

channel from Devonsire, is seen, though not extensively, skirting the transition rocks of Brittany; but the lias and oolite advance so near to them, as almost to overlie and conceal it; as also seems to be the case in the centre of that country, against the northern edge of that great group of primitive ridges branching off from the Cevennes; but we want information on this district.

If we pass from the centre of France into Spain (as this seems the most convenient place to include that nearly detached country), we find, after crossing the Pyrenees, the rock salt of this formation associated as usual with gypsum at Cardona (a description of which will be found in the 4th volume of the Geological Transactions). The celebrated conglomerate mountain of Montserrat in the same quarter, is perhaps referable to the same æra; and we find gypsum and rock salt abundantly distributed along the course of the Ebro from below Saragossa to above Tudela. It is difficult to speak of a country whose geology has yet never received a strictly scientific examination; but enough is known to teach us that the central and western

also alternates with the upper part of the limestone series: and thirdly, the conglomerates forming the lowest member of that great series of sandstone deposits which covers the whole of the coal-measures, and which it has been the object of the present article to describe. Identity of geological position, and resemblance in character, seem to combine in persuading us to refer the *rothe todte* to the last of the three, rather than to either of the former. Should it however prove that they are really associated with the coal formation, as Von Raumer believes them to be, they may perhaps be classed with the second; but there is every reason to withhold our assent from their proposed identification with the first and oldest of them; for in a case where external characters are nearly similar (since one quartzose breccia cannot materially differ from another) our surest guide must be the position in the geological series, and this *rule will hardly permit us to class a formation uniformly below, with one uniformly above, the principal deposit of coal.* It may be asked, however, if the *rothe todte* be not our old red sandstone, what rock in the continental series does correspond to it; to this it may be answered generally, that the entire absence of a formation is a less anomaly in geology than its false position, and that the old red sandstone is thus absent in many of our own coal-fields, as for instance in those of Staffordshire, where the coal-measures repose immediately on transition limestone, and even in the western extremity of the great South Welsh coal-field, which exhibits this formation in its greatest thickness; in every other part it vanishes in the same manner. In some instances, however, the old red sandstone is decidedly to be seen on the continent, as at Hug, on the Meuse, placed exactly as with us; but it has always been spoken of by continental geologists as a variety of *grauwacke*, and the carboniferous limestone reposing on it as transition lime; and the same nomenclature has probably been adopted in other localities, for Von Raumer speaks of a conglomerate and limestone associated with *grauwacke* in Siberia; which, from the description he gives, and its relations to the adjoining coal-formation, may very probably answer to our old red sandstone and carboniferous limestone.