

## THE DRIFT OF THE WESTERN AND EASTERN COUNTIES.

To the Editor of the GEOLOGICAL MAGAZINE.

SIR,—I see that Mr. Hull has favoured you with a simple classification of the drift deposits of Lancashire and Cheshire, which he asserts to consist of (3) Upper Boulder-clay or Till, (2) Middle Sand and Gravel, (1) Lower Boulder-clay or Till. Now some twenty-five years since, in a paper printed by the Manchester Geological Society, I gave the following general classification:—

1.—Beds of stratified and unstratified gravel and sand, containing well rounded pebbles of primitive Primary and later Secondary rocks.

2.—Till, a thick deposit of marl or brown clay, mixed with angular or rounded pebbles of various sizes without any order of deposition.

3.—Beds of stratified fine rolled gravel and forest sand, often containing beds of clay or loam.

4.—Deposits of gravel and sand, both stratified and unstratified, found in the beds of valleys and low lands adjoining rivers and brook courses.

In addition to the above a bed of rich loam is frequently found in the valleys, covering the last-named deposit.

The Till or Boulder-clay of Lancashire and Cheshire, as seen at Blackpool and New Brighton on the coast, is one thick bed intercalated with beds of silt, sand, and gravel; but when we approach the sides of the Pennine Chain, a very different series of beds occurs. At Broadstairs Colliery, near Hyde, the following section in the descending order was met with, viz. :—

	FT.	IN.		FT.	IN.
1 Clay .....	11	0	8 Quicksand and Loam.....	6	0
2 Quicksand .....	2	6	9 Gravel .....	3	0
3 Strong Marl .....	22	6	10 Loam .....	7	6
4 Quicksand .....	2	6	11 Gravel and Sand.....	3	0
5 Loam with Pebbles .....	12	6	12 Clay and Loam .....	15	6
6 Buck-leaf Marl .....	19	0	13 Gravel and Soft Marl con- taining Pebbles .....	10	0
7 Dry Sand .....	9	0			

I give this section as an instance to show the difficulty of classifying the drift deposits, either by my old arrangement or Mr. Hull's new one. At present, probably both must be considered as provisional, to be perfected when the deposits have been more thoroughly investigated and better known.

The eastern part of England, I imagine, is in about the same condition; for, after some years examination of the Drift deposits in Notts., Lincoln, York, Durham, and Northumberland, I have not been able to make the sequence of the beds, as Mr. S. V. Wood, jun., appears to have found, more to the south.

I remain, Sir, yours truly,  
E. W. BINNEY.

MANCHESTER, April 8, 1867.