

all the plication or distortion of strata which constitute so important a factor in mountain-making, and he is disposed to supplement it in the way to which allusion has already been made by Mr. Wynne in a recent Presidential Address, viz. by considering the effects of the attenuation of strata under superincumbent pressure from deposition in subsiding areas, which involves the thickening, puckering, reduplication, and piling up of strata in regions where pressure has been lessened. It should be noted that, until disturbance of "cosmical equilibrium" takes place, mere pressure does not produce metamorphism. The extent of these lateral movements is described, and it is asserted that the theories hitherto adopted to account for plication, etc., are inadequate.

The origin of the horizontal movements is further discussed on the hypothesis that solids can flow after the manner of liquids, when they are subjected to sufficient pressure. He considers that the displacement in N.W. Scotland may have been *initiated* by the force due to contraction and accumulating in the crust throughout the periods marked by the deposition of Torridon Sandstone and Silurian strata, the elements of movement finding an exit at the ancient Silurian surface. In this case the pile of Silurian strata formerly covering the region now occupied by the North Sea and part of the Atlantic forced the lowest strata to move laterally, the protuberances of the underlying pre-Silurian rocks being also involved in the shearing process. Similar results occur in other mountain areas. The strata compressed have been greatly attenuated, and extended in proportion; in this way we may account for the piling up of strata by contortion in certain regions. The connexion of this interpretation with Malet's theory of volcanoes is also indicated, and the author concludes by applying these views to other branches of terrestrial physics.

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### CORRESPONDENCE.

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#### FOLIATION IN THE MALVERN HILLS.

SIR,—I ask permission to make a brief explanation in reference to the debate on General Macmahon's memoir read before the Geological Society on May 22nd. The published summary of the discussion attributes to Mr. J. J. H. Teall the statement that, in a paper read at a previous meeting, "foliation was actually taken as evidence of deformation." The paper<sup>1</sup> here referred to was one read by me on April 17th. Taken without qualification, Mr. Teall's remark does not accurately express my views. Nothing is more certain than that foliation has been produced in more ways than one, and this I have repeatedly said and printed. In the Malvern Hills, however, I hold that foliation is always the result of deformation. This conclusion is not assumed, but is based upon the fact that, wherever the rock lying between an igneous mass and a schist is exposed, a gradation between the two can be traced, and the pro-

<sup>1</sup> See summary of it in *GEOL. MAG.* for June, p. 285. The discussion of papers, is omitted from the Reports given in the *MAGAZINE* from want of space.—  
EDIT. G. M.

gressive deformation can be shown under the microscope. I have a right to say "wherever," because I do not think there is a single exposure of any magnitude in the entire chain which I have failed to examine, and the most critical sections I have visited repeatedly.

My paper of April 17th treated, not so much of the origin of the schists in question, as of the production of some of the constituent minerals. The evidence offered under the former head was accordingly very incomplete, and a great part of the debate seemed to me rather premature. I hope my critics will visit the Malvern region, and will favour me with their opinion when I read my paper on the main question.

CH. CALLAWAY.

WELLINGTON, June 11th, 1889.

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OBITUARY

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ROBERT DAMON, F.G.S.

BORN, 1814; DIED, 1889.

WE regret to record the death of MR. ROBERT DAMON, F.G.S., of No. 4, Pulteney, Weymouth, Dorset, the well-known Geologist and Naturalist, which occurred suddenly from heart-disease, on Saturday the 4th May. He was the author of an excellent work on "The Geology of Weymouth, and the Isle of Portland," and was a most extensive traveller and an assiduous collector. He procured a marvellous series of Cretaceous fossil Fishes from the Lebanon, Syria, now in the British Museum (Nat. Hist.), also the most complete example of the skeleton of that rare extinct Sirenian "Steller's Sea-cow," from Behring Island. Although in his 75th year, he contemplated an expedition to Siberia in order to obtain an entire Mammoth's skeleton for the National Museum. Mr. Damon frequently visited Moscow and St. Petersburg, and was a Corresponding Member of the Imperial Society of Natural History, Moscow, and of other learned bodies in various parts of the world. Only a few years since he took passage from Nijni Novgorod down the Volga to Astrakhan, where he made the first collection of the fishes of the Caspian Sea yet brought to this country.

He lately purchased the celebrated collections forming the "Museum Godeffroy" in Hamburg, together with the published catalogues of that museum prepared by various eminent naturalists.

In his native town of Weymouth, Mr. Damon exercised great influence for good amongst his fellow-townsmen, by whom he was greatly honoured and valued for the integrity and uprightness of his character, and his large-hearted sympathy with all cases of distress. His charities were performed without ostentation, and only the recipients ever knew the kind friend who helped them in their time of need. His loss will long be felt by a very wide circle of friends, in all parts of the world, by whom he was warmly esteemed and greatly respected. His son, Mr. R. F. Damon, now carries on his father's extensive Natural History Agency in Weymouth.

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HENRY WILLIAM BRISTOW, F.R.S., F.G.S., late Director of the Geological Survey of England.—We have to announce the death on the 14th of June, of this eminent geologist, at the age of 72. Mr. Bristow had for some time past been an invalid. We hope to publish a notice of his scientific labours in the August number.