microspores, which, on detailed investigation, should prove useful in more precise age determinations.

The following are some of the types of microplankton provisionally determined from these sediments:

Deflandrea. This is a conspicuous constituent. Three or four species have been recognized, two of which appear to be related to the *D. granulifera-D. verrucosa*-component of the microplankton assemblage described by Manum and Cookson (Skr. Vid.-Akad. Oslo, I. Mat.-Naturv. Kl., No. 17, 1964) from the Upper Cretaceous of the Canadian Arctic Archipelago.

Hexagonifera cf. *vermiculata* Cookson and Eisenack, 1961; *H.* cf. *suspecta* Manum and Cookson, 1964

Odontochitina sp.

Hystrichosphaeridium cf. *stellatum* Maier, 1959

Canningia sp.

Chlamydophorella cf. *nyei* Cookson and Eisenack, 1958

Diconodinium cf. *arcticum* Manum and Cookson, 1964

Palaeoperidinium cf. *cretaceum* Pocock, 1962

Palambages sp.

This microplankton assemblage recalls to some extent the one described from deposits on Graham Island believed to be of low Upper Cretaceous Age (Manum and Cookson op. cit.).

The microspores seen so far support the low Upper Cretaceous age suggested by the microplankton content.

Residual cipolino: End-product of calcareous rocks in regional metamorphism. A comment

By

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In a recent paper (Norsk geol. tidsskr. 45: 303–313, 1965), R. D. Schuiling dealt with the problem of some carbonate rocks, which are particularly common in high-grade metamorphic terranes, and which are named variously plagioclase-granulite, diopside-granulite, calc-silicate granulite, and silicated carbonate rocks.

After clearly pointing out that a sedimentary origin has been proposed by all the authors who have described these rocks, he tackles the question of their genesis. If the mineralogical composition of such rocks is 'roughly according to oxide percentages' (computed chemical composition is deduced from mineralogical composition of 17 'residual cipolinos', Nos. 1–17 of Table 1, Schuiling, op. cit., p. 306) 'and if it is admitted that Ca and Mg would be present almost exclusively as carbonates in the original sediment, a composition is arrived at which is highly unusual for a sediment'.

Besides, one can hardly believe that these rocks, which 'seem to form fairly well-closed systems with regard to influx of material', are the result of the transformation of a limestone band by Si, Al, Fe, Mg-metasomatism. Hence their formation should be 'viewed as an end-product of *normal* limestones, with *normal* amounts of impurities from which the carbonates were expelled during metamorphism'.

This is the reason why Schuiling proposes for the group of rocks under consideration the name 'residual cipolino' which must be used globaly with its genetical connotation.

The problem of the genesis of these 'residual cipolinos' will not be considered here. Some observations made during recent fieldwork in Antarctica (Terre de la Reine Maud, Sör-Rondane) on the same kind of rocks will be the subject of a future contribution by the present writer. The point I do want to discuss is that of the proposal of a new petrological term the definition of which, moreover, includes a genetical meaning. In other words, this means that this term will only be used, if accepted, by those who agree with Schuiling's views on the 'residual cipolino' formation; this also means that those who do not agree will have to propose another term. This is one more case whose result will certainly be to make all discussions ambiguous. Thus, I do not think it is desirable to use both a descriptive and a genetical name for the same object. Moreover, I do not think it is desirable to propose a genetical definition for a rock. Anyway, the grouping of the two words (residual and cipolino) seems to be rather unfortunate, because, used alone, cipolino has a quite different meaning.

I agree that the existing names (plagioclase-granulite, calc-silicate granulite, etc.) lead to confusion and that the term granulite should be used only in very well-defined cases. Moreover, granulite now has too many different meanings to be maintained in the geological literature.

Schuiling leaves 'the way open to other suggestions'. May I suggest that the last term to which he refers, 'calc-silicate *granofels*', proposed in 1959 by R. Goldsmith (Granofels, a new metamorphic rock-name. Jour. Geol. 67: 109–110), is a very good general descriptive term and is well applied to the features Schuiling sees in the 'residual cipolinos'.

Therefore, a new name is not necessary, and a genetical connotation should be avoided. If this point of view is admitted, the only way to include the genetical aspect in the descriptive term will be to use an adjective. In the present case, 'residual calc-silicate granofels' seems to be a good expression. Reading this term, all petrologists will have a clear picture of the rock and at the same time will understand that Schuiling has good reasons to believe in its residual character.

Residual cipolino: End-product of calcareous rocks in regional metamorphism. A reply

BY

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In this issue of this journal, MICHOT (1966) takes exception to the author's introduction of the term 'residual cipolino', as well as to the author's contention that it is permissible to use two kinds of names and definitions for one object: the one linking it to direct observations (descriptive definition), and the other to its inferred mode of origin (genetic definition). This, even in petrology, is not a new notion. We might take, for instance, MEHNERT's (1959) two definitions of kinzigites, the one being a petrographic, descriptive definition: garnet-cordierite-plagioclase rocks $\pm$ biotite-graphite-quartz; the other being a genetic one: rocks with excess Mg-Al-Fe, from which alkalies, SiO_2, and H_2O were driven out.

We might even hold that this two-fold system of classification and names is inherent to petrology, as it deals on the one hand with