

CORRESPONDENCE.

THE DOLERITE-CHALK CONTACT OF SCAWT HILL.

SIR,—I have just seen the March issue of the *Mineralogical Magazine*, containing Dr. C. E. Tilley's account of the dolerite-Chalk contact of Scawt Hill, co. Antrim. Dr. Tilley shows that the marginal part of a small body of olivine-dolerite has assimilated enough Chalk to give rise to a narrow zone of pyroxenite and to patches and veinlets of nepheline-dolerite. But having to his great credit put the seal on the demonstration that nepheline can be formed by the desilication of albite molecules by limestone, Dr. Tilley expresses two conclusions with which I cannot agree. One of them is that "the reactions ultimately giving rise to the alkali-rocks are . . . essentially different from those hypothesized by petrologists who have given consideration to this question in the past". The reaction that ultimately gave rise to the alkali-rocks at Scawt Hill was—in Tilley's own words—"a desilication of the albite molecule in the presence of lime," and this reaction is the very essence of R. A. Daly's hypothesis of the alkaline rocks. In order to account for the *accumulation* of such rocks in large masses, Daly made the additional assumptions of crystal-settling and of the rise of a light alkaline fraction, but these are not necessary to the *genesis* of alkaline rocks. While admiring the completeness of Tilley's demonstration one should not withhold credit from the author of the brilliant hypothesis which it confirms. The other conclusion with which I cannot agree is that "the Scawt Hill contact-zone is to be taken as an example of the restricted potentiality of igneous magma to generate alkali-rocks by assimilation". The Scawt Hill intrusive is an olivine-dolerite, so its magma was certainly less hydrous than granitic magma, and in addition the rate of cooling was obviously rapid. If Tilley had maintained the restricted potentiality of *olivine-dolerite* magma to generate alkali rocks, one might have agreed with him, but Scawt Hill proves nothing at all about the potentialities of the great deep-seated granite-limestone contacts of the Archaean. I hope the account that I am now preparing of the granite-limestone contact at Palabora, in the N.E. Transvaal, will help Dr. Tilley to see the fallacy in his argument.

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