continental sea. In the earlier and later part of the Triassic, it was very shallow, the conditions those of sea margins and seashore basins, and brack-ish-water flats; in its middle portion of somewhat deeper waters; but about the region of the eastern Alps, and along the side of the Alps toward the Mediterranean, as well as in southern France and Austria, the waters, judging from the prevalence of limestones, their thickness and the fossils, were those of a clear, open sea. This region has been designated the Mediterranean region.

## ROCKS-SUBDIVISIONS, KINDS AND DISTRIBUTION.

1. Lower Trias or Vosgian. - Represented generally by red or variegated sandstoues passing to whitish marlytes and pebbly beds; salt beds are sometimes present, and also gypsum. In England it includes the Lower Red Sandstone of the Trias, 1000 feet to 2000 feet thick; in Germany, the Buntersandstein; in France, the Grès des Vosges and Grès bigarré (bunter and bigarré meaning variegated); but in the eastern Alps, in Lombardy, and the Tyrol, a limestone, the Gutenstein, underlying the Werfen saudstone with rock salt and gypsum.
2. Middle Trias or Franconian. - The rock is limestone in Germany, France, and the Alps; it is not recognized in England. It is represented by the Muschelkalk of Germany, with the Wellenkalk below, and affords rock salt in Würtemberg; and by the Calcaire Conchylien in France.
3. Upper Trias. - (1) Keuperian. In England mostly like the Lower Trias in its rocks; it affords rock salt at Cheshire. In Germany there are, below, red shales and marlytes with thin coal seams - the Kohlenkeuper or Lettenkohle; and above, the Keupermergel, marlytes containing gypsum. Gypsiferous beds and rock salt occur in Lorraine, and at Salzkammergut, near Salzburg, Austria. In the eastern Alps, there are the St. Cassian beds; in Sweden, gray and red marlytes, with some good coal.
(2) The Rhetic, so-named from the Rhretic Alps. The beds are limestone or shales. They include the Kössen beds of Germany, the Avicula contorta beds; the larger part of the Dachstein limestone of the eastern Alps; and in England the Penarth beds of shales overlying the Trias from Yorkshire to Lyme-Regis, 50 to 150 feet thick. One to three bone-beds occur in the lower part in England, and also in Bourgogne, Hanover, Brunswick, and Franconia. The Rhætic is sometimes placed at the base of the Lias.

The Trias has great thickness in the Alps, especially the Italian, it being nearly 13,000 feet along a belt from Bardonnèche (Savoy), by the Mont Cenis tunnel, to Modena. This great thickness is owing to the fact that preparations were in progress, through a geosyncline of accumulation, for the Tertiary mountain making, which took place along the range at the close of the Miocene.

In peninsular India, the upper part of the Gondwana series, the Panchet group, is Triassic; it is without marine fossils. Outside of the peninsula, Triassic beds occur in dana's manual - 49

