

A single term, thus comprehending both Upper and Lower New Red, or the Triassic and Permian groups of modern classifications, may still be useful in describing districts where we have to speak of masses of red sandstone and shale, referable, in part, to both these eras, but which, in the absence of fossils, it is impossible to divide.

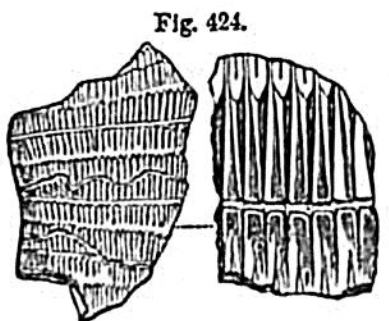
*Trias or Upper New Red Sandstone Group.*

The accompanying table will explain the subdivisions generally adopted for the uppermost of the two systems above alluded to, and the names given to them in England and on the Continent.

		Synonyms.	
		German.	French.
Trias or Upper New Red Sandstone -	{ a. Saliferous and gyp- seous shales and sandstone - . }	Keuper -	- Marnes irisées.
	{ b. (wanting in England)	Muschelkalk -	{ Muschelkalk, ou cal- caire coquillier.
	{ c. Sandstone and quart- zose conglomerate }	Bunter-sand- stein -	- } Grès bigarré.

I shall first describe this group as it occurs in Southwestern and Northwestern Germany, for it is far more fully developed there than in England or France. It has been called the Trias by German writers, or the Triple Group, because it is separable into three distinct formations, called the "Keuper," the "Muschelkalk," and the "Bunter-sandstein."

*The Keuper*, the first or newest of these, is 1000 feet thick in Würtemberg, and is divided by Alberti into sandstone, gypsum, and carbonaceous slate-clay.\* Remains of Reptiles, called *Nothosaurus* and *Phytosaurus*, have been found in it with *Labyrinthodon*; the detached teeth, also, of placoid fish and of rays, and of the genera *Saurichthys* and *Gyrolepis* (figs. 433, 434, p. 336). The plants of the Keuper are generically very analogous to those of the lias and oolite, consisting of ferns, equisetaceous plants, cycads, and conifers, with a few doubtful monocotyledons. A few species, such as *Equisetites columnaris*, are common to this group, and the oolite.



*Equisetites columnaris*, (Syn. *Equisetum columnare*.) Fragment of stem, and small portion of same magnified. Keuper.

*The Muschelkalk* consists chiefly of a compact, grayish limestone, but includes beds of dolomite in many places, together with gypsum and rock-salt. This limestone, a rock wholly unrepresented in England, abounds in fossil shells, as the name implies. Among the cephalopoda there are no belemnites, and no ammonites with foliated sutures, as in the incumbent lias and oolite, but a genus allied to the Ammonite, called *Ceratites* by De Haan, in which the descending lobes (see *a, b, c*, fig. 425) terminate in a few small denticulations pointing inwards. Among the

\* Monog. des Buntten Sandsteins.