

**48. Kuruk-tāgh, P'o-ch'êng-tzŭ? (08).***Schistose Volcanic Agglomerate.*

This consists of angular fragments of igneous rocks and isolated minerals scattered through a very fine-grained matrix. The most obvious of the igneous rocks is rhyolite, which contains phenocrysts of quartz, turbid orthoclase, and albite in a micropoecillitic ground mass; some fragments of more basic material are present. The dispersed minerals are andesine, decomposed feldspars, and quartz. A good deal of mica and chlorite as well as a few crystals of tourmaline are present.

The rock has been subject to pressure, which has given rise to undulose extinction in the quartz and to a certain amount of schistosity.

**49. Kuruk-tāgh (010).***Limestone.*

A compact almost white limestone; originally very fine grained, but subsequently brecciated and reconsolidated by calcite, which now forms coarse mosaics. Some of the veins traversing it are filled with quartz with which a little ferric oxide or hydrate is associated. The quartz includes small grains of calcite—indicating that it has been deposited in place from solution—and sometimes occurs in isolated crystals.

The residue which remains on solution consists of quartz in angular fragments, crystals, and cryptocrystalline grains, and muscovite mica in ragged flakes.

**50. Kuruk-tāgh (011).***Adamellite.*

A very coarsely crystallized rock with red feldspar.

The feldspar is partly a perthitic orthoclase, partly albite. In common with the rest of the rock it has suffered from pressure, by which the twinning laminae of the albite have been bent in some cases into regular curves.

The quartz occurs as a coarse mosaic with irregular sutures; it presents undulose extinction and is crossed by numerous lines of vapour cavities which run more or less parallel in groups and seem to represent healed-up cracks. They are continued right through the mosaic and as lines of alteration into the adjacent feldspar. There are three of these groups; two of them, better marked than the third, intersect approximately at right angles.

The only primary mica is an altered biotite, with pleochroism: X, pale straw yellow; Y and Z, deep olive green. A good deal of apatite in comparatively large crystals and some zircons are present; the latter, when included in the biotite, are surrounded by a faint pleochroic halo.

Some crystals very much altered suggest the original presence of hornblende, but this cannot be definitely asserted.

**51. Kuruk-tāgh (013).** Pegmatitic rock with red feldspar, probably an apophysis of No. 50. Sp. gr. of rock, 2.61; of red feldspar, 2.56; of albite, 2.615.

**52. Kuruk-tāgh (014).***Marble.*

A white saccharoid marble, leaving on solution a small amount of residue consisting chiefly of muscovite in small flakes which sometimes retain their characteristic crystalline form; of other minerals there are apatite, zircon, and tourmaline. This rock is probably identical with No. 53;

the mica of the residue differs simply by less frequently presenting crystal outlines.

**53. Kuruk-tāgh (015).***Marble.*

A small fragment of salmon-red saccharoid marble.

A coarse mosaic of calcite, the component crystals ranging from 0.3 to 1.0 mm. in diameter. The rock owes its red colour to disseminated fine particles of ferric oxide. Under a high magnification some other fine particles, which are undeterminable in a thin slice, are visible. These, however, are left as a residue after solution in acid; among them and most remarkable are flakes of muscovite mica, too thin to give an axial figure in convergent light, and often presenting perfect hexagonal forms. The smallest of them measures 0.1 mm. in diameter, the largest as much as 1.12 mm. Their refractive index is close upon 1.57 and their specific gravity 2.715, sometimes a little higher. The perfection of these completely unaltered forms seemed to suggest their formation in place, but this view was rejected on finding that a large number present rounded angles and not infrequently oval forms, and this even when of very minute size; thus the smallest oval flake measures only 0.004 mm. in length. Further, in addition to the mica, some other minerals are present, such as rutile and tourmaline, which are evidently derivative.

There can be little doubt, therefore, that the spangles of mica were transported by wind or water and were deposited in the sea. How easily they were winnowed out from coarser material was impressed upon us when collecting the residue left on solution; they remained a long time in suspension, and, unless great care was exercised, were carried away in making a decantation.

Some of the mica contained scarlet granules of ferric oxide or ferric hydrate, sometimes arranged in linear rows running parallel with each other and the axis *a* or *c*.

**54. Kuruk-tāgh (016).***Quartz Mica Schist.*

A closely foliated and highly fissile quartz schist with obvious biotite on the foliation planes.

It consists of a quartz mosaic, for the most part very clear, with numerous vapour cavities, sometimes dusty and occasionally including a crystal of apatite.

The biotite is fresh and clear, light brownish yellow, with pleochroism: X, almost colourless to pale straw yellow; Y and Z, yellowish brown. It includes minute crystals of zircon surrounded by pleochroic haloes: the largest seen of these has a radius of 0.0281 mm.

Muscovite is present in fair amount. Feldspar was searched for but not found.

**55. Kuruk-tāgh (017).***Dolerite.*

Composed of a network of labradorite crystals in plank-like sections which sometimes approach a stellate arrangement, and colourless diopside which occurs in large plates, ophitic with the labradorite and in interstitial crystals. It is sometimes twinned, and in some instances the members of a twin interpenetrate each other in a kind of micrographic growth.

The diopside frequently forms the core of a hornblende