TABLES
OF
ORGANIC REMAINS,

[From the Report on the Geology of the Fourth District. — By JAMES HALL.]

GEOLOGY OF THE FOURTH DISTRICT.

ORGANIC REMAINS OF THE MEDINA SANDSTONE.

ILLUSTRATION No. 1.—No. 5, page 46 of this Report.

Figs. 1 and 2. *Fucoides Harlani*. This is the most characteristic and widely diffused fossil of this rock. Its vertical range is very limited, holding a place usually near the upper part of the mass.

No. 2.—No. 6, page 48 of Report.

Fig. 1 and 2. *Euomphalus pervetustus*, HALL. *Cyclostoma pervetusta*, CONRAD (Geological Report for 1839, page 65); inadvertently written *Pleurotomaria pervetusta* at page 48.

Fig. 3. *Cypricardia alata*, H. *Unio primigenius*, C. (Geological Report of 1839, page 66.)

Fig. 4. *Orbicula parmulata*, H. Lockport.

Fig. 5. *Lingula cuneata*, C. (Geological Report of 1839, p. 64.) Medina.

Figs. 6 and 7. Two views of *Bellerophon trilobatus*, *Planorbis trilobatus*, C. (Geological Report for 1839, page 65.) Medina.

Figs. 8 and 9. *Cypricardia orthonota*, H. *Unio orthonota*, C. (Geological Report for 1839, page 66.) Medina.

No. 3—No. 10, page 52.

Lingula cuneata, as the shells appear when attached to the surface of sandy layers, in the grey sandstone of Niagara county.

ORGANIC REMAINS OF THE MEDINA SANDSTONE.

No. 1.

No. 2.

No. 3.

ORGANIC REMAINS OF THE CLINTON GROUP.

No. 4.—No. 14, page 69.

Fucoides gracilis, H. One of the most persistent and common fossils of the group.

No. 5.—No. 15, page 70 of Report.

Figs. 1, 2 and 3. *Pentamerus oblongus*. 1. The large variety, somewhat three-lobed. 2. A more circular form of the same shell. 3. A side view of a specimen intermediate in form to the other two. Rochester.

Fig. 4. Cast of upper valve of same fossil.

Fig. 5. Cast of lower valve.

Fig. 6. *Delthyris brachynota*, H. Reynolds's Basin, Niagara county.

No. 6.—No. 16, page 71.

Fig. 1. *Orthis circulis*, H. Two views—a beautiful striated circular shell, with a very small area. Reynolds's Basin, Niagara county.

Fig. 2. *Atrypa congesta*, C. (Jour. Acad. Nat. Sci. Vol. 8, page 265, plate 16, fig. 18.) Shell striated concentrically, and not with radiating lines as the figure would indicate.

Fig. 3. *Atrypa naviformis*, H. A nearly smooth shell, somewhat concentrically striated, and with a few more prominent lines of growth. (Compare *Atrypa linguifera*—Silurian Researches, pl. 13, fig. 8.) Sodus Point.

Fig. 4. *Atrypa plicatula*, H. A small plicated shell, with three of the folds raised in front. Reynolds's Basin, Niagara county.

Fig. 5. *Crinoidal joint*, natural size and magnified. A widely distributed fossil, being known abundantly in New-York and Ohio.

ORGANIC REMAINS OF THE CLINTON GROUP.

No. 4.

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ORGANIC REMAINS OF THE CLINTON GROUP.

No. 7.—No. 17, page 72.

- Fig. 1. *Strophomena elegantula*, H. Shell with elevated ribs and fine striæ between. It bears a considerable analogy to *S. sericea* and *S. transversalis*, but is quite distinct from either. Sodus Point.
- Fig. 2. *Strophomena corrugata*, C. (Jour. Acad. Nat. Science, Vol. 8, p. 256, pl. 14, fig. 8.) Rochester.
- Fig. 3. *S. cornuta*, H. A small neatly striated shell, armed with small rigid spines on the hinge line. Sodus Point.
- Fig. 4. *Atrypa hemispherica*, (Silurian Researches, pl. 20. fig. 7.) Abundant in the green shale at Rochester.
- Fig. 5. *Littorina cancellata*, H. Young shell. Sodus Point.
- Fig. 6. — — — " Old shell, with the markings worn off.
- Fig. 7. *Posidonia? alata*, H. Green shale, Rochester.
- Fig. 8 and 8 a. *Atrypa affinis?* Old and young shells. Sodus Point.
- Fig. 9. *Calymene? trisulcata*, H. A small trilobite, with three furrows on each side of the middle lobe of the head. Rochester.
- Fig. 10. *Agnostus latus*, Green shale, Rochester.
- Fig. 11. *Tentaculites minutus*.
- Fig. 12. *Graptolites Clintonensis*. An abundant form in the upper green shale of the group. Sodus Point.

