

N. H.

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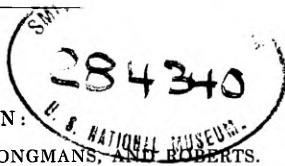
LONDON:

LONGMAN, BROWN, GREEN, LONGMANS, AND ROBERTS.

PARIS:—FRIED. KLINCKSIECK, 11 RUE DE LILLE; BAUDRY, 9 RUE DU COQ,  
PRES LE LOUVRE; LEIPZIG, T. O. WEIGEL.

SOLD ALSO AT THE APARTMENTS OF THE SOCIETY.

MDCCCLVIII.



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a level of 50 feet or more above that of the Mediterranean. These beds cover immediately the jurassic limestones without the intervention of any other tertiaries, and may probably be regarded as raised beaches.

The true raised beaches of sand, pebbles, and angular fragments, chiefly of slate-rock, are well exhibited close to Malaga on the east, and at various points between Malaga and Almeria, both on the cliffs where they approach the sea, and up the arroyos or water-courses to the point where these enter the more abrupt and mountainous country behind. Their elevation varies, but often exceeds 60 feet. The nature of these deposits, and the causes to which they are due, are considered by the author to offer matter for careful study in connection with the phenomena of denudation generally in all parts of the world.

8. The author then alluded to the economic geology of the district under consideration. It contains copper-ores, some of them argentiferous, but generally with too little silver to increase the value of the ore. These occur in bunches, and with few exceptions have not been worked to profit. They are confined to the schists. Lead-ores have been worked for centuries in the Sierra de Gador, and more recently in the adjacent limestone on the north side of the Sierra Nevada. These ores are galena and carbonate of lead, with little or no silver; but galena with antimony-ore occurs near Marbella, and lead-ores have been worked in the dolomite of the Sierra di Mijas. Iron-ore in vast abundance, and of admirable quality, is also obtained from behind Marbella. Building-materials of fine quality, both limestones and sandstones, are readily procurable near Malaga, the former from the jurassic, cretaceous, and older tertiary series, the latter from the calamite-grit. Good lime is procurable to any extent, and at moderate price, from the jurassic limestone. Good brick-clay, and fine clays for pottery, from which is manufactured the delicate terra-cotta figures for which Malaga is celebrated, are procured from the newer tertiary beds of the Tejares and others in the plains of the Guadalmedina. White sands for glass-making and other purposes are taken from the triassic beds near the calamite-bed. Gypsum of fair quality is found abundantly in large lenticular masses in the sandstones underlying the jurassic limestones, both near Malaga and near the Sierra Nevada.

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4. *Descriptions of FOSSIL INVERTEBRATA from the CRIMEA.\**  
By WILLIAM H. BAILY, Esq., F.G.S., of the Geological Survey  
of Great Britain.

[Plates VIII., IX., X.]

THE specimens described in this communication were principally collected by Capt. C. F. Cockburn, of the Royal Artillery, who has also supplied the Note on the Geology of the Neighbourhood of Sevastopol, which is appended to this paper.

\* An abstract of this communication was read at the British Association Meeting, August 1856.

## JURASSIC.

## AMORPHOZOA.

1. *SCYPHIA COCKBURNII*, sp. nov. Pl. VIII. fig. 1, *a*, *b*.

A convoluted sponge, having ten or eleven prominent plications or costæ, with a central nearly circular canal  $\frac{6}{16}$ ths of an inch in diameter.

The structure is somewhat obscure, but, where exposed, exhibits an irregular porous texture; its base appears to have been adherent.

Dimensions: length  $1\frac{1}{2}$  inch, diameter  $1\frac{1}{4}$  inch.

*Locality.* From red Jurassic limestone near Balacava.

Dedicated to Capt. C. F. Cockburn.

## ZOOPHYTA.

## Order ZOANTHARIA=APOROSA.

## Fam. FUNGIDÆ.

2. *COMOSERIS IRRADIANS*, M.-Edw. & J. Haime, Brit. Foss. Cor. Pal. Soc. p. 101, t. 19. f. 1, *a-d*.

This and the several other fossil corals from the same locality, hereafter mentioned, can scarcely be distinguished lithologically or specifically from those obtained from the Coralline Oolite of Steeple Ashton, Wiltshire.

*Loc.* Soudaxioxia. Presented to the Museum of Practical Geology by the Imperial School of Mines at St. Petersburg.

## Fam. ASTRÆIDÆ.

2 *a*. *THECOSMILIA ANNULARIS*?, Flem. sp.; M.-Edw. *ibid.* p. 84. t. 13, 14. f. 1.

A mass of small Polypidoms, which may be referred to this species, in compact argillaceous limestone from Simferopol.

Presented by the Imperial School of Mines, St. Petersburg.

3. *ISASTRÆA GREENOUGHII*, M.-Edw. Pal. Soc. p. 96. t. 17. f. 2.

*Loc.* Soudaxioxia.

Presented by the Imperial School of Mines, St. Petersburg.

4. *ISASTRÆA* (*ASTRÆA*?) *POLYGONALIS*, Mich.

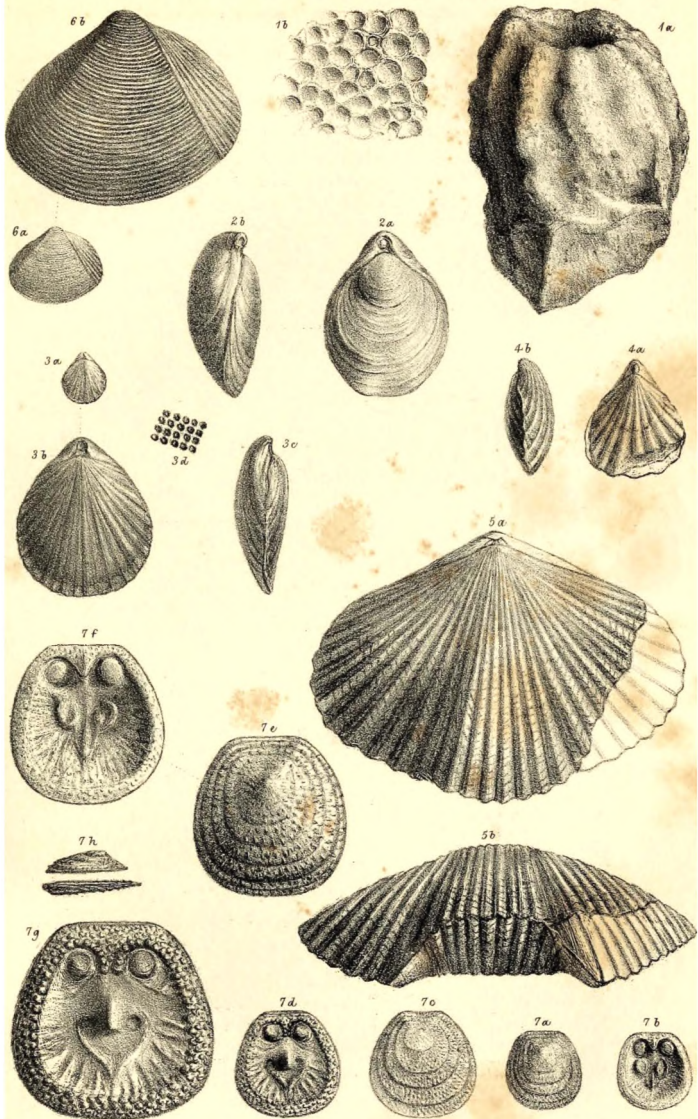
Fragment of the worn surface of this coral exhibiting a tessellated appearance in red crystalline limestone, from the Bathing-place one mile west of Balacava.

5. *ISASTRÆA EXPLANATA*?, Goldf. sp.; M.-Edw. Pal. Soc. p. 94. t. 18. f. 1.

A weatherworn mass of what appears to be this species in white crystalline limestone, from between the Monastery of St. George and Balacava.

6. *THAMNASTRÆA ARACHNOIDES*, Park. sp.; M.-Edw. Pal. Soc. t. 18. f. 1 k.

An adult specimen of a very flat and thin form, having the stars in



W. H. Baily del. et lith.

Printed by Hullmandel & Walton.

depressions; both sides well preserved; the under side covered with a small species of *Serpula*.

*Loc.* Soudaxioxia.

Presented by the Imperial School of Mines, St. Petersburg.

7. *CALAMOPHYLLIA STOKESII*?, M.-Edw. Pal. Soc. t. 16. f. 1 *a-d*.

Identical with or closely allied to this species.

*Loc.* From between the Monastery and Balacava.

Another specimen, probably identical with this species, but too imperfect for determination, was obtained from the Gorge of Iphigenia.

8. *MONTLIVALTIA TROCHOIDES*, M.-Edw. Pal. Soc. p. 129. t. 26. f. 2, 2 *a*. 3, 3 *a*. & t. 27. f. 2, 2 *a*.

A very perfect specimen of a single polypidom is contained in the British Museum collection. Presented by Mrs. Cattley.

*Loc.* Tchatyr-dagh or Tent Mountain.

#### ECHINODERMATA.

9. Fragment of a spine of *Cidaris*?

Associated with *Terebratulina numismalis* in Lower Jurassic limestone, equivalent to the Lias.

*Loc.* Woronzoff Road.

10. Spine of *Cidaris*?

In grey limestone from the lowest beds of the Jurassic series.

*Loc.* Gorge of Iphigenia.

11. Spines of *Cidaris Blumenbachii*.

*Loc.* Soudaxioxia.

Presented by the Imperial School of Mines, St. Petersburg.

12. Spines of *Cidaris glandifera*.

*Loc.* Between the Monastery and Balacava.

13. Spine of *Cidaris*?

From red clay-veins in Jurassic limestone.

*Loc.* Between the Monastery and Balacava.

14. Spine of *Cidaris*?

Barrel-shaped with small central cavity, in red-tinged compact Jurassic limestone.

*Loc.* The Bathing-place one mile west of Balacava.

15. Joints of the stem of *Apiocrinites incrassatus*, Rœmer, Die Verst. Ool. t. 1. f. 12.

In red clay from the Jurassic limestone.

*Loc.* Between the Monastery and Balacava.

Larger joints in a similar matrix with corals have been brought from the last-mentioned locality.

16. Portions of the stem of *Pentacrinites basaltiformis*.

*Loc.* Soudaxioxia.

Presented by the Imperial School of Mines, St. Petersburg.

17. Two plates of a Starfish, with punctated surface.

In grey limestone, with the spine No. 10, from the lowest beds.  
*Loc.* Gorge of Iphigenia.

# MOLLUSCA. BRACHIOPODA.

## 18. TEREBRATULA NUMISMALIS, Lam.

This characteristic Lias species was obtained from grey limestone and shale.

*Loc.* Woronzoff Road. Lower Lias.

## 19. TEREBRATULA ROTUNDATA?, Rømer.

Allied to *T. ovoides*, Sowerby, in compact pinkish limestone.

*Loc.* Woronzoff Road.

## 20. TEREBRATULA JAMESII, sp. nov. Pl. VIII. fig. 2, a, b.

Shell inequivalved, ovate, longer than wide; rostral valve moderately convex, smaller valve somewhat flattened; beak prominent and truncated, with a rather large foramen; lateral margin of valves slightly curved, and a somewhat flattened front; surface smooth, punctated, and marked by concentric lines of growth.

Dimensions.—Length 1 inch, breadth  $\frac{6}{10}$ ths of an inch.

*Loc.* From dark-grey Jurassic limestone, Balacava.

Collected by Major Cooke, R.E. Dedicated to Lieut.-Col. James, R.E.

## 21. TEREBRATULA, sp. Probably *T. subovoides*, Münster.

Found with the large barrel-shaped spine, No. 14, in red compact limestone.

*Loc.* The Bathing-place one mile west of Balacava.

## 22. TEREBRATULA PEROVALIS?

From the matrix of *Ammonites fimbriatus*, Middle Lias.

*Loc.* Village of Biasali.

Presented by Imperial School of Mines, St. Petersburg.

## 23. TEREBRATULA. Lower part of a large species, probably *Terebratula Stroganoffi*, D'Orb. Geol. of Russia, &c. p. 489, in compact red limestone.

*Loc.* Gorge of Iphigenia.

## 24. TEREBRATULINA RADIATA, sp. nov. Pl. VIII. fig. 3, a-d.

Shell inequivalved, nearly hemispherical; beak produced, slightly recurved, truncated, with a large foramen and triangular deltidium; surface of valves beautifully punctate, and ornamented with from 20 to 25 longitudinally elevated striæ.

Dimensions.—Length  $\frac{3}{10}$ ths, breadth  $\frac{23}{10}$ ths of an inch.

*Loc.* Balacava. Six specimens of this elegant little Brachiopod were detached from the matrix which contained *Terebratula Jamesii*.

## 25. RHYNCHONELLA COOKEI, sp. nov. Pl. VIII. fig. 5, a, b.

Shell considerably wider than long; valves slightly convex; beak acute; foramen small, surface ornamented by about 30 acute plaits, having a central elevated mesial fold composed of 10 plaits.

Dimensions.—Height  $1\frac{6}{10}$  inch, breadth  $2\frac{1}{4}$  inches.

Allied to *Rhynchonella subtetrahedra*, Dav. (Monog. Brit. Ool. Lias, Brach., Pal. Soc. p. 95. pl. 16. f. 9-12), but differs in the greater number of plaits, and in its greater breadth compared with its length. It has a winged appearance, and belongs to the group *Alatæ* of Von Buch.

