

miniature icebergs, floated off by a rise in the water produced by a dam of anchor-ice below.

10. "On an altered Clay-bed and Sections in Tideswell Dale, Derbyshire." By the Rev. J. M. Mello, M.A., F.G.S.

The author describes the sequence of the rocks seen in a quarry in Tideswell Dale as follows:—Beneath a thin layer of surface-soil is a bed of Toadstone, containing concretionary balls, and much decomposed above; beneath this is Toadstone in large blocks of indefinite shape, very hard, dark green, and apparently doleritic, nine or ten feet thick, passing downwards into a coarse and much decomposed bed, partly amygdaloid, partly vesicular, about one foot thick. Beneath the Toadstone rocks, and without any sharp line of demarcation, is a thick bed of indurated red clay, three yards in thickness, presenting a regularly prismatic-columnar structure, resting on a thin bed of greenish-yellow clay, containing fragments of limestone, which covers beds of good Derbyshire marbles containing corals. The author suggests that the columnar clay-bed may perhaps be a local development of that which forms partings in the limestone near Litton Tunnel.

(To be Concluded in our next Number.)

CORRESPONDENCE.

MR. DAVID FORBES, F.R.S., ON RAIN AND RIVERS.

SIR,—In the GEOLOGICAL MAGAZINE for this month, p. 314, is a paper, entitled "D. Forbes on Volcanos," being the substance of a lecture delivered in St. George's Hall, 19th June, 1870. The object of the lecture is to show that subterranean heat has, and ever has had, as much to do with the formation of the surface of the earth as rain and rivers have. Mr. Forbes seems to put this doctrine forward as an originality of his own, and as if it was foreign to the rain and river theory. It is, however, part and parcel of that theory. Mr. Forbes, p. 327, says, "British geologists of late years, all but ignoring the action of internal forces, have striven to account for everything in the shape of external configuration or scenery by the action of water in its different forms of rain, rivers, the sea, or ice;" and again, "In answering the question, therefore, as to which of these forces" (internal fire or external water) "has played the most prominent part in determining the external configuration of the earth, the unbiassed geologist must necessarily grant the first rank to the internal volcanic or cataclysmic agencies, since had it not been for their operations our globe would still have remained a comparatively smooth sphere, surrounded with its external envelope of water, with no visible land for the rivers to traverse or the rain and ice to disintegrate and wear away; in fact, it was only after the internal agencies had produced their effects that the external forces were called into play, and then became the great agents in modifying the outlines of our earth to their fullest extent."

If Mr. Forbes will only read the book entitled "Rain and Rivers," he will find his idea stated there over and over again.

The 13th chapter is headed "Fire forms continents, water transforms them." In page 165 is a sentence headed "It is only fire which keeps our heads above water. It is only owing to subterranean igneous action that the solids of the globe are not submerged below shall I say 3,000 feet of water." In page 111 is this passage in reference to Madeira and Teneriffe, "These islands exemplify the contrary effects of the contrary causes—fire and water, and vividly portray the perpetual contest between the two powers. They show us that rain, which we consider only as a productive power, is the destroyer, the dissolver of continents, and that subterranean igneous action, which we consider as a destructive power, is the producer, the replacer of continents." In page 184 is this passage: "Subterranean igneous heat is the quarryman who raises the block. Rain is the artist who shapes its surface. We owe the beauty of the surface of the earth to water, not to fire. Could the labourer of Paros with justice write, *non me Praxiteles fecit*, on some divine production of the artist? Did Baily form his exquisite Eve or the workman of the Carrara quarries?" In page 138 a paragraph is headed "Mountains while rising may be decreasing in height." Suppose the Alps to have been rising six inches in a century for myriads of years, if their denudation has been seven inches they have been decreasing in height.

Mr. Forbes is mistaken in supposing that "the old leaven remains" of the dispute between the Neptunists and Vulcanists or that it had anything to do with the formation of the surface of the earth. The question was simply whether certain trap rocks were formed by fire or were precipitates from water, which question was settled long ago.

I am, however, glad that while Mr. Forbes thinks that he differs from "Rain and Rivers," because he has not read it, he, in fact, agrees with the book entirely; and the doctrines of his lecture are the doctrines of "Rain and Rivers." I am also glad that in the paper which precedes Mr. Forbes's, my friend Mr. Kinahan, attributes so much to *Meteoric abrasion*. But I wish that he would change this (as Humboldt would say) "exalted form of speech," for the more humble title of Rain and Rivers.

GEORGE GREENWOOD, Colonel.

BROOKWOOD PARK, ALRESFORD, 3rd July, 1870.

MISCELLANEOUS.

CONGRESS OF ALPINE GEOLOGISTS AT GENEVA.—A meeting of Geologists interested in the Alps, under the presidency of Professor F. J. Pictet, with Professor Favre for Vice-President, and MM. E. Favre and E. Sarasin as Secretaries is convened for the 31st August and 1st and 2nd September. The aim of the meeting was to assemble together at Geneva, the savants of the two sides of the Alps, and of the eastern and western extremities of the chain, in order to unite