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ORIGINAL ARTICLES.

I.—ON A NEW SPECIES OF *ROSTELLARIA* FROM THE GRAY CHALK,
FOLKESTONE.

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Of the British Museum.

(PLATE III.)

THERE is perhaps no better collecting-ground in England for Lower Cretaceous Fossils than Folkestone, nor any which has been more industriously explored. The last fossil from this locality recorded in our Journal was in 1867 (*GEOL. MAG.*, Vol. IV., p. 65, Pl. V.), when Prof. Huxley described the remains of a new reptile from the Chalk-marl east of Copt Point, Folkestone, under the name of *Acanthopholis horridus*. In the same Journal will be found (at p. 67) an interesting notice by Mr. Robert Etheridge, F.R.S., Palæontologist to the Geological Survey of Great Britain, of the stratigraphical position of the Cretaceous series at this locality, from whence Mr. Griffiths, the intelligent collector, obtained these and the many other fossils with which the cabinets of the Rev. Thomas Wiltshire, M.A., F.G.S., Mr. J. Starkie Gardner, F.G.S., and those of so many other private collectors as well as of our public Museums are stored.

I am indebted to Mr. F. G. Hilton Price for the opportunity of calling attention to a new *Rostellaria* from the Gray Chalk of this locality, which he recently obtained during a geological excursion accompanied by Mr. Griffiths, whose services as guide are most valuable upon such occasions.

Those who, like myself, may have had occasion to consult the works in which are recorded the scanty remains of Mollusca from the Chalk-series in England will best be able to appreciate the value of such an addition as the fine fossil figured on Plate III. accompanying this notice. In Fitton's, Sowerby's, Dixon's, Woodward's, and Mantell's works, I can find no form with which to compare this interesting specimen; nor yet do I meet with it in the 'Paléontologie Française' of D'Orbigny, nor in the 'Palæontologia Indica,' with its fine series of Cretaceous Gasteropoda figured and described by Dr. Ferd. Stoliczka.

Geinitz, Reuss, Schloenbach, and many others have equally failed to aid me with information.

The only form approaching the subject figured on Plate III. in size and character is a shell called by Mr. Harry Seeley *Chemnitzia Woodwardii*, from the Chalk of Sussex, and preserved in the Brighton Museum. Of this and other specimens Mr. Seeley gives some notes and outline-sketches in the "Geologist," vol. vii., 1864, p. 89, pl. viii.; the figures, however, are too roughly executed to convey more than a very general notion of the specimens, and are, unfortunately, unaccompanied by references to the plate in the text.

Mr. Seeley has, however, obligingly supplied me with the requisite references, which I append for the convenience of those who may care to take the trouble to add them to the text of their copy of the "Geologist."

Chalk Gasteropoda recorded by Mr. H. G. Seeley, F.G.S., in the "Geologist," 1864, vol. vii., pp. 89–93, pl. viii., part of the collection of the Brighton Museum.

1. *Cerithium ornaticissimum*, var., p. 89, pl. viii., figs. 7 & 8.
2. ——— *Gallicum*, D'Orb., var., p. 90, pl. viii., fig. 3.
3. *Pleurotoma amphitoga*, n.sp., var., p. 90, pl. viii., fig. 2.
4. *Fusus trachys*, n.sp., var., p. 91, pl. viii., fig. 13.
5. *Chemnitzia Woodwardii*, n.sp., p. 91, pl. viii., fig. 1.
6. *Solarium ornaticissimum*, n.sp., p. 91, pl. viii., figs. 15 & 16.
7. *Pteroceras*, representative of *Fittoni*, p. 91., pl. viii., fig. 4.
8. *Pleurotomaria Jukesii*, n.sp., p. 92, pl. viii., figs. 10 & 11.
9. *Trochus*, sp. ?, p. 92, pl. viii., figs. 5 & 6.
10. *Trochus* (near *T. Geinitzii*, Reuss), p. 92, pl. viii., fig. 9.
11. *Fusus* (?), p. 92, pl. viii., fig. 14.
12. *Fusus* (?), p. 93, pl. viii., fig. 12.
13. *Solarium Binghami*, Baily, p. 93, pl. viii., fig. 17.