The specimens, of which there are two, were collected from the grey limestone of Balaclava by Major Cooke, to whom it is dedicated.

26. *RYNCHONELLA PECTINATA*, sp. nov. Pl. VIII. fig. 4, *a, b*.

Shell inequivalve, subtrigonal, slightly convex, longer than wide, widest at the front and gradually tapering upwards towards the beak; beak acute; foramen large, surrounded by the deltidium, and separated from the umbo; valves somewhat flattened and fan-shaped, without mesial fold or sinus; surface ornamented by about twelve large plaits or costæ.

Dimensions.—Height  $\frac{7}{10}$ ths, breadth  $\frac{6}{10}$ ths of an inch.

Allied to *R. pectunculoides*, Schlot., but differing in its greater length in proportion to its breadth, and in having more costæ.

*Loc.* Gorge of Iphigenia, in red crystalline limestone.

27. *RYNCHONELLA SENTICOSA*, Von Buch; Davids. Brit. Ool.

Lias, Brach., Pal. Soc. p. 73, pl. 15. f. 21.

Mr. Davidson describes this species from the lowest beds of the Inferior Oolite. M. D'Orbigny places it in the Oxfordian. Our specimen was collected by Major Cooke from the grey limestone of Balaclava, apparently equivalent to Inferior Oolite.

28. *RYNCHONELLA ACUTA*, Sow.

From the matrix of *Ammonites fimbriatus*.

*Loc.* Village of Biasali. Middle Lias or Marl-stone.

Presented by the Imperial School of Mines, St. Petersburg.

29. *RYNCHONELLA VARIABILIS*?, Schlot.

Of this species the back of the rostral valve only is exposed, on a slab of coarse greyish limestone.

*Loc.* From the base of the rocks at the Gorge of Iphigenia.

LAMELLIBRANCHIATA. ASIPHONIDA.

30. *OSTREA*. Small species in a light-brown marl, with but few other traces of fossils.

*Loc.* From Karani. Lias shale?

31. *OSTREA*, sp. Associated with *Cardium æquistriatum*, No. 35, and *Terebratula numismalis*, No. 18.

*Loc.* Woronzoff Road leading to Kamara. Lower Lias shale.

32. *OSTREA*, sp. A coarsely plicated species in the red clay of the Jurassic limestone, associated with Corals, No. 4, spines of *Echini*, Nos. 13, 14, and *Terebratula*, No. 21.

*Loc.* Bathing-place one mile west of Balaclava.

33. *GRYPHÆA DILATATA*, Sow.



Single valves of adult shells, with massive hinge-areas in a similar matrix with the Corals, Nos. 2, 3, and 6.

*Loc.* Soudaxioxia.

Presented by the Imperial School of Mines, St. Petersburg.

34. *GYPHÆA INCURVA*, Sowerby.

Associated with *Ammonites*, Nos. 40, 41, and 42, in reddish marly limestone with ferruginous granules.

*Loc.* Village of Biasali. Middle Lias.

Section SIPHONIDA.

35. *CARDIUM ÆQUISTRIATUM*, sp. nov. Pl. VIII. fig. 6, *a*, *b*.

Shell subtrigonal, convex; umbones prominent and contiguous; anterior surface ornamented with concentric and very regular small ridges, posterior portion with radiating longitudinal lines, widely distant at the margins.

It differs from *Cardium truncatum* of the Lias in being less concave, and its radiating posterior lines are more widely distant, and the concentric ridges more defined and regular, the umbones being placed nearest the posterior side.

Dimensions.—Height  $\frac{5}{10}$ ths, breadth  $\frac{6}{10}$ ths of an inch.

*Loc.* Woronzoff Road. Lower Lias.

36. *ASTARTE COMPLANATA*, Ræmer, Verst. pl. 6. f. 28.

Associated with the *Cardium* last described, No. 35; *Ostrea*, No. 31, and *Terebratula numismalis*, No. 18.

*Loc.* Woronzoff Road leading to Kamara. In dark-brown shales. Lower Lias.

GASTEROPODA. HOLOSTOMATA.

37. *NATICA*, sp. A large species allied to *Natica Clio*, D'Orb. Ter.

Jur. pl. 292, but too imperfect for description.

*Loc.* In red clay of Jurassic limestone between the Monastery and Balaclava.

Dimensions.—Height  $2\frac{2}{10}$  inches, breadth  $1\frac{6}{10}$  inch.

38. *NERINÆA GRANDIS*?, D'Orb.

A fragment of what appears to be this species.

*Loc.* Village of Djanatai.

Presented by the Imperial School of Mines, St. Petersburg.

CEPHALOPODA. TETRABRANCHIATA.

39. *AMMONITES URALENSIS*?, D'Orb. in Geol. of Russia.

A fragment of apparently a young individual of this species from red Jurassic limestone.

*Loc.* Bathing-place one mile west of Balaclava.

40. *AMMONITES RAQUINIANUS*?, D'Orb. Ter. Jur. pl. 106.

A fragment of what appears to be this species, although somewhat doubtful, obtained from the same matrix as the next species, No. 41.

*Loc.* Village of Biasali. Middle Lias.

Presented by the Imperial School of Mines, St. Petersburg.

41. *AMMONITES JURENSIS*?, Zieten; D'Orb. Ter. Jur. pl. 100.

A specimen most probably identical with this species, but in too bad a state for certain determination.

*Loc.* Village of Biasali. Middle Lias.

Presented by the Imperial School of Mines, St. Petersburg.

42. *AMMONITES FIMBRIATUS*, Sowerby ; D'Orb. Ter. Jur. pl. 98.

From the same locality and matrix as *Gryphæa*, 33, and *Ammonites*, 40, 41, 42. Red marly limestone with ferruginous specks.

43. *TRIGONELLITES* ?

In the body-chamber of an Ammonite of the group *Ligati*. In compact grey Lias limestone.

*Loc.* Woronzoff Road below Kamara, leading to Vernutka Valley.

## NEOCOMIAN.

### MOLLUSCA.

44. *REQUIENIA*, sp. Closely allied to, if not identical with *R. ammonia* (Matheron), D'Orb. Ter. Crét. p. 250. pl. 578.

*Loc.* Numerous fragments of this spiral bivalve were obtained by Major Hudson, 39th Regiment, from the coarse crystalline limestones used in the construction of the road between Balaclava and the Plateau. It is associated with many fragments of *Nerinæa*, No. 46, and *Natica*, No. 45.

Presented by Major Hudson.

45. *NATICA PRÆLONGA*, Desh. ; D'Orb. Ter. Crét. p. 152. pl. 172. f. 1.

A fine cast of a large elongated *Natica* appears to be identical with the above species, having a portion of shell on the upper whorls sufficient to show that the sutures were nearly covered up by the shell, as was also the umbilicus, which in the cast has a deep impression.

*Loc.* and *matrix* similar to the last.

46. *NERINÆA*? (or *Chemnitzia*, D'Orb.), sp. nov.

A spiral shell, shorter than the generality of the genus *Nerinæa*, although too imperfect for description.

*Loc.* and *matrix* similar to Nos. 44 and 45.

47. *NERINÆA*, sp.

Several fragments of a large *Nerinæa*, somewhat allied to *Nerinæa gigantea*, D'Hombres Firmas ; D'Orb. Ter. Crét. t. 2. p. 77. pl. 158. f. 1, 2, but not so angular at the sutures as that species.

*Loc.* and *matrix* the same as Nos. 44, 45, 46, and 47.

48. *NAUTILUS PSEUDO-ELEGANS*, D'Orb. Ter. Crét. p. 7. pl. 8, 9.

This specimen may easily be mistaken for one found in our own country, its aspect being very like that of the same species from the Lower Greensand of Kent and the Isle of Wight.

*Loc.* Village of Biasali ?

## SENONIAN.

## MOLLUSCA. BRACHIOPODA.

## 49. CRANIA SPINULOSA, Nilsson. Pl. VIII. f. 7 a-h.

Some confusion having arisen respecting this species, and, as it has not been hitherto well illustrated, it has been thought advisable to refigure it from the beautiful specimens collected by Captain Cockburn, which have enabled us to give enlarged representations of both valves of this fine Brachiopod.

On submitting specimens to Mr. Thomas Davidson, he referred it to the *Crania spinulosa*, Nilsson, t. 3. f. 9 A-E, with the following remarks:—"It is different from the one so named by Goldfuss, which is the *Crania Hagenovii* of De Koninck. It agrees with Nilsson's figure in being of the same size, and externally covered with short tubercular asperities or spines; and the interiors of both dorsal and ventral valves agree with the Swedish author's illustrations. This species is less circular than *Nummulus Brattenburgensis* (= *C. nummulus*), it has also a small flattened false area in the attached valve; neither are there in any of the figures of that species given by Nilsson, Goldfuss, or Høninghaus any of those tubercular spines depicted which may be observed in the specimens from Inkerman and in the drawing of *C. spinulosa* in Nilsson's work; on the contrary, the valves of *C. nummulus* are represented smooth.

Du Bois de Montpéreux, in his 'Tableau des fossiles de la Craie en Crimée,' at subdivision No. 8, 'Craie marneuse blanche,' catalogues *Crania nummulus* associated with *Ostrea vesicularis*, and this Mr. Davidson agrees with me in thinking to be most probably identical with our species.

Capt. Cockburn collected as many as thirty-eight specimens of the valves of this *Crania* (of which twenty-nine were lower or ventral valves, and but nine dorsal or upper valves) from the coarse white chalk of Inkerman associated (like the *Crania* mentioned by Dubois) with *Ostrea vesicularis* and other species.

## LAMELLIBRANCHIATA. ASIPHONIDA.

## 50. OSTREA CARINATA, Lamarck; D'Orb. Ter. Crét. pl. 474.

Loc. Village of Badrax. Upper Greensand.

## 51. OSTREA VESICULARIS, Lamarck; D'Orb. Ter. Crét. pl. 486. f. 1, 2.

Loc. Village of Badrax. A mass from the Upper Greensand; two specimens from Lower Chalk; presented by the Imperial School of Mines, St. Petersburg. Seven specimens from Upper Chalk; Inkerman.

52. OSTREA FRONS, Parkinson.—*O. diluviana*, D'Orb. Ter. Crét. pl. 483.

Loc. Badrax. Upper Greensand.

Presented by the Imperial School of Mines, St. Petersburg.

## 53. OSTREA FLABELLATA, D'Orb. pl. 475.

- Loc.* Badrax. Upper Greensand.  
Presented by the Imperial School of Mines, St. Petersburg.
54. *OSTREA HIPPOPODIUM*, Nilsson, t. 7. f. 1 A, B; D'Orb. pl. 482.  
*Loc.* Badrax. Upper Greensand.  
Presented by the Imperial School of Mines, St. Petersburg.  
*Loc.* Inkerman. Upper Chalk.
55. *OSTREA LACINIATA*, D'Orb. pl. 486. f. 1, 2.  
(*Chama*) *laciniata*, Nilsson.  
*Loc.* Inkerman. Upper Chalk.
56. *OSTREA CURVIROSTRIS*, Nilsson, t. 6. f. 5 A, B.  
*Loc.* Inkerman. Eight single valves from Upper Chalk.
57. *OSTREA*, sp. nov.?  
*Loc.* Inkerman. Two single valves. Upper Chalk.
58. *EXOGYRA HALIOTOIDEA*, Lamarck.  
*Chama haliotoidea*, Sow. M. C. t. 25; Nilsson, t. 8. f. 3 A-D.  
*Loc.* Inkerman. Upper Chalk.
59. *EXOGYRA COLUMBA*, Lamarck (Morris's Catalogue).  
*Ostrea columba*, Desh.; D'Orb. Ter. Crét. pl. 477.  
*Gryphæa columba*, Sowerby.  
*Loc.* Badrax. Upper Greensand.  
Presented by the Imperial School of Mines, St. Petersburg.
60. *AVICULA*? *LITHUANA*, Eichw.  
This fine large oyster-like shell, which is at present placed in the genus *Avicula* (although doubtfully) by Bronn in his 'Index Palæontologicus,' has a straight hinge-line without ears, the right valve being convex with concentric laminæ, and the left flat (as in *Ostrea*) with widely distant radiating furrows; hinge toothless and central, with a large cartilage-pit.  
*Loc.* Badrax. In Upper Greensand.  
Presented by the Imperial School of Mines, St. Petersburg.

#### Section SIPHONIDA.

61. *ASTARTE*?, sp.  
*Loc.* Inkerman. Upper Chalk.
62. *CRASSATELLA*, sp. Cast of the interior of a large species.  
*Loc.* Inkerman. White Chalk.
63. *CRASSATELLA*, sp. Casts of a large species, which differs in various particulars from the last, No. 62.  
*Loc.* Inkerman Castle Rock. White Chalk.  
Two specimens collected by Dr. Sutherland, of the Sanitary Commission for the Army of the East.
64. *CARDIUM CONNIACUM*?, D'Orb. Ter. Crét. pl. 244.  
*Loc.* Inkerman. Upper Chalk.  
Two other species were collected by Capt. Cockburn from the same locality, which are too imperfect for description.

65. *LUCINA*, sp. Cast of the interior of an orbicular shell, most probably belonging to this genus.

*Loc.* Inkerman. Upper Chalk.

66. *ACROPAGIA*, *Corbis*?

*Loc.* Inkerman. Upper Chalk.

#### GASTEROPODA.

The Gasteropoda of the Cretaceous formation are but poorly represented in this collection, the few specimens being scarcely fit for determination.

