limestone lens (quite distinct from the carbonatite) and sheridanite schists.

The carbonatite is surrounded by a ring of a nepheline-free cancrinite–calcite–syenite which we propose to designate by the name of 'busorite'.

The carbonatite itself is either an aegyrine-carbonatite (ringite) or a biotite carbonatite (sövite). These rocks form a plug one mile wide and occur also as dikes in the surrounding busorite or in the metasomatized Urundi schists. The strike of the surrounding schists suggests a diapiric pressure effect of the carbonatite plug.

The extent to which the busorite is eruptive or fenitic is not yet clear, but other metasomatic effects are noteworthy, especially in the Urundi schists which are locally transformed in what one of us[1] termed sodic-amphibolites, that is, fine-grained granoblastic rocks composed of alkali-feldspars, aegyrine and an alkalic-amphibole.

The peculiar character of this metasomatic aureole seems to be due to the fact that the carbonatite is not intrusive into a granitic basement as is the case at Fen, Alnö and the many Central and South African examples, but in meta-sediments.

Genetically, the carbonatite is related either to the limestone lens, or to the potassic province of the Virunga volcanoes (Northern Kivu Province). The first hypothesis being quantitatively somewhat inadequate, the second seems to be more probable.

P. DE BÉTHUNE

Institut Géologique,
Université de Louvain.

A. MEYER

Service Géologique du Congo Belge
et du Ruanda Urundi,
Goma.

[1] de Béthune, P., *Mém. Inst. géol. Univ. Louvain*, **16**, 228 and 269 (1952).
[2] Borgniez, G., *Bull. Assoc. Ing. Mons*, No. 5 (1944).
[3] de Béthune, P., *Acad. Roy. Belgique, Bull. Cl. Sci.*, (5), **35**, 1073 (1949).

Size and Abundance of Phenocrysts in Lavas of Terrestrial and Geosynclinal Environments

A STRIKING difference is noticeable in New Zealand in the number and abundance of phenocrysts in basaltic and andesitic lavas erupted in different environments.

Most flows erupted on land or in shallow seas and on geosynclinal shelves contain numerous and abundant phenocrysts of either feldspar or ferromagnesian silicates or both. Except perhaps for the colour of a rock, they are usually the most noticeable feature in a hand specimen. In the deeper waters of geosynclines lavas with noticeable phenocrysts are rare or absent.

There are several examples in New Zealand of thick assemblages of flows erupted on land and in adjacent shallow seas since the Miocene, and they are all characterized by many large phenocrysts.

Flows at several horizons among Cretaceous sediments deposited in deep marine basins (small geosynclines) are dominantly even-grained, and aphyric or microphenocrystic.

The degree of development of phenocrysts in flows in the major upper Paleozoic and lower Mesozoic geosyncline[1] of New Zealand is closely related to whether the flows occur at the margin, or at the knee-bend, or near the axis of the geosyncline. On the shelf, west of the knee-bend, several thousands of feet of lavas, pillow lavas and tuffs in Brook Street Formation were erupted mainly in a shallow-water marine environment. Nearly all the flows contain idiomorphic phenocrysts of basaltic augite (oxidized diopsidic augite) frequently more than a quarter of an inch in length and making up 20 per cent of the rock by volume. Consequently, Brook Street lavas have such a striking and characteristic appearance that samples of them can be recognized readily in river gravels and rock collections. Farther east, in the deeper waters near the knee-bend of the geosyncline, thick assemblages of lavas were erupted on both limbs of the Marginal Syncline[1] as part of the Upper Te Anau Group of Carboniferous or Lower Permian age. The west limb of this syncline is generally hidden beneath younger beds; but it is exposed intermittently for several tens of miles along the strike at the south end of the South Island, where the lavas contain fewer and smaller phenocrysts than the Brook Street lavas. In the east limb of the Marginal Syncline, which is exposed at both ends of the South Island, augite phenocrysts, in the occasional flows that contain them, are even fewer and smaller, being often scarcely larger than the crystals of augite in the ground-mass. Beyond the Marginal Syncline, in the axial ranges of both North and South Islands, among the extremely thick graded sediments east of the knee-bend in the geosyncline, there are lavas at several horizons. They are aphyric and so even-grained that they can be mistaken in the field for fine-grained greywacke if they do not show pillow-structure or if they are not associated with red and green coloured siliceous and calcareous sediments.

Large phenocrysts will form in a magma as it moves towards the surface if the temperature falls and if there is sufficient time for growth. These conditions must occur to the greatest extent where the movement of magma is towards a terrestrial surface, to a lesser extent where it is towards a geosynclinal shelf surface, and to a negligible extent where it is towards a surface in the deeper parts of a geosynclinal trough. Presumably, the distance travelled by magmas moving to the floors of a geosynclinal trough near its axis is insufficient to allow time for the growth of large phenocrysts

H. J. HARRINGTON

Geological Survey,
P.O. Box 8002,
Wellington, C.1,
New Zealand.
Nov. 9.

[1] Wellman, H. W., Symposium sur les Séries de Gondwana, Nineteenth Internat. Geol. Congress, Algiers, 13 (1952).

Erpocotyle abbreviata (Olsson, 1876) Price, 1942, a Monogenetic Trematode New to British Waters

Erpocotyle abbreviata (Olsson, 1876) Price, 1942 (=*Squalonchocotyle abbreviata*, Cerfontaine, 1899), is a parasite found on the gills of *Squalus acanthias* L. (the spur dog). Full details of the taxonomy of the species and genus are given in Dawes[1,2] and Sproston[3]. The trematode was first recorded by Olsson from the Skagerrak. Cerfontaine recorded it from Roscoff, and Sproston found one specimen on each of two male spur dogs from the same locality. The latter author