No. 8.—No. 18, page 76.

Fig. 1. <i>Orthonata curta</i> , H.	}	Shale of the Wolcott ore bed in Wayne county.
Fig. 2. <i>Nucula machæraformis</i> , H.		
Fig. 3. <i>Cypricardia obsoleta</i> , H.		
Fig. 4. <i>Nucula mactraformis</i> , H.		
Fig. 5. <i>Avicula leptonota</i> , H.		
Fig. 6. <i>Cypricardia? angusta</i> , H.		
Fig. 7. <i>Lingula elliptica</i> , H.		
Fig. 8. <i>L. oblata</i> , H.		
Fig. 9. <i>L. acutirostra</i> , H.		

No. 9.—No. 19, page 77.

- Fig. 1. *Fucoides biloba*, VANUXEM (Geological Report, page 79).
- Fig. 2. Tail of *Hemicrypturus*. " "
- Fig. 3. Smooth crinoidal joint. " "
- Fig. 4. *Lingula oblonga*, C. (Annual Geol. Report, page 65.)
L. Clintoni, VANUXEM (Report, page 78).
- Fig. 5. *Strophomena depressa*. (*Leptæna depressa*, Dalman.)

ORGANIC REMAINS OF THE CLINTON GROUP.

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GEOLOGY OF THE FOURTH DISTRICT.

ORGANIC REMAINS OF THE NIAGARA GROUP.

No. 10.—No. 33, page 101.

- Fig. 1. *Asaphus limulurus*, GREEN (Monograph, p. 48). Resembles and is perhaps identical with the *A. longicaudatus* of Murchison, and holds the same place in the series. Lockport.
- Fig. 2. Head of *A. limulurus*. This portion of the fossil is abundant at Rochester.
- Fig. 3. *Calymene Niagarensis*, H. Abundant at Lockport. Closely resembles in many respects the *Calymene senaria* of the Trenton limestone.
- Fig. 4. *Bumastis barriensis*, (Silurian Researches, p. 656, pl. 7 bis, fig. 3, *a*, *b*, *c* and *d*; pl. 14, fig. 7, *a* and *b*.) The specimen figured is nearly twice the usual size, though there is one in the State collection one-third larger than the figure. Lockport.

No. 11.—No. 34, page 103.

- Homalonotus delphinocephalus*. (Silurian Researches, pl. 7 bis, fig. 1 *a*, 1 *b*.) *Trimerus delphinocephalus*, GREEN (Monograph, fig. 1, p. 82). This trilobite often attains the length of seven or eight inches, and very rarely twelve inches. Lockport.

ORGANIC REMAINS OF THE NIAGARA GROUP.

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GEOLOGY OF THE FOURTH DISTRICT.

ORGANIC REMAINS OF THE NIAGARA GROUP.

No. 19.

- Fig. 1. *Platynotus Boltoni*, CONRAD, Annual Reports. (*Paradoxides Boltoni*, Bigsby. GREEN, Monograph, p. 60). This is one of the most rare and beautiful of the trilobites in the Niagara group. Lockport.
- Fig. 2. *Bumastis barriensis*. Specimen of the ordinary size. Lockport.
- Fig. 3. *Asaphus coryphæus*. (Jour. Acad. Nat. Sci. Vol. 8, page 277, pl. 16, fig. 15). Lockport.

PLATYNOTUS BOLTONI.

BOMASTIS BARRIENSIS

ASAPHUS CORYCAEUS.

ORGANIC REMAINS OF THE NIAGARA GROUP.

No. 12. — No. 35, page 104 of Report.

- Fig. 1. *Strophomena subplana*, C. (Jour. Acad. Nat. Sci., vol 8, page 258.) Lockport.
 Fig. 2. *Strophomena depressa*, *Productus depressus*, M. C. t. 459. (*Leptaena depressa*, DALMAN. Swedish Transactions, p. 106, t. 1, f. 2; HISINGER, Petrefacta Suecica, p. 69, t. 20, f. 3. MURCHISON, Silurian Researches, p. 623, pl. 12, f. 2.) An abundant fossil in the shale of the Niagara group. Lockport.
 Fig. 3. *Strophomena striata*, H. Common at Rochester and Lockport.
 Fig. 4. *Strophomena transversalis*. (*Leptaena transversalis*, DALM. l. c. p. 109, t. 1, f. 4; His. Pet. Suec. p. 69, t. 20, f. 5. Silurian Researches, p. 629, pl. 13, f. 2.)

No. 13. — No. 36, page 105 of Report.