67. *ACTEONELLA* or *GLOBICONCHA*?, D'Orb.

*Loc.* Inkerman. Upper Chalk.

68. *NATICA*, sp. In the British Museum there is a fine mould of the interior of a large *Natica*, from Upper Greensand, River Alma. Presented by Mrs. Cattley.

69. *NATICA*, sp. A smaller species than the last.

*Loc.* Inkerman. Upper Chalk.

70. *TURRITELLA*, sp. allied to *T. Bauja*, D'Orb.

Moulds of the interior of a spiral shell resembling this species.

*Loc.* Inkerman. Upper Chalk.

VERTEBRATA. 71. *LAMNA*?, sp.

#### NUMMULITIC=SUESSONIAN (D'Orbigny).

##### FORAMINIFERA.

Genus *NUMMULITES*, Lamarck, 1804.

72. *NUMMULITES DISTANS*, Desh. Mém. Soc. Géol. France, vol. iii. p. 68, pl. 5. f. 20-22, & *N. polygyratus*, Desh. *loc. cit.* f. 17-19.

*N. distans*, D'Archiac et Haime, Anim. Foss. l'Inde, p. 91, pl. 2. f. 1-5.

A mass of whitish limestone made up of this and the following species.

*Loc.* Simferopol.

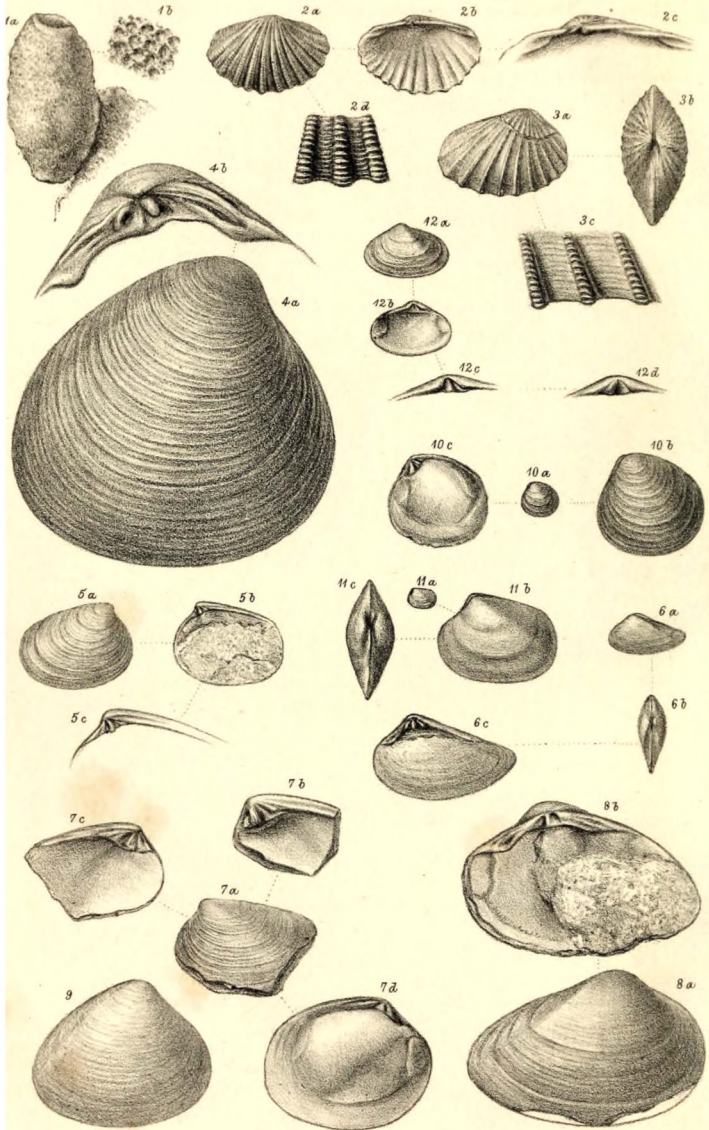
Presented by the Imperial School of Mines, St. Petersburg.

Detached specimens of this species were collected by Dr. Sutherland and Mr. Olver, Army Works Corps, close to the road at Inkerman on the British side.

73. *NUMMULITES RAYMONDI*, Defrance. D'Arch. et J. Haime, Anim. Foss. l'Inde, p. 128, pl. 7, f. 13-17.

*Nummulites rotularius*, Desh. Mém. Soc. Géol. vol. iii. p. 68, pl. 6. f. 10, 11. *N. mammilla*, D'Orb. Prodrome, p. 336.

This small species occurs under the same conditions as the last, the limestone of Simferopol being made up of these remains. It was also collected at Inkerman by Mr. Olver.



## ECHINODERMATA.

74. CONOCLYPUS CONOIDEUS, Agassiz, Cat. p. 109.

*Clypeaster conoideus*, Du Bois, Voy. au Caucase.

Loc. Simferopol.

## MOLLUSCA.

75. OSTREA GIGANTEA, Brander. (
- Ostrea latissima*
- , Desh.)

Loc. Simferopol.

76. CERITHIUM GIGANTEUM, Lamarck.

Loc. Simferopol.

Presented by the Imperial School of Mines, St. Petersburg.

## MIDDLE OR NEWER TERTIARY.—(FALUNIAN, D'Orbigny.)

## AMORPHOZOA.

77. SCYPHIA PORTLOCKII, sp. nov. Pl. IX. f. 1, a, b.

Sponge more or less elongated, forming a somewhat rounded and irregular tube, smallest in diameter at the extremities, perforated throughout its length by a single large canal opening at each extremity and having sharp raised edges; surface thickly covered with irregular pores.

Dimensions of one specimen:—length 1 inch, greatest diameter  $\frac{1}{2}$  an inch, diameter of tube  $\frac{2}{10}$ ths of an inch. A second specimen measured but  $\frac{6}{10}$ ths of an inch in length, with a diameter of  $\frac{1}{2}$  an inch.

Loc. Monastery of St. George.

Dedicated to Col. Portlock, Pres. Geol. Soc.

## FORAMINIFERA.

- 77 a. POLYSTOMELLA CRISPA, Linnæus.

Mr. Rupert Jones has detected two specimens of this very minute Nautiloid form (still common in the Atlantic and Mediterranean) on the weathered surface of a limestone, made up of fragments of shells, principally bivalves, and collected by Lieut.-Col. Munro in the neighbourhood of Sebastopol.

## MOLLUSCA. ASIPHONIDA.

78. MYTILUS APERTUS, Desh. Mém. Géol. Soc. France, vol. iii. p. 61, pl. 4. f. 6–11.
- Myoconcha aperta*
- , D'Orb.

Loc. Kertch. In iron-ore. Collected and presented by Dr. M'Pherson.

79. DREISSENA (MYTILUS) ROSTRIFORMIS, Desh. Mém. Soc. Géol. France, vol. iii. p. 61. t. 4. f. 14–16.

This and the preceding species were found associated with the numerous and peculiar forms of *Cardium*, hereafter mentioned, in the deposits of iron-ore near Kertch. Collected by Dr. M'Pherson. There is also a specimen in the British Museum.

- 79 a. DREISSENA INÆQUIVALVIS, Nyst.

*Mytilus inæquivalvis*, Desh. loc. cit. pl. 5. f. 1–3.

Collected by Dr. M'Pherson. From iron-ore, Kertch.

## SIPHONIDA.

80. *CARDIUM PROTRACTUM*, Eich. Voy. Hom. pl. 6. f. 6-8.

This small species is common at most of the localities.

*Loc.* Dock-yard, Sevastopol; Quarantine; Monastery; and Gorge of Iphigenia.

81. *CARDIUM AMPLUM*, sp. nov. Pl. IX. fig. 2, *a-d*.

Shell thin, much broader than high, ornamented with about fifteen much elevated radiating ribs, which are strongly imbricated towards the margin, and unequally distant, widely separated and more curved towards the posterior slope of the shell, where the costæ become suddenly closer; umbones subcentral, margins crenulated, hinge-line long and but slightly curved; right valve with a slightly prominent cardinal and two lateral teeth.

Dimensions.—Height  $\frac{5}{10}$ ths, breadth  $\frac{7}{10}$ ths of an inch.

The only specimen of this small and delicate species is a very perfect right valve.

*Loc.* Monastery of St. George.

82. *CARDIUM DEMIDOFFI*, sp. nov. Pl. IX. fig. 3, *a, b, c*.

Shell elongated, subtrigonal, ornamented with about twelve widely distant and sharp ribs, closely imbricated and less prominent on the posterior slope of each valve; umbones anterior and approximating, margins crenulated.

Dimensions.—Height  $\frac{6}{10}$ ths, breadth  $\frac{9}{10}$ ths of an inch.

Very abundant from the Monastery of St. George (in the bed R of the section); mostly casts of the interior. Our figured specimen has a portion of the shell still attached.

This species differs from *Cardium Fittoni* by its greater breadth in proportion to its height, and in having more numerous and less elevated ribs, without the sharp and prominent asperities of that species.

Dedicated to M. Anatole Demidoff, author of the fine work on Southern Russia and the Crimea.

83. *CARDIUM FITTONI*, D'Orb. in Murchison's Geol. of Russia.

*Loc.* Sevastopol; Monastery. Casts collected by Major Cooke and Capt. Cockburn; and, with the shell attached, from the Quarantine Harbour.

84. *CARDIUM CARINATUM*, Desh. Mém. Soc. Géol. de France, 1838, p. 54. pl. 2. f. 16-18.

*Loc.* Kertch. In iron-ore. Collected by Dr. M'Pherson.

85. *CARDIUM SQUAMULOSUM*, Desh. *ibid.* p. 48. pl. 1. f. 14, 15.

*Loc.* Kertch. In iron-ore. British Museum Collection.

86. *CARDIUM MACRODON*, Desh. *ibid.* p. 49. pl. 1. f. 3-6.

An interesting specimen of this nearly smooth *Cardium*, in which the shell has been converted into phosphate of iron, the interior containing crystals of carbonate of lime.

*Loc.* Kertch. In iron-ore. Collected by Dr. M'Pherson.



87. *CARDIUM CRASSATELLATUM*, Desh. *ibid.* p. 51. pl. 3. f. 7-10.  
*Loc.* Kertch. In iron-ore. British Museum Collection.
88. *CARDIUM PAUCICOSTATUM*, Desh. *ibid.* p. 52. pl. 2. f. 14, 15.  
*Loc.* Kertch. In iron-ore. Two specimens collected by Dr. M'Pherson.
89. *CARDIUM CORBULOIDES*, Desh. *ibid.* p. 54. pl. 1. f. 11-13.  
*Loc.* Kertch. In iron-ore. Presented by Captain Cockburn.
90. *CARDIUM VERNEUILII*, Desh. *ibid.* p. 55. pl. 2. f. 9, 10.  
*Loc.* Kertch. In iron-ore.  
 Presented by Captain Cockburn and Dr. M'Pherson.
91. *CARDIUM OVATUM*, Desh. *ibid.* p. 56. pl. 1. f. 19-21.  
*Loc.* Kertch. In iron-ore.  
 Presented by Captain Cockburn and Dr. M'Pherson.
92. *CARDIUM EDOUARDI*, D'Orb. *C. incertum*, Desh. *ibid.* p. 56.  
 pl. 2. f. 11-13.  
*Loc.* Kertch. In iron-ore.  
 Collected by Dr. M'Pherson.
93. *CARDIUM SUBEDENTULUM*, D'Orb. *C. edentulum*, Desh. *ibid.*  
 p. 51. pl. 3. f. 3-6.  
*Loc.* Kertch. In iron-ore.  
 British Museum Collection.
94. *CARDIUM PSEUDOCARDIUM*?, Desh. *ibid.* p. 59. pl. 1. f. 1, 2.  
*Loc.* Kertch. In iron-ore.  
 Presented by Captain Cockburn.
95. *CYPRINA PALLASII*, sp. nov. Pl. IX. fig. 4, *a, b*.  
 Shell large and thick, subtrigonal, broader than high, concentrically striated, with an oblique angle on the posterior side of each valve; umbones approximate, oblique and tumid. Cardinal teeth 3, with a posterior lateral tooth.  
 Dimensions.—Height  $1\frac{9}{10}$  inch, breadth  $2\frac{1}{10}$  inches.  
*Loc.* Monastery of St. George; the shells being well preserved in crystalline limestone, and casts of the interior (the shell having decomposed) from a more sandy deposit. Fine casts of what appears to be this species were collected by Major Cooke from the left flank of a parapet of the Redan, the stone used in its construction having been procured from a quarry adjacent: the fossils from this deposit are mostly in the state of casts.
96. *CYPRINA GEORGEI*, sp. nov. Pl. IX. fig. 8, *a, b*.  
 Shell oblong-ovate, concentrically striated, with an oblique angle on the posterior side; right valve with two narrow cardinal teeth, having a deep pit on one side, and a posterior lateral tooth; muscular impressions oval, pallial line simple.  
 Dimensions.—Height 1, breadth  $1\frac{1}{2}$  inch.  
*Loc.* A single well-preserved specimen of the right valve only was collected from the Monastery of St. George.

97. *CYPRINA NAVICULATA*, sp. nov. Pl. IX. fig. 6, *a-c*.

Shell oblong, the anterior extremity rounded, posterior very acute; cardinal teeth 2, and a posterior lateral tooth.

Dimensions.—Height  $\frac{3}{10}$ ths, breadth  $\frac{5}{10}$ ths of an inch.

*Loc.* Quarantine Harbour. The fossils here have their valves united; a fortunate fracture in one specimen exposes the hinge.

