

he has been able to examine 19, and finds that they have been needlessly multiplied, owing especially to the neglect on the part of describers to allow for difference in the structure at various stages of growth and in different parts of the polyzoarium. His investigations led him to refer the forms known to him to only 5 species, namely, *Fenestella plebeia*, M'Coy, *F. crassa*, M'Coy, *F. polyporata*, Phill., *F. nodulosa*, Phill., and *F. membranacea*, Phill.

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CORRESPONDENCE.

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THE CALDER VALLEY.

SIR,—Will you permit me to thank my friend Mr. Dakyns for drawing the attention of your readers to two or three particulars having reference to the physical forces which have caused the configuration of the Valley of the Calder. He is puzzled by the statement that heather and peat are found above sandstones, and that the heather does not grow on limestones or shale or clay, further observing that he has generally noticed the peat underlain by a bed of yellowish clay, very similar to the underclay of a coal-seam. Of course, Mr. Dakyns is correct. I do not suppose any one would expect to find any plants, except lichens, growing on a bare mass of rock. The disintegration of the sandstone by atmospherical agencies, and the decay of organic matter, will tend to form a soil in which the heather can take root, and which may eventually assume the appearance indicated by Mr. Dakyns. Taking the facts, however, in the broad sense which I intended in the paper, we do find that the heather grows only on the moorlands constituted of sand or gritstone. I could quote numerous instances where a sharp line can be drawn between the sandstones and shales which form the surface stratum, by the occurrence or otherwise of heather growing above it, and I am sure it is unnecessary to remark that heather is not a characteristic plant on limestones.

I did not intend that any geological beginner should imagine that the *present faces* of the corresponding escarpments of the Yorkshire and Lancashire grits were ever in contact, and I venture to think that the purport of the paper will show that a constant change of form is in progress, and that the rock escarpments are always subject to the disintegrating action of water or frost. There can be little doubt, also, that the original faces of the rocks would be borne further and further from the centre of operations at the time that the elevation took place, and that some part of the distance by which the opposing escarpments are separated at present is due to this cause.

I am afraid my reasons for considering that the drift or gravels in the Valley of the Calder have been transported to their present position during a period of submergence would occupy more space than could be devoted to a letter, and with your kind permission I will defer stating them to some future time.

CHEVINEDGE, HALIFAX, February 19th, 1879.

JAMES W. DAVIS.