of my friend Mr. Alex. Murray, of Nethermill, there are other shells of a smaller size, and of a form somewhat resembling a *Mya*.

A proof that this is no bed of Pliocene clay, and that the fossils have not been drifted, lies in the fact that these shells, especially the smaller ones, occur in groups,—the little *Ammonites* being congregated together, and the *Limæ* huddled in clusters by themselves.

The occurrence of this relic of the Lias is of considerable interest, as it throws light upon the source of the Liassic fossils, whole and in fragments, which are met with in the Drift of the valley of the Deveron and of other parts of Aberdeenshire, even towards its eastern coast: it also points to an extension of the sea of the Lias period into quarters not previously imagined; and, connected with the Chalk-flints and fragments of Greensand found in this county*, it strengthens the supposition that these also are native to the district where we now find them, and not transported from afar, as some have thought.

I informed Prof. Nicol of the results of my examination of this spot a short time ago; and he, in reply, told me that one of his pupils had brought him some of the fossils of this clay, and that he had seen others in the possession of some individuals at Aberdeen. I am not aware, however, whether any experienced geologist has personally examined the locality.

I am not aware of the Lias or Oolite having been found in this county previously, nor anywhere else so far east, or perhaps so far inland, in Scotland.

5. *On some OUTLINE-DRAWINGS and PHOTOGRAPHS of the SKULL of the Zygomaturus trilobus, Macleay (Nototherium, Owen?).*

By Professor OWEN, F.R.S., F.G.S., &c.

[See further on, p. 168.]

6. *On the Occurrence of some TERTIARY FOSSILS at GROVE FERRY, near CANTERBURY, KENT.* By JOHN BROWN, Esq., F.G.S. *With DESCRIPTIONS of some of the SPECIES*; by G. B. SOWERBY, Esq., F.L.S.

[Plate V.]

My friend Mr. Prestwich having kindly informed me of an interesting fossiliferous deposit at Wear Farm†, in the parish of Chislet, I was endeavouring to find the spot in 1854, when accidentally I heard of a little sand-pit in a garden near Grove Ferry, also in the parish of Chislet (about a mile and a half from Wear Farm), on the left-hand side of a lane leading from the railway-station to the little village of Up Street, nearly a mile from the village of Chislet. Up Street is on the high road from Canterbury to Ramsgate, and six miles from the former. The pit was rather more than halfway up the side of the hill, and within about thirty feet of its top. The

* See Quart. Journ. Geol. Soc. vol. xiii. p. 83.

† See Mr. Prestwich's paper on these gravels and sands, Quart. Journ. Geol. Soc. vol. xi. p. 110.

surface of the ground slopes down to the River Stour. Gravel caps the hill; and the Lower Tertiary sands are seen in a section, at its foot, near the railway-station, and also at a farm about half a mile to the east.

The fossil shells which I found in the little sand-pit were mostly very fragile, but in considerable abundance. They occurred both in sand and in dark red clay §; and some were nearly white, whilst others were tinted rusty red. Those which belong to Crag species appeared especially to be of a reddish colour.

The beds forming the central portion of this hill above Grove Ferry would appear, according to Mr. Prestwich's sections ¶ of the Lower Tertiaries of that neighbourhood, to belong to the "Basement-bed of the London Clay," overlying "Woolwich beds" and "Thanet Sands;" but many of the fossils which I collected here in 1854, and at subsequent visits, appear to have an Upper Tertiary character; indeed some cannot be distinguished from Crag species. Others, on the contrary, resemble forms belonging to the Middle and Lower Tertiary deposits.

The following list of the species collected by me in 1854-57 has been drawn up by Mr. George B. Sowerby.

Fossils from Up Street near Chislet.

The New Species are marked thus*; the Crag species, †; the Lower Tertiary species, ‡; and the Belgian Tertiary species, §.

Cirripedia:—

- † 1. *Pyrgoma anglica*, Sow. Gen. of Shells.
- * 2. *Balanus Chisletianus*, G. B. S. Pl. V. fig. 7.