98. *CYPRINA?* *TRIANGULATA*, sp. nov. Pl. IX. fig. 9.

Shell suborbicular, concentrically striated; umbones prominent and oblique; muscular impressions oval, pallial line simple.

Dimensions.—Height 1, breadth  $1\frac{3}{10}$  inch.

This species is doubtfully referred to the genus *Cyprina*, none of the specimens showing the hinge, being mostly casts; but, as it is one of the most numerous of the fossil bivalves from these deposits, it was thought advisable to figure and describe it.

*Loc.* It has been collected from Sevastopol by Major Cooke; from Iphigenia and the Monastery by Captain Cockburn (in bed R).

99. *ASTARTE PULCHELLA*, sp. nov. Pl. IX. fig. 10, *a-c*.

Shell small, suborbicular, concentrically striated; two cardinal teeth.

Dimensions.—Height  $\frac{1}{4}$ th of an inch, breadth the same.

*Loc.* Nine specimens of this beautiful little species were collected, having both valves united, from the Gorge of Iphigenia (bed J of the section), associated with other small shells. The left valve of a specimen being fortunately removed, the mould and hinge are shown.

100. *ASTARTE QUADRATA*, sp. nov. Pl. IX. fig. 7, *a-d*.

Shell very thick, oblong, depressed, somewhat square, concentrically striated; umbones forming a sharp angle; hinge with two cardinal teeth, lateral teeth obscure; pallial line deep, simple.

Dimensions.—Height  $\frac{6}{10}$ ths of an inch, breadth 1 inch.

*Loc.* Four specimens of this very thick shell were obtained from the Monastery, being fragments of the upper part containing the hinge of both valves well preserved. Several supposed casts of this species (fig. 7, *d*) were obtained from the same locality.

101. *VENUS SEMIPLANA*, sp. nov. Pl. IX. fig. 5, *a, b*.

Shell oblong, depressed, concentrically striated, posterior side subangular; umbones anterior and acute; hinge of right valve with three cardinal teeth (the central one prominent) and one lateral tooth.

Dimensions.—Height  $\frac{6}{10}$ ths, breadth  $\frac{7}{10}$ ths of an inch.

A single specimen of the right valve only, in good preservation.

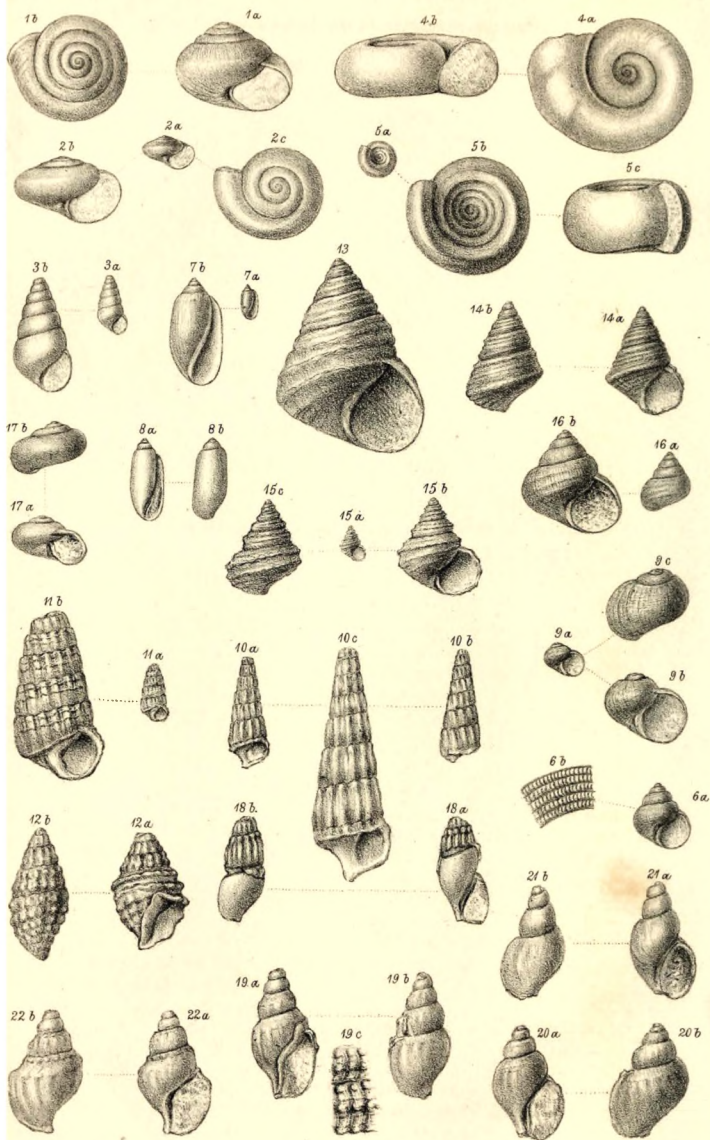
*Loc.* Gorge of Iphigenia.

102. *VENUS MINIMA*, sp. nov. Pl. IX. fig. 12, *a-c*.

Shell elongated oval; umbones anterior.

Dimensions.—Height  $\frac{2}{10}$ ths, breadth  $1\frac{1}{10}$ th of an inch.

Three specimens of this very small and beautifully preserved shell with both valves united, were collected from the Monastery and Gorge



of Iphigenia in bed J of the section, associated with *Astarte pulchella*, &c.

103. SOLEN?, sp. A single fragment of the posterior extremity of an elongated straight shell apparently belonging to this genus.

*Loc.* Quarantine Harbour.

104. POTAMOMYA IPHIGENIA, sp. nov. Pl. IX. fig. 13, *a-d*.

Shell thick, elongated and compressed; umbones nearly central; one cardinal tooth in each valve.

Dimensions.—Height  $\frac{1}{4}$ th, breadth  $\frac{1\frac{1}{2}}{20}$ ths of an inch.

Three single valves showing the interiors.

*Loc.* Gorge of Iphigenia.

105. PHOLAS HOMMAREI, D'Orb. Voy. Hom. pl. 4. f. 16–18.

*Loc.* Monastery, and Gorge of Iphigenia; from bed P of the section.

#### GASTEROPODA. OPISTHOBRANCHIATA.

106. TORNATELLA MINUTA, sp. nov. Pl. X. fig. 7, *a, b*.

Shell small, cylindrical, smooth; spire short, acute, with four or five whirls; aperture long and narrow, inner lip callous, covering part of the body-whirl.

Dimensions.—Axis  $\frac{2}{10}$ ths, diameter  $\frac{1}{10}$ th of an inch.

*Loc.* Quarantine Harbour.

107. TORNATELLA INFLEXA, sp. nov. Pl. X. fig. 8, *a, b*.

Shell cylindrical; spire short, with three or four whirls; aperture long and narrow; body-whirl inflexed or bent inwards at the middle.

Dimensions.—Axis  $\frac{1}{2}$ , breadth  $\frac{2\frac{1}{2}}{10}$ ths of an inch.

This is a much larger species than the preceding, and differs in being of less diameter in proportion to its size.

*Loc.* Four specimens, all casts, were collected by Major Cooke, from the Redan.

#### PULMONIFERA.

108. HELIX DUBOISII, sp. nov. Pl. X. fig. 1, *a, b*.

Shell subglobose, perforated, and finely striated, having five volutions with an elevated conoidal spire; margin reflected, partly covering the umbilicus.

Dimensions.—Diameter  $\frac{6}{10}$ ths, elevation  $\frac{6}{10}$ ths of an inch.

This species occurs in considerable numbers, and was obtained from a marly deposit (bed C of the section), of a bright-red colour, at the Monastery of St. George, and of a yellow tinge from the Gorge of Iphigenia. It was associated with the two next following species.

It bears a considerable resemblance to the recent *H. arbustorum*, but is smaller, and the spire not quite so elevated.

Dedicated to M. Du Bois de Montpéreux, to whom we are indebted for so full a description of the geology of that country, in his great work on the Crimea and the Caucasian Provinces.

109. *HELIX BESTII*, sp. nov. Pl. X. fig. 2, *a-c*.

Shell small, depressed above, forming an obtuse angle on the body-whirl; under-side tumidly convex; about four whirls; umbilicus moderately sized and deep; slightly reflected peristome.

Dimensions.—Diameter  $\frac{3}{10}$ ths, elevation  $\frac{2}{10}$ ths of an inch.

This species was found associated with *Helix DuBoisii* and *Bulimus Sharmani*, &c., in light-brown marl.

*Loc.* Gorge of Iphigenia.

Dedicated to Edward Best, Esq., of the Geological Survey of Great Britain.

110. *BULIMUS SHARMANI*, sp. nov. Pl. X. fig. 3, *a, b*.

Shell small, obtusely turreted; whirls 5 to 7, more or less irregular in form and number; aperture oval.

Dimensions.—Height  $\frac{4}{10}$ ths, breadth  $\frac{2}{10}$ ths of an inch.

*Loc.* Gorge of Iphigenia.

Dedicated to George Sharman, Esq., of the Geological Survey of Great Britain.

111. *PLANORBIS OBESUS*, sp. nov. Pl. X. fig. 5, *a-c*.

Shell small, orbicular, and very stout, having six whirls, which almost cover each other; aperture compressed and oblique.

Dimensions.—Diameter  $\frac{1}{4}$ th, thickness of outer whirl  $\frac{1}{10}$ th of an inch.

Found associated with the previously described land-shells, Nos. 108, 109, and 110.

*Loc.* Gorge of Iphigenia.

112. *PLANORBIS CORNUCOPIA*, sp. nov. Pl. X. fig. 4, *a, b*.

Shell large, formed of four nearly round volutions separated by a deep suture, the outer volution having two or three transverse constrictions.

Dimensions.—Diameter 1 inch, thickness of outer whirl  $\frac{9}{20}$ ths of an inch.

*Loc.* Of this elegantly formed freshwater shell, the finest specimen is in the Woolwich Royal Artillery Institution, collected from before Sevastopol by Major Anderson, R.A. One other specimen was obtained by Captain Cockburn from the Gorge of Iphigenia (bed P of the section).

113. *CYCLOSTOMA RETICULATUM*, sp. nov. Pl. X. fig. 6, *a, b*.

Shell turbinated; surface spirally striated and crossed by very fine transverse lines; axis perforated; aperture nearly circular; whirls 4 or 5.

Dimensions of imperfect cast.—Axis  $\frac{4}{10}$ ths, diam.  $\frac{3}{10}$ ths of an inch.

This cast retains a portion of the shell attached, showing distinctly its reticulated sculpture.

*Loc.* Gorge of Iphigenia (bed C of the section). Associated with the land-shells before described.

## PROSOBRANCHIATA.

114. *TURBO*, sp. Casts of a large turbinated shell, which may

be referred to this genus, too imperfect for description, were collected by Major Cooke from the Redan.

115. *TROCHUS CORDERIANUS*, D'Orb. Voy. Hom.

Very abundant at the Quarantine Harbour, sixteen specimens having been obtained from that locality, the deposit in which they were imbedded being a fine-grained compact yellowish marl, particularly rich in specimens of this genus: they are mostly in beautiful preservation, the shells having become crystallized.

116. *TROCHUS FENONIANUS*, D'Orb. Voy. Hom.

*Loc.* Quarantine Harbour.

117. *TROCHUS PAGEANUS*, D'Orb. Voy. Hom.

*Loc.* Quarantine Harbour.

118. *TROCHUS MURCHISONI*, sp. nov. Pl. X. fig. 13.

Shell obtusely conical, elevated, having five or six volutions; slightly convex, with about three transverse somewhat granular ridges on each whirl; base convex, imperforate; aperture suborbicular.

Dimensions.—Axis  $1\frac{2}{10}$ ths, diameter  $\frac{9}{10}$ ths of an inch.

*Loc.* Quarantine Harbour.

Dedicated to Sir Roderick I. Murchison, Director-General of the Geological Society of Great Britain.

119. *TROCHUS ANDERSONI*, sp. nov. Pl. X. fig. 14, *a, b*.

Shell conical, with flat sides and elevated spire; volutions six, ornamented with about five irregular elevated ridges; base nearly flat; columella suboblique; aperture trapeziform.

Dimensions.—Axis  $\frac{7}{10}$ ths, diameter  $\frac{5}{10}$ ths of an inch.

Allied to *T. Voronzoffi* and *T. Pageanus*, D'Orb. Voy. Hom., but differs from the latter species by its smaller diameter, and in the ridges not being granulated.

*Loc.* Monastery of St. George.

Dedicated to Major Anderson, Royal Artillery.

120. *TROCHUS BEAUMONTII*, D'Orb. in Voy. Hom.

*Loc.* Monastery of St. George.

121. *TROCHUS BLAINVILLEI*, D'Orb. in Voy. Hom.

Cast of the interior.

*Loc.* Gorge of Iphigenia.

122. *TROCHUS HOMMAREI*, D'Orb. in Voy. Hom.

*Loc.* A fine and perfect specimen from the Quarantine Harbour collected by Capt. Cockburn, and a less perfect one from Sevastopol collected by Major Anderson, R.A.

123. *TROCHUS PULCHELLUS*, sp. nov. Pl. X. fig. 15, *a, b, c*.

Shell very small, with an acutely elevated spire; whirls five, ornamented with three sharp much-elevated and crenulated transverse ridges; base convex; aperture suborbicular; umbilicus small.

Dimensions.—Axis  $\frac{3}{10}$ ths, diameter  $\frac{2}{10}$ ths of an inch.