Mr. Seeley's description of *Chemnitzia Woodwardii* is as follows:—

"Shell subcylindrical, two and a half times as high as wide, consisting of about 7 whorls, which regularly increase in size and are moderately convex. Each whorl is one and three quarter times as wide as high. The space where the whorls adjoin is concave, and the suture is indistinctly seen. There is no ornament, but a great number of fine and close spiral striæ. This and some other shells have quite an Oolitic aspect." (p. 91, op. cit.)

A comparison of Mr. Price's specimen with the above description and with Mr. Seeley's figure (op. cit. pl. viii. fig. 1) will suffice to preclude us from placing them together.

Whilst the absence of the mouth in *Chemnitzia Woodwardii*, Seeley, renders it impossible to determine its genus with certainty, its presence in Mr. Hilton Price's specimen clearly forbids its reference to *Chemnitzia*.

In *Chemnitzia* the shell is "slender, elongated, many-whorled; the whorls plaited; apex sinistral: aperture simple; ovate; peristome incomplete."¹ Upwards of 180 fossil species have been provisionally referred to this genus; many of them are of gigantic size as compared with the existing species, all of which are small.

To the genus *Pteroceras* D'Orbigny alone has referred nearly 100 species of fossil shells, ranging from the Lias to the Chalk; many of them are, however, more nearly related to *Aporrhais*. *Cerithium* is another genus which has nearly 500 fossil species, ranging from

¹ Woodward's Manual of Mollusca, p. 126.

the Trias to the Tertiaries; but I have been unable to refer the shell under consideration to any of these genera.

Our *dernier ressort* then appears to be in the genus *Rostellaria*.

There are more than 70 species of fossil shells referred to this genus, ranging from the Neocomian to the Tertiaries, although some of these may belong more correctly to the genus *Aporrhais*.

The shell in *Rostellaria* has "an elongated spire; the whorls are numerous, flat; the canals long, the posterior one running up the spire; outer lip more or less expanded, with only one sinus, and that close to the beak."¹

The fossil on Plate III. agrees very fairly with the above diagnosis. The spire is elongated, the whorls are numerous (probably not fewer than fourteen, but about one inch of the apex of the spire is lost); the sutures are not depressed, and the whorls are flat (not tumid, as in *Chemnitzia Woodwardii*). The fine spiral striæ (with which the whorls are ornamented) are confined to a narrow band next the suture upon the upper border of each whorl, as is the case in the modern *Rostellaria curta* and other species. The last whorl is twice the breadth of the preceding whorl. The outer lip is expanded, nearly semicircular in form, and smooth-edged; the anterior canal nearly one-fourth the entire length of the shell (a small portion of its extremity is wanting); a slight ridge along the border of the penultimate whorl may possibly indicate the posterior canal, which in many species of *Rostellaria* exhibits a well-marked ridge along one or more of the whorls—even to the apex in some species. Fine lines of growth are the only other ornamental markings upon the surface of the shell in addition to the spiral striæ along the sutural border of each whorl already referred to. The length of the last whorl, including the anterior canal, probably equalled the length of the entire spire when the termination of both the spire and canal were perfect. Length of actual specimen preserved $7\frac{1}{2}$ inches. Probable length when perfect 9 inches.

Believing, as I do, that this shell is really the representative of a new species of Cretaceous *Rostellaria*, I have ventured to name it *Rostellaria Pricei* in honour of its discoverer, in whose cabinet the original specimen is preserved.

II.—ON THE METHOD OF FORMATION OF THE PERMIAN BEDS OF SOUTH YORKSHIRE.

By A. H. GREEN, M.A., F.G.S.

PROFESSOR Ramsay in a recent paper² put forward the notion that the Magnesian Limestone and its associated beds of the north-east of England were formed, in part at least, by chemical precipitation in an inland sea. Given such a sea, without outlet, and with streams flowing into it holding in solution the necessary salts (bicarbonate of lime and sulphate of magnesia would answer the purpose), it is clear that by continued evaporation a state of

¹ Woodward's Manual of the Mollusca, p. 105.

² Quart. Journ. Geol. Soc. of London, vol. xxvii., p. 245.