

Whereas Leopold von Buch had explained these masses as dolomitised limestone, chemically altered by the agency of magnesia vapours and volcanic discharges, Richthofen made the suggestion that not only the dolomitic masses, but also a part of the immense thicknesses of pure pelagic Triassic limestone in the southern Alps, had been constructed by reef-building coral polyps during periods of slow subsidence of the sea-floor. Richthofen pointed out how the irregular constitution of a sea-floor occupied by coral reefs would afford an explanation for many of the peculiar tectonic appearances and facies developments that are otherwise very difficult of comprehension. Richthofen's sub-division of the Trias in South Tyrol has been little altered. Stur, in 1868, showed that the Heiligkreuz strata were parallel with the upper part of the Raibl strata; and as the position of the Kössen strata became fixed, both these and the Dachstein limestone, so often intimately associated with the Kössen strata, were transferred from Lias to Upper Trias.

Until the year 1856 there was no known extra-Alpine equivalent for any of the zones of fossiliferous Triassic deposits above the Muschelkalk. Although almost one thousand species of marine fossils had been described from St. Cassian, Raibl, Esino, and Hallstatt strata, there was not a single species amongst them which could with security be shown to occur in extra-Alpine deposits. The only basis of comparison between Alpine and extra-Alpine Trias had been afforded by the few fossil species common to Alpine and extra-Alpine Muschelkalk. The highest interest, therefore, attached to the publication of a memoir by Oppel and Suess "On the supposed equivalents of the Kössen strata" (*Sitz. ber. Akad. Wien*, 1866), wherein *Avicula contorta* and other Molluscan species in the Kössen beds were identified with species in certain passage-beds between the Triassic and Liassic strata in Swabia.

There could be no question regarding the stratigraphical position of the *Avicula contorta* strata in Swabia since they reposed conformably upon the upper red Keuper marls, and were conformably succeeded by the lowest Lias with *Ammonites planorbis*. Hence the determination of this definite palæontological zone in the Alps fixed the upper horizon of Alpine Trias, and gave a clue to the solution of the relations between the Trias and the Lias in the Alps. While stratigraphers were well satisfied with this new vantage-ground for