

adhere firmly to D'Orbigny's sub-division and nomenclature, and where necessary to form sub-groups and sub-stages. Thus Renevier gave to the passage-beds between Urgonien and Aptien at the Perte du Rhone, the distinctive name of *Rhodanien*, and the name of Vraconien to the uppermost horizons of the Gault in the Jura of the Waadt Lands. Again, Pictet separated certain basement beds of the Neocomian in the French Rhone Valley as a sub-stage, *Berriasien*, characterised by special fossils also widely distributed in the Alps and Carpathians and in Algeria.

The Cretaceous deposits play a relatively subordinate part in the Swiss and Eastern Alps and in the Carpathians, and could not be properly understood until the stratigraphy of extra-Alpine Cretaceous formations had been elucidated. In Switzerland, Studer had as early as 1836 demonstrated the presence of Lower Cretaceous deposits near Interlaaken, and afterwards Studer and Escher von der Linth together studied the Cretaceous rocks at Lake Lucerne, the Glärnisch and Sentis mountains. Renevier, Favre, and Schardt have chiefly contributed to the knowledge of the interesting Cretaceous sequence in the Waadt Lands and Savoy Alps.

The Vorarlberg Cretaceous deposits were examined by Von Richthofen, Gümbel, and Vacek, those of the Bavarian Alps by Gümbel. In the Austrian Alps the "Gosau Strata" have yielded a remarkable profusion of well-preserved fossils. In 1822, Ami Boué observed these fossils on the cliffs near Wiener Neustadt; he thought at first that they were Jurassic, but afterwards included them in the Greensand formation. Keferstein united them (1827) with the Tertiary "Flysch," although Count Münster had identified Cretaceous species amongst the fossils. Murchison likewise placed the Gosau marls in the Tertiary epoch, but ascribed a greater age to the Hippurite or Rudistes limestone with which they are associated.

The Austrian geologists wavered between Gault and Upper Cretaceous as the systematic position of the Gosau marls, until in 1852, just thirty years after their first discovery, Zekeli concluded from his investigation of the Gosau gastropods, that the strata containing them must be the equivalent of D'Orbigny's Turonien and Senonien. Reuss agreed with this view in the main, but thought the Gosau complex chiefly corresponded to the Turonien horizon and only partially to the