Mollusca Acephala:—

- 3. *Mactra*; a fragment. (= *M. ovalis*, Sow. M. C. pl. 160?)
- † 4. *Corbula Regubliensis*, Morris, Q. J. G. S. x. pl. 2. f. 4-6. (Woolwich beds.)
- || 5. ——— *Henckliansiana*, Nyst, Coq. Foss. Belg. p. 63, pl. 2. f. 3.
- † 6. *Nucula tenuis*, Montagu; Wood, Monog. pl. 10. f. 5.
- † 7. ——— *nucleus*, Linn.; Wood, Monog. pl. 10. f. 6.
- † 8. *Pectunculus Plumsteadianus*, Sow. M. C. pl. 27. f. 3. (Woolwich beds.)
- † 9. *Limopsis aurita*, Wood, Monog. pl. 9. f. 2. Pl. V. fig. 4.
- 10. *Lucina*? (fragmentary).
- † 11. *Cyprina Morrisii*, Sow. M. C. pl. 620. (Thanet Sands.)
- * 12. *Astarte elevata*, G. B. S. Pl. V. fig. 6.
- † 13. ——— *gracilis*, Goldf., var. *multilineata*, Wood, Monog. pl. 17. f. 3.
- † 14. ——— *Burtinii*, Lajonk.; Wood, Monog. pl. 17. f. 5.

§ I found three specimens of *Limopsis aurita* in the clay; *Purpura vulgaris* occurred in the sand.

¶ Quart. Journ. Geol. Soc. vol. viii. pl. 15.

- † 15. *Cyrena consobrina*, *Caill.* ; Wood, Monog. pl. 11. f. 15.
- † 16. *Cardium Laytoni*, *Morris*, Q. J. G. S. x. pl. 2. f. 1, 2. (Woolwich beds.)
Mollusca Gasteropoda :—
- † 17. *Rostellaria Sowerbyi*, *Mantell*; Sow. M. C. pl. 349. f. 1. (London Clay.)
- † 18. *Trophon subnodosum*, *Morris*, Q. J. G. S. viii. pl. 16. f. 10. (Thanet Sands.)
- † 19. *Pleurotoma*; imperfect (= *P. acuminata*?, *Sow.* M. C. pl. 146. f. 4).
- * 20. *Pyrula nodulifera*, *G. B. S.* Pl. V. fig. 2.
- † 21. *Purpura tetragona*, *Sow.*, var. *vulgaris*, *Wood*, Monog. pl. 4. f. 7.
- † 22. *Clavatula brachyostoma*?, *Wood*, Monog. pl. 7. f. 8.
- * 23. *Buccinum concinnum*, *G. B. S.* Pl. V. fig. 1.
- † 24. *Chemnitzia elegantissima*, *Montagu*; Wood, Monog. pl. 10. f. 6.
 25. *Odostomia*; like *O. plicata*, *Montagu*; Wood, Monog. pl. 9. f. 3, but without teeth on the inside of the inner lip.
- † 26. *Nassa reticosa*, *Sow.*, var. *costata*, *Wood*, Monog. pl. 3. f. 10.
- † 27. *Natica Hantoniensis*? *Sow.* [as figured by *Nyst*, Coq. Foss. Belg. pl. 39. f. 2.] (Barton and London Clays.)
- † 28. ——— *catenoides*?, *Wood*, Monog. pl. 16. f. 10 *a*, *b*. (= *N. glaucinoides*, *Sow.* M. C. pl. 479. f. 4.)
- † 29. *Bulla concinna*?, *Wood*, Monog. pl. 21. f. 6.
- || 30. ——— *utricula*, *Nyst*, Coq. Foss. Belg. pl. 39. f. 9.
- 31. *Dentalium*; probably new. Pl. V. fig. 5. Resembling one figured in Mr. Prestwich's paper on the Thanet Sands, Quart. Journ. Geol. Soc. vol. viii. p. 267. pl. 16. f. 12.
- 32. *Helix*; adhering to a broken *Fusus*.
- 33. *Ringicula*.
- † 34. *Valvata piscinalis*, *Müller*; Wood, Monog. pl. 12. f. 3; in sand within a *Cardium Laytoni*.
- 35. *Limax*; shell smoother than in the common English species. Pl. V. fig. 3.
- Foraminifera* :—
- † 36. *Cristellaria platypleura*, *Jones*, Quart. Journ. Geol. Soc. vol. viii. p. 267. pl. 16. f. 12 (= *C. Calcar*, *Linn.*).

