

Mineralogical and Petrographic Investigation
of Some Apollo 12 Samples

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All rock types examined petrographically display clear evidence of strong fractionation leading to a silica-rich residuum. The finer-grained rocks are remarkable for the development of skeletal crystals and for the overgrowth of sub-calcic augite on pigeonite. The pyroxene relations and plagioclase compositions were studied optically, and supported by micro-probe analyses. The major minerals and some accessories from each sample were characterised by single-crystal X-ray diffraction. In the high - K rock 12013 the plagioclase was shown to be anti-perthitically unmixed, and the potash feldspar proved to have exsolved albite with a typical superstructure. Mossbauer spectra of fines have been recorded. The proportions of iron-bearing minerals were estimated from the areas of the peaks and were compared with those from Apollo 11 fines.