

## CORRESPONDENCE

## MAGMA TYPES

STR.—The recent paper by Mr. M. K. Wells and Dr. A. K. Wells on Magma Types (*Geol. Mag.*, 1948, p. 349), and the letter thereon by Professor A. Holmes (*Geol. Mag.*, 1949, p. 71), have caused me to consult my own use of the term. This occurs in my paper "On the Basaltic Lavas penetrated by the Deep Boring for Coal at Bhusawal, Bombay Presidency", *Rec. Geol. Surv. Ind.*, liii, p. 196 (1925). This paper was written in Calcutta during the recess period of 1924, so that my use of the term "magma-type" was made in ignorance of its use by the authors of the Mull memoir published in the same year, to which, consequently, I make no reference.

As a result I find that I have used the term with a significance somewhat different from that of the Mull memoir. My paper contains a record, with description of the mineralogy and petrology, of 1,171 feet vertical of horizontal basaltic lavas of the Deccan Trap formation pierced in a deep bore-hole for coal. The study of the cores showed that twenty-nine flows had been cut, and that the range of thickness of the twenty-seven flows completely pierced was from 5 feet to 97 ft. 3 in., with an average thickness of 40 feet. No analyses were made of these rocks, but from the microscope study, making use of mineralogical and other peculiarities, it was possible to arrange them into seven groups based on the absence or presence of phenocrysts of olivine and labradorite, and on whether these had remained suspended in the flow or had sunk towards the base. These seven groups were made into two types according to peculiarities exhibited by the iron-ores; and it was these two more comprehensive groups that were designated magma-types, on the hypothesis that they had come from different magma-sources.

Sub-crustal and intercrustal magma-basins are discussed on the assumption that these basaltic rocks had come as liquids from subterranean sources, often carrying in suspension phenocrysts of labradorite and olivine of intratelluric origin. The evidence was held to show that the difference between the porphyritic basalts with phenocrysts of labradorite and olivine and non-porphyrific basalts was entirely due to gravitative settling within a magma-reservoir, and I did not find any evidence for the hypothesis that the olivinic and non-olivinic basalts came from different ultimate sources. My two magma-types each include porphyritic and non-porphyrific basalts. It may be that chemical analysis would show that these two types have no wide-reaching special significance. I do not see why they should, as I attribute all these Deccan Trap effusions to the same ultimate source, namely my infra-plutonic eclogite shell.

Professor Holmes may already know the answer to the question whether there is any significant difference chemically between my two magma-types, since many years ago he asked for, and was I believe supplied with, specimens of my Bhusawal basalts for purposes of chemical study.

Yours faithfully,

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## EAST ANGLIAN DRIFTS

STR.—It is distinctly hard on Mr. Baden-Powell that the evidence which led to my East Anglian views should have been produced, and illustrated, in London so soon after his letter was written. For that reason it would be unfair to take his attitude as final, and futile to start a discussion until that evidence, notably as to Corton and Hoxne, is published and can be assessed.

In the meantime may I make a general comment, addressed not so much