- Fig. 1. *Delthyris Niagarensis*, CONRAD (Jour. Acad. Nat. Sci. vol. 8, p. 261). Lockport.
 Fig. 2 and 2 b. *Delthyris radiatus*. (*Spirifer radiatus*, M. C. t. 493. Silurian Researches, p. 624, pl. 13, f. 6.) Lockport.
 Fig. 3 and 3 b. *Delthyris staminea*, H. (References, *Spirifer crispus*? Silurian Researches, p. 624, pl. 13, f. 8. *Delthyris crispa*, DALM. l. c. p. 122, t. 3, f. 6; His. Pet. Suec. p. 73, t. 21, f. 5). Lockport.
 Fig. 4 and 4 a. *Delthyris decemplicata*, H. Lockport; and *Delthyris sinuatus*. (*Terebratula sinuata*, SOWERBY in LINN. Trans. Vol. 12, p. 516, t. 28, f. 5 and 6. *Delthyris cardiospermiformis*, His. Anteckn. Vol. 4, t. 7, f. 6. DALM. sur les *Terebratules*, p. 124, t. 3, f. 7. His. Pet. Suec. p. 74, t. 21, f. 9. *Spirifer cardiospermiformis*, VON BUCH sur les *Spirifers et Orthis*, t. 1, f. 7. *Spirifer sinuatus*, Silurian Researches, p. 630, pl. 13, f. 10.) Wolcott.
 Fig. 5. *Orthis flabellulum* (a)? (Silurian Researches, pl. 21, f. 8. *O. callactis*? DALMAN.) Lockport.
 Fig. 6. *Orthis canalis*, (Silurian Researches, p. 630, pl. 13, f. 12, a; also pl. 20, f. 8. *Orthis elegantula*? DALMAN. VON BUCH sur les *Spirifers et Orthis*, pl. ii, f. 3, 4 and 5) Sweden, Monroe county.
 Fig. 7, a, b, c. *Orthis hybrida*. (Silurian Researches, pl. 13, f. 11.) Sweden, Monroe county.

No. 14 — in part No. 37, page 108.

- Fig. 1. *Atrypa imbricata*. (*Terebratula imbricata*, Silurian System, p. 624.)
 Fig. 2. *Atrypa*. (Species undetermined.) Lockport.
 Fig. 3, 4 and 4 a. *Atrypa cuneata*. (*Terebratula cuneata*, DALMAN. HISINGER. Silurian Researches, p. 625, pl. 12, f. 13.)
 Fig. 5. *Atrypa nitida*, H. A very abundant species, but usually more or less distorted. Lockport.
 Fig. 6. *Atrypa affinis*, (*Terebratula affinis*. M. C. t. 324, f. 2. *A. reticularis*, DALMAN, HISINGER, &c.)

ORGANIC REMAINS OF THE NIAGARA GROUP.

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GEOLOGY OF THE FOURTH DISTRICT.

ORGANIC REMAINS OF THE NIAGARA GROUP.

No. 15. — No. 38, page 108.

- Fig. 1. *Orbicula? squamæformis*, H. Sweden, Monroe county. (Reference, Silurian Researches, p. 625, pl. 12, fig. 14 a.)
Fig. 2. *Lingula lamellata*, H. Lockport.
Fig. 3. *Orbicula corrugata*, H. Rochester.
Fig. 4. *Avicula emacerata*, CONRAD (Jour. Acad. Nat. Sci. vol. 8, p. 241, pl. 12, f. 15).

No. 16. — No. 33, page 109.

- Figs. 1 and 2. *Euomphalus hemisphericus*, H. Rochester.
Fig. 3. *Cornulites arcuatus*, CONRAD (Jour. Acad. Nat. Sci. vol. 8, p. 276. pl. 17, f. 8).

No. 17. — No. 40, page 110.

- Fig. 1. *Orthoceras annulatum?* (Reference *O. annulatum*, M. C. t. 133, Silurian Researches, pl. 9, f. 5.)
Fig. 2. *Conularia quadrisulcata*, MILLER (M. C. t. 260, f. 3 and 4; His. *Pet. Suec.* p. 30, t. 10, f. 5; Silurian Researches, p. 626, pl. 12, f. 22). Lockport.

ORGANIC REMAINS OF THE NIAGARA GROUP.

No. 14.

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No. 16.

ORGANIC REMAINS OF THE NIAGARA GROUP.

No. 17. — No. 41, page 111.

- Fig. 1 and 2. *Caryocrinus ornatus*, SAY (Jour. Acad. Nat. Sci. vol. 4, p. 289). Lockport.
Fig. 3. *Cyathocrinites pyriformis*, (Silurian Researches, p. 672, pl. 17, f. 6. *Ichthyocrinus laevis*, CONRAD Jour. Acad. Nat. Sci. vol. 8, p. 279, pl. 15, f. 16.)

No. 18. — No. 41 (read 41 bis), page 113.