*Loc.* Quarantine Harbour.

124. *TROCHUS SUTHERLANDII*, sp. nov. Pl. X. fig. 16, *a*, *b*.

Shell with a short pyramidal spire ; whirls rounded, five in number ; base convex, slightly umbilicated ; body-whirl with four or five slight and unequally distant spiral carinations, crossed by numerous faint and regular transverse lines ; aperture nearly circular.

Dimensions.—Axis  $\frac{7}{10}$ ths, diameter  $\frac{3}{10}$ ths of an inch.

*Loc.* Monastery of St. George.

Dedicated to Dr. Sutherland, of the Sanitary Commission, Army of the East.

125. *TROCHUS LYGONII*, sp. nov. Pl. X. fig. 17, *a*, *b*.

Shell depressedly conical, trochiform, volutions four, convex : suture broad ; aperture subcircular ; umbilicus large and deep.

Dimensions.—Axis  $\frac{3}{10}$ ths, diameter  $\frac{1}{4}$ ths of an inch.

*Loc.* Monastery and Gorge of Iphigenia, collected by Captain Cockburn ; also casts of two small specimens from the Redan, collected by Major Cooke.

Dedicated to Lieut.-Col. Charles Lygon Cocks, of the Grenadier Guards.

126. *LITTORINA MONASTICA*, sp. nov. Pl. X. fig. 9, *a-c*.

Shell globular, imperforate ; spire small, obtuse ; volutions three, spirally striated and crossed by faint transverse lines of growth ; aperture large, nearly circular ; inner lip callous, covering part of the body-whirl.

Dimensions.—Axis  $\frac{2}{10}$ ths, diameter  $\frac{2}{10}$ ths of an inch.

*Loc.* Monastery of St. George.

127. *PALUDINA ACHATINOIDES*, Desh. Mém. Soc. Géol. France, 1838, p. 64. pl. 5. f. 6, 7.

*Loc.* Kertch. In iron-ore. Collected by Dr. M'Pherson.

128. *CERITHIUM CATTLEYÆ*, sp. nov. Pl. X. fig. 12, *a*, *b*.

Shell turreted ; spire short ; whirls five, with about three rows of largely granulated bands ; aperture subquadrate ; columella recurved and without a fold.

Dimensions.—Axis  $\frac{7}{10}$ ths, diameter  $\frac{4}{10}$ ths of an inch.

Allied to *C. Taitboutii*, D'Orb. Voy. Hom. ; the tubercles are, however, more distinct and fewer on each whirl.

*Loc.* Monastery of St. George.

There are also two specimens in the British Museum Collection, presented by Mrs. Cattley, to whom this species is dedicated.

129. *CERITHIUM COCHLEARE*, sp. nov. Pl. X. fig. 10, *a-c*.

Shell elongate, turreted, regularly tapering ; whirls seven in number, with longitudinal ribs ; aperture subquadrate.

Dimensions.—Axis  $\frac{8}{10}$ ths, diameter  $\frac{3}{10}$ ths of an inch.

*Loc.* Gorge of Iphigenia (bed J).

130. *CERITHIUM TRUNCATUM*, sp. nov. Pl. X. fig. 11, *a*, *b*.

Shell small, turreted, obtusely conical ; whirls four ; outline of the

spire slightly swollen towards the middle, top obtuse as if truncated, ornamented with three bands transversely striated and elevated into costæ; aperture subquadrate.

Dimensions.—Axis  $\frac{4}{10}$ ths, diameter  $\frac{1\frac{3}{10}}$ th of an inch.

Loc. Gorge of Iphigenia.

131. *PLEUROTOMA CHERSONESUS*, sp. nov. Pl. X. fig. 19, *a-c*.

Shell fusiform, turreted, lower whirl with ten longitudinal costæ, having two rows of nodules at the upper part of each whirl, transversely striated; aperture elongato-ovate, with a short sinus at its upper part.

Dimensions of imperfect specimen.—Axis  $\frac{8}{10}$ ths, diameter  $\frac{5\frac{4}{10}}$ ths of an inch.

Loc. Gorge of Iphigenia and the Monastery (bed R of the section).

132. *PLEUROTOMA LAQUEATA*, sp. nov. Pl. X. fig. 18, *a, b*.

Shell turriculate and fusiform, volutions elongated and longitudinally costated, passing into two rows of obtuse nodules next the suture; aperture elongato-ovate.

Dimensions of imperfect specimen with two whirls.—Axis  $\frac{6}{10}$ ths, diameter  $\frac{3}{10}$ ths of an inch.

Loc. Monastery of St. George (bed R of the section).

133. *BUCCINUM OBESUM*, sp. nov. Pl. X. fig. 20, *a, b*.

Shell ovato-conical; whirls ventricose with distant slightly raised costæ; aperture oval; canal short and reflected.

Dimensions of cast.—Axis  $\frac{8}{10}$ ths, diameter  $\frac{5}{10}$ ths of an inch.

Loc. Monastery, and the Gorge of Iphigenia (bed R of the section).

134. *BUCCINUM ANGUSTATUM*, sp. nov. Pl. X. fig. 21, *a, b*.

Shell elongated oval, narrow; whirls four or five, with about ten slightly raised and distant costæ; aperture oval; canal short.

Dimensions.—Axis  $\frac{8}{10}$ ths, diameter  $\frac{4}{10}$ ths of an inch.

Loc. Monastery of St. George.

135. *BUCCINUM MONILIFORME*, sp. nov. Pl. X. fig. 22, *a, b*.

Shell ovato-conical; whirls five, angular; spire elevated, with slightly raised costæ; the upper part of the whirl bears an angular band of elongated obtuse nodules, and a row of bead-like obtuse nodules next the suture of each whirl; aperture oval; canal short and reflected.

Dimensions.—Axis  $\frac{8}{10}$ ths, diameter  $\frac{5}{10}$ ths of an inch.

Loc. Gorge of Iphigenia.

136. *BUCCINUM DOUTCHINÆ*, D'Orb. Voy. Hom. pl. 3. f. 20–22.

Loc. Monastery of St. George.

137. *BUCCINUM DAVELUINUM*, D'Orb. Voy. Hom. pl. 3. f. 23.

Loc. Monastery of St. George.



138. *BUCCINUM CORBIANUM*, D'Orb. Voy. Hom. pl. 3. f. 24, 25.

*Loc.* The Quarantine, Monastery, and the Gorge of Iphigenia.

139. *BUCCINUM DISSITUM*, Eichw. Murch. Russia, pl. 43. f. 35, 36.

*Loc.* The Monastery, and the Gorge of Iphigenia.

A few remarks naturally arise from an examination of the species. Commencing with the oldest or Jurassic, these bear the greatest resemblance in specific identity to those of our own country; the characteristic examples of *Terebratula numismalis* from the lowest fossiliferous beds serving to point out the shales of the Woronzoff road to be equivalent with those of our Lower Lias, as the presence of *Rhynchonella acuta*, *Gryphæa incurva*, *Ammonites Jurensis*, and *A. fimbriatus* from the village of Biasali, indicates the Marlstone or Middle division of the Lias.

The fossils received from Balaclava (principally *Brachiopoda*) appear to be related to forms from the Lower or Inferior Oolite, although for the most part specifically distinct from any met with in England; *Rhynchonella senticosa*, an Inferior Oolite species, being the only one I have been enabled to identify from that locality.

Fossils from the intermediate formations of the Secondary age are absent in this collection, although several species, principally Cephalopoda, are catalogued as belonging to the Oxfordian division from Baktchserai by M. Du Bois de Montpéreux, and from Kobsoel on the south coast of the Crimea by M. D'Orbigny.

In this collection are contained several species, principally Zoophyta, from Soudaxioxia, forming part of a series formerly presented to the Museum of Practical Geology by the Imperial School of Mines at St. Petersburg. These fossil corals are perfectly undistinguishable from similar species met with in the Coral Rag of Steeple Ashton.

The Neocomian or Lower Greensand group, as well as the upper division of the Cretaceous series, has some few fossils identical with British species. The principal part of the fossils from this formation are from Baktchserai, and are catalogued by M. Du Bois in his 'Tableau de Fossiles de la Craie en Crimée.'

An interesting form of spiral bivalve belonging to the *Chamidae*, allied to our *Requienia* (*Diceras*) *Lonsdalii*, but more nearly to *Requienia Ammonia*, Matheron, occurred in great abundance, accompanied by a large *Nerinea* allied to *N. gigantea*. Many fragments of these species were collected by Major Hudson, 39th Regiment, from a very coarse crystalline limestone used in the construction of roads between Balaclava and the Plateau.

The Upper Chalk of Inkerman has supplied several species (principally *Ostrea*) common to our own country; the most important and beautiful fossil, as well as the most abundant, from this locality is the *Crania spinulosa*, Nilsson, before alluded to.

The Nummulitic or Older Tertiary fossils are also principally catalogued by M. Du Bois in his 'Tableau,' as occurring at Baktchserai. This collection contains some large and characteristic species

from Simferopol, amongst which are the large Echinoderm called *Conoclypus conoideus*, *Ostrea gigantea*, and *Cerithium giganteum*. Of the Foraminifera the principal species are *Nummulites distans*, Deshayes, and *Nummulites Raymondi*, D'Archiac (*N. rotularius*, Desh.). Several species of Mollusca included in M. Du Bois' list, such as *Cardium porulosum*, *Cerithium giganteum*, *Fusus turgidus*, *Voluta muricina*, and *V. luctatrix*, with *Turritella imbricataria*, are common in the Barton and Bracklesham beds of this country.

The Middle, or Newer Tertiary formation, which, under the name of Steppe Limestone, covers the largest extent of country in the Crimea, is abundant in fossils having peculiar characters different from those of any deposit in England, being closely analogous to forms at present existing in the great inland salt seas of the Aral and Caspian. The peculiar forms of *Cardium* and *Dreissena* found in the deposits of iron-ore near Kertch and in other parts of the Crimea, of brackish-water origin, are believed to indicate the former existence of a great inland sea, of which the Aral and Caspian are remnants, but which was larger than the present Mediterranean; a belief of which the illustrious Pallas was the first propounder.

The Mollusca from other Newer Tertiary deposits near Sevastopol are more marine in their character, the Bivalves belonging principally to the genus *Cyprina*, the Univalves to peculiar forms of *Buccinum* and *Trochus*: of the latter, 11 species were collected, 6 being identical with forms figured in the 'Voyage of M. Hommaire,' and described by M. D'Orbigny, from Kichinev in Bessarabia: they also occur in the Tertiary deposits of Podolia and Volhynia, indicating a probable contemporaneity of all these geological formations.

Table of Jurassic Fossils found in the Crimea.

Number of specimens.	Name.	Locality.	Lias.	Infer. Oolite.	(Oxfordian) Coral Rag.
	<i>Amorphozoa.</i>				
1	<i>Scyphia Cockburnii</i> , Baily. Pl. VIII. fig. 1 a, b.	Near the Monastery of St. George.	.....	*	
	<i>Zoophyta.</i>				
1	<i>Comoseris irradians</i> , Edw. ....	Soudaxioxia.....	.....	...	*
1	<i>Thecosmilia annularis</i> , Flem., sp. ....	Simferopol .....	.....	...	*
1	<i>Isastræa Greenoughii</i> , Edw. ....	Soudaxioxia.....	.....	...	*
1	— ? <i>Astræa polygonalis</i> , Mich.				
1	— <i>explanata</i> ?, Goldf.....	Between Monastery and Balaclava.	.....	*	
2	<i>Thamnastræa arachnoides</i> , Park., sp.	Soudaxioxia.....	.....	...	*
3	<i>Calamophyllia Stokesii</i> , Edw. ....	Between Monastery and Balaclava.	.....	*	
1	<i>Montlivaltia trochoides</i> , Edw. ....	Tchatyr Dag .....	.....	*	
	<i>Echinodermata.</i>				
1	<i>Cidaris</i> ? (spine) .....	Woronzoff Road .....	*		
2	— .....	Gorge of Iphigenia ..	.....	*	
8	— <i>Blumenbachii</i> (spines), Goldf..	Soudaxioxia.....	.....	...	*

