

the Kimmeridge group. Similar results were afterwards obtained by Stache, Mojsisovics, and Neumayr in an examination of the "Klippen" limestones in the Carpathians. These geologists placed the *Ammonite acanthicus* strata with the Upper Jurassic, the *Diphyia* limestones with Oppel's Tithonian horizon.

The premature death of Oppel prevented the completion of the series of investigations by means of which he had intended to establish the Tithonian horizon on a secure palæontological basis. The material was afterwards examined and described in a series of special monographs by Zittel, Böhm, Cotteau, Miss Ogilvie, and Zeise. Zittel limited the term "Tithonian" to formations of Alpine facies, excluding therefore the lithographic shale and Portland limestone, and he regarded the Tithonian complex of strata as the equivalent of the Purbeck and Wealden strata.

Whereas Oppel, Zittel, and Benecke expressed themselves more in favour of the Jurassic age of the Tithonian horizon, Hébert attributed great weight to its affinities with the lowest Cretaceous deposits in the south of France (Berrias strata), and even went so far as to place the Stramberg strata in the Lower Cretaceous. Many eminent geologists have taken part in the discussion within recent years, and the opinion now most generally held is that the lower portion of the Tithonian group is the equivalent of the Upper Kimmeridge horizon, while the higher portion of the Tithonian group is parallel with the Purbeck and Portland strata.

New discoveries by the Russian geologists have lately enriched the knowledge of Upper Jurassic faunas. In Central Russia, marine deposits of Lower Cretaceous age succeed dark argillaceous strata which represent the whole Upper Jurassic series from the Kellaways zone upward. The fossils of the Moscow and South Russian Jurassic deposits are now being carefully examined by Trautschold, Pavlow, Sinzow, Lahusen, and Nikitin, and the so-called Volga group has been identified as an equivalent of the Tithonian Alpine formations. Oppel's students, Neumayr and Waagen, tried to develop the zonal aspect of geology more and more, and to apply it in foreign parts of the world. Waagen's attempt to demonstrate almost all the Upper Jurassic zones of Oppel in the Jurassic strata of Cutch has been contested by Kitchin and Nötling.

Neumayr advanced the palæontological knowledge of