

chief rivers. Thus in France, there are the basins of the Seine or of Paris, of the Loire or of Touraine, of the Rhone or of Provence, and of the Garonne or of Aquitania, including all the area up to the slopes of the Pyrenees. In most cases, these areas present such lithological and palæontological differences in their Cretaceous rocks as to indicate that they may have been to some extent even in Cretaceous times distinct basins of deposit.

A twofold subdivision of the system is followed in France, but with a difference of nomenclature and partly also of arrangement from that in use in England, as shown in the subjoined table:

(See Table on page 1560.)

From this table it will be perceived how marked a lithological difference is traceable between the Cretaceous deposits of the north and south of France. The northern area indeed is linked with that of England, and was evidently a part of the same great basin in which the English Cretaceous rocks were deposited. But in the south, the aspect of the rocks is entirely changed, and with this change there is so marked a difference in the accompanying organic remains as to indicate clearly the separation of the two regions in Cretaceous times.

INFRA-CRÉTACÉ.—Neocomian.<sup>156</sup>—This division is well seen in the eastern part of the Paris basin. The lowest dark marl, resting irregularly on the top of the Portlandian series, indicates the emersion of these rocks at the close of the Jurassic period. It is followed by ferruginous sands, calcareous blue marl, spatangus-limestones, and yellow marls (abounding in *Toxaster complanatus*, *Exogyra Couloni*, *Pterocera pelagi*, *Amm. radiatus*, etc.), the whole having a thickness of 125 to 140 feet, and representing chiefly the upper or Hauterivian sub-stage. Much more important is the development of the Neocomian deposits in the southern half of France. They present there evidence of deeper water at the time of their formation. The Neuchâtel type (p. 1570) is prolonged into the northern part of Dauphiné, where it is

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<sup>156</sup> See D'Archiac, *Mem. Soc. Geol. France*, 2e ser. ii. p. 1; Raulin, *op. cit.* p. 219; Ebray, *Bull. Soc. Geol. France*, 2e ser. xvi. p. 213; xix. p. 184; Cornuel, *Bull. Soc. Geol. France*, 2e ser. xvi. p. 742; 3e ser. ii. p. 371; Hebert, *op. cit.* 2e ser. xxiv. p. 323; xxviii. p. 137; xxix. p. 394; Coquand, *op. cit.* xxiii. p. 561; Rouville, *op. cit.* xxix. p. 723; Bleicher, *op. cit.* 3e ser. ii. p. 21; Toucas, *op. cit.* iv. p. 315.