

THE GEOLOGY OF THE SOUTHERN PART OF HOMA MOUNTAIN
CARBONATITIC COMPLEX WESTERN KENYA, WITH PARTICULAR
REFERENCE TO THE PETROLOGY OF THE ALKALINE SILICATE,
METASOMATIC AND MELILITE BEARING SUITES

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Abstract

The multi-centred carbonatitic complex of Homa Mountain consists of a central cone sheet complex intruded into a domed area of country rock, surrounded by further arcuate zones of intrusive activity.

The earlier events included intrusion of a body of ijolite, as a series of discontinuous bodies probably connected at depth.

Later events include at least five stages of carbonatite intrusion and also numerous carbonatitic breccias.

Syenitic rocks formed by concentration of late stage material at the margins of the ijolite which deuterically altered the ijolite and metasomatised the country rock to fenite contemporaneously. Minerals formed at such contacts are low temperature, potash-rich orthoclase and aegirine with apatite the chief minor constituent.

A second style of fenitization is recognized involving net veining of more widespread areas of country rock away from ijolite contacts.

This reaches its climax in arcuate zones of shearing and brecciation within the central high ground where there is evidence of partial melting of such fenites to iron oxide-bearing trachytes.

Coarse feldspathic rocks also carrying iron oxides are present near ijolites and early carbonatites. The feldspar

in these is very similar to that in the fenites.

Metasomatism at Homa is believed to involve introduction of large amounts of juvenile potash only, much of the soda being derived by redistribution of that already present in the country rock.

A period of erosion during which superficial, lacustrine and possibly pyroclastic deposits were laid down then occurred and the mountain reduced to near its present topography.

Following this erosional interval small scale vents of breccia and melilite-bearing material were intruded. The melilitites show all stages of replacement by carbonate.

The above later stages of activity occurred during Late Pliocene or Pleistocene time. They were accompanied by some phonolitic activity within the complex and more in the area to the east along an extension of the southern boundary fault of the Nyanza Rift.