The "Arvon" country, between the Menai Strait and the Mountain Land is composed of the three platforms (at about 275, 430, and 550 feet respectively), which are described in *The Geology of Anglesey* (chapter xxxiv). In the course of my mapping of Arvon, I have been much impressed by the wonderful trenches which the Ogwen and its tributaries have cut through these platforms, and with the evident rejuvenescence of the rivers. In December last I was at a point whence one could look up to the remarkable "hanging valleys" of Nant-ffrancon, which have been ascribed to glacial over-deepening. Suddenly—the idea came like a flash—"What if these hanging-valleys be really due to the successive rejuvenations of the Ogwen?"

We have, however, to remember that there has also been some "re-senescence" (if one may coin such a term), owing to the 60 ft. subsidence which has let down the "Submerged Forest"; so that, before that, the total rejuvenescence was rather more than 600 ft. Now, the hanging valleys (as shown by Mr. Dewey) open out at 1,250 feet above sea-level. That is just about 600 feet above the floor of Nant-ffrancon! True, there may be 50 or 60 feet of drift and alluvium lying upon the rocky floor of that valley, but 50 or 60 feet is the least which can reasonably be assigned to glacial erosion. Thus we are left with a remarkable coincidence between the amount of the "hang" and that of the rejuvenescence of the Ogwen.

In which case (see "G. of A.", pp. 783–4) the hanging valleys may be assigned with much probability to Pliocene times. And they must be among the latest of the major pre-glacial features of the mountains. At that stage, therefore, Snowdonia was less deeply cut than it is to-day, and Snowdon itself was only some 3,000 ft. in height. Perhaps, by slow degrees, we may be able to trace out the successive stages of that prolonged erosion, which, beginning possibly in Miocene or Oligocene times, has developed the rugged mountain-region of North Wales.

EDWARD GREENLY.

MAN AND THE ICE AGE.

SIR,—In a previous communication treating of the great advance in our knowledge of the Pleistocene epoch due to Professor Depéret, reasons were given to show that the lowest gravels of the Somme terraces were deposited under genial conditions, and I should like now to call attention to the loess, which by its distribution, composition, and associated faunas would appear to be as definitely glacial, a conclusion established by the work of Sauer, Tietze, Krause, Wiegers, Werth, Lauterborn, Gagel, and Soergel. As a consequence Acheulean I, which occurs at the summit of the older loess, should be contemporaneous with the Riss glaciation, while the late Mousterian, which occurs at the base of the younger loess, should be assigned to the Würm. The early or warm Mousterian then readily falls into place in the Riss-Würm interglacial stage.

With the complete inversion of the views of Professor Penck concerning the "glacial" schotter and the "interglacial" loess, our difficulties in correlating the human industries of the Pleistocene are beginning to diminish or disappear. It is in particular most encouraging to observe that the ascertained correspondence of the Mousterian, at least in greater parts, with the Würm glaciation is in complete harmony with the views of Professor Marr and Mr. Reid Moir. The discovery of Mousterian implements in the Chalky Boulder Clay establishes the correlation of this deposit, not with the Riss, to which it is assigned by Professor Depéret, nor to the Mindel, to which it is assigned by Mr. Brooks, but with the Würm; a result perhaps unexpected but by no means surprising.

W. J. SOLLAS.

SPEETON AMMONITES.

SIR,—As an old and constant student of the Speeton Clays, I have been keenly interested in the recent capable revision of the Speeton Ammonoidea by Dr. L. F. Spath, and I desire to congratulate him on his results (GEOLOGICAL MAGAZINE, February, 1924) which have cleared up many ambiguities and have materially strengthened the bases for correlation. One may perhaps be permitted to growl a little at having to struggle once more with a tangle of new nomenclature and synonymy, the disturbing concomitant of every successive revision; but one must strive to be heedful of the Scriptural monition so aptly quoted on occasion by J. F. Blake: "Thou shalt not muzzle the ox when he treadeth out the corn."

In dealing with the state of our knowledge of the Speeton Clays some months ago in a Presidential Address to the Yorkshire Geological Society (short abstract in GEOLOGICAL MAGAZINE, March, 1923), I summed up the evidence regarding the age of the beds so far as it was then known. My conclusions and those of Dr. Spath are in agreement as to the sequence of the deposits, and, broadly, as to their correlation. We tend to differ, however, on certain minor points, as I am still inclined to hold that Dr. Spath, in limiting his investigation to the Ammonoidea, has hardly allowed enough for the fact that fossils of this order are absent or unknown from considerable portions of the sequence.

As it happens that the address referred to has not yet passed the press, I shall be able to add to it a few notes on Dr. Spath's work, bearing in particular on these points of divergence. Therefore, the discussion of detail would be redundant here, and it will suffice if I refer anyone desirous of pursuing the subject to the next issue of the *Proceedings* of the aforesaid Society.

It may be mentioned incidentally that the recognition by Dr. Spath of Lower Gault ammonites in the top beds at Speeton confirms my argument that Dr. Kitchin and Mr. Pringle were wrong in supposing (GEOLOGICAL MAGAZINE, May, 1922) that the Lower Gault is absent there.

G. W. LAMPLUGH.

ST. ALBANS,
6th March, 1924.