

## CORRESPONDENCE.

### DRIFT DEPOSITS OF IRELAND.

SIR,—I trust you will give me space to refer to Mr. Kinahan's paper on the Middle Drift-gravels of Ireland in the current number of the *GEOL. MAG.* I should not have noticed it at all, but that some of your readers might have supposed that I admitted the correctness of Mr. Kinahan's statement, that my section of the Drift-deposits in Killiney Bay was incorrect; or that there is no Upper Boulder-clay there. On the contrary, I maintain that my section and description (Vol. VIII., p. 294) gives a faithful representation of the succession and arrangement of the beds, showing a true upper Boulder-clay near the Martello Tower, and Ballybrack Station, with a general basin-like arrangement of the beds.

Beyond the point where my section terminates, in the direction of Bray, there are, as Mr. Kinahan states, certain local irregularities, the exact nature of which a very hasty visit has not yet enabled me to determine. This part of the section I had not visited at the time I wrote my paper. But whatever their nature, they cannot invalidate the general succession of the Drift-deposits, as stated both by Professor Harkness and myself to be synchronous on both sides of the Channel. Mr. Kinahan cites Professor Harkness's name in support of his statement that there is no Upper Boulder-clay in Killiney Bay. I believe, however, Professor Harkness has not visited this section since my paper was published, and certainly not in my company; otherwise his opinion might have been different.

GEOLOGICAL SURVEY OFFICE,  
DUBLIN, June 17, 1872.

EDWARD HULL.

### AGE OF AURIFEROUS DEPOSITS OF AUSTRALIA.

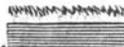
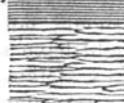
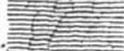
SIR,—I am able to communicate some information relating to an important discovery lately made by the gold miners now working at the "Welcome Rush," about four miles south of Glenorchy, on the river Wimmera, which I have no doubt will be regarded with interest by your readers.

Up to the present time the geologist has had to determine the age of the auriferous drifts of this Colony on such doubtful evidence only as is presented by the lithological character and position of the beds. It is true that fossil bones of marsupials have been found in very recent accumulations covering *wash-dirt*, and in some of the deep *leads* numerous fossil fruits and impressions of leaves, but I think I am correct in stating that no *marine fossils* have been discovered anywhere in Tertiary strata containing gold.

Marine fossils have been found lately at the "Welcome Rush;" and though they cannot be regarded as throwing much light on the age of the deep auriferous deposits which occur at Ballarat and Smythesdale, they are nevertheless highly interesting.

The diggings at Welcome Rush encroach on the Murray Tertiaries, which occupy an area exceeding 26,000 square miles; and the results of the labours of the miners show that these in this immense tract cover auriferous *wash-dirt*, but whether in all parts sufficiently rich to remunerate the workmen it is at present impossible to say.

The following is a section of the strata at Welcome Rush :—

1. Surface soil and yellow clay . . . . .		(1) . . . . .	ft. in. 4 0
2. Ferruginous conglomerate . . . . .		(2) . . . . .	34 0
3. Brown iron ore with shells . . . . .		(3) . . . . .	2 0
4. Very hard ferruginous conglomerate . . . . .		(4) . . . . .	34 0
5. Very fine white sand . . . . .		(5) . . . . .	3 0
6. Auriferous wash-dirt . . . . .		(6) . . . . .	1 0
7. Red Rock (Silurian) . . . . .		(7) . . . . .	78 0

This section and specimens of rock containing casts of shells were sent to me by Mr. Bernhard Smith, the warden of the gold field.

As soon as I received the specimens, I placed them in the hands of Professor McCoy, who has been good enough to give me the following report respecting them. He says, "The rock mass from the Wimmera, resting on the gold drifts, submitted for my opinion as to its age, and whether marine or freshwater, has been examined by me as far as the imperfect nature of the fossils will allow. I can state that the fossils are certainly marine; and I have no doubt of the older Pliocene Tertiary age. Species of *Turritella*, *Terebra*, and apparently *Turbo*, and two genera of bivalves, apparently *Arca* and *Mastra*, but requiring more perfect specimens to determine, are common. I do not think this evidence clashes with my old suggestion that the gold drifts of this Colony were of the age of the Mammaliferous Crag, as in Russia, based on the jaw of *Phascolumys pliocenus* (McCoy), found in the cement at Dunolly, as this deposit in Europe contains marine, generally like this Wimmera rock, littoral genera of Mollusca with the bones of terrestrial mammals."

Mr. Smith informs me that it is now very difficult to get any rock containing shells from the spoil-heaps, but I have asked him to employ some of the miners in putting up a stage in one of the shafts whence they can make a *drive* into the shell-bed and collect rock-masses enclosing these interesting remains. All the specimens will of course be submitted to Professor McCoy for examination, and in due time, if I am able to get specimens, the results will be communicated to you.

R. BROUGH-SMYTH.

FLEMINGTON, VICTORIA, 20th April, 1872.