- Fig. 1. *Hypanthocrinites caelatus*, H. Lockport.
Fig. 2. *Hypanthocrinites decorus*. (Silurian Researches, p. 672, pl. 17, f. 3.) Lockport.
Broken off at the base of the arms.
Fig. 3. *Hypanthocrinites decorus*. Lockport.
Fig. 4 and 5. *Marsupiocrinites? dactylus*, H. Lockport.

ORGANIC REMAINS OF THE NIAGARA GROUP.

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No. 19.

Fig. 4. *Caryocrinus ornatus*.

Figs. 5 and 6. Interior structure of the plates.

Fig. 7. Part of a plate enlarged, showing the pores which communicate with the external surface.

No. 20.

Fig. 1. Anatomical structure of the *Caryocrinus ornatus*.

Fig. 2. Arrangement of the capital plates, showing the mouth composed of several conical plates.

No. 21.

Fig. 4. *Cyathocrinus* — ?

Fig. 4 a. Anatomical structure of the same fossil.

Fig. 5 a. b. *Cyathocrinus*? These two species have not been determined.

ORGANIC REMAINS OF THE NIAGARA GROUP.

No. 19.

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ORGANIC REMAINS OF THE NIAGARA GROUP.

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- Fig. 1. *Catenipora escharoides*, LAMARCK. (For synonymes and references, see Silurian Researches, page 685.) Very abundant and widely distributed. The upper part of the Niagara limestone.
- Fig. 2. *Catenipora agglomerata*, H. A very distinct species from the last. Abundant at a single locality in Ogden, Monroe county.
- Fig. 3. *Porites* — ?
- Fig. 4. The same fossil, mostly removed, leaving only the lines indicating the stages of growth. (See pages 86 and 91 of Report.)

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No. 22.

ORGANIC REMAINS OF THE NIAGARA GROUP.

No. 23. — No. 42, page 115.

Fig. 1. *Gorgonia? reteformis*, H. Lockport.

Fig. 2. *Gorgonia? — ?* These two are fossils in the shale at Lockport.

No. 24. — No. 43, page 116.

Fig. 1. — ? This fossil, though very beautiful in its appearance, is obscure, and for want of time has not been decided. Lockport.

Figs. 2 and 3. A coral resembling *Isis*. Lockport.

ORGANIC REMAINS OF THE NIAGARA GROUP.

No. 23.

No. 24.

ORGANIC REMAINS OF THE ONONDAGA SALT GROUP.

No. 25. — No. 54, page 137.

- Fig. 1. *Cornulites*, n. s.
Fig. 2. *Orthoceras læve*, H.
Fig. 3. *Loxonema Boydii*, H.
Fig. 4. *Euomphalus sulcatus*, H.
Fig. 5. *Delthyris* — ?
Fig. 6. *Atrypa* — ?
Fig. 7. *Avicula triquetra*, H.

These all occur at a single locality, and but one other shell has been seen in the group. Two of these species are not satisfactorily ascertained.

ORGANIC REMAINS OF THE WATERLIME GROUP.

No. 26. — No. 58, page 142.

- Fig. 1. *Delthyris plicatus*. *Orthis plicatus*, (Geol. Report Third District.)
Fig. 2. *Avicula rugosa*, CONRAD (Annual Reports).
Fig. 3. *Tentaculites ornatus*. (See Silurian Researches, p. 628, pl. 12, f. 25.)
Fig. 4. *Littorina antiqua*, CONRAD (Annual Reports).
Fig. 5. *Atrypa sulcata*, VANUXEM (Geol. Report).
Fig. 6. *Cytherina alta*, CONRAD (Annual Reports).

ORGANIC REMAINS OF THE PENTAMERUS LIMESTONE.

No. 27. — No. 25, Report of the Third District, page 117.

- Fig. 1. *Pentamerus galeatus*. *Atrypa galeata*, DALM.
Fig. 2. *Euomphalus profundus*, CONRAD (Annual Geol. Report).
Fig. 3. *Atrypa lacunosa*? This fossil is considered by Mr. Conrad as identical with the *Terebratula lacunosa* of Europe.
Fig. 4. *Lepocrinites Gebhardii*. The stems, one covered by a thick calcareous coating, and the other showing the rings.

ORGANIC REMAINS OF THE DELTHYRIS SHALY LIMESTONE.

No. 28. — No. 27, Report of Third District, page 123.

- Fig. 1. *Strophomena punctilifera*, CONRAD.
Fig. 2. *Strophomena radiata*, CONRAD. These fossils occur in the Delthyris shaly limestone in central New-York, but at the west the *S. punctilifera* holds a higher position.

ORGANIC REMAINS OF THE ONONDAGA SALT GROUP, etc.

No. 25.

No. 26.

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No. 28.

ORGANIC REMAINS OF THE ORISKANY SANDSTONE.

No. 29.—No. 59, page 148.

Fig. 1. *Delthyris arenosa*, CONRAD (Geol. Annual Report, 1839, p. 65).

