

different regions of its distribution, and attempts have been made by means of the included fossils to parallel these stages in a general way with the subdivisions in the Anglo-Parisian basin. But the conditions of deposition were so different that such correlations must be regarded as only wide approximations to the truth. In the Northern Alps (Bavaria, etc.) Gumbel arranges the Eocene series as under:⁴⁵

Flysch or Vienna sandstone (Upper Eocene), including younger Nummulitic beds and Häring beds.

Lower Nummulitic group. Kressenberg beds—greenish sandy strata abounding in fossils, which on the whole point to a correspondence with the Calcaire Grossier.

Burberg beds—greensand with small Nummulites and *Exogyra Brongniarti*, answering possibly to the upper part of the lower Eocene beds of the Anglo-Parisian area.

In the southern and southeastern Alps the Eocene rocks attain a much larger development. The following subdivisions in descending order have been recognized:⁴⁶

| | | |
|---------------------|---|--|
| Upper Eocene | { | Macigno or Tassello, having the usual character of the Vienna sandstone. No fossils but fucoids. |
| | { | Fossiliferous calcareous marls and shales, and thick conglomerates. |
| Nummulite Limestone | { | Chief Nummulite limestone, containing the most abundant and varied development of nummulites, and attaining the thickest mass and widest geographical range. |
| | { | Borelis (<i>Alveolina</i>) limestone, containing numerous large foraminifera of the genus <i>Borelis</i> . |
| | { | Lower Nummulite limestone, with small nummulites, and in many places banks of corals. |
| Liburnian Stage | { | Upper Foraminiferal limestone, containing also intercalations of fresh-water beds (<i>Chara</i>). |
| | { | Cosina beds, with a peculiar fresh-water fauna (<i>Stromatopsis</i> , <i>Melania</i> , <i>Chara</i> , etc.). |
| | { | Lower Foraminiferal limestone, with numerous marine mollusca (<i>Anomia</i> , <i>Cerithium</i> , etc.), and occasional beds of fresh-water limestone (<i>Chara</i> , <i>Melania</i> , etc.). |

⁴⁵ "Geognostische Beschreib. Bayerisch. Alpen," 1861, p. 593 *et seq.*

⁴⁶ Von Hauer, "Geologie," p. 569. For an exhaustive account of the stratigraphy and palæontology of the Liburnian stage, see G. Stache's great monograph, "Die Liburnische Stufe," Abhandl. k. k. Geol. Reichsanst. xiii. 1889. On the classification of the older Tertiary formations of Austria, consult Tietze, *Zeitsch. Deutsch. Geol. Ges.* xxxvi. 1884, p. 68; xxxviii. 1886, p. 26; T. Fuchs, *op. cit.* xxxvii. 1885, p. 131.