

floras; where animals only occur, they must decide from their part; but if both animals and plants occur, they must both be used in an appropriate way; but we must always take this maxim for our guidance, that already existing organisms could much easier survive, than that organisms generally known as higher in stratification should be transferred to much lower strata; and how such cases can be explained by colonization, everybody knows best for himself, and I have indicated already above.

We must further consider that formations in general have proved not to be so strictly limited, and that very often forms from the lower pass into the higher, as for instance the Rhætic beds, as passage-beds between the Keuper and Lias; the Wealden formation, as a passage-bed between the Upper Jura and Lower Cretaceous, etc., were established; there is certainly such a passage also between the Carboniferous and Permian formation, and in Bohemia the Nürschan Gas-coal establishes this passage: it is therefore to be considered as a passage-bed between the Carboniferous and Permian formations there.

NOTICES OF MEMOIRS.

I.—ON THE TERTIARIES OF MALTA.¹ By TH. FUCHS. *Proceed. Imp. Acad. Vienna*, Jan. 20, 1876, vol. lxx. p. 92.

[Communicated by Count MARSCHALL, C.M.G.S., etc.]

THESE Tertiaries may be divided into two groups; the upper one answering to the Leitha-limestone of the Vienna Basin; the lower one to the deposits of Schio near Vicenza, of Monte Titano near San Marino, of Deigo, Carcare, and Belforte in Italy, those of Bazas and Merignac in France, the Marine Molasse of Bavaria, the Sotzka beds of Styria, and the Pectunculus beds of Hungary. The two groups are conformable; but, though petrographically analogous, offer different palæontological characters.

The succession of beds (in descending order) is:—

A. *Leitha-Kalk Group.*

1st.—Leitha-limestones in all the varieties occurring in the Vienna Basin, and a peculiar compact variety with breccia-like texture, bearing more resemblance to the Triassic “Rauhwackes” of the Alps than to any Miocene Leitha-limestone.

The plateaux formed of these limestones are notably worn out by atmospheric agencies, their superficial erosions being filled by a brick-red earthy substance, like those of the Illyrian Karst. Organic remains, identical with those of the Leitha-limestones of the Vienna Basin, are locally abundant.

2nd.—*Green Sands and Heterostegina-limestones* of Gozo, immediately beneath the Leitha-limestones with an enormous quantity of *Polyzoa*, *Heterostegina*, *Echinidæ*, *Ostreæ*, and *Pectines*, and in every respect answering to the sands of Neudorf, south of Vienna.

¹ Papers on the Geology and Fossils of Malta, by Duncan, Jones, and Hutton, have appeared in the *GEOLOGICAL MAGAZINE*, Vol. I. pp. 96—106, and Vol. III. pp. 145—162, which may be consulted in connexion with this communication.—EDIT. *GEOL. MAG.*

3rd.—*Plastic Clay* (“Schlier” of the Vienna Basin), with a thickness of 180 feet, abounding with *Nautilus Aturi*, Bast. (*Naut. diluvii*, Sism.), *Pecten denudatus*, Reuss, and *Pecten*, sp. nov.

B. “Bormidian-Aquitanian.”

1st.—*Pecten-beds*, answering to the Schio-beds, finely arenaceous, soft, with an abundance of small *Echinidæ* and *Pectines* (*P. Haueri*, and *P. deletus*); the chief building material of Malta.

2nd.—*Lower Limestones*, chiefly developed in Gozo, visible in Malta for longer or shorter distances along the coast. Composed of detritus of Nulliporæ and Polyzoa; hard and compact. The characteristic organic remains are small *Scutellæ*, identical with those of Schio, gigantic *Orbiculinæ*¹ and *Orbitoides*, some four inches in diameter. Shells are abundant; most of them are analogous to those of Castel-Gomberto and Sangonini; but some are of the Miocene type, such as *Turritella cathedralis*.

II.—NOTE SUR LES DÉPÔTS CRÉTACÉS LACUSTRES ET D'EAU SOUMÂTRE DU MIDI DE LA FRANCE, par M. Ph. MATHERON. (Bulletin de la Société Géologique de France, 3^e série, vol. iv. pp. 415-428.)

THE author is of opinion that the beds of fresh and brackish water deposits that occur in Central France, and which were at one time considered to be entirely of Miocene age, represent not only almost all the Tertiary series, but even some of the uppermost beds of the Chalk.

Starting at the Chalk with *Ostrea Matheroniana*, the lowermost bed of the Sénonien, as a base-line, there follow in ascending order in the Department of Bouches-du-Rhône, zone of *Ostrea acutirostris*, the littoral beds with *Cassiope Coquandiuna*, brackish-water beds, Fuveau series, Rognac series, and the large series of red claystones. All these M. Matheron classes as Cretaceous; all above being referred to the Tertiary period. The “terrain Garumnien” of M. Leymerie is correlated with the two last named of the above series, i.e. uppermost Cretaceous.²—B.B.W.

III.—RECORDS OF THE GEOLOGICAL SURVEY OF INDIA, VOL. IX. PT. 4.

CONTAINS on p. 154 a notice of the discovery of the remains of a *Plesiosaurus* in the Umia (Tithonian and Portlandian) beds at Burroria, in Kachh.

The specimen, which is the first indication yet found of the presence of this reptile in India, “comprises the whole of the symphysis and small portions of the rami of the mandible; on the right side it contains the alveoli of five teeth, and on the left side, of four.” It “agrees almost exactly in form and size with *P. dolichodeirus* of the Lias.” This interesting specimen, which doubtless will not long remain unique, was found by Mr. A. B. Wynne, and is described by Mr. R. Lydekker, of the Indian Geological Survey.—B.B.W.

¹ *Orbiculina* is not noticed in GEOL. MAG. Vol. III. p. 152, as a Maltese fossil.—EDITOR.

² M. Hébert (Bull. Geol. Soc. de la France, 3^e série, vol. iii. p. 595) had classed the Garumnian beds as Upper Senonian, and the Rognac beds as Damien (?).