Fig. 2. *Atrypa elongata*, CONRAD (Annual Report, 1839, p. 65).

Fig. 3. *Atrypa peculiaris*, CONRAD (Annual Report of 1841).

No. 30.—No. 60, page 149.

Fig. 4. *Atrypa unguiformis*, CONRAD. (*Hipparionyx proximus*, VANUXEM, Geol. Report, p. 124, fig. 4.)

Fig. 5. Cast of *Delthyris arenosa*.

The fossils of this rock are scarcely found in the Fourth District, except in loose scattered masses which are common in Seneca county. The rock is abundantly fossiliferous on the eastern shore of Cayuga lake.

ORGANIC REMAINS OF THE ORISKANY SANDSTONE.

No. 29.

No. 30.

ORGANIC REMAINS OF THE ONONDAGA LIMESTONE.

No. 31.—No. 61, page 157.

Figs. 1 and 1 *a*. *Favosites alveolaris*.^{*} Williamsville, Erie county.

Fig. 2. *Favosites gothlandica*. Williamsville.

Fig. 2 *a*. — — A single tube magnified twice, and presenting a double row of pores upon the side.

Fig. 2 *b*. A fragment from a honeycomb specimen, showing the transverse lamellæ. Williamsville.

Figs. 3, 3 *a*, and 3 *b*. Fragments of crinoidal columns, showing the pentapetalous canal and crenulated edges of the plates, etc. Williamsville.

No. 32.—No. 62, page 159.

Fig. 1. *Favosites fibrosa*? Clarence, Erie county.

Fig. 2. *Astrea rugosa*, H. Le Roy.

^{*} For synonyms and references of the genus *Favosites*, see Silurian Researches, pp. 681, 682 and 683; also GOLDFUSS, Petrefacta, Genus *Calamopora*.

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No. 31.

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GEOLOGY OF THE FOURTH DISTRICT.

ORGANIC REMAINS OF THE ONONDAGA LIMESTONE.

No. 33. — No. 63, page 160.

Fig. 1. *Cyathophyllum* — ? Caledonia.

Fig. 2. *Cyathophyllum dianthus*, (GOLDFUSS Petrefacta, p. 54, pl. 15, fig. 13, and pl. 16, fig. 1. Silurian Researches, p. 690, pl. 16, f. 12, 12 a to 12 c.) Caledonia.

Fig. 3. *Syringopora* — ? The fossil is silicified, standing in relief upon the surface of the rock.

No. 34. — No. 3, page 133, Report of the Third District.

Fig. 1. *Pentamerus elongata*.

Fig. 2. *Hipparionyx* (*Atrypa*) *consimularis*.

Fig. 3. *Delthyris undulatus*.

These fossils are not common in the Fourth District, though they have been seen at two or three localities.

ORGANIC REMAINS OF THE ONONDAGA LIMESTONE.

No. 33.

No. 31.

GEOLOGY OF THE FOURTH DISTRICT.

ORGANIC REMAINS OF THE CORNIFEROUS LIMESTONE.

No. 35.—No. 67, page 171.

- Fig. 1. *Atrypa scitula*, H. Williamsville, Erie county.
Fig. 2. *Paracyclas elliptica*, H. Shell very closely resembling a *Cyclas*. Le Roy, Genesee county.
Fig. 3. *Strophomena acutiradiata*, H. Near Buffalo.
Fig. 4. *Strophomena crenistria*, H. Vienna, Ontario county.
Fig. 5. *Delthyris duodenaria*, H. Five miles east of Buffalo.
Figs. 6 and 6 a. *Pleurorhyncus trigonalis*, H. Williamsville.

No. 36 — No. 68, page 172.

- Fig. 1. *Pterinea? cardiiformis*, H. Clarence Hollow.
Fig. 2. *Tentaculites scalaris*, SCHLOTHEIM (Silurian Researches, p. 643, pl. 19, f. 16).
Fig. 3. *Orthonychia* ——. A new genus, from its resemblance to a claw or talon. There are several other species. Williamsville.
Fig. 4. *Euomphalus? rotundus*, H. Clarence Hollow.
Fig. 5. *Calymene crassimarginata*, H. A common and widely distributed fossil of this limestone. Williamsville.
Fig. 6. *Acroculia erecta*, H. Williamsville.

ORGANIC REMAINS OF THE CORNIFEROUS LIMESTONE.

No. 35.

No. 36.

ORGANIC REMAINS OF THE CORNIFEROUS LIMESTONE.

No. 37. — No. 69, page 174.

Fig. 1. *Ichthyodorulite*. Undetermined. Victor, Ontario county.

No. 38. — No. 70, page 175.

Fig. 1. *Odontocephalus selenurus*, CONRAD. (*Asaphus selenurus*, EATON. *Calymene odontocephala*, GREEN.)

