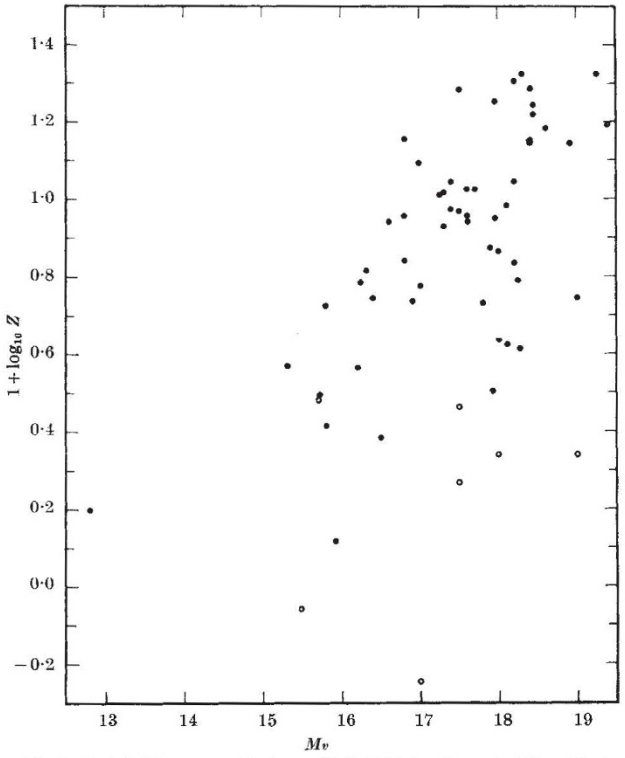

Fig. 3. Red-shift versus optical magnitude (M_v) for all quasi-stellar objects and N-type galaxies for which data are available. The list is compiled from published data from the observers working at Kitt Peak Observatory, Lick Observatory and Palomar Observatory. A large proportion of the objects are given in ref. 1. Others have been obtained from a list compiled by Burbidge, E. M., Lynds, C. R., and Schmidt, M., at the International Astronomical Union symposium in Erevan in May 1966

scatter is evidently so large that nothing useful, from a cosmological point of view, can be inferred. Indeed, as new red-shift values have become increasingly available, the plot of the observed quasi-stellar objects has assumed more and more the aspects of a scatter diagram. This can be seen by comparing Fig. 3 with a similar plot given by Sandage[3] about a year ago.

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Origin of the Lunar Maria

THE hypothesis proposed by Kopal[1] concerning the origin of the lunar maria is very interesting. However, it is important to note that the distribution of lunar craters on the Earth-turned hemisphere is far from uniform. There are significant, well-marked chains approximately aligned with the central meridian as seen from Earth; in the west (classical sense) the chain to which Vendelinus and Langrenus belong; near the centre, the Walter and the Ptolemaeus chains; in the east, the Grimaldi chain, and so on. The suggestion by Baldwin[2], according to which the alignments are not real and are due to lighting effects, does not fit the facts. I have discussed this matter elsewhere[3,4]. Particularly important, however, is the conclusion that the well-formed maria fit in to the general pattern; it is difficult to avoid the conclusion that, for example, the Mare Crisium is simply a large member of the Vendelinus chain. To introduce a separate origin for the maria presupposes that they are of a nature basically different from that of the craters.

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GEOLOGY

Age Determinations on Granites, Pegmatites and Veins from the Kibaran Belt of Central and Northern Katanga (Congo)

THE Kibaran–Burundi–Karagwe-Ankolean fold belt is one of the major geological features of eastern central Africa. It is perhaps best known as the seat of important tin and niobium–tantalum mineralizations, occurring in association with post-tectonic granites, pegmatites and veins[1,2]. In the Kibaran portion of the belt, geochronological studies have been carried out by the rubidium–strontium method on tectonically deformed granites, on non-deformed granites, and on pegmatites and veins, from four granitic batholiths: Bia Mountains, Kibara Mountains, Bukena-Manono and Mwanza.

The oldest granitic rocks recognized in both field and petrographic studies are pre- or early-tectonic granites emplaced in Kibaran metasedimentary rocks. The granites were modified during the Kibaran orogeny and are, at present, gneissic biotite granites with or without prominent microcline phenocrysts. The porphyric variety exists in all four of the massifs studied. The age of this type of granite from the Mwanza massif (Table 1, Nos. 1, 2, 4–6) is 1,310 ± 40 m.y., yielded by the closely fitting isochron of Fig. 1, with an initial strontium-87/strontium-86 ratio of $0{\cdot}708_5$. The apparent age of a non-porphyric whole-rock sample from the Bia Mountains (Table 1, No. 7) falls on the same isochron and, if the same initial ratio is assumed, is therefore the same age. It is note-

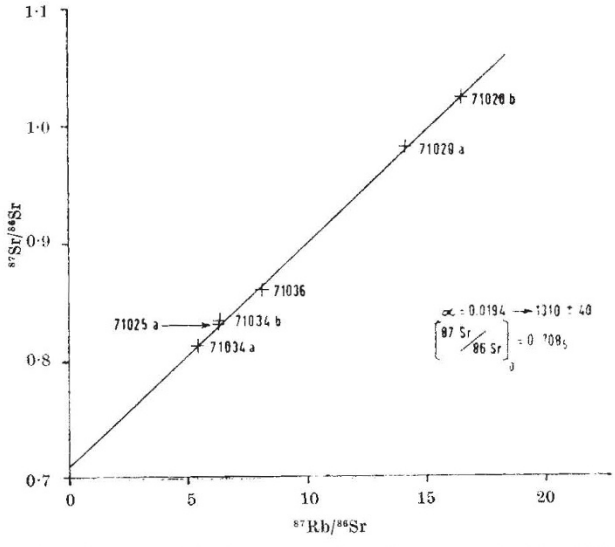

Fig. 1. Pre- or early tectonic granites from Mwanza massif. (No. 71025*a* is from Mt. Bakalenge, Bia massif)