

valley bottom, six miles NW. of Camp xxviii (8. C 2).

Light brown sand with abundant mica, many coloured grains, and a few tabular aggregates up to 20 mm. x 15 mm. x 5 mm.

< .2 mm. .2-.4 mm. .4-.7 mm. > .7 mm.

Mechanical analysis: 75%    6%    2%    17%

Of the heavy minerals, biotite, muscovite, and green amphibole are abundant, and magnetite is common.

The aggregates consist of the same type of grain as in the loose sand cemented by calcium carbonate.

The grains larger than .7 mm. consist of flakes of a brown, fine-grained composite rock which is transparent only in very thin fragments, and they reach a size of 2 mm.

**108. Sand from red patch at foot of dune, about three miles SE. of Camp xxvii (8. C 2).**

A light brown sand with many coloured grains, flakes of mica, and thin flakes of a brown rock reaching 7 mm. in size.

< .2 mm. .2-.4 mm. .4-.7 mm. > .7 mm.

Mechanical analysis: 75%    14%    2%    9%

There are many composite grains. Of the heavy minerals, biotite, muscovite, and green amphibole are abundant, and garnet, epidote, and sphene are common.

The brown rock flakes are of the same type as in Sample 107 and form the portion greater than .7 mm.

**109. Clay from erosion terrace about five miles to SE. of Camp xxvii (8. C 2).**

Very fine light grey powder which tends to aggregate in small pellets. The bulk of the sample consists of grains .01 mm. and less in diameter and contains abundant biotite. Occasional angular grains of quartz, biotite, calcite, and green amphibole reach .04 mm. in diameter. A few grains ranging from .3 mm. to .6 mm., obtained by decantation, consist mainly of quartz with a little biotite, calcite, green amphibole, orthoclase, microcline, and plagioclase.

**110. Sandstone from Mazār-tāgh, below fort (13. B 4).**

Fine brownish-red sand with mica and a few grains from 1 mm. to 2 mm. in diameter.

< .2 mm. .2-.4 mm. > .4 mm.

Mechanical analysis: 98%    1%    1%

Of the heavy minerals, biotite, muscovite, and green amphibole predominate.

Among the larger grains, quartz, muscovite, quartz-felspar rock, and a fine-grained amphibole schist were recognized.

**111. Soil from eroded bank below N. III, Niya Site (19. B 1).**

Very fine light grey powder which contains some calcium carbonate. All the grains are less than .2 mm. in diameter, except a few flakes of biotite which have a maximum diameter of .35 mm. A great deal of the sample is less than .01 mm. in diameter. Of the larger grains, angular quartz predominates, and altered and unaltered biotite, muscovite, and green amphibole are prominent. There are also many indeterminate composite grains.

**112. Sand from dune W. of Yaka-toghrak (Vāsh-shahri) (26. B 3).**

Well-rounded, multicoloured sand with some mica.

< .2 mm. .2-.4 mm. .4-.7 mm. > .7 mm.

Mechanical analysis: 31%    22%    46%    1%

Microcline is strikingly abundant in the light minerals. Of the heavy minerals, green amphibole is abundant, and garnet and biotite are common. A few of the biotite flakes had haloes surrounding colourless crystal inclusions.

There is a large number of composite grains.

**113. Coarse sand from foot of dune, Uzun-chaval, Vāsh-shahri (26. C 3).**

Well-rounded, light brown sand with many coloured grains.

< .2 mm. .2-.4 mm. .4-.7 mm. > .7 mm.

Mechanical analysis: 24%    24%    24%    28%

The predominant heavy minerals are garnet and green amphibole. Biotite is not very common, but one flake showed haloes surrounding colourless crystal inclusions. Another flake had needle inclusions arranged at 60° with each other, the needles having an extinction angle of 25°.

The larger grains reach 1.5 mm. in diameter, and in addition to quartz and felspar there are many composite grains.

**114. Drift-sand from top of dune, Uzun-chaval, Vāsh-shahri (26. C 3).**

Fairly well-rounded, light grey sand, with many coloured grains.

< .2 mm. .2-.4 mm.

Mechanical analysis: 40%    60%

A few grains only reached a diameter of .5 mm.

Of the heavy minerals, green amphibole is abundant, muscovite scarce, and biotite is absent. There are many composite grains.

**115. Drift-sand (wind worn) from Sai edge, E. of Yillik (26. D 3).**

Fairly well-rounded, multicoloured sand.

< .2 mm. .2-.4 mm. .4-.7 mm. > .7 mm.

Mechanical analysis: 8%    6%    17%    69%

The large grains reach 2 mm. in diameter, and include quartz, orthoclase, and limestone, in addition to the many indeterminate fine-grained grains.

Among the smaller heavy grains, biotite and green and colourless amphiboles are abundant.

**116. Sand from ruin M. XIII, Mirān (30. B 2).**

Light brown sand with many coloured grains, mica, and some pebbles up to 20 mm. in diameter.

< .2 mm. .2-.4 mm. .4-.7 mm. > .7 mm.

Mechanical analysis: 50%    20%    15%    15%

The larger grains and pebbles include orthoclase, quartz, limestone, and fine-grained green amphibole schist in addition to the indeterminate grains.

Of the heavy minerals, biotite and green amphibole are abundant.

**117. Sand from bank of Kuruk-daryā, one mile SE. of LS. Site, Lou-lan (29. B 3).**