gruenerite) while the fayalite-cordierite pair pass to an aluminous gedrite. Rankin and Merwin, in their study of the system, MgO-Al_2O_3-SiO_2, expressed the view that the introduction of iron into the system might lead to the disappearance of the cordierite field, a suggestion which is now the less convincing. The many pressing petrological problems associated with equilibria in iron-containing silicate systems—of which this is one—would doubtless soon find their solution if some advance could be made in overcoming the great experimental difficulties associated with the investigation of these systems.

C. E. TILLEY.

A NOTE ON THE HOLYWELL SHALES.

SIR,—The report in your issue of January last of the paper by Messrs. W. Lloyd and R. C. B. Jones on "The Upper Carboniferous of Flintshire", read before the Manchester Geological Association on 12th November last, shows that valuable results have been obtained, and the publication of the full paper will be awaited with interest.

The identification by Dr. J. W. Jackson of *Posidonomya corrugata*, the fossil previously referred in error by me and others to *P. becheri*, from beds resting on the chert near Holywell, shows that in that district the *P* beds have been cut out.

I showed in a former paper (this Magazine, Vol. 64, 1927, p. 252) that on the northern fringe of the chert outcrop the lowest shales resting on the chert are of *P* age, with undoubted *P. becheri*. At Holywell, seven miles to the south-east, it now seems clear that the lowest shales are of low *E* age. Still further to the south-east, in the neighbourhood of Hope, the lowest shales (*fide* Lloyd and Jones) are of upper *E* age, with *Eumorphoceras bisulcatum*.

It seems clear, therefore, that there is a definite overlapping of the shales from north-west to south-east and the occurrence of *P. corrugata* at Holywell does not in that case indicate (as suggested in the report) any change in the stratigraphical position of the Chert-beds. These beds are seen resting directly on the Carboniferous limestone at many points from near Prestatyn on the north of the Chert outcrop to Moel-y-Gaer on the south, including the intermediate Holywell district.

The transgression is still further emphasized at Nant-y-Figillt, south of Moel-y-Gaer, where the authors report *G. cancellatum* and *R. reticulatum*, mut. γ, a short distance above the limestone.

I venture to think that there can be no doubt that the Chert-beds are of Lower Carboniferous age, and, judging from the abstract of their paper, the authors' valuable work shows that the Holywell Shales rest upon them unconformably and overstep them on the south.

H. C. SARGENT.