Fig. 2. *Cyrtoceras undulatum*, VANUXEM (Geol. Report).

Fig. 3. *Strophomena undulata*, V. (Geol. Report).

Fig. 4. *Orthis lentiformis*, V. (Geol. Report).

Fig. 5. *Atrypa prisca*.

Figs. 6 and 7. *Ichthyodorulite*, and section of the same.

Fig. 8. *Strophomena lineata*, CONRAD (Annual Reports).

The fossils of this illustration, with the exception of 3, 5 and 8, are not as abundant in this rock in the Fourth District, as those preceding.

ORGANIC REMAINS OF THE CORNIFEROUS LIMESTONE.

No. 37.

No. 38.

ORGANIC REMAINS OF THE MARCELLUS SHALE.

No. 39. — No. 71, page 180.

- Fig. 1. *Orthoceras subulatum*, H. Bloomfield, Ontario county.
 Fig. 2. *Strophomena setigera*, H. Avon, Livingston county.
 Fig. 3. *Strophomena mucronata*, H. Avon.
 Fig. 4. *Strophomena pustulosa*, H. Avon.
 Fig. 5. *Avicula muricata*, H. Avon.
 Fig. 6. *Avicula lævis*, H. Avon.
 Fig. 7. *Avicula equilatera*, H. Bloomfield, Ontario county.
 Fig. 8. *Orthis nucleus*, H. Avon.
 Fig. 9. *Orbicula minuta*, H. Avon.
 Fig. 10. *Tentaculites fissurella*, H. Avon.
 Fig. 11. *Atrypa limitaris*, *Orthis limitaris*, VANUXEM (Geol. Report). Le Roy, Genesee county.

ORGANIC REMAINS OF THE HAMILTON GROUP.

No. 40. — No. 78, page 196.

- Fig. 1. *Bellerophon patulus*, H. Kidder's ferry, Cayuga lake.
 Fig. 2. *Microdon bellastrata*, CONRAD (Jour. Acad. Nat. Sci. Vol. 8, p. 247, pl. 13, fig. 12).
 Fig. 3. *Cucullca opima*, H. Seneca lake shore.
 Fig. 4. *Nucula? oblonga*. Seneca lake shore.
 Fig. 5. *Nucula lineata?* PHILLIPS (Palæozoic fossils, p. 39, pl. 18, fig. 64). Cayuga lake shore.
 Fig. 6. *Tellina? ovata*, H. Seneca lake shore.
 Fig. 7. *Nucula bellatula*, H. Ogden's ferry, Cayuga lake.
 Fig. 8. *Cypricardia truncata*. (*Cypricardites truncata*, CONRAD, Jour. Acad. Nat. Sci. Vol. 8, p. 244, pl. 12, fig. 17. See Geol. Yorkshire, pl. fig.)
 Fig. 9. *Modiola concentrica*, H. (See *Modiola semisulcata*, Silurian researches, pl. 8, fig. 6.)

No. 41. — No. 79, page 198.

- Fig. 1. *Turbo lineatus*, H. Ovid, Seneca lake shore.
 Figs. 2 and 3. *Delthyris mucronata*, CONRAD (Annual Report of New-York Geol. Survey, 1841, p. 54). Eighteen-mile creek.
 Fig. 4. *Atrypa prisca*. (*Terebratula affinis*, M. C. t. . *T. prisca*, VON BUCH; *T. reticularis*, BROWN, Lethea Geognostica. *Atrypa reticularis*, DALMAN. *A. affinis*, Silurian Researches.) Eighteen-mile creek.
 Fig. 5. *Atrypa concentrica*, BROWN (Lethea Geog.). Eighteen-mile creek.

ORGANIC REMAINS OF THE MARCELLUS SHALE AND HAMILTON GROUP.

No. 39.

No. 40.

No. 41

ORGANIC REMAINS OF THE HAMILTON GROUP.

No. 42. — No. 80, page 200.

- Fig. 1 and 1 a. *Atrypa spinosa*, H. Specimens from Eighteen-mile creek, with the spines removed.
Fig. 1 b. A portion showing the imbricated lamellæ and concentric elevated lines.
Fig. 2. *Atrypa spinosa*, with the spines partially visible. Moscow.
Fig. 3. *Atrypa concinna*, H. Moscow.
Fig. 4. *Strophomena inequistriata*, CONRAD (Jour. Acad. Nat. Sci. Vol. 8, p. 254, pl. 14, f. 2). Moscow.
Fig. 5. *Delthyris zigzag*, H. Moscow.
Fig. 6. *Calymene bufo*, GREEN (Monograph, p. 41). Moscow.
Fig. 7. *Cryphæus calliteles*, GREEN. Moscow.
Fig. 8. *Loxonema nexilis*, PHILLIPS (Palæozoic fossils, p. 99, pl. 38, fig. 183. *Terebra nexilis*, SOWERBY in Geol. Trans. 2nd series, Vol. 5, pl. 54, fig. 17). Seneca lake shore.