Number of specimens.	Name.	Locality.	Lias.	Infer. Oolite.	(Oxfordian) Coral Rag.
1	<i>Cidaris glandifera</i> , Goldf. ....	Between Monastery and Balacava.	.....	*	
2	— ? .....	do. ....	.....	*	
2	— ? .....	1 mile W. of Balacava.	.....	*	
2	<i>Apiocrinites incrassatus</i> , Ræmer (joints).	Between Monastery and Balacava.	.....	*	
8	<i>Pentacrinites basaltiformis</i> , Mill. ...	Soudaxioxia.....	.....	...	*
2	Starfish (plates) .....	Gorge of Iphigenia.....	.....	*	
<i>Mollusca.</i>					
4	<i>Terebratula numismalis</i> , Lam. ....	Woronzoff Road .....	*		
1	— rotundata?, Ræmer .....	Woronzoff Road .....	*		
1	— Jamesii, Baily. Pl. VIII. fig. 2.	Balacava.....	.....	*	
1	— subovoides?, Münst.....	Between Monastery and Balacava.	.....	*	
1	— perovalis?, Sow.....	Biasali .....	Marlstone.		
1	— Strogonoffi?, D'Orb.....	Iphigenia.....	.....	*	
6	<i>Terebratulina radiata</i> , Baily. Pl. VIII. fig. 3 a-d.	Balacava.....	.....	*	
2	<i>Rhynchonella Cookei</i> , Baily. Pl. VIII. fig. 5 a, b.	Balacava.....	.....	*	
1	— pectinata, Baily. Pl. VIII. fig. 4 a, b.	Iphigenia.....	.....	*	
1	— senticosa, Von Buch .....	Balacava.....	.....	*	
1	— acuta, Sow.....	Biasali .....	Marlstone.		
1	— variabilis?, Schloth. ....	Iphigenia.....	.....	*	
	<i>Avicula decussata</i> , Münst. (Du Bois) ? .....	?	*		
3	<i>Ostrea</i> , sp. ....	Karani .....	* ?		
1	—, sp. ....	Woronzoff Road .....	*		
1	—, sp. ....	1 mile W. of Balacava.	.....	*	
2	<i>Gryphæa dilatata</i> , Sow. ....	Soudaxioxia.....	.....	...	*
1	— incurva, Sow.....	Biasali Village.....	Marlstone?		
6	<i>Cardium æquistriatum</i> , Baily. Pl. VIII. fig. 6 a, b.	Woronzoff Road .....	*		
4	<i>Astarte complanata</i> , Ræmer .....	Woronzoff Road .....	*		
	<i>Pholadomya conformis</i> , D'Orb.....	S. Coast, Crimea.....	.....	...	*
1	<i>Natica</i> , sp. ....	Between Monastery and Balacava.	.....	*	
1	<i>Nerinea grandis</i> , D'Orb. ....	Vil. Djanatai .....	.....	...	*
	<i>Chemnitzia Heddingtonensis</i> , Sow..				
	<i>Belemnites latisulcatus</i> , Voltz. ....	Kobsel.....	.....	...	Callovian.
	— hastatus, Blainv. ....	Kobsel.....	.....	...	Low. Oxf.
1	<i>Ammonites Uralensis</i> ?, D'Orb.....	1 mile W. of Balacava.	.....	*	
1	— Raquinianus?, D'Orb. ....	Vil. Biasali .....	Marlstone.		
1	— Jurensis, Zieten .....	do. ....	Marlstone.		
1	— fimbriatus, Sow.....	do. ....	Marlstone.		
	— Brongniartii?, Sow. (Du Bois) ..	Baktchserai.....	.....	* ?	
	— giganteus, Sow. (Du Bois).....	do. ....	.....	...	Portland?
	— perarmatus, Sow. (Du Bois) ...	do. ....	.....	...	*
	— lunula, Zieten (D'Orb.) .....	Kobsel, S. Coast, Crimea	.....	...	*
	— viator, D'Orb. ....	do. do. ....	.....	...	Low. Oxf.
	— Tatricus, Pusch.....	do. do. ....	.....	...	*
	— Hommarei, D'Orb. ....	do. do. ....	.....	...	Low. Oxf.
	— Adelæ, D'Orb. ....	do. do. ....	.....	...	Oxford.
	— tortisulcatus, D'Orb.....	Kobsel and Soudagh ...	.....	...	*
1	<i>Trigonellites</i> , sp.? .....	Woronzoff Road .....	*		
	— Theodosia, Desh. ....	?			
	<i>Rhynchoteuthis antiquatus</i> , D'Orb.	?	.....	...	*

*Table of Cretaceous Fossils found in the Crimea.*  
(Lower Cretaceous or Neocomian.)

Number of specimens.	Name.	Authority.	Locality.
	<i>Amorphozoa.</i>		
	<i>Scyphia Oeynhausii, Goldf.</i> ...	Du Bois de Montpéreux, Tableau de Fossiles de la Craie en Crimée	Baktchserai.
	— <i>furcata, Goldf.</i> .....	do. do. ....	do.
	<i>Manon capitatum, Goldf.</i> .....	do. do. ....	do.
	<i>Zoophyta.</i>		
	<i>Astræa tubulosa, Goldf., &amp; var.</i> .....	do. do. ....	do.
	— <i>caryophylloides, Goldf.</i> .....	do. do. ....	do.
	— <i>continua, Goldf.</i> .....	do. do. ....	do.
	— <i>cristata, Goldf.</i> .....	do. do. ....	do.
	<i>Mæandrina</i> .....	do. do. ....	do.
	<i>Turbinolia</i> .....	do. do. ....	do.
	<i>Lithodendron</i> .....	do. do. ....	do.
	<i>Pavonia</i> (? <i>Fungia discoidea, Goldf.</i> ) .....	do. do. ....	do.
	<i>Echinodermata.</i>		
	<i>Discoidea macropyga, Desm.</i> .....	do. do. ....	do.
	<i>Cidaris clunifera, Agas.</i> .....	do. do. ....	do.
	— <i>vesiculosa, Goldf.</i> .....	do. do. ....	do.
	— <i>n. s.</i> .....	do. do. ....	do.
	<i>Dysaster cordatus, Baier</i> .....	Du Bois, Voy. au Cauc. pl. 1. f. 2-4.	Crimea.
	<i>Bryozoa.</i>		
	<i>Cerliopora dichotoma, Goldf.</i> ...	Du Bois, Tableau de foss. de la Craie.	Baktchserai.
	— <i>striata, Goldf.</i> .....	do. do. ....	do.
	— <i>micropora</i> .....	do. do. ....	do.
	<i>Mollusca.</i>		
	<i>Terebratulina striata, Wahl.</i> ...	do. do. ....	do.
	<i>Terebratula biplicata, Sow.</i> .....	do. do. ....	do.
	— <i>flabellata, Goldf.</i> .....	do. do. ....	do.
	— <i>diphyæ, Von Buch</i> .....	do. do. ....	do.
	— <i>decipiens, Du Bois</i> .....	do. do. ....	do.
	— <i>vicinalis, Schlot.</i> .....	do. do. ....	do.
	<i>Rhynchonella alata, Goldf.</i> ...	do. do. ....	do.
	— <i>sp.</i> .....	do. do. ....	do.
	<i>Ostrea colubrina, Lam.</i> .....	do. do. ....	do.
	— <i>nodosa, Münst.</i> .....	do. do. ....	do.
	— <i>frons</i> ?, <i>Park.</i> ( <i>gregaria, Du Bois</i> ). .....	do. do. ....	do.
	— <i>exogyra, Mich.</i> .....	do. do. ....	do.
	<i>Pecten, sp.</i> .....	do. do. ....	do.
	<i>Lima ovalis, Desh.</i> .....	do. do. ....	do.
	— <i>elongata, Münst.</i> .....	do. do. ....	do.
	<i>Spondylus</i> .....	do. do. ....	do.
	<i>Exogyra Couloni, DeFr.</i> .....	do. do. ....	do.
	— <i>lateralis, Nils.</i> .....	do. do. ....	do.
	— <i>minima, Du Bois</i> .....	do. do. ....	do.
	<i>Gervillia solenoides, DeFr.</i> .....	do. do. ....	do.

*Table of Cretaceous Fossils (continued).*

Number of specimens.	Name.	Authority.	Locality.
	<i>Arca globosa</i> , <i>Du Bois</i> .....	Du Bois, Tableau de foss. de la Craie.	Baktchserai.
	—, sp. nov. ....		
20	<i>Requienia</i> , sp. nov. ....	Baily .....	Near Balaclava.
	? <i>Prionia globosa</i> , <i>Ag.</i> .....	Du Bois, Caucas .....	Baktchserai.
	<i>Corimya taurica</i> , <i>Ag.</i> .....	do. ....	do.
	<i>Triton</i> , sp. ....	Du Bois, Tableau, &c. ....	do.
1	<i>Natica prælonga</i> , <i>Desh.</i> .....	Baily; D'Orb. Ter. Crét. pl. 172 ...	Near Balaclava.
12	<i>Nerinea gigantea</i> ?, <i>D'H.-Firm.</i> .....	Baily; D'Orb. Ter. Crét. ii. pl. 158...	do.
1	—, sp. nov. ....	Baily .....	do.
	<i>Ampullaria</i> ? <i>speculi</i> .....	Du Bois, Tableau, &c. ....	Baktchserai.
	<i>Nautilus pseudo-elegans</i> , <i>D'Orb.</i> .....	D'Orb. Ter. Crét. pl. 8, 9 .....	Crimea loc. ?
	<i>Ammonites hircinus</i> , <i>Schl.</i> .....	Du Bois, Tabl., &c. ....	Baktchserai.
	— <i>depressus</i> , <i>Schl.</i> .....	do. ....	do.
	— <i>dubius</i> , <i>Schl.</i> .....	do. ....	do.
	— <i>ascendens</i> , <i>Du Bois</i> .....	do. ....	do.
	— <i>Tauricus</i> , <i>Du Bois</i> .....	do. ....	do.
	<i>Hamites parallelus</i> , <i>Du Bois</i> ...	do. ....	do.
	— <i>annulatus</i> , <i>Du Bois</i> .....	do. ....	do.
	— <i>intermedius</i> , <i>Sow.</i> .....	do. ....	do.
	— <i>armatus</i> , <i>Sow.</i> .....	do. ....	do.
	<i>Ancyloceras</i> (H.) <i>plicatile</i> , <i>Sow.</i> .....	do. ....	do.

(Middle and Upper Cretaceous, or Albian, Cenomanian, and Hippuritic D'Orbigny).

Number of specimens.	Name.	Authority.	Locality.	Formation.
	<i>Amorphozoa.</i>			
	<i>Scyphia Oeynhausii</i> , <i>Goldf.</i> ...	Du Bois, Tableau de Foss. de la Craie en Crimée.	Baktchserai	U. Chalk ?
	— <i>Sackii</i> , <i>Goldf.</i> .....	do. do. ....	do. ...	U. Chalk.
	<i>Echinodermata.</i>			
	<i>Pentacrinites</i> , sp. ....	do. do. ....	do. ...	U. Chalk.
	<i>Caratomus avellana</i> , <i>Agas.</i> .....	Du Bois, Caucas. ....	.....	U. G. S. ?
	<i>Hemiastra</i> ? <i>stellatus</i> , <i>Du Bois.</i> ..	do. do. ....	Baktchserai	Gault ?
	<i>Bryozoa.</i>			
1	<i>Eschara</i> , sp. ....	Baily .....	Vil. Badrax	U. G. S.
	— <i>stigmatophora</i> ?, <i>Goldf.</i> ...	Du Bois, Tableau, &c. ....	Baktchserai	Gault ?
	— ? ( <i>Aulopora</i> ) <i>ramosa</i> , <i>Hag.</i> ..	do. do. ....	do. ...	
	<i>Ceriopora micropora</i> , <i>Goldf.</i> ...	do. do. ....	do. ...	Gault ?
	— <i>dichotoma</i> , <i>Goldf.</i> .....	do. do. ....	do. ...	U. G. S.
	— <i>diadema</i> ?, <i>Goldf.</i> .....	do. do. ....	.....	Ch. M.
	<i>Mollusca.</i>			
2	<i>Terebratula semiglobosa</i> , <i>Sow.</i> ..	Baily .....	Vil. Badrax	L. Ch.
	— <i>carnea</i> , <i>Sow.</i> .....	Du Bois, Tableau, &c. ....	Baktchserai	L. & U. Ch.
	<i>Rhynchonella</i> , sp. ....	do. do. ....	do. ...	Ch. M.
	— ? <i>pectiniformis</i> , <i>Favjas</i> ...	do. do. ....	do. ...	Ch. M.

