

DISTRICTS AND LOCALITIES DESCRIBED.

	Index.	Supplement.
British Islands	419	{ 100 Old Localities. 164 New ditto.
Europe	255	{ 61 Old. 161 New.
Asia	113	{ 18 Old. 26 New.
Australia	36	{ 9 Old. 16 New.
Africa	27	{ 6 Old. 15 New.
America, North	59	{ 10 Old. 12 New.
„ South	25	{ 6 Old. 21 New.
„ Islands.....	8	{ 2 Old. 4 New.

N.B. In this list a place is only entered once; but divisions, such as “North Devon” and “Devon,” would be counted as separate localities.

AUTHORS.

Number of authors in Index.....	536
Number of new authors in the Supplement.....	288
Number of old authors who have papers in the Supplement written on formations which they had not treated upon in Index	91
The number of authors writing on old subjects has not been calculated.	

CHAGFORD, EXETER.

GEO. WAR⁶. ORMEROD.

SUBMERGED FORESTS, AND RAISED SEA-BEACHES.

SIR,—In the Quarterly Journal of the Geological Society for February, page 4, Mr. Wynne says that peat and timber trees are found beneath the Youghal Strand. In accounting for this he goes into the old error of the necessity of a “subsidence of the land.” Mr. Wynne says: “At some time (about the close of the Glacial period perhaps) the land became depressed—it may be generally—as such evidences are common round the shores of Ireland as well as parts of England, but whether generally or locally, the land here sank to a depth of more than 90, perhaps 100 feet, or even more. Subsequently, to this depression of 90 or 100 feet the land rose again.” Mr. Wynne further says that, “On the landward side of the beach the low ground is covered with peat The water from the low boggy ground is conveyed through the beach by the usual contrivance of tidal floodgates or sluices, so that there is reason to believe that the peat on land and that beneath the bay are at the same level, and connected under the beach; and that the sea, by throwing the beach up, has banked itself out from a considerable portion of the low ground.”

This is the precise description which I have given in *Rain and Rivers* of our English so-called “submerged forests.” They are all *choked up estuaries*, and Mr. Wynne and every one else must see

that as the sea erodes the whole line of coast, the beach will travel landward, and the peat and roots of trees which it covered will be uncovered and submerged by the sea. But there needs no "subsidence" for this. On the contrary, the raised beach which Mr. Wynne mentions, and those near the English "submerged forests," prove exactly the reverse. These raised beaches prove a rising of the land. As I have said (page 123), the so-called "submerged forests" are simply the results of the most gradual operations of rain, rivers, and the sea. In former days the stream or the rain valley cut its estuary far deeper even than low-water-mark, and formed what is called an arm of the sea. In later days the sea throws up a bank of shingle across the mouth of the deep-cut estuary, completely dams itself out, and partially dams the streams in, though these often soak through the shingle at low-water so as never to rise near the height of high water. Thousands of such cases exist in England. These sea beaches thrown up by storms frequently stand not only very much higher than the high water of the sea which throws them up, but the land behind them is often much lower than the high water of the sea. And thus, according to circumstances, peat, pasture, or wood, grows *below the high-water mark*. The rapidity of the growth of alluvial deposit from periodical inland floods is then much increased. For all the alluvial wash of the entire valley or water slope is here at once stopped short, none of it can percolate the shingle into the sea. Deposit is rapidly accumulated on deposit, and rooted trees are found under peat, in peat, and above peat, not only on the shore outside the shingle bank, but in cutting the sluices inside the shingle bank, and by degrees the land which was below water-mark may be raised by alluvial deposit far above high-water mark. When man appears on the scene, if fine alluvium plasters up the shingle enough to hold back the water, it is a common practice to dig a trench a few feet into the clean shingle. The water may then be seen to flow into the shingle in a stream. Or, if circumstances admit, a trench is cut completely across the shingle bank, and occasionally cleaned. Then come sluices and iron piping beneath the shingle bank. The land drainage is *let out* at low water, and the sea *kept out* at high water. Millions of acres of our best pasturage far below high-water-mark are held on this tenure. But when the streams are embanked, and are let off to the sea so perfectly as to prevent their natural annual overflow, annual denudation of the old alluvium will take place instead of deposit of new alluvium, and the land may again become denuded far below the usual tidal level." The chalk flints mentioned by Mr. Wynne are quite en regle. That is (speaking literally) all erratics, including what is absurdly called "Northern drift," have travelled on sea-shores. (See chapter on travelling of sea beach in Rain and Rivers.)

At page 2 of the same geological journal, Mr. Tylor, while he considerably spares us "a gravel period," creates a bran new period of his own—a pluvial period. With this implement (notwithstanding that "the valley of the Somme had assumed its present form

prior to the deposition of any of the gravel or 'loess' now to be seen there"), he floods the valley "eighty feet above the present level of the Somme." These prodigious bodies of water do not in the least erode the soft chalk sides, or the bed of the valley, but, on the contrary, they deposit the gravel terraces as their high-water mark. Flints, therefore, in the pluvial period must have been lighter than water, and must have floated on the surface to their present position. In periods other than the pluvial one drift is driven along the beds of rivers and valleys. And these terraces of the Somme have been the beds of the river or valley, as I have had the honour to state in the GEOLOGICAL MAGAZINE for May, 1867.

BROOKWOOD PARK, ALRESFORD.

GEORGE GREENWOOD, Colonel.

CYCLOPHYLLUM FUNGITES.

SIR,—In the last number of the GEOLOGICAL MAGAZINE, Dr. Duncan made some remarks upon a statement of mine which appeared in your Magazine for March, 1868. I beg now to offer a few words of explanation.

Dr. Duncan writes, "Mr. Young also appears to have stated that David Ure was the original discoverer of the genus in question, and that Prof. M'Coy had clearly delineated the various parts constituting the internal organization of this coral; to these statements I must give my unqualified contradiction."

In my remarks I only wished to imply that David Ure was the original discoverer of the species of coral upon which Dr. Duncan's new genus was founded, *not* the discoverer or author of the various generic and specific names that have since been applied to it.

As to whether Prof. M'Coy has or has not delineated in his figures and description all the essential points in the internal organization of this coral, or whether Dr. Duncan is warranted in establishing new generic characters upon the points which he says he was the first to discover, this I will leave to the decision of those palæontologists who are better able than I am to decide in this matter. The parts of this coral upon which Dr. Duncan founds his generic distinctions, were not, I think, so entirely unknown to Prof. M'Coy, as Dr. Duncan's remarks would imply. With him, however, they did not constitute points of generic distinction, but only served, as he states, to characterise a well-marked species.

I was induced to make those remarks to which Dr. Duncan has seen fit to reply, from being present at a meeting of the Geological Society of Glasgow, on the 18th of April, 1867, when Mr. James Thomson exhibited a coral, which he asserted to be new to science (I will not say that he did this with Dr. Duncan's consent). I had not then seen Messrs. Duncan and Thomson's joint-paper on *Cyclophyllum fungites*, but I stated in my remarks that I believed it was founded upon the species of coral first discovered by David Ure, and figured by him in his book as a *Fungites* in the year 1793, but which had subsequently received new generic and specific names from Fleming, M'Coy, and Milne-Edwards.