

TIME AND SPACE RELATIONSHIPS
BETWEEN FAULTING AND MINERALIZATION
IN THE KEIYO-MARAKWET DISTRICT

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Very good thesis!
Invaluable book!

"This thesis is my original
work and has not been
presented for a degree in
any other University"



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"This thesis has been submitted
for examination with our approval
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ABSTRACT

This work describes the economic mineral occurrences and their relationships with the geological structures in the southern part of the Kerio Valley area.

The area covered is approximately 152 square kilometres and the principal rock types exposed are hornblende gneisses, biotite gneisses, quartzo-feldspathic gneisses and crystalline limestones of the Basement System; and sediments, basalts, phonolites and trachytes of Tertiary age.

Topographically the area can be divided into two sections:

1. The River Kimwarer Lowlands which lie below 1300 m. in altitude and are covered by alluvium and have scattered bushes exposing patches of badlands, and
2. The Uasin Gishu Plateau which lies above 2600 m. in altitude is a fertile large scale farming area.

These two features are separated from each other by the Keiyo Escarpment (former Elgeyo Escarpment) which is marked by steep scarps.

Economic fluorite deposits occur in three localities on the slopes of Naon, Chof and Chepelon Hills while a galena deposit is found 16 km. to the north of the fluorite deposits in the Sego-Kapso area.

Mineralization is thus found along the base of the escarpment where it appears to have been mainly localized in the Basement System rocks.

The main structures found in the area are folds, faults and joints. The folded structures show effects of complex deformations on meso scale and the strike directions and lineation trends are generally oriented in an approximate north-south direction. There are however a number of strike directions observed in the east-west direction. The amount of dip varies from 10° to vertical.

There are two-types of faults recognized in the area. The first type of faulting is shear in character with a dominant horizontal movement. These faults are in an almost east-west direction. The second type of faulting is the normal Rift faulting where the trend of the major faults are to the north-east in the southern direction and sway to a north-west direction northwards. There are also a few atypical east-west faults in this area. The time and space relationships between these two types of faults are important in the determination of the age of the mineralization of the area. The shear faults appear to have been pre-mineralization in age and have to a great extent been mineralized. Some of the Rift faults are post-mineralization and have downthrown to the east with the result that the mineralized zones lie below the escarpment.

Jointing is commonly developed in the gneisses

as well as in the lavas. The major joints in the gneisses are in an east-west direction while those in the lavas and particularly in the trachytes have two intersecting directions almost at right angles to each other.

Mineralization in Kerio Valley area started during the Tertiary and may have recurred in stages. The two mineralizing processes recognized in the area are replacement and fissure fillings. These two processes may have taken place individually or at the same time.