RING COMPLEXES IN THE YOUNGER GRANITE PROVINCE OF NORTHERN NIGERIA

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SUMMARY

This memoir presents a summary of recent studies on the Nigerian Younger Granite complexes. Sufficient information is now available to indicate that the province includes some of the finest examples of granitic ring-complexes in the world.

The cycle of igneous activity was initiated by a volcanic phase during which large volumes of rhyolitic lavas were extruded. These lavas were succeeded by series of granitic intrusions whose emplacement and form have been mainly controlled by ring-fracturing and major block subsidence. As a result of the extensive down-faulting accompanying the granite emplacement, some of the rhyolites have been preserved at the present erosion level. Basic and intermediate rocks occur in some of the complexes.

The memoir is divided into two main sections. The first includes a general discussion of the essential structural, petrographic and geochemical characteristics of the province. The second section is devoted to the description of individual complexes which have been selected to illustrate the varieties of structure and rock type which are encountered.

I. Introduction

The separate identity of the Younger Granites, as distinct from the Older Granites in the Basement Complex, was first recognized by J. D. Falconer during the Mineral Survey of Northern Nigeria between 1903 and 1911. After the establishment of the Geological Survey in 1919, most of the Younger Granite complexes were identified and their boundaries defined. The initial survey recorded the presence of riebeckite-granite, the discordance between the Younger Granites and the structures in the Basement Complex, the absence of contact metamorphism and the importance of the suite in tin mineralization.

One of the Younger Granite complexes, the Kudaru Hills, was shown by A. D. N. Bain (1934) to have a ring structure. In 1946, R. R. E. Jacobson found the Liruei complex to possess a similar form and