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MS received 19th June 1975

THE LOWER CARBONIFEROUS ROCKS OF THE CAMPSIE-KILPATRICK AREA

SIRS—We welcome the new data accumulating from the re-mapping of this area by the I.G.S., in Craig and Hall's recent letter to the *Journal*, but would emphasize again that many of our comments were based on the existing One-Inch Sheets 30 and 31 of the Geological Survey of Scotland. Figure 3 in our paper is not an accurate cross-section of the plateau but is an attempt to show diagrammatically relations between basalt types in flows and plugs at the present level of erosion, and can be criticized in detail at localities other than Duncolm and Craigton.

The derivation of Markle flows from conduits now plugged with Dunsapie basalt, would certainly solve, in part at least, the problem of centres of eruption of these flows, but does not eliminate the possibility of some eruption from fissures now seen as Markle dykes. To suggest that dykes, but not plugs, show chilled margins and groundmass and therefore (by implication) cannot represent conduits is misleading. As has been pointed out before (Whyte 1968) it might be difficult to prove that some of the plugs were ever centres of eruption. MacDonald's (1967) description of variation in the hawaiite at Strathblane was of a lava free of macrophenocrysts and extreme in its composition among the trachybasaltic flows. We do not consider that this can be cited as general evidence for continuous variation of composition during eruption.

The finding of vents along part of the Campsie Fault supports our suggestion that this was a line of structural activity during the eruption of the lavas. The new vents occur along an 8 km section of the fault (significantly where it has a NE.–SW. trend), but it seems premature to compare its importance with that of the Dumbarton–Fintry line which stretches for 25 km.

Craig & Hall refer (p. 172) to three specific localities (presumably of vents along the Campsie Fault). While the first [NS 697 789] lies close to the fault, the others [NS 808 791] and [NS 822 796] lie some 5 km SE. of the fault in areas of Carboniferous Limestone Series and Millstone Grit. We assume these grid references to be incorrect, and should read [NS 708 791] and [NS 722 796] respectively which would bring them into line with the first locality, close to the Campsie Fault.

We are agreed on the existence of a major central volcano around the Meikle Bin-Waterhead area. Although re-interpretation of Meikle Bin as the erosional remnant of a tephra cone may cast doubt on the existence of a NW.-SE. trend, it should be pointed out that Meikle Bin, the Waterhead area, a Markle dolerite intrusion [NS 640 842], Dungoil [NS 632 844] and a vent in Gonachan Glen [NS 627 850] all lie on a NW.-SE. trend line (One-Inch Sheet 31). Incidentally, the prolongation of this line to the SE. meets the Campsie Fault in the general area of the vent localities previously mentioned. This is also an area where the line of the Campsie Fault is disturbed.

We thank Craig & Hall for drawing attention to the new evidence concerning the vulcanicity of this part of the Clyde Plateau and look forward to its eventual publication.

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*MS accepted for publication 1st October 1975*