the fauna and flora are identical, and both are of Recent age; a physical connection would necessitate an uplift of the ocean bed to a *minimum* extent of 550 fathoms.

As regards the epoch of *maximum* elevation, I have already given my reasons for holding that the extreme cold of the Glacial Epoch was the direct result of land elevation on both sides of the Atlantic (see my paper on "Another Possible Cause of the Glacial Epoch," Trans. Vict. Inst., 1898); under this view, it follows that the intensest cold would probably occur during the epoch of maximum elevation, namely, the early stage of the Glacial Epoch. I need not further dwell on this point, which I have attempted to deal with in the paper referred to.

But this communication has extended far beyond my original intention, and I must bring it to a close. It seems to me that this correspondence has "cleared the air," and that between the views of Professor Spencer, Mr. Jukes-Browne, and myself there is but little difference; or the difference is unimportant.

EDWARD HULL.

THE HORIZON OF *DINOCYSTIS BARROISI*.[1]

SIR,—Professor G. Dewalque, writing in your February number (N.S., Dec. IV, Vol. VI, p. 94), gently turns the Famennian beds of the Condroz right way up again from the reversed position into which an annoying slip on p. 543 of my paper had thrown them. For this friendly intervention he has my thanks, but with his main thesis I am unable to agree. The question at issue is the horizon of *Dinocystis Barroisi*; to this all the rest is subsidiary. Let us make the question clear by printing the list of the horizons of the Famennian, in descending order, as given in "Légende de la Carte Géologique de Belgique, etc.," 8vo, Bruxelles, 1896.

DEVONIEN SUPÉRIEUR.

Famennien supérieur.

Assise de Comblain-au-Pont [=Etroeungt Limestone].
Assise d'Evieux.
Assise de Monfort.
Assise de Souverain-Pré.

Famennien inférieur.

Assise d'Esneux.
Assise de Mariembourg.
Assise de Senzeilles.

This list does not imply an absolute vertical succession: it appears, for instance, that the Assise d'Evieux, with its rich flora, may be a more littoral facies of the Assise de Monfort, while the Assise

[1] See GEOL. MAG., N.S., Dec IV, Vol. V, pp. 543-8 (December, 1898). Footnote 1 on p. 547 explained the name *Dinocystis* as derived from δεινός, *terrible*. Although this seemed peculiar, it did not occur to me that Dr. Jaekel must have intended to derive it from δινεῖν, *to whirl round*, in allusion to the marked curvature of the radial grooves. Thus regarded, the name is highly appropriate.

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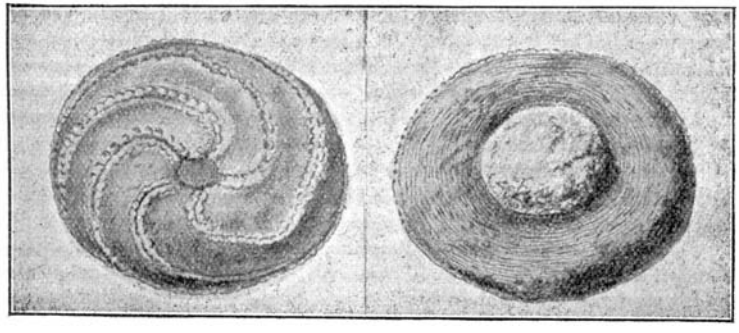
d'Esneux may be the arenaceous equivalent of the more shaly beds of Mariembourg.

Now my argument was that *Dinocystis Barroisi*, being what was usually called an *Agelacrinus*, was with little doubt the same as the "*Agelacrinus*" which Mourlon cited in 1881 ("Géol. de la Belgique," ii, p. 23) from "Assises de Montfort et d'Evieux"; and therefore that our specimens of *D. Barroisi* also came from these beds, "the uppermost member of the true Upper Devonian." Professor Dewalque states that, "for important reasons," he believes the *Agelacrinus* of Mourlon, 1881, to be the same species as a certain "astérie," to which Mr. Mourlon referred in 1875 as being in "collection Malaise." This "astérie," according to Prof. Dewalque, is a specimen of his *Protaster Decheni*, from the Assise d'Evieux. If these beliefs were justified, it would follow that *Dinocystis Barroisi* was not the same as the *Agelacrinus* of Mourlon, and it would be referred to the same horizon on no better evidence than an inaccurate dealer's label.

