

## CORRESPONDENCE

## MAGMATIC AND AMYGDALOIDAL PLAGIOCLASES

SIR,—The closing paragraph of Mr. Le Bas' paper on the above subject (*Geol. Mag.*, xcii, 1955, 291–296) reveals a fundamental misapprehension regarding feldspathic bodies, within some of the Slieve Gullion rocks, interpreted by me as recrystallized amygdaloids that originally contained zeolites (*Trans. Roy. Soc. Edin.*, lxii, 1951, 99–102, 123–124). These bodies are not single large crystals as Mr. Le Bas supposes, but, as stated in my paper (p. 101), consist of “intergrowths of lime-soda feldspar”. The “white gabbros” containing them form the upper portions of layers of feldsparphyric dolerite characterized by macroscopic phenocrysts of plagioclase, some of which are themselves composite intergrowths. The rocks concerned are in fact members of the “porphyritic central magma-type” of Thomas and Bailey, and Mr. Le Bas is correct in saying that the large crystals of plagioclase represent original phenocrysts. Presumably, however, Mr. Le Bas has been labouring under the entirely mistaken impression that I supposed these plagioclase phenocrysts to be recrystallized amygdaloids. Mr. Le Bas' conclusions neither add to nor subtract from my inferences from the Slieve Gullion rocks.

It is, however, desirable that a criterion be established whereby plagioclase resulting from the metamorphism of zeolite-filled amygdaloids may be distinguished from the initial plagioclase of basalts that have undergone the same limited degree of metamorphism. It was previously my intention to attempt to find such a criterion by reference to the relative frequency of occurrence of twins of various types, paying due attention to the composition of the plagioclases concerned. I was encouraged in this intention by the positive results already obtained by Dr. M. Gorai (*Journ. Geol. Soc., Japan*, lvi, 1950, 149–156) who applied this method to the problem of distinguishing magmatic from metamorphic rocks. The task is an onerous one involving hundreds of measurements with the universal stage on suitably chosen material, including the basalts of metamorphic terraines. If Mr. Le Bas will now undertake this investigation he will not only make an important contribution to petrology, but amply atone for his misrepresentation of my work.

DORIS L. REYNOLDS.

GRANT INSTITUTE OF GEOLOGY,  
UNIVERSITY OF EDINBURGH.  
5th September, 1955.

## AGE OF THE WEALDEN IN NORTH-WESTERN EUROPE

SIR,—May I express my appreciation of Professor P. Allen's recent discussion of the age of the Wealden (*Geol. Mag.*, xcii, 1955, 265–281).

The problem is clearly stated but, since very little of the relative palaeontology has yet been published, Allen's conclusions must in many instances remain highly speculative. A particular case is the correlation of the English and German Wealden. The detailed succession of ostracod faunas in S.E. England is now fairly well known but more information is being obtained daily. In Germany the fauna is poorer and the amount of material available for study is relatively small. Nevertheless, having examined ostracod faunas from both countries I have little doubt about the correct correlation of the Wealden. Wolburg's statement that the German “Wealden 4” is the equivalent of the uppermost Wealden of England as exposed at Berwick cannot be substantiated (Wolburg, J., 1949, “Zur Frage des Alters der obersten Wealdenschichten in England,” *Neues. Jahrb. f. Min., Abt. B.*, vii, 193; and 1950, “Vergleichende stratigraphische Untersuchungen der brackisch limnischen Ablagerungen Europas an der Wende Jura-Kreide,” *Geol. Landesanst., Geol. Jahrb. f. 1943–8*, lxiv, 159).

The species he collected from Berwick and identified as *Gomphocythere*

*berwickensis* Martin is, in fact, the juvenile of the well known *Metacypris fittoni* (Mantell) which although common in the uppermost Wealden in the Weald and in the Isle of Wight, nevertheless is present at intervals and in abundance in the middle part of the Hastings Beds. Furthermore, none of the species typical of the Weald Clay in England such as *Cypridea clavata* Anderson, *C. dorsispinata* (Anderson), *Cypridea tuberculata* (J. de C. Sowerby), and "*Cypris*" *henfieldensis* Anderson have yet been found in the German Wealden.

Comparing the ostracod faunas of the English Wealden with those found in the Thören, Rodewald, Adorf, Itterbreck, and other German borings the correlation appears to be:—

England—Weald Clay	Germany—Marine strata
Hastings Beds	Wealden 3–6
Upper Purbeck	Wealden 2
Middle Purbeck (Part)	Wealden 1

The base of Wealden 1 in N. Germany appears to be at about the horizon of the "Cinder Bed" of the English Middle Purbeck.

F. W. ANDERSON.

GEOLOGICAL SURVEY AND MUSEUM,  
EXHIBITION ROAD,  
LONDON, S.W. 7.  
20th September, 1955.

## PUBLICATIONS RECEIVED

- F. D. ADAMS. *The Birth and Development of the Geological Sciences*. pp. v + 506, with 79 text-figs. and 14 pls. Dover Publications Inc., New York, 1954, price \$1.95 (cloth, \$3.95). An unabridged republication of the first edn. published in 1938.
- W. L. STOKES and D. J. VARNES. *Glossary of Selected Geologic Terms with special reference to their use in engineering*. Colorado Scientific Society Proceedings, vol. 16, pp. xii + 165. Denver, 1955, price \$2.75 (cloth, \$3.75).
- L. D. STAMP. *Man and the Land*. pp. xvi + 272, with 35 colour photographs, 46 photographs in black and white, and 52 text-figs. Collins, 1955 (The New Naturalist Library), price 25s.
- W. G. HOYT and W. B. LANGBEIN. *Floods*. pp. x + 469, with 50 text-figs. and 31 pls. Princeton University Press (Geoffrey Cumberlege), 1955, price 60s.
- Climatic Change, Evidence, Causes and Effects*. Edited by H. SHAPLEY, with 21 other contributors. pp. xii + 318, illustrated. Harvard University Press (Geoffrey Cumberlege), 1954, price 48s.
- Tanganyika: a review of its resources and their development*. Prepared under the direction of J. F. R. HILL and edited by J. P. MOFFETT. pp. xviii + 924, with numerous maps, tables, and charts. Published by the Government of Tanganyika, 1955. (Chap. 27, pp. 673–705, on geology and mining.)
- Geological Survey of Great Britain*. Summary of Progress of the Geological Survey of Great Britain and the Museum of Practical Geology for the year 1954. 1955, H.M.S.O., pp. iii + 88, 1 fig. Price 3s. 6d.
- Geological Survey of Great Britain, Bulletin No. 7*. Papers by J. R. EARP; R. H. HOARE and G. H. MITCHELL; D. C. GREIG and G. H. MITCHELL; G. W. GREEN; STANLEY SMITH; N. R. MARTIN; G. S. JOHNSTONE and J. E. WRIGHT. 1955, H.M.S.O., pp. v + 109, with 13 pls. and 27 figs. Price 12s. 6d.
- Geological Survey of Great Britain, Bulletin No. 8*. Papers relating to the Geological Survey of Northern Ireland. 1955, H.M.S.O., pp. iv + 53, with 1 pl. and 11 figs. Price 5s.