

To trace these beds hastily through the continent, we may begin with France. The new red sandstone which crosses the

calcareous deposit, and below it are only imperfect traces of coal, and those of the rarest occurrence.

That on the other hand the *rothe todte liegende* as uniformly occupies a place above the great coal deposit, the evidence of Freisleben is decisive. The accounts of Lehman, Karsten, Voight and Von Buch, confirm this position: the description, map, and sections of Von Raumer, also prove that it is similarly placed in Upper Silesia and Bohemia; for the crop of the coal beds is distinctly represented as occupying a line between the red sandstone and transition rocks. Freisleben considers it as a formation distinct from and reposing upon that of coal; Von Raumer as so closely allied to the coal-measures, as to constitute with them but a single formation, the lowest beds being in his opinion associated with the coal; the instances he cites are however by no means satisfactory, and probably indicate nothing more than the incidental occurrence of traces of coal in the red sandstone, which is not an uncommon circumstance even in its youngest members which contain gypsum and salt.

In one of the sections given by Lehman, he indeed represents a bed of red conglomerate (either our millstone-grit or old red sandstone) as basing the coal, but he carefully distinguishes this from the true *rothe todte* which occurs in the same section above the coal.

All these writers, therefore, with one voice confirm the position of the coal beneath the *rothe todte liegende*, either as a distinct formation, or at any rate the *lowest* member of the same. It is therefore clear that the relations of position of this formation to the great coal deposit are directly contradictory to those of the old red sandstone of this country.

Let us enquire, then, whether there are any circumstances connected with this rock which render it necessary to resort to the supposition of this great inversion of a geological arrangement which has been found to hold constantly good through the British Islands, and also in the most extensive of the continental coal-districts—that of the Netherlands: for though it would certainly be rash to pronounce against the possibility of this supposition, it must yet be acknowledged that it ought not to be admitted without cogent arguments in its favour. The descriptions however of this formation will be found closely to agree with the conglomerates of our new red sandstone in Devonshire, and even the occurrence of porphyritic and trapean rocks in association with it, is there paralleled, for it will have been seen in the preceding article that there is no ground to doubt that these latter rocks are in that district truly associated with the new red sandstone, and not, as has been suggested, with the subjacent transition strata. The writer of this article particularly examined the *rothe todte liegende* beneath the copper marle-slate of the Thuringerwald, in company with Professor Buckland, in the summer of 1816, and both were struck with its identity of character with the rocks of Heavitree near Exeter; and the latter has since enjoyed repeated opportunities of studying most of the principal deposits ascribed to this formation on the continent, and has seen nothing which did not strongly confirm him in this opinion. It should be added, however, that three great conglomerates of nearly similar appearance, occur in the neighbourhood of the English coal districts. 1st. The lowest beneath the great carboniferous limestone, associated with the old red sandstone; in this coal has never yet been found (at least in any workable quantity) in these islands; secondly, above the carboniferous limestone, and between it and the great coal deposit, associated with the sandstone called in Derbyshire, &c. the millstone grit; this does occasionally, though not very commonly, alternate with, and cover regular beds of coal, and