No. 43. — No. 81, page 202.

- Fig. 1. *Avicula orbiculata*, H. Eighteen-mile creek.
Fig. 2. *Atrypa rostrata*, H. Eighteen-mile creek.
Figs. 3, 4 and 5. Undetermined species of *Atrypa*. Eighteen-mile creek.
Fig. 6. *Delthyris sculptilis*, H. Eighteen-mile creek.

No. 44. — No. 82, page 203.

- Figs. 1 and 2. *Avicula decussata*, H. 1. A cast in limestone. 2. The shell preserved in shale.

ORGANIC REMAINS OF THE HAMILTON GROUP.

No. 42.

No. 43.

No. 44.

ORGANIC REMAINS OF THE HAMILTON GROUP.

No. 45. — No. 84, page 205.

Fig. 1. *Dipleura Dekayi* (head), GREEN (Monograph, p. 79).

Fig. 2. *Orthonota undulata*, CONRAD (Annual Geol. Reports).

Fig. 3. *Delthyris mucronata*, CONRAD (Annual Reports). This is the common form of this fossil in the sandy shale of Eastern and Central New-York; at the west it is less elongated and more rotund. See figs. 2 and 3 of No. 41.

No. 46. — No. 86, page 208.

Figs. 8, 8 a and 8 b. *Delthyris medialis*, H. Moscow.

Figs. 9 and 9 a. Two views of a young shell of the same species as the above. Moscow.

Fig. 10. *Delthyris fimbriata*, CONRAD (Jour. Acad. Nat. Sci. Vol. 8, p. 263).

Fig. 10 a. Cast of the upper valve of the same fossil.

Fig. 10 b. A small portion of the shell magnified. Moscow.

ORGANIC REMAINS OF THE HAMILTON GROUP.

No. 45.

No. 46.

ORGANIC REMAINS OF THE HAMILTON GROUP.

No. 47. — No. 85, page 207.

Fig. 1. *Delthyris granulifera*.

Fig. 1 a. End view of the same, showing the spiral coil within the shell. Pavilion, Genesee county.

Fig. 1 b. A specimen with a more extended hinge line. Moscow.

Figs. 1 c and 1 d. A younger shell of the same species. Pavilion.

Figs. 2 and 2 a. *Delthyris congesta*, H. Seneca lake shore.

Fig. 3. *Delthyris mucronata*, H. View of the hinge.

Fig. 3 a. Area of lower valve.

Fig. 3 b. Lower valve. Moscow.

ORGANIC REMAINS OF THE HAMILTON GROUP.

No. 47.

ORGANIC REMAINS OF THE HAMILTON GROUP.

No. 48. — No. 87, page

- Fig. 1. *Cystiphyllum cylindricum*, with *Aulopora tubæformis* attached. (LONSDALE in Silurian Researches, p. 691, pl. 16 bis, f. 3, 3 a and 3 b.)
- Fig. 2. *Cystiphyllum id.*, a smaller specimen, with the bases of crinoidal columns attached. Eighteen-mile creek.
- Fig. 3. *Strombodes helianthoides*? (PHIL. Palæozoic fossils, p. 11, pl. 5. f. 13. *Cyathophyllum helianthoidum*, GOLDFUSS, Petrefacta, pl. 20, f. 2.) York, Livingston county.
- Fig. 4. *Strombodes distortus*, H. Moscow.
- Fig. 5. *Strombodes? rectus*, H. Moscow.
- Fig. 6. *Strombodes simplex*? H. This fossil resembles the *S. plicatum*, but is apparently distinct.

No. 49.

- Fig. 1. *Cyathophyllum (Strombodes?) turbinatum*? (GOLDFUSS, p. 56, pl. 16, fig. 8.) York, Livingston county.
- Fig. 2 and 2 a. *Strombodes* —? A young individual. York.
- Fig. 3 and 3 a. *Cyathophyllum* —? A rare but strongly marked species. Moscow.

ORGANIC REMAINS OF THE HAMILTON GROUP.

No. 48.

No. 49.

ORGANIC REMAINS OF THE TULLY LIMESTONE.

No. 50. — No. 92, page 215.

- Fig. 1. *Atrypa cuboides*? (Reference, SOWERBY, Geol. Trans. 2d series, Vol. 5, pl. 56, f. 24. PHILLIPS, Palæozoic fossils, page 84, pl. 34, f. 150. Pages 215 and 216 of Report.)
- Fig. 2. *Orthis resupinata*. (PHILLIPS, Palæozoic fossils, p. 67, pl. 27, f. 115. *Spirifera resupinata* of the same author; Geol. of Yorkshire. *Terebratula resupinata*, Sow. Min. Conch. t. 325. *Anomites resupinatus*, MARTIN. *Orthis Tulliensis*, Report of Third District, page 163.)
- Fig. 3. *Atrypa lentiformis*, VANUXEM (Geol. Report, page 165).
- Fig. 4. *Atrypa affinis*. (For synonymes and references, see page 198 of this report.) This fossil is partially a cast, with the shell remaining on the edges which are compressed.
- Fig. 5. *Atrypa cuboides*?

