

Our knowledge is at present confined to two specimens of lower jaws,\* evidently referable to two distinct species, extremely unequal in size, and otherwise distinguishable. The largest, *P. Becklesii* (fig. 1), was about as big as the English squirrel or the flying phalanger of Australia (*Petaurus Australis*, Waterhouse). The skeleton of this phalanger (named *P. macrurus*, No. 1849, Museum of College of Surgeons) measures 15 inches in length, exclusive of the tail, which is more than 11 inches long. The smaller fossil (*P. minor*, fig. 2), having only half the linear dimensions of the other, was probably only 1-12th of its bulk. To the geologist, however, it is perhaps the more interest-

ing of the two, as Dr. Falconer has recognized in its two back molars (*c, d*, fig. 2) an unmistakable resemblance to those of the Triassic *Microlestes* (*b, c*, fig. 3).

Fig. 3.



Teeth of *Microlestes antiquus*, Plieninger, from the Upper Trias of Wirttemberg.

*b.* Crown of the smaller molar (*b*, fig. 441, p. 341, of the text) magnified.

*c.* Crown of larger tooth (fig. 442 *ibid.*), with part of the crown broken off, magnified.

Of this most ancient of known fossil mammalia an account is given in the text at p. 341, with illustrations, among which, however, there was no figure of the crown of the larger molar, which is now added, with a new illustration of the crown of the smaller tooth. No naturalist on the Continent to whom I had previously shown casts and

drawings of these teeth, had been able to give any feasible conjecture as to its affinities. Plieninger considered it to be predaceous, whence the name; others fancied they saw some likeness in the form of its grinders to those of an omnivorous pachyderm, as well as of an Insectivore; while Professor Owen, at once recognizing the mammalian character of the double-fanged teeth, said they were distinct from any type known to him. When these grinders of *Microlestes* (fig. 3) are compared to those of *Plagiaulax minor* (*d, c*, fig. 2), the reader will agree with Dr. Falconer, that "had they all been found detached in the same slab they might have been taken for back and front, or for upper and lower teeth of the same or some cognate species, the essential characters of the crown being identical;† whereas, had the last molar and last pre-molar of *Plagiaulax* been found fossil under similar circumstances, they would in all probability have been taken for teeth not merely of different genera, but even of different orders of mammalia."

Two principal questions, observes Dr. Falconer, deserve our consideration with reference to *Plagiaulax*; namely, first, Was it mar-

\* Three additional specimens of *P. Becklesii* have since arrived, some with the two back molars entire. They confirm all the conclusions set forth in the following pages, and especially the affinity of *Plagiaulax* and *Microlestes*.

† The last back molar, whether of *Microlestes* or *Plagiaulax*, has two opposed longitudinal marginal ridges, more or less lobed or crenated, and separated by a depressed disk. In the next or larger molar of *Plagiaulax*, the cusps are not symmetrical on the two sides, there being two on the inner, and only one alternating lobe on the outer; and such seems to have been the case in the larger imperfect tooth of *Microlestes* (*c*, fig. 3).