

I contend—with all due deference—is merely hypothetical, inasmuch as it can nowhere be proved to exist. It, moreover, indicates no age whatever, beyond being placed in the published section in the Quarterly Journal<sup>1</sup> beneath the Chillesford Clay and Norwich Crag; which order of superposition can be demonstrated to be entirely erroneous! Consequently, it is not only desirable, but clearly imperative that a different classification and nomenclature should be adopted.

I therefore propose the following triple subdivision: viz. “the Rootlet-bed,” with its associated freshwater beds, the “Chillesford Clay,” and the “Norwich Crag.” And if it is considered desirable to have a connected series—owing to the very intimate relation of the beds, and the comparatively short period of time involved—I would suggest that the term “Mammalian or Norwich Crag Series” should be adopted, to embrace the three subdivisions above mentioned. This simple classification, I contend, accords with the facts observed, and the nomenclature suggested is amply sufficient, in my opinion, to denote the whole of the remarkable pre-glacial deposits referred to; which together are seldom to be seen anywhere around the coast in direct superposition, more than about 15 feet in thickness.

## II.—THE CONGERIA BEDS IN ITALY.<sup>2</sup>

THE Congeria beds were shown to exist in Tuscany, in 1860, by Professor Capellini, and since then both Professor C. Mayer and Professor Fuchs have called attention to their appearance in various parts of Italy, and much has been written upon it during the last few years as bearing upon the question as to where the division between Miocene and Pliocene should be made in Italy.

The Congeria beds were already many years ago compared with those in the Wallachia and the Crimea, and now the same strata are shown to exist from Bollène (S. France), through Italy, Austria, Hungary, and the south of Russia. These sulphur-gypsum beds or Congeria strata on both sides of the Apennines are now shown to contain similar fossils, and the formation as found near Leghorn, Ancona, and Bologna, is directly compared, and it is shown to be analogous with that of the Piedmont Modenese, Reggiano, and Sicily, and to represent the “Schlier” of the Vienna geologists, the marl of Wieliczka and Wallachia, and perhaps in part the marl of Boom (Belgium), and the exact correspondence between the gypsum of Tuscany and that of the Romagne and the Marche, long known for its fossil flora, is now fully confirmed by means of the fossil fauna. Although the fossils distinctly prove the identical age, yet in almost each locality there are some found not common in others, and this is found to be the case in the Congeria beds of the neighbourhood of Castellina Marittima and the Aconitano.

<sup>1</sup> Quart. Journ. Geol. Soc. vol. xxxii. p. 124.

<sup>2</sup> Gli Strati a Congerie e le marne compatte mioceniche dei dintorni di Ancona. By Professore Giovanni Capellini, Mem. Accad. Lincei, ser. 3a. vol. iii. 1879.

Gli strati a Congerie e la formazione gessoso-solfifera nella provincia di Pisa e nei dintorni di Livorno. G. Capellini, Mem. Accad. dei Lincei, ser. 3, vol. 1880.

Both in Tuscany and in the Marche it is found that the faunas of the lower part of the Congeria beds, and in so far as the Congeria strata only in part corresponds with that of Austria and Hungary, the upper part as there known being absent in Italy. The lower group of the Miocene strata of the Leghorn mountains corresponds with the marls and sands of the *Cardita Jouanetti* beds of the Rhine, and if these are to be considered Upper Miocene, then the Middle and Lower Miocene are unrepresented in the province of Pisa, but well developed in Tuscany.

In the second paper this formation is shown to be very well developed in the hills south-east of Pisa, especially good sections being exposed in the valley of the Marmolajo, and between Parrana and Cologne, where the complete series can be examined resting on the Leithakalk, and at Limone and Oliveto there is a marl bed intercalated in the formation containing plants, fish, and fossil insects, by which means these beds and the Oeningen lacustrine formation are correlated.

The Lower Pliocene is considered to end with the marl containing *Pecten comitatus*, Font., which has also been called *P. denudatus* and *P. Fuchsii*, De Stef.; and immediately below this follows the Congeria (sulphur-gypsum) formation, and these Professor Capellini proposes to divide into (1) Cardium beds with *Melanopsis Bonelli*; (2) marl with *Cypris*; (3) marl with *Melanopsis impressa*; (4) limestone and serpentine conglomerate; (5) marl with *Melanopsis Bartolinii*.

These Congeria beds are superposed on the Sarmatian or Tripoli beds of the Leghorn mountains, which again rest on Tortonian or Leithakalk, considered by some as Upper Miocene, and by others as Middle Miocene, the latter being the division followed by Capellini.

Both papers are accompanied with several plates of the fossils found in these beds.

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## REVIEWS.

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### I.—FRITSCH'S PERMIAN AMPHIBIANS OF BOHEMIA.

THE second part of Dr. Fritsch's Monograph of the Fauna of the Permian Rocks of Bohemia fully sustains the interest of the first volume. It consists of 34 quarto pages of text, amply illustrated by many figures printed in the text, and by 12 coloured plates. It is impossible not to regard with admiration a work so fully and wisely illustrated; but equally in the literary work the author has endeavoured to give his labours completeness of expression, not so much with the object it may be of making the task of future labourers a sinecure, as in a happy endeavour to say everything that is worth knowing about his fossils. This memoir commences with some general remarks on the Branchiosauridæ, in which the opinion is expressed and sustained that several of the Stegocephali which have been described in other countries must be included in this family, so that the author finally arranges in it the following ten