Small Bones and Teeth of Fish, in abundance§.

Thus of 36 species, 14 are found also in the Crag of Suffolk; 8 have been described from the Lower Tertiaries of England; 2 have been hitherto known only in the Tertiaries of Belgium; 4 are new; and 8 are not determinable. I must here observe that my friend Mr. Prestwich¶, who has so long and ardently studied the Tertiary formations, especially of this district, and who has seen the fossils here referred to, does not concur with me in thinking that they belong to a bed of Upper Tertiary (Crag) age *in situ*. But whatever be the exact relations of these sands and clays found in the little sand-pit to be so full of the fossils above mentioned, I believe that this brief notice will be of service by directing attention to this interesting point, and lead others to clear up all doubts by a still closer examination of the spot.

§ These have unfortunately been mislaid.

¶ Mr. Prestwich, who has visited the pit, informs me that he considers that the section is made in a bed of sand lying just under the London Clay, he having found only a few shells, and those all of Lower Tertiary species.—J. B. Jan. 1859.

Description of some new FOSSIL SPECIES collected by JOHN BROWN, Esq., F.G.S., at GROVE FERRY, KENT. By G. B. SOWERBY, Esq., F.L.S.

BALANUS CHISLETIANUS, G. B. Sowerby. Pl. V. fig. 7.

B. subcylindricus, lævigatus, orificio dentato, mediocri; parietibus leviter fasciatis; radiis angustis; scuto lævigato cristâ articulari elongatâ validè reflexâ; tergo obtuso, calcarî acuminato elongato.

The slope of the radii gives to the orifice a dentated character which brings our species near to *B. concavus*; but the scutal valves of the operculum are without longitudinal striæ, and their articular ridge is long. Also the spur of the terga is oblique, produced, and pointed.

ASTARTE ELEVATA, G. B. Sowerby. Pl. V. fig. 6.

A. testâ trigonâ, altâ, posticè truncatâ subangulatâ, ad marginem ventralem lævi, medio leviter liris undulatâ; apice elevato liris rotundis crebris rugato.

This shell differs from *A. rugata* of the ‘Mineral Conchology,’ and from *A. Omalii*, Lajonk. (Nyst), in being much more elevated and trigonal. The ridges, which are strong and numerous at the apex or in the young state, become faint towards the centre until they disappear near the ventral margin.

PYRULA NODULIFERA, G. B. Sowerby. Pl. V. fig. 2.

P. testâ oblongâ, spiraliter striatâ, ad angulum anfractuum nodulis obtusis coronatâ, supra medium nodulis inconspicuis cinctâ; spirâ brevi.

A shell so simple in form as a *Pyrula* can be safely described even from the fragmentary specimen figured, although the only characters are that it is spirally striated and has one row of obtuse nodules on the angle of the last whorl, and another row of very indistinct ones above the centre of the same whorl.

BUCCINUM CONCINNUM, G. B. Sowerby. Pl. V. fig. 1.

B. testâ acuminatâ, spiraliter liris rotundis cinctâ; anfractibus rotundis; aperturâ subquadratâ; columellâ umbilicatâ; labio externo anticè paululum producto.

A neatly-formed, acuminated shell with rounded, spiral ridges upon rounded whorls. The aperture is rather square, with a narrow umbilical opening behind the columella, and (judging from the lines of growth) a slight forward curve in the outer lip.

EXPLANATION OF PLATE V.

Fig. 1. *Buccinum concinnum*, G. B. S. *a, b*, two aspects.

Fig. 2. *Pyrula nodulifera*, G. B. S.

Fig. 3. *Limax*, sp. *a, b*, two aspects; *c*, nat. size.

Fig. 4. *Limopsis aurita*, Wood. *a*, in its matrix of clay; *b*, back view of a detached specimen.

Fig. 5. *Dentalium*.

Fig. 6. *Astarte elevata*, G. B. S. *a*, nat. size; *b, c*, two views, magnified.

Fig. 7. *Balanus Chisletianus*, G. B. S. *a*, body of the shell; *b*, scutal valves of the operculum, nat. size; *c, d*, the same enlarged, and seen in two aspects.