In this paper modal composition and texture of 61 representative crystalline highland rock fragments separated from size fraction 0.45-3 mm of Apollo 16 sample 63500 were studied by microscopic method in reflected light. The content of these crystalline fragments in the soil is 41.53%, while the percentage of other particles is: breccias (49.49%), plagioclase grains (6.78%) and remelted rocks (7.20%). The obtained modal data plotted on pseudoternary An-SiO$_2$-O$_1$ diagram (1) modified by (2) (Fig.1). According to nomenclature recomended by LAPST-committee (3) the studied rocks can be subdivided into the next groups: anorthosites (14.26%), noritic anorthosites (24.49%), anorthositic norites (56.12%) and norites (5.10%). Troctolitic rocks are absent. It is unknow there are or not gabbroic rocks in the sample because it is impossible to distinguish low and high Ca pyroxenes in reflected light. It is necessary to emphasise that the studied rock suite is continuous and the above mentioned groups are only formal. Calculated average modal composition of the highlands rock series is: plagioclase 76.23; pyroxene 17.08; olivine 5.36; ilmenite 0.45; troilite 0.08; Fe 0.13; silica 0.27; spinel 0.02; mesostasis 0.05 (vol.%). It corresponds to the chemical composition: SiO$_2$ 45.18; TiO$_2$ 0.42; Al$_2$O$_3$ 27.76; Cr$_2$O$_3$ 0.10; FeO 4.13; MgO 5.90; CaO 16.09; Na$_2$O 0.52; K$_2$O 0.06; P$_2$O$_5$ 0.08; Fe 0.13 (wt.%), calculated by using data of mineral chemistry (4).

The crystalline fragments were classified according to their texture into: (a) rocks with dominant feldspar grains and interstitial small pyroxene and olivine grains (Fig.2a); (b) coarse-grained ophitic rocks (Fig.2b); (c) breccia-like rocks in which large plagioclase clasts cemented by fine-grained matrix composed of felspar, pyroxene, olivine and opaques (Fig.2c); (d) porphritic-like rocks consisting of large feldspar grains (or clasts) included into hypidiomorphic medium-grained matrix with texture similar to terrestrial diabases (Fig.2d); (e) coarse-grained poikilitic (or poikiloblastic) rocks (Fig.2e); (f) fine to medium-grained subophitic fragments (Fig.2f); (j) porphritic-like rocks with large grains (or clasts) of anorthite cemented by poikilitic (or poikiloblastic) fine to medium-grained matrix (Fig.2j). There is clear correlation between the textures and the modal compositions of the rocks. In fact anorthosites have predominantly the type (a) texture; noritic anorthosites are characterised by types (b) and (c); anorthositic norites having 20-25% plagioclase show mainly the type (d) texture, and those rocks with 24-36% plagioclase and 20-30% pyroxene belong to the type (e) texture; anorthositic norites (>36% plagioclase) have the types (f) and (j) textures.

The average modal and chemical composition of studied rocks matches to that of granulitic impactites containing 70-80% plagioclase (5,6). The such rocks are really present in the 63500
sample. They have textures of the types (e) and (f). Their com-
positions plotted on the diagram (Fig.1) occupy the composi-
tional gap within Luna 20 crystalline rock suite (2). On the other
hand VHA-basalts and spinel troctolites abundant in Luna 20
sample are absent in 63500 probe. It supposed from genetically
different rock groups. That is supported by the texture differ-
ences in the series. In fact the most plagioclase rich rocks
having the types (a), (b) and probably anorthositic norites
with the (e) type of texture can be plutonic rocks, the another
fine and medium-grained rocks as a rule having <70% feldspar
are probably metamorphic ones with signs of partial melting.
Thus, as a whole, the continuity of the ANT highland rock series
seems to be illusory. In reality it cannot be considered as
unite suite generated by only one process as it was proposed by
(e.g.4) and consists of rocks formed in different processes.
I am grateful to M.A.Nazarov for invaluable help during the
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Fig.1. Modal composition of rock fragments (vol.%).
I - anorthosites; II - norites; III - troctolites (2);
1,2,3,4,5,6,7 - rocks with texture type (a),(b),(c),(d),
(e),(f),(j) respectively (see Fig.2); 8 - average comp.

Fig.2. Texture types.
Scale bar is 50 µm.

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