member of the trias. That it is really triassic may be deduced from the following considerations. In Würtemberg there are two "bone-beds," one of great extent, and very rich in the remains of fish and reptiles, which intervenes between the muschelkalk and keuper; the other, containing the *Microlestes*, less extensive and fossiliferous, which rests on the keuper, or superior member of the trias, and is covered by the sandstone of the lias. The last-mentioned breccia, therefore, occupies nearly the same place as the well-known English "bone-bed" of Axmouth and Aust-cliff near Bristol, which is shown above, p. 336, to include characteristic species of muschelkalk fish, of the genus *Saurichthys*, *Hybodus*, and *Gyrolepis*. In both the Würtemberg bone-beds these three genera are also found, and one of the species, *Saurichthys Mougeotii*, is common to both the lower and upper breccias, as is also a remarkable reptile called *Nothosaurus mirabilis*. The saurian called *Belodon* by H. Von Meyer, of the Thecodont family, is another triassic form, associated at Diegerloch with *Microlestes*.

Previous to this discovery of Professor Plieninger, the most ancient of known fossil Mammalia were those of the Stonesfield slate, above described, p. 310, no representation of this class having as yet been met with in the Fuller's earth, or inferior Oolite, nor in any member of the Lias.

Origin of Red Sandstone and Rock-Salt.

We have seen that, in various parts of the world, red and mottled clays, and sandstones, of several distinct geological epochs, are found associated with salt, gypsum, magnesian limestone, or with one or all of these substances. There is, therefore, in all likelihood, a general cause for such a coincidence. Nevertheless, we must not forget that there are dense masses of red and variegated sandstones and clays, thousands of feet in thickness, and of vast horizontal extent, wholly devoid of saliferous or gypseous matter. There are also deposits of gypsum and of muriate of soda, as in the blue clay formation of Sicily, without any accompanying red sandstone or red clay.

To account for deposits of red mud and red sand, we have simply to suppose the disintegration of ordinary crystalline or metamorphic schists. Thus, in the Eastern Grampians of Scotland, in the north of Forfarshire, for example, the mountains of gneiss, mica-schist, and clay-slate, are overspread with alluvium, derived from the disintegration of those rocks; and the mass of detritus is stained by oxide of iron, of precisely the same color as the Old Red Sandstone of the adjoining Lowlands. Now this alluvium merely requires to be swept down to the sea, or into a lake, to form strata of red sandstone and red marl, precisely like the mass of the "Old Red" or New Red systems of England, or those tertiary deposits of Auvergne (see p. 199), before described, which are in lithological characters quite undistinguishable. The pebbles of gneiss in the Eocene red sandstone of Auvergne point clearly to the rocks from which it has been derived. The red coloring matter may, as in the Grampians, have been furnished by the