## Table of Cretaceous Fossils (continued).

Number of specimens.	Name.	Authority.	Locality.	Formation.
35	<i>Crania spinulosa, Nils.</i> .....	Baily .....	Inkerman...	U. Ch.
	<i>Ostrea bauriculata, Lamk.</i> ....	Du Bois, Tableau, &c. ....	Baktchserai	Gault ?
	— <i>ventilabrum</i> ?, <i>Goldf.</i> ...	do. do. ....	do. ...	Gault & U. G. S.
1	— <i>frons, Park. (carinata, Sow.)</i> .....	do. do. ; Baily .....	Baktchserai, & Badrax.	Ch. M. & U. G. S.
9	— <i>vesicularis, Lamk.</i> .....	do. do. ; Baily .....	Baktchserai, Inkerman, & Badrax.	Ch. M., L. Ch., & U. Ch.
	— <i>flabelliformis, Nils.</i> .....	do. do. ....	Baktchserai	U. Ch.
3	— <i>flabellata, D'Orb.</i> .....	Baily .....	Badrax.....	U. G. S.
1	— <i>hippopodium, Nils.</i> .....	do. ....	Inkerman...	U. Ch.
2	— <i>laciniata, Nils.</i> .....	do. ....	do. ...	U. Ch.
8	— <i>curvirostris, Nils.</i> .....	do. ....	do. ...	U. Ch.
2	— <i>sp.</i> .....	do. ....	do. ...	U. Ch.
	<i>Exogyra haliotoidea, Lamk.</i> ...	do. ....	do. ...	U. Ch.
	— <i>columba, Lam.</i> .....	Du Bois, Tableau, &c. ; Baily...	Baktchserai & Badrax.	Gault & U. G. S.
	— <i>conica, Sow. (decussata, Goldf.)</i> .....	do. do. ....	Baktchserai	U. G. S.
	<i>Pecten orbicularis, Nils.</i> .....	do. do. ....	do. ...	U. G. S.
	— <i>cicatratus, Goldf.</i> .....	do. do. ....	do. ...	U. G. S.
	<i>Pecten quinquecostatus, Sow.</i> }	D'Orb. Voy. Hom. p. 440. pl. 6.	do. ...	U. G. S.
	<i>Janira Podolica, D'Orb. Prod.</i> }	f. 21-24.		
	<i>Lima, sp. (with fine striae)</i> .....	do. do. ....	do. ...	U. G. S.
	— <i>canalifera, Goldf.</i> .....	do. do. ....	do. ...	Ch. M.
	<i>Spondylus spinosus, Sow., sp.</i> ..	do. do. ....	do. ...	U. Ch.
	<i>Avicula Laripes (Morton) D'Orb.</i> in Murch. Russ. ii. p. 490. pl. 43.	f. 5-7.	do.	
	— ? <i>Lithuana, Eichw.</i> .....	Baily .....	Badrax.....	U. G. S.
	— <i>tenuicostata, Rœm.</i> .....	Voy. Hom. ....	Baktchserai	Ch. M.
	<i>Aviculina</i> ? .....	Du Bois, Tableau, &c. ....	do. ...	U. Ch.
	<i>Vulsella, sp.</i> .....	do. do. ....	do. ...	Gault.
	<i>Inoceramus Cuvieri, Sow.</i> .....	Du Bois, Tableau, &c. ....	do. ...	U. Ch.
1	<i>Cardium coniacum</i> ?, <i>D'Orb.</i> ..	Baily .....	Inkerman...	U. Ch.
2	— <i>spp.</i> .....	do. ....	do. ...	U. Ch.
3	<i>Lucina, sp.</i> .....	do. ....	do. ...	U. Ch.
1	<i>Acropagia</i> ?, <i>sp.</i> .....	do. ....	do. ...	U. Ch.
1	<i>Astarte</i> ?, <i>sp.</i> .....	do. ....	do. ...	U. Ch.
3	<i>Crassatella, sp.</i> .....	do. ....	do. ...	U. Ch.
1	<i>Acteonella</i> or <i>Globiconcha</i> .....	do. ....	do. ...	U. Ch.
	<i>Natica</i> ? <i>crassatina, Lamk.</i> .....	Du Bois, Tableau, &c. ....	Baktchserai	Ch. M.
1	— <i>sp.</i> .....	Baily .....	R. Alma ...	U. G. S.
1	— <i>sp.</i> .....	do. ....	Inkerman...	U. Ch.
2	<i>Turritella, sp.</i> .....	do. ....	do. ...	U. Ch.
	<i>Belemnites mucronata, Schlot.</i>	Du Bois, Tableau, &c. ....	Baktchserai	U. Ch.
	<i>Nautilus</i> .....	do. do. ....	do. ...	Ch. M.
	<i>Ammonites asper, Von Buch.</i> }	do. do. D'Orb. }		
	(— <i>constrictus, Du Bois</i> ) }	Pal. i. p. 522..... }	do. ...	Gault ?
	<i>Scaphites constrictus, Sow.</i> }			
<i>Vertebrata. Pisces.</i>				
1	<i>Lamna</i> ? .....	Baily .....	Inkerman...	U. Ch.

## Table of Older Tertiary Fossils found in the Crimea.

(Nummulitic = Suessonian, D'Orbigny.)

Number of specimens.	Name.	Authority.	Locality.
	<i>Foraminifera.</i>		
* * *	<i>Nummulites distans, Desh.</i> .....	Deshayes; Bailly.....	Near Simferopol and Inkerman.
	<i>Raymondi, Desh.</i> .....	do. do. ....	
	<i>Echinodermata.</i>		
	<i>Conoclypus conoideus</i> (Clypeaster DuBoisii), <i>Ag.</i>	Cat. p. 109; Echin. Suiss. i. p. 64. pl. 10. f. 16; p. 67. pl. 10. f. 11-13; Du Bois, Voy. au Caucase.	Near Simferopol, River Salghir.
	<i>Spatangus depressus, Du Bois</i> ...	Voy. au Caucase, pl. 1. f. 16.	Salghir.
	<i>Amblypygus latus, Ag.</i> .....	Du Bois, Caucase. ....	
	<i>Mollusca.</i>		
	<i>Terebratula vitrea?</i> , <i>Lamk.</i> .....	Du Bois, Tableau, &c. ....	Baktchserai.
	<i>Ostrea gigantea, Brander</i> .....	Deshayes; Bailly.....	Near Simferopol.
	<i>Pecten, sp.</i> .....	Du Bois, Tableau, &c. ....	Baktchserai.
	<i>Spondylus asperulus, Münt.</i> .....	do. do. ....	do.
	<i>Cardium porulosum, Brander</i> ...	do. do. ....	do.
	<i>Crassatella tumida, Lamk.</i> .....	do. do. ....	do.
	<i>Isocardia, sp.</i> .....	do. do. ....	do.
	<i>Trigonia, sp.</i> .....	do. do. ....	do.
	<i>Murex, sp.</i> .....	do. do. ....	do.
	<i>Fusus Ficulneus, Lamarck</i> .....	do. do. ....	do.
	<i>Oliva</i> .....	do. do. ....	do.
	<i>Voluta muricina, Lamk.</i> .....	do. do. ....	do.
	— <i>luctatrix, Sow.</i> .....	do. do. ....	do.
	<i>Mitra terebellum, Lamk.</i> .....	do. do. ....	do.
	<i>Ovula tuberculosa, Duclos</i> .....	do. do. ....	do.
	<i>Cerithium giganteum, Lamk.</i> .....	do. do. ....	do.
	<i>Turritella imbricataria, Lamk.</i> ...	do. do. ....	do.
	<i>Trochus giganteus, Du Bois</i> .....	do. do. ....	do.

## Table of Middle or Newer Tertiary Fossils found in the Crimea.

(Falunian, D'Orbigny.)

Number of specimens.	Name.	Reference.	Locality.
	<i>Amorphozoa.</i>		
2	<i>Scyphia Portlocki, Bailly</i> .....	Pl. IX. f. 1 a, b. ....	Monastery of St. George.
	<i>Foraminifera.</i>		
	<i>Polystomella crispa, Linnaeus</i> ...	Syst. Nat. 3370 .....	Near Sevastopol.
	<i>Mollusca.</i>		
1	<i>Mytilus apertus, Desh.</i> .....	Mém. Géol. Soc. Fr. 1838, t. 3. p. 61. pl. 4. f. 6-11.	Kertch, in iron-deposits.

*ible of Middle or Newer Tertiary Fossils found in the Crimea (continued).*

Number of specimens.	Name.	Reference.	Locality.
<i>Mollusca.</i>			
	<i>Mytilus Calypso, D'Orb. ...</i>	Mém Géol. Soc. Fr. 1838, t. 3.	Kertch, in iron-de-
	— <i>subcarinatus, Desh. ...</i>	p. 62. pl. 4. f. 12, 13.	posits.
1	<i>Dreissena rostriformis, Desh. ....</i>	ibid. p. 61. pl. 4. f. 14–16 .....	do. do.
1	— <i>inæquivalvis, Desh. ....</i>	ibid. ibid. ....	do. do.
3	<i>Cardium carinatum, Desh. ....</i>	ibid. p. 54. pl. 2. f. 16–18 .....	do. do.
	— <i>planum, Desh. ....</i>	ibid. p. 46. pl. 2. f. 24–30 .....	do. do.
	— <i>depressum, Desh. ....</i>	ibid. p. 47. pl. 2. f. 19–23 .....	do. do.
	— <i>submarginatum, D'Or. ...</i>	ibid. p. 48. pl. 1. f. 7–10 .....	do. do.
	( <i>emarginatum, Desh.</i> )		
2	— <i>squamulosum, Desh. ....</i>	ibid. p. 48. pl. 1. f. 14, 15 .....	do. do.
	— <i>subcarinatum, Desh. ....</i>	ibid. p. 49. pl. 3. f. 1, 2, 6 .....	do. do.
1	— <i>macrodon, Desh. ....</i>	ibid. p. 49. pl. 1. f. 3–6 .....	do. do.
1	— <i>crassatellatum, Desh. ....</i>	ibid. p. 51. pl. 3. f. 7–10 .....	do. do.
	— <i>Gourieffi, Desh. ....</i>	ibid. p. 52. pl. 3. f. 1, 2 .....	do. do.
3	— <i>paucicostatum, Desh. ....</i>	ibid. p. 52. pl. 2. f. 14, 15 .....	do. do.
	— <i>sulcatinum, Desh. ....</i>	ibid. p. 53. pl. 2. f. 3–5 .....	do. do.
	— <i>subplanicostatum, D'O. ...</i>	ibid. p. 53. pl. 2. f. 7, 8 .....	do. do.
	( <i>planicostatum, Desh.</i> )		
1	— <i>corbuloides, Desh. ....</i>	ibid. p. 54. pl. 1. f. 11–13 .....	do. do.
4	— <i>Verneullii, Desh. ....</i>	ibid. p. 55. pl. 2. f. 9, 10 .....	do. do.
4	— <i>ovatum, Desh. ....</i>	ibid. p. 56. pl. 1. f. 19–21 .....	do. do.
1	— <i>Edouardi, D'Orb. ....</i>	ibid. p. 56. pl. 2. f. 11–13 .....	do. do.
	( <i>incertum, Desh.</i> )		
	— <i>subdentatum, Desh. ....</i>	ibid. p. 57. pl. 1. f. 16–18 .....	do. do.
1	— <i>subedentulum, D'Orb. ...</i>	ibid. p. 51. pl. 3. f. 3–6 .....	do. do.
	( <i>edentulum, Desh.</i> )		
	— <i>acardo, Desh. ....</i>	ibid. p. 58. pl. 4. f. 1–5 .....	do. do.
1	— <i>pseudocardium, Desh. ....</i>	ibid. p. 59. pl. 1. f. 1, 2 .....	do. do.
18	— <i>protractum, Eichw. ....</i>	Voy. Hom. pl. 6. f. 6–8 .....	Quarantine Harb. 2, Monastery 8, and Gorge of Iphi- genia 8.
1	— <i>amplum, Baily ....</i>	Pl. IX. f. 2 <i>a–d.</i> .....	Monastery.
20	— <i>Demidoffi, Baily ....</i>	Pl. IX. f. 3 <i>a–c</i> .....	do.
4	— <i>Fittoni, D'Orb. ....</i>	Murch. Russia. ....	Sevastopol 2, Qua- rantine 1, Mona- stery 1.
	(six other species of <i>Car- dium</i> undeterminable, from Quarantine, Monastery, Iphi- genia, and Sapoune Height).		
8	<i>Cyprina Pallasii, Baily ....</i>	Pl. IX. f. 4 <i>a, b.</i> .....	Monastery.
1	— <i>Georgi, Baily ....</i>	Pl. IX. f. 8 <i>a, b</i> .....	Monastery.
3	— <i>naviculata, Baily ....</i>	Pl. IX. f. 6 <i>a–c</i> .....	Quarantine Harb.
15	— ? <i>triangulata, Baily ....</i>	Pl. IX. f. 9 .....	Sevastopol 2, Mo- nastery 11, Iphi- genia 2.
9	<i>Astarte pulchella, Baily ....</i>	Pl. IX. f. 10 <i>a–c</i> .....	Iphigenia; bed J.
8	— <i>quadrata, Baily ....</i>	Pl. IX. f. 7 <i>a–d</i> .....	Monastery.
1	<i>Venus semiplana, Baily ....</i>	Pl. IX. f. 5 <i>a, b</i> .....	Gorge of Iphigenia.
4	— <i>minima, Baily ....</i>	Pl. IX. f. 12 <i>a–c</i> .....	Monastery 1, Iphi- genia 3; bed J.
1	<i>Solen, sp., Baily ....</i>		Quarantine Harb.
3	<i>Potamomya Iphigenia, Baily ...</i>	Pl. IX. f. 13 <i>a–d</i> .....	Gorge of Iphigenia.
10	<i>Pholas Hommarei, D'Orb. ....</i>	Voy. Hom. pl. 4. f. 16–18 .....	Iphigenia 3, and Monastery 7.



