

## THE TERM "MAGMA-TYPE"

SIR,—Like Professor A. Holmes (*Geol. Mag.*, 1949, p. 71) I am grateful to Mr. M. K. and Dr. A. K. Wells (*Geol. Mag.*, 1948, p. 349) for the opportunity offered to me of expressing my opinion about names applicable to the two prevalent basalt types of the British Tertiary province. In my work bearing on this province, I have not only ceased to employ the term "magma-type" but have also abandoned the attempt to include in one type rocks belonging to the plutonic and volcanic associations. For the latter I have used the name "lava-type" (*Bull. Volcan.*, 1940, Sci. ii, vol. vi, p. 113). In this particular work, I have employed Kennedy's terms—olivine-basalt and tholeiitic basalt, but I have since come to the conclusion that these terms are not only unsatisfactory, but can be highly misleading. Although the difference between these two lava types is very striking, the difference is not expressed by the names olivine-basalt and tholeiitic basalt, for olivine is sometimes present in basalts of the so-called tholeiitic type, and several tholeiitic types, such as Largs, Salen, and Corrie types belong to the, so-called, olivine-basalt type. Instead of the above-mentioned names in dealing with the two prevalent lava-types of the British Tertiary province, I prefer to use the following terms:—

1. Hebridean Type (being the prevalent lava type in the Hebrides) to replace Plateau Magma-Type (*Mull Memoir*) and Olivine-Basalt Magma-Type (Kennedy).

2. Causeway Type (as occurring in the Giant's Causeway district) to replace Non-Porphyrific Magma-Type (*Mull Memoir*). Tholeiitic Magma-Type (Kennedy).

These two lava-types are extremely contrasted rock types, but the difference between them is not expressed by the prefixes olivine- or tholeiitic, but by the general chemical and mineralogical set up. For example, the Hebridean Type is characterized by plagioclase (labradorite) being more abundant than pyroxene, while the Causeway Type is characterized by plagioclase (andesine) being less abundant than pyroxene.

These two types exhibit minor variations mainly in respect of alkalis and silica, and can be subdivided into the following sub-types: Crinanite and Plagiophytic sub-types of Hebridean Type (Plagiophytic is to replace Porphyritic Central Magma-Type of *Mull Memoir*) and Trachydolerite (Mugearite) and Staffa sub-types of Causeway Type.

This scheme does away completely with the attempt to apply mineral or textural terms to the lava-types of the British Tertiary province, and thus localizes these types and prevents their being confused with rock-types belonging to other localities or periods. To take examples, the Tertiary olivine-basalts are by no means identical with the Carboniferous olivine-basalts, and the Tertiary tholeiitic basalt differs in detail from the Carboniferous quartz-dolerites. Regional names may help to clear up this confusion and restrict the lava-types to their respective localities. The more we think of age and area in regional petrology the better and clearer are our descriptions and comparisons. This is why I would like to protest not only against the use of names for so-called magma types, but also against the use of names for rock-types based on characters related to these of rock-types from other areas.

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