RECORDS OF PREHISTORIC MAN IN THE ROMAN COUNTRY.

Geological Periods.	Nature of the Deposit.	Periods in the History of Man.	Evidences of Man's presence.
IV. Modern or Quaternary.	Recent alluvial deposits and surface-soil of the country.	Neolithic.	Flint perfectly cut and worked; hatchets of Jadeite; pottery with the first pictures.
III. Newer Pleistocene.	Travertine volcanic products of the Latial Volcanos.	Miolithic.	Silex well polished, but not perfectly cut; rough pottery mixed with a finer quality; metals (bronze).
II. Ancient Pleistocene.	Gravel, sand, and marl, with the bones of great Mammalia.	Palæolithic or Archæolithic.	Flint implements of a more perfect workmanship; Metals ? (Lead).
I. Upper Pliocene.	Gravel and yellow sand with marine fossils (= Crag Mollusca.)	First appearance.	Flint implements roughly worked.

II.—THE ANTIQUITY OF MAN.

By J. R. DAKYNS, M.A., of H.M. Geological Survey.

OF all geological questions, perhaps that of the Antiquity of Man is the most popular. Nor is it one on which geologists have been rash or hasty in advancing new ideas; quite the reverse: they have lagged behind the evidence. In the "Principles of Geology," one of the most instructive chapters is that in which the author treats of the progress of Geology. Therein Sir Charles Lyell has shown how the science had been retarded for three hundred years by men's reluctance to admit such a simple and obvious matter as the marine origin of stratified rocks, owing to a fixed idea that the world had come into being a short time since in much the same state as it appears to-day. Yet the illustrious author of the "Principles of Geology" let pass for thirty years the evidence that Man was contemporaneous with the extinct Pleistocene mammalia. In 1833 the evidence on this point was nearly as complete as it is now; but it was practically neglected because it did not square with preconceived ideas. In fact, it was not accepted till Lyell himself, reviewing the facts in his usual masterly manner, summed up judicially in favour of the new views in his first edition of the "Antiquity of Man." Now, to compare great things with small, a like reluctance to admit new evidence on the subject is widespread. Then the prejudice was that man was modern, that he never saw old-world mammals any more than Silurian forms of life; now, admitting perforce his co-existence with

the Pleistocene mammals, the prejudice is that he should be considered post-Glacial. Yet, geologically, the question is practically settled by the evidence afforded by the Victoria Cave. There the usual Pleistocene fauna is found overlain by a true glacial deposit. Whether or not the bones of man have really been found there, is a question for osteologists to determine; but though of great, this is not of the first importance. The fauna is that often associated with man; therefore, without prejudice, we conclude that, what is true of them as to age, is also true of him: whether or not a human bone has been found in that particular collection is comparatively unimportant. As, however, owing to the reluctance shown in certain quarters to admit the evidence, the simplicity of the geological question is not generally known, a short summary of the facts and arguments may be of interest. At the Victoria Cave the remains of Hyæna, Fox, Brown Bear, Grizzly Bear, *Elephas antiquus*, *Rhinoceros leptorhinus*, Hippopotamus, *Bos primigenius*, Bison, and Red Deer, and a questionable fibula, have been found in the lower cave-earth. The ends of this deposit were covered by a mass of erratic boulders and of till. This was a true glacial deposit, as I have myself seen. This glacial deposit immediately overlies the Cave-earth containing the Pleistocene mammalia, without the intervention of any talus; but it was itself covered by an enormous mass of talus, twenty feet and upwards in thickness, composed of limestone fragments, fallen from the cliff above, without the intermixture of any boulders whatever.

This sequence of deposits, consisting of:—

Modern screes, resting upon

Glacial Boulder-beds, overlying

Cave-earth, with the Pleistocene fauna,

sufficiently establishes the fact that the animals, whose remains have been there found, lived in the country before the end of the Glacial period. This is perfectly simple: but it is contrary to the common opinion formed entirely upon the evidence gleaned in a very different part of the country, to wit, the Ouse and Thames basins, where the said fauna is post-Glacial. So prejudice sets to work and puts its votaries through remarkable contortions. First, it is suggested that the boulders are not a true glacial deposit in place, but have tumbled into their present position off the cliffs above. This is simply impossible, and therefore the suggestion is absurd, for the following reasons:—Had the boulders fallen off the cliff in the course of its weathering, they would be mixed up with ordinary talus and screes. But they are not so; they form a distinct deposit by themselves. Moreover, one cannot suppose, if one would, that a nest of boulders and a patch of Boulder-clay had been providentially, though most improbably, placed on the top of the scar above the mammalian remains, so as to fall in a lump and leave not a stone behind to mix with the subsequent screes, for this reason: restore to the cliff the amount of rock that has subsequently fallen as screes upon the boulder-bed, and make due allowance for the enormous amount that has been carried away in solution without leaving a trace behind; restore all

this to the cliff, and it will project so far over the site of the boulder-beds as quite to preclude the idea of their having fallen from the cliff above. But drowning sceptics catch at straws. So we have a further exhibition of intellectual contortion. It is now asserted by the sceptical geologist that the boulder-bed has come through a providential pot-hole or pipe, "of which," it is said, "there are plenty in the limestone above." Memory, when sceptical, is certainly creative. The limestone plateau above is singularly free from pot-holes: there is not one of any great size within many a mile, the nearest being Gingleing Hole, more than three miles distant; and I much doubt whether there are any worthy the name nearer. But even had they been tolerably abundant, has the ingenious author of this theory ever seriously asked himself what are the chances of a pot-hole occurring just in so very convenient a situation, and what the chance of the cliff having just weathered back far enough to destroy this providential pot and no further? When he has got an idea of the smallness of these chances separately, let him then endeavour to estimate the probability of their both having occurred together. I rather fancy the figures will somewhat astonish even the sceptic. So much for the geological question, the chief points of which have been insisted on over and over again by Mr. Tiddeman.

As regards the palæontological question, Mr. Tiddeman's argument is simply this: here we have a fauna which is elsewhere often associated with the remains of man; whatever be the age of this fauna, is presumably also that of man; in the Victoria Cave we have evidence that this fauna existed before the close of the Glacial period; therefore, presumably, man existed in this country also before the close of that period. The fact that the said fauna with human remains is post-Glacial in the South of England is to be explained by the consideration that the last glaciation of the country did not extend over the South of England. This consideration too explains the remarkable fact, that no Pleistocene fauna has been found in river-gravels in the North of England. Why should such a fauna, when found in river-gravels, be confined to the south? Simply because the last glaciation has swept away all the river deposits of that age from the north; but as it did not extend to the south, the old river-gravels of that district have escaped destruction, and remain to-day to be seen with their included fauna.

III.—REVERSED FAULTS IN BEDDED SLATES.

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IF it be an established rule, in coal-mining districts, that the hade of a fault is to the *downtthrow*, it is an equally undeniable fact, that the surfaces of bedded slates, as a rule, exhibit only faults which hade to the *upthrow*. In suggesting a possible explanation of this phenomenon, I shall allude to the latter as *reversed*, and the former as *direct* faults. Let Fig. 1 represent a piece of wood six inches square and one inch thick, lying upon a table, and let it be