

NEW NAME FOR A VALANGINIAN AMMONITE GENUS

SIR,—Mr. St. Stephanov from the Geological Institute, the Bulgarian Academy of Sciences, Sofia, kindly drew my attention to the fact that in my article on “Dobrogeites—a New genus of Valanginian Ammonites” the name *Dobrogeites* Nikolov, 1962, is homonymous with *Dobrogeites* Kittl, 1908. Therefore I suggest *Dobrodgeiceras* nom. nov. to replace *Dobrogeites* Nikolov, 1962 (non Kittl, 1908). The type species is *Dobrodgeiceras ventrotuberculatum* Nikolov, the holotype of which is the specimen designated in my paper (1962, p. 70, figs. 1a, b. Coll. BAN Cr. 253).

T. NIKOLOV.

GEOLOGICAL INSTITUTE,
THE BULGARIAN ACADEMY OF SCIENCES,
SOFIA 13.

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VOLCANIC ROCKS OF THE ORAMUTIA SECTION, CENTRAL KENYA

SIR,—Dr. McCall's letter (*Geol. Mag.*, 1962, **99**, pp. 475–76) raises the issue of *fiamme* (pumice lenticles) as structures pointing to the origin of ignimbrites. In particular, McCall objects to *fiamme* being flattened by lithostatic load operating during the cooling of ash-flows. McCall also seems to assume that any general conclusions derived for the origin of *fiamme* will inevitably influence the hypothesis of the origin of ignimbrites. This is by no means true since *fiamme* or *fiamme*-like structures can originate in a variety of ways as follows:

(1) Numerous writers described *fiamme* as fragments of pumiceous material in ignimbrites. Such fragments are certainly not embryonic vesiculation areas as is claimed by McCall (*Nature*, 1962, **196**, pp. 364–65), since frequently the rectilinear margins of the less welded fragments of pumice are observed to cut across the microvesicles which form such fragments. New textural evidence for compaction rather than flow origin of *fiamme* in ignimbrites has been described elsewhere (Rast, *L'pool and Manch. Geol. Journ.*, 1962, **3**, pp. 97–108).

(2) The term *fiamme* originally was proposed for lenticular cross-sections of cake-like masses of glass in a welded-tuff (not an ignimbrite) known as *piperno*, which was first described by Dell'Erba (*Gior. Miner. Crist. and Petr.*, 1892, **3**, pp. 23–53). This rock consists of sub-aerially accumulated fragments of lava and pumice (in the type known as *sperone*), which in cross-sections appear similar to the lenticles of pumice in ignimbrites. The similarity is especially pronounced when *piperno* or *sperone* are pneumatolysed. Rittman (*Volcanoes and their Activity*, Interscience, 1962) points out that these fragments have been flattened by impact with the ground of effectively liquid volcanic bombs projected by lava-fountains.

(3) Numerous Russian authors suggest the existence of the so-called tuffolavas, which constitute a type of flow brecciated lavas. Such lavas contain fragments of pumice, but according to Shirinian (*Trudy Lab. Volcan., Acad. Sci. U.S.S.R.*, 1961, No. **20**, pp. 47–58) the texture of their matrix is microvesicular and fluidal rather than vitroclastic as in ignimbrites. The average density of vesicular tuffolavas is much less than that of ignimbrites and they evidently represent the foam-lavas of McCall. Thus Russian investigators envisage both pyroclastic flows and foam-lavas to contain *fiamme*. Boyd (*Bull. Geol. Soc. Amer.*, 1961, **72**, pp. 387–426) envisages all transitions between lavas, foam lavas and ignimbrites.

(4) Around Monte Amiata, Tuscany, the so-called rheoignimbrites described by Rittman (*op. cit.*) are often traversed by veins of pneumatolysed material. In such veins 1 to 12 inches in thickness small lenticles of glass ($\frac{1}{2}$ to 1 inch in length) have been generated during pneumatolysis. These lenticles have the same morphological characters as *fiamme*. The matrix to the lenticles consists of pneumatolytic crystals of quartz and feldspar, and the lenticles themselves formed clearly after the deposit was emplaced.

Thus it is clear that *fiamme* can be found in a variety of volcanological environments and unless the environment is clearly diagnosed, it is impossible to use them as indices of the origin of ignimbrites. The diagnosis of such environments would involve a detailed work on all aspects of each particular occurrence of *fiamme*.

Furthermore, it must be pointed out that there are numerous examples of ignimbrites devoid of *fiamme*, and that the identification of such rocks first described by Marshall, involved not only one particular structure but a whole complex of structures, textures and field relationships. It may be true that as Boyd (*Bull. geol. Soc. Amer.*, 1961, 72, pp. 387–426) points out there is a complete transition from lavas to froth-lavas to pyroclastic flows, yet no really universal objections so far have been advanced to overthrow the ash-flow theory of ignimbrites suggested by Marshall.

NICHOLAS RAST.

DEPARTMENT OF GEOLOGY,
UNIVERSITY OF LIVERPOOL.
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REVIEWS

CHARLES LYELL. By Sir EDWARD BAILEY. pp. x + 214, with 20 text-figs. and 24 plates. Thomas Nelson and Sons, 1962. Price 15s.

Sir Edward Bailey has placed all geologists in his debt by this critical account of the life and work of the "apostle of uniformitarianism". The gradual recognition and application of the principles which have provided the key to our understanding of the history of the earth is traced in detail, and illumined throughout by the author's comments. There are helpful maps, illustrations, and a full index which serves to guide the reader to references to localities, subjects, and the work of a host of pioneers in geological and other fields who influenced, and were influenced by, Lyell. This is a book to be read with pleasure and profit—by all who are interested in the history of geology, and would re-experience the fascination and thrill of discovery.

L. H.

RICHARD L. PIERCE, 1961. Lower Upper Cretaceous plant microfossils from Minnesota. *Bulletin Minnesota Geological Survey*, 42, 86 pp.

This is a most welcome report on pollen and spores from the Cenomanian, a stage which has hitherto received little attention. Both the figures (although they are not numerous) and the descriptions of the microfossils are clear, and useful information is brought together on the contemporary microfossils.

Unfortunately, however, the thesis on which the work is based was apparently completed in 1957, when general references cease. The results of delay in publication (until 1961) are disastrous in this rapidly expanding subject of palynological nomenclature. Although the author lucidly describes the position as it was in 1956, he has missed the system of Potonié (1954, 1956, 1958, 1960) which has been used at least in part by most other Western authors since that time, and he has chosen the stillborn system of van der Hammen (1954) which was developed in near isolation and was not erected in accordance with the Code of Botanical Nomenclature (1956 and later). However accurately they are handled it is too late to attempt validation of van der