## Table of Middle or Newer Tertiary Fossils found in the Crimea (continued)

Number of specimens.	Name.	Reference.	Locality.
4	<i>Tornatella minuta</i> , <i>Baily</i> .....	Pl. X. f. 7 a, b. ....	Quarantine Harb.
4	— <i>inflexa</i> , <i>Baily</i> .....	Pl. X. f. 8 a, b. ....	Redan, near Sevastopol.
22	<i>Helix DuBoisii</i> , <i>Baily</i> .....	Pl. X. f. 1 a, b. ....	Monastery 10.
2	— <i>Bestii</i> , <i>Baily</i> .....	Pl. X. f. 2 a-c. ....	Iphigenia 12.
4	<i>Bulimus Sharmani</i> , <i>Baily</i> .....	Pl. X. f. 3 a, b. ....	Iphigenia.
	<i>Limnæa peregrina</i> , <i>Desh.</i> .....	Mém. Soc. Géol. Fr. t. iii. p. 63	Kertch.
	— <i>obtusissima</i> , <i>Desh.</i> .....	ibid. f. 11. ....	Kertch.
	— <i>velutina</i> , <i>Desh.</i> .....	ibid. f. 12-14. ....	Kertch.
1	<i>Planorbis obesus</i> , <i>Baily</i> .....	Pl. X. f. 5 a-c. ....	Iphigenia.
3	— <i>cornucopia</i> , <i>Baily</i> .....	Pl. X. f. 4 a, b. ....	Sevastopol 1, Iphigenia 2.
1	<i>Cyclostoma reticulatum</i> , <i>Baily</i> .....	Pl. X. f. 6 a, b. ....	Iphigenia.
2	<i>Turbo</i> , sp., <i>Baily</i> .....	.....	Redan.
16	<i>Trochus Corderianus</i> , <i>D'Orb.</i> .....	Voy. Hom. ....	Quarantine Harb.
1	— <i>Fenonianus</i> , <i>D'Orb.</i> .....	ibid. ....	do. do.
1	— <i>Pageanus</i> , <i>D'Orb.</i> .....	ibid. ....	do. do.
1	— <i>Murchisoni</i> , <i>Baily</i> .....	Pl. X. f. 13. ....	do. do.
1	— <i>Andersoni</i> , <i>Baily</i> .....	Pl. X. f. 14 a, b. ....	Monastery.
2	— <i>Beaumontii</i> , <i>D'Orb.</i> .....	Voy. Hom. ....	do.
1	— <i>Blainvillei</i> , <i>D'Orb.</i> .....	ibid. ....	Gorge of Iphigenia.
2	— <i>Hommarei</i> , <i>D'Orb.</i> .....	ibid. ....	Sevastopol 1, Quarantine 1.
1	— <i>pulchellus</i> , <i>Baily</i> .....	Pl. X. f. 15 a-c. ....	Quarantine Harb.
1	— <i>Sutherlandii</i> , <i>Baily</i> .....	Pl. X. f. 16 a, b. ....	Monastery.
2	— <i>Lygonii</i> , <i>Baily</i> .....	Pl. X. f. 17 a, b. ....	Monastery 1, Iphigenia 1.
1	<i>Littorina Monastica</i> , <i>Baily</i> .....	Pl. X. f. 9 a-c. ....	Monastery.
1	<i>Paludina achatinoides</i> , <i>Desh.</i> .....	Mém. Soc. Géol. Fr. 1838, t. iii. p. 64. pl. 5. f. 6, 7.	Kertch, in iron-deposits.
	<i>Neritina</i> ? <i>Danubialis</i> , <i>Desh.</i> .....	ibid. p. 65. pl. 5. f. 4-8. ....	do. do.
5	<i>Cerithium Cattleæ</i> , <i>Baily</i> .....	Pl. X. f. 12 a, b. ....	Monastery.
4	— <i>cochleare</i> , <i>Baily</i> .....	Pl. X. f. 10 a-c. ....	Iphigenia.
2	— <i>truncatum</i> , <i>Baily</i> .....	Pl. X. f. 11 a, b. ....	Iphigenia.
2	<i>Pleurotoma Chersonesus</i> , <i>Baily</i> .....	Pl. X. f. 19 a-c. ....	Iphigenia 1, Monastery 1.
6	— <i>laqueata</i> , <i>Baily</i> .....	Pl. X. f. 18 a, b. ....	Monastery 3, Iphigenia 3.
16	<i>Buccinum obesum</i> , <i>Baily</i> .....	Pl. X. f. 20 a, b. ....	Monastery 12, Iphigenia 4.
8	— <i>angustatum</i> , <i>Baily</i> .....	Pl. X. f. 21 a, b. ....	Monastery.
1	— <i>moniliforme</i> , <i>Baily</i> .....	Pl. X. f. 22 a, b. ....	Iphigenia.
1	— <i>Dutchina</i> , <i>D'Orb.</i> .....	Voy. Hom. pl. 3. f. 20-22. ....	Monastery.
1	— <i>Daveluinum</i> , <i>D'Orb.</i> .....	ibid. f. 23. ....	Monastery.
20	— <i>corbianum</i> , <i>D'Orb.</i> .....	ibid. f. 24, 25. ....	Quarantine 4, Monastery 7, Iphigenia 9.
3	— <i>dispositum</i> , <i>Eichw.</i> .....	Murch. Russia, pl. 43. ....	Monastery 1, Iphigenia 2.

*Summary of Fossil Invertebrata from the Crimea.*

	Amorbozoa.	Foraminifera.	Zoophyta.	Echinodermata.	Bryozoa.	Mollusca.				Total.	
						Brachiopoda.	Lamellibranchiata.	Gasteropoda.	Cephalopoda.		
Number of species previously known	...	1	...	...	...	27	24	...	52	} Newer Tertiary.	
New species	1	...	...	...	...	18	14	...	33		
Total	1	1	...	...	...	45	38	...	85		
Previously known..	...	2	...	3	...	1	8	10	24	} Older Tertiary.	
Previously known..	4	...	9	8	7	13	42	7	106		
New .....	...	...	...	...	...	...	7	4	11	} Upper Secondary (Cretaceous).	
Total	4	...	9	8	7	13	49	11	117		
Previously known..	...	...	8	4	...	8	5	2	17	} Lower Secondary (Jurassic).	
New .....	1	...	...	5?	...	4	4?	1	16?		
Total	1	...	8	9?	...	12	9?	3	18		
Species before described, 226. New species, 60.											

*Note on the GEOLOGY of the NEIGHBOURHOOD of SEVASTOPOL, and the SOUTHERN COAST of the CRIMEA.* By CHARLES F. COCKBURN, Esq., Captain, Royal Artillery.

During the occupation of part of the Crimea by the Allied Armies, I availed myself of the opportunity my short stay in that country afforded to collect a series of fossils and rock-specimens illustrative of the geology of the neighbourhood of Sevastopol and Balaclava; amongst them were characteristic specimens from the shales on the Woronzoff road, described by M. Du Bois de Montpéreux as the oldest fossiliferous deposits; resting on these are the Jurassic rocks, composing the mountain-chain which extends along the south-east coast from Balaclava to Kaffa, a distance of upwards of 100 miles. This formation, with the overlying cretaceous deposits, is, according to French geologists, analogous to that of the Caucasus. Of these Jurassic limestones, which are mostly of a hard and crystalline character, collections were made from the Gorge of Iphigenia and Monastery of St. George, and include a series of the intrusive volcanic rocks (syenite, porphyry, &c.) which have disrupted and pierced them in every direction.

From the quarries at Inkerman I succeeded in procuring many fine specimens of a large *Crania* (*C. spinulosa*, Nilsson) and several species of *Ostrea* common to the Upper Chalk of Europe. The

beautiful white stone used in most of the public buildings at Sevastopol was obtained from these quarries: when first worked, it is soft, but becomes harder on exposure to the atmosphere.

From the Steppe-limestone, which belongs to the Newer Tertiary formation, and forms the whole plateau before Sevastopol, as well as the northern and greater portion of the peninsula, collections were made at the Quarantine Harbour, Monastery of St. George, and Gorge of Iphigenia; the condition of the deposits and their fossil contents at the two latter places being very similar.

These Upper Tertiary deposits, occurring in the various conditions of shelly and oolitic limestones and sands, sometimes associated with volcanic ashes, tufa, &c., are mostly marine, but sometimes of fresh-water origin, and more or less fossiliferous. This series is well exposed at the Monastery of St. George, near which may be seen the point of junction between them and the Jurassic formation.

From a fine-grained yellowish calcareous deposit of the Upper Tertiary at Quarantine Harbour, I obtained several species of *Trochus*, with other well-preserved shells, herewith described.

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*Section of Newer Tertiary Strata, at the Cliff (about 400 feet high)  
West of the Monastery of St. George.*

[About 50 feet of the upper part, including R and Q, are undescribed.]

- |   |  |
|---|--|
| <p>R. Compact shelly limestone, containing pebbles. <i>Cardium protractum</i>, <i>C. Demidoffi</i>, <i>Cyprina? triangulata</i>, <i>Pleurotoma</i>, and <i>Buccinum</i>.</p> <p>Q. (P, N, L, and J to C are tuff-like calcareous rocks.)</p> <p>P. White, very crystalline, unstratified (10 feet); upper part oolitic, with small spiral shells. <i>Cerithium truncatum</i>, <i>C. trochleare</i>, <i>Pholas Hommarei</i>, and <i>Planorbis cornucopia</i>.</p> <p>O. Seam of clay.</p> <p>N. White, honeycombed; fossils as in bed I.</p> <p>M. Seam of clay.</p> <p>L. White (2 feet).</p> <p>K. Thin seam of clay.</p> <p>J. White, somewhat crystalline, made up of small fossils (4 feet). <i>Astarte pulchella</i> and <i>Venus minima</i>.</p> <p>I. White (3 feet); with numerous small fossils and rounded fragments of</p> | <p>various rocks. <i>Astarte pulchella</i> and <i>Venus minima</i>.</p> <p>H. White (4 feet); very much honeycombed, and divided half-way by a layer of quartzose and other fragments. No fossils. ("Porous, irregularly deposited." <i>Du Bois</i>.)</p> <p>G. Coarse (1 foot).</p> <p>F. Fine (1 ft. 6 in.).</p> <p>E. Coarse (1 ft.).</p> <p>D. Fine white (5 ft.). No fossils.</p> <p>C. Red (6 ft.); full of <i>Helix Duboisii</i>, <i>H. Bestii</i>, <i>Planorbis obesa</i>, with <i>Bulimus Sharmani</i> and <i>Cyclostoma reticulatum</i>.</p> <p>B. Yellowish-white layers (30 feet); unfossiliferous. (Whitish sand in layers, unfossiliferous. <i>Du Bois</i>.)</p> <p>A. Somewhat honeycombed rock, with few fossils.</p> <p>Volcanic rocks, at the base, with veins of limestone.</p> |
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For detailed descriptions of the Geology of this country, see

1. Travels through the Southern Provinces of the Russian Empire in the years 1793 and 1794. By Peter Simon Pallas, M.D., F.R.S. London, 1842.

2. Du Bois de Montpéreux. Letter on the Geology of the Caucasus and the Crimea, addressed to M. Elie de Beaumont: Bulletin de la Société Géologique de France, tome viii. 1835-6, p. 371.
3. Mémoire Géologique sur la Crimée, par M. de Verneuil; suivi d'observations sur les fossiles de cette Péninsule, par M. Deshayes: Mémoires de la Société Géologique de France, tome iii. 1838.
4. Voyage dans la Russie méridionale et la Crimée, sous la direction de M. Anatole Demidoff. Partie Géologique de M. Huot. Paris, 1839.
5. Du Bois de Montpéreux. Voyage au Caucase chez les Tcherkesses, et les Abkhases en Chalcide, en Georgie, en Arménie, et en Crimée. Neuchatel and Paris, 1843.
6. Hommaire de Hell (Xavier). Les Steppes de la Mer Caspienne, le Caucase, la Crimée, &c. Paris, 1843-4.
7. Geology of Russia in Europe and the Ural Mountains. By Sir R. I. Murchison, M. Edouard de Verneuil, and Count Alexander Von Keyserling. London and Paris, 1848.
8. On the Geological Structure of the Crimea. By Baron S. Chaudoir. 1832. Proc. Geol. Soc. vol. i. p. 342.

## EXPLANATION OF PLATES VIII., IX., &amp; X.

PLATE VIII. *Jurassic and Cretaceous Fossils.*

Fig.

- 1 *a, b.* *Scyphia Cockburni, Baily.*
- 2 *a, b.* *Terebratula Jamesii, Baily.*
- 3 *a-d.* *Terebratulina radiata, Baily.*
- 4 *a, b.* *Rhynchonella elongata, Baily.*

Fig.

- 5 *a, b.* *Rhynchonella Cookei, Baily.*
- 6 *a, b.* *Cardium æquistriatum, Baily.*
- 7 *a-h.* *Crania spinulosa, Nilsson.*

PLATE IX. *Newer Tertiary Fossils.*

- 1 *a, b.* *Scyphia Portlocki.*
- 2 *a-d.* *Cardium amplum, Baily.*
- 3 *a-c.* — *Demidoffi, Baily.*
- 4 *a, b.* *Cyprina Pallasii, Baily.*
- 5 *a, b.* *Venus semiplaua, Baily.*
- 6 *a-c.* *Cyprina naviculata, Baily.*

- 7 *a-d.* *Astarte quadrata, Baily.*
- 8 *a, b.* *Cyprina Georgei, Baily.*
9. — *triangulata, Baily.*
- 10 *a-c.* *Astarte pulchella, Baily.*
- 11 *a-c.* *Venus minima, Baily.*
- 12 *a-d.* *Corbulomya Iphigenia, Baily.*

PLATE X. *Newer Tertiary Fossils.*

- 1 *a, b.* *Helix Duboisii, Baily.*
- 2 *a, b.* — *Bestii, Baily.*
- 3 *a, b.* *Bulimus Sharmani, Baily.*
- 4 *a, b.* *Planorbis Cornucopia, Baily.*
- 5 *a-c.* — *obesus, Baily.*
6. *Cyclostoma striata, Baily.*
- 7 *a, b.* *Tornatella minuta, Baily.*
- 8 *a, b.* — *inflexa, Baily.*
- 9 *a, b.* *Littorina monastica, Baily.*
- 10 *a-c.* *Cerithium cochleare, Baily.*
- 11 *a, b.* — *truncatum, Baily.*

- 12 *a, b.* *Cerithium Cattleæ, Baily.*
13. *Trochus Murchisoni, Baily.*
- 14 *a, b.* — *Andersoni, Baily.*
- 15 *a-c.* — *pulchellus, Baily.*
- 16 *a, b.* — *Sutherlandi, Baily.*
- 17 *a, b.* — *Lygonii, Baily.*
- 18 *a, b.* *Pleurotoma laqueata, Baily.*
- 19 *a-c.* — *Chersonesus, Baily.*
- 20 *a, b.* *Buccinum obesum, Baily.*
- 21 *a, b.* — *angustatum, Baily.*
- 22 *a, b.* — *moniliforme, Baily.*