

The members then of this series may be enumerated in the following order beginning with the highest and most recent.

1st. Beds of marle and variegated sandstone containing rock salt and gypsum exactly corresponding with the English red marle. It contains also occasionally some subordinate calcareous beds coarsely oolitic, or rather formed of middle-sized globular concretions sometimes dispersed through a sandy matrix, and thus passing into sandstone. This appears to agree with some of the upper beds of magnesian limestone in the English series; but the great mass of that formation is probably rather to be referred to the next member of the German suite: argillaceous iron-stone and thin traces of coal are likewise found incidently in this part of the series.

2. A calcareous formation containing fetid limestone, (Stinkstein), cellular limestone (hehlen kalstein or rauchwacke,) and compact marly limestone (zechstein) alternating with marly beds, follows. Towards the bottom of this part of the series is a bed of slaty marle-stone richly impregnated with copper pyrites, (kupferschiefer flötz) for which it is extensively worked. This bed is considered as characterising this part of the series. Much of the alpine limestone must be referred to this formation, and also that of Carniola, which is associated with the bituminous marle-slate containing the mercurial mines of Idria. This constitutes the first flötz limestone of Werner and his disciples. Near the Hartz, these calcareous beds rest on a marly sandstone of very variable character, occasionally passing into a calcareous conglomerate called the Weissliègende.

The magnesian limestone of England answers in position to these deposits, but no metalliferous beds have yet been observed in this formation in this country: well characterised rauchwacke may however be observed in Yorkshire.

The organic remains contained in these formations are principally skeletons of Saurian animals, and fish in the copper slate, together with small gryphites (perhaps Chamæ) ammonites and belemnites, &c. a ferriferous limestone which replaces the zechstein in the Thuringerwald, is replete with a species of gryphites (or perhaps Chama,) called by Von Schlottheim gryphites aculeatus; vegetable impressions of ferns, seeds, &c. occur in the coal-shale.

3. Interposed between the last series and the coal which it always covers, is a great deposit of red sandstone and conglomerates associated with various masses of porphyry, basaltic trap and amygdaloid. It is locally called the *red dead lyer* (*rothe todte liegende*) because the metals worked in the former beds here cease; this is termed by Freisleben the older sandstone in distinction to the sandstone beds of No. 1, and is the first