Since the validity of Professor Dewalque's criticism entirely depends on "important reasons," we should be warranted in disregarding it until those reasons have been published. But the high authority of my critic, no less than the difficulty of attributing so incomprehensible an error to the learned director of the Service Géologique de Belgique, has led me to investigate the question afresh.

The results more than justify my former inference.



Dinocystis Barroisi: photographic reproduction (reduced to $\frac{2}{3}$) of a pencil-drawing made for Mr. Mourlon in 1881, from the specimen then referred by him to *Agelacrinus*. The position of the anus was not observed by the draughtsman; it may well have been in the rather irregular interradius to the right in the drawing of the actinal surface.

Professor C. Malaise kindly informs me that the above-mentioned "astérie" is still in his collection, that it is a specimen of *Protaster Decheni*, Dewalque, and that the bed at Walcourt from which it came belongs, in his opinion, to the Assise d'Esneux (not the Assise d'Evieux, to which the type-specimen is now referred).

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Mr. Mourlon most courteously sends me a drawing, here reproduced, of the specimen mentioned by him as "*Agelacrinus*" in 1881. It is not the "astérie" of Professor Malaise; it is not a *Protaster Decheni*, or any kin thereto; but it is a fine specimen of an Edrioasteroid, as large as, and more perfect than, the British Museum specimen E 7581, with actinal and abactinal surfaces clearly shown; and it belongs incontestably to *Dinocystis Barroisi*. F. A. Bather.

British Museum (Natural History).
February 5, 1899.

OBITUARY.

WILLIAM COLCHESTER, J.P., F.G.S.

Born July 21, 1813. Died November 15, 1898.

Amongst geologists and agriculturists the name of William Colchester will always be associated with the Suffolk Crag and the Cambridge Greensand, and the exploitation of these deposits as sources of artificial manure for the farmers, and which have so largely added to the fertility of the soils, not only at home but in all parts of the civilized world. Coming of a Gloucestershire family, William Colchester was the eldest son of the late Mr. Benjamin Colchester, and spent his early life at Dedham, near Colchester, Essex. Like the late Sir Joseph Prestwich, he was educated at University College, London, and it was originally intended that he should follow the profession of an architect. In early life he travelled much in Italy, studying classic and mediæval architecture. He afterwards visited Russia, chiefly in order to learn the Slavonic language. On his return to England Mr. Colchester became identified with the late Mr. John Chevalier Cobbold, formerly M.P. for Ipswich, in connection with the importation of timber. In course of time Mr. Colchester associated himself with the ports of Ipswich and London in the carrying trade, and became a large shipowner. This led to the development of an extensive ship- and barge-building industry at the Cliff, Ipswich, which he carried on in conjunction with his other business for many years.

Some idea of the extent of this shipping business may be gathered from the fact that the fleet of vessels belonging to the firm at that time numbered more than thirty; whilst the fleet of shrimpers built and equipped by him fifty years ago which sail from Harwich are still known as 'Colchester's Fleet.' They were originally used for dredging up *septaria* from the London Clay off the port of Harwich.

The concretions known as 'septaria' form the raw material from which Roman or Portland cement was manufactured, an industry extensively carried on by Mr. Colchester fifty years ago. These dredging operations were also of great importance in deepening the channel at the mouth of the River Orwell, which, owing to the set of the tides, was liable to be obstructed by the formation of a bar across its estuary.

In 1843, after an excursion in the Crag district in the neighbourhood around Ipswich in company with his friends Colchester and

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