

and an annual rise of the sea of 3 inches of sea-level, a delta of 729 feet could have been formed by the deposits obtained by the overflow of the river-water, with the assistance of some material thrown back by the sea into the estuary or delta.

The deltas of all our great rivers are thus later than Post-Pliocene, and of the age of the Pluvial period. No part of any of these deltas has been uplifted by volcanic or subterranean agency above the general level of the delta; this is another proof of recent origin.

ALFRED TYLOB.

ROCK-BASINS IN GRANITE.

SIR,—In reply to the query of Mr. T. Cragor in your last number, I would refer him to a paper "On the Rock-Basins in the Granite of the Dartmoor District, Devonshire," by G. W. Ormerod (*Quart. Journ. Geol. Soc.* vol. xv. p. 16). In this paper the author brings forward reasons for considering that the Rock-basins were formed by atmospheric action, which commenced in irregularities on the surface of the granite and was probably assisted by a globular or spheroidal structure in the rock.

H. B. W.

JOINT-STRUCTURE AT GREAT DEPTHS.

SIR,—Mr. Crosby (*GEOL. MAG.* Sept. 1881, p. 416) explains the absence of joint-structure at great depths by attributing the formation of these divisional planes to the cooling of strata from a temperature which prevented them from becoming jointed by contraction before they were thoroughly desiccated and consolidated. This appears to me to explain what occurs in jointed conglomerates, in which hard quartz and other pebbles are often "cut through by joints, as neatly as if they had been sliced by a lapidary's wheel." But, if this is the cause of jointing, why have we joint planes continuous in direction over wide areas, cutting rocks up into cuboidal or polygonal masses, and not division along planes of least resistance, such as would form the prisms so familiar in rocks which have cooled from fusion or from a high temperature like the columnar mud of Tideswell dale.

The conditions suggested by Mr. Crosby appear to me to be such as would produce columnar jointing, viz. slow, regular contraction in a more or less homogeneous rock; why then is not the jointing of this nature? Seeking purely for information on this head, I am yours, &c.,

W. W. WATTS.

SIDNEY COLLEGE, CAMBRIDGE,

October 11th, 1881.

DISCOVERY OF COAL-MEASURES UNDER NEW RED SANDSTONE AND ON SO-CALLED PERMIAN ROCKS AT ST. HELEN'S, LANCA-SHIRE.

SIR,—Permit me to point out that the author of this paper in the current number of the *GEOLOGICAL MAGAZINE*, in identifying the limestone bands met with beneath the New Red Sandstone at Winwick in 1879, with the Ardwick Limestones of the Manchester Coal-field, does not state that this identification was made by me