Adelaide chain of metamorphic and slate rocks, where they are covered up by a Pliocene drift (of pluvial or glacial origin), containing remains of extinct marsupialia and trees only.

The two sets of deposits are shown in the Well-section alluded to, which is as follows:—

	Estimated thicknesses. Feet.
PLIOCENE—	
"Mallee" clay	40
MIOCENE (marine).	
Light-coloured sandstone with casts of shells	10
Gravelly ironstone and bands of clay } Blue marl }	81
Sandstone without shells	17
Loose sand	6
Actual depth	154

UNIVERSITY OF ADELAIDE,
June 18th, 1877.

RALPH TATE.

ELEPHAS MERIDIONALIS IN DORSET.

SIR,—At a recent visit to the Blackmore Museum at Salisbury, I was surprised to see two specimens of the teeth of *Elephas meridionalis*, which were labelled as found at Dewlish, in Dorsetshire. This being a preglacial species, it would be interesting to learn under what conditions they occurred at that locality, which is situated among the Chalk downs. The specimens were white, and had the appearance of having come out of Chalk debris.

The only specimen I have seen from any English locality besides the Cromer Forest-bed was a fragment at the Chichester Museum, said to have been found on the neighbouring Sussex coast.

Can any of your correspondents give information about these specimens?

O. FISHER.

REVERSED FAULTS IN BEDDED SLATES.

SIR,—I should like to call Mr. Hebert's attention to a few points in his article on the above subject in the October Number, which appear to require further consideration. Though it may be the established rule in some coal-mining districts that the hade of a fault is to the downthrow, there are in other districts exceptions to this rule, in which the faults are 'reversed,' or, as they are commonly called here, overlap faults. The cause of these reversed faults is, as stated, no doubt horizontal pressure, the results produced varying with the angle of hade, friction, and so forth. The causes of these horizontal pressures I should be glad to see further discussed by the author. The cooling of the earth, and consequent contraction of the nucleus beneath the solid crust, has, as well as the more local effects of earthquakes and volcanic intrusions, been suggested as a cause. It is evident that a local subsidence under an arched portion of strata will, if the abutments are stronger than the arch at the line of subsequent rupture (or fault), cause an overlap or reversed fault when the arch gives way, or it is evident that the matter may

be complicated by a local upheaval of somewhat horizontal strata into a curve or arch; that then, while still upheaved and so distended laterally, a subsidence may take place towards the crown only of the arch, letting down the keystone, so to speak, as a 'trough' fault; then, on an extension of the same subsidence over a larger area, the arch, being keyed up afresh by the occurrence of the trough fault, can only give way by rupture of the nature of an overlap or reversed fault. These overlaps are sometimes on a considerable scale. Within a few miles of the place whence I write, there is a well-defined and proved and, as it happens, easily measured fault of this kind, in which the amount of movement is no less than 101 fathoms measured in the plane of the fault, the amount of throw being seventy-four fathoms vertical, and about sixty-nine fathoms horizontal. The hade of this fault is very nearly the same as Mr. Hebert's experimental ones, being 47°. I would also call attention to the fact that the *downward* vertical pressure P (*vide* his diagram) can in no case exceed the actual simple weight of the mass above the fault, and that in actual nature it is impossible (*vide* Fig. 2) for the left-hand portion to subside unless there be room for it to subside into. This room can, generally speaking, only be got by the horizontal *separation* of the masses on both sides of the portion subsiding. It would thus appear probable that all direct faults are of the nature of trough faults, that is to say, that either near or far off there is a somewhat parallel fault with an opposite hade, contemporaneous as to date of occurrence, and that this pair of faults meet sooner or later in depth. I would thus suggest that in the case of direct faults Mr. Hebert should in his inference substitute horizontal *tension* for vertical pressure (which is a secondary effect), and that the rule should be stated thus:—direct faults are indicative of horizontal tension, reversed faults of horizontal pressure.

STON EASTON, NEAR BATH. H. E. H.

PROF. MANTOVANI AND THE 'MIOLITHIC' PERIOD.

SIR,—Prof. Mantovani, in your last issue, proposes the term "Miolithic" for a period intermediate between the Palæolithic and the Neolithic. The term appears to be formed upon the "Miocene" of Lyell, which, of course, does not mean Middle Tertiary. Should the Italian Professor establish his new period, he would more appropriately substitute "Mesolithic" for "Miolithic." It is to be presumed he uses his terms in a purely local sense, for his Italian Miolithic age is represented as being contemporaneous with an age which produced "beautiful vessels of perfect work, resembling those of the ancient Etruscans," and was, therefore, probably post-lithic. The teachers of our science should not forget, for the sake of beginners, that the words "Palæolithic," "Neolithic," etc., represent, not absolute epochs of time, but stages in human development. CHARLES CALLAWAY.

WELLINGTON, SALOP,
Oct. 4th, 1877.