EVIDENCE OF FRACTURING OF THE DEEP BASEMENT FROM NIMBUS, X-15, APOLLO, ERTS-1 AND SKYLAB IMAGES

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ABSTRACT

Space imagery produced by scanners and cameras from earth orbiting satellites and translunar spaceships reveal photo-lineations which are positively identifiable. The same lineation, appearing in two or more images from different space missions, has a high order of confidence of actual existence as a structural feature of Earth's crust. Frequently the same lineation is identifiable in two or even all Nimbus, X-15, Gemini, Apollo, ERTS-1 and Skylab imagery.

These lineaments may be straight or curved. Some are related to known structural features. Often they reveal newly discovered unmapped structural features several hundred miles long. Many are 100 to 200 miles long.

Photo lineations are the images of several kinds of crustal features which may be the surface manifestations of deep seated, basement fractures which have been reflected up through all overlying formations, often of Precambrian age. Some appear to be quiet zones showing little displacement. They may be true offset faults showing evidence of slip in various directions. Others are now buried under alluvium or volcanic flows but they are still discernible in space images. Lineaments are often traces of vegetation anomalies arising from differences in water percolation on the two sides of the fracture, coloring of the alluvium by mineral deposition, subtle scarps not ordinarily mapped, reflections of movements recently occurring at depth and other causes.

Many photo-lineaments are coincident with mineralization trends and oil field orientations as well as geophysical phenomena lineaments or patterns such as aeromagnetic and gravity data.

Intersections of two or more lineations are amenable to interpretation by the proposals of Wertz and others as being related to zones of weakness and possible presence of intrusives, and hence mineralization.

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