or three measurements were made.

In the majority of the specimens [0001] axes of quartz were measured in a single section cut normal to the foliation and the lineation. The [0001] axes may be measured in grains with any orientation in a section, but errors may arise through unconscious omission or underselection of grains in which [0001] is normal to the plane of the section and which, consequently, remain in extinction during rotation about the vertical axis of the U-stage. In three of the specimens [0001] axes were measured in two sections cut with different orientation from the specimen, and the patterns obtained from each section were found to be essentially similar for all three specimens. Measurement of planar structures with the U-stage, on the other hand, leaves a "blind spot," as planes inclined at low angles to the section cannot be rotated into parallelism with the microscope axis. For this reason, {001} cleavages of mica were measured in two mutually perpendicular sections from each of the schist specimens, and the diagrams from the two sections