ORGANIC REMAINS OF THE GENESEE SLATE.

No. 51. — No. 94 and 95, pages 222 and 223.

- Figs. 1 and 2. *Avicula fragilis*, H.
- Fig. 3. *Strophomena setigera*. See fossils of the Marcellus shale.
- Fig. 4. *Tentaculites fissurella*. See fossils of the Marcellus shale.
- Fig. 5. *Lingula spatulata*.
- Fig. 6. *Lingula concentrica*.
- Fig. 7. *Atrypa quadricostata*.
- Fig. 8. *Orbicula lodensis*. The four last figures are from the Report of the Third District.

ORGANIC REMAINS OF THE TULLY LIMESTONE.

No. 50.

No. 51.

GEOLOGY OF THE FOURTH DISTRICT.

ORGANIC REMAINS OF THE PORTAGE GROUP.

No. 52. — No. 104, page 241.

Fucoides graphica. Flagstones of Gardcau.

No. 53. — No. 105, page 242.

Fucoides verticalis. Sandstone of Portage.

ORGANIC REMAINS OF THE PORTAGE GROUP.

No. 52.

No. 53.

GEOLOGY OF THE FOURTH DISTRICT.

ORGANIC REMAINS OF THE PORTAGE GROUP.

No. 54. — No. 106, page 243.

- Fig. 1 and 1 *a*. *Avicula speciosa*, H. Cashaqua shale, on Cashaqua creek.
Fig. 2. *Ungulina suborbicularis*, H. Cashaqua creek.
Fig. 3. *Bellerophon expansus*? (Silurian researches, pl. 5, fig. 37.) Cashaqua creek,
Fig. 4. *Orthoceras aciculum*, H. Cashaqua creek.
Fig. 5. *Clymenia? complanata*, H. Cashaqua creek.
Fig. 6. *Goniatites sinuosus*, H. Cashaqua creek.
Fig. 7. *Pinnopsis acutirostra*, H. Cashaqua creek.
Fig. 8. *Pinnopsis ornatus*, H. Cashaqua creek.

No. 55. — No. 107, page 245.

- Fig. 1 and 1 *a*. *Delthyris laevis*, H. Western shore of Cayuga lake.
Fig. 2. *Cardium? vetustum*, H. Shore of Lake Erie.
Fig. 3. *Orthis tenuistriata*, H. Crooked lake shore.
Fig. 4. *Lucina? retusa*, H. Lake Erie shore, in Chautauque county.
Fig. 5. *Nucula lineolata*, H. Occurs with the last.
Fig. 6. *Astarte subtextilis*, H. With the last.
Fig. 7. *Bellerophon striatus*? BRONX. (PHILLIPS, Palæozoic fossils, pl. 40, f. 198.) With
the last on Lake Erie shore.
Fig. 8. *Goniatites bicostatus*, H. Chautauque county.
Fig. 9. *Goniatites sinuosus*, H. As above, fig. 6. Chautauque county.

ORGANIC REMAINS OF THE PORTAGE GROUP.

No. 54.

No. 55.

GEOLOGY OF THE FOURTH DISTRICT.

ORGANIC REMAINS OF THE PORTAGE GROUP.

No. 56. — No. 108, page 247.

Fig. 1. *Cyathocrinus ornatissimus*, H.

Figs. 2, 3, 4 and 5. Portions of the column at different distances from the base. Lake Erie shore, Chautauque county.

ORGANIC REMAINS OF THE PORTAGE GROUP.

No. 56.

ORGANIC REMAINS OF THE CHEMUNG GROUP.

No. 57. — No. 116, page 262.

Fig. 1. *Calymene nupera*, H. (Reference *C. lævis*, PHIL. Palæozoic fossils, pl. 55, fig. 250.)

No. 58. — No. 117, page 262.

Figs. 1 and 2. *Avicula pecteniformis*, H. Lower and upper valve. An abundant fossil of the Chemung group.

Fig. 3. *Avicula longispina*, H. Painted-Post.

Fig. 4. *Avicula spinigera*, CONRAD (Jour. Acad. Nat. Sci. Vol. 8, p. 237, pl. 12, fig. 3.) Painted-Post.

No. 59. — No. 118, page 263.

Fig. 1 *a* and *b*. *Avicula damnoniensis*, (SOWERBY, in Geol. Trans. 2d series, Vol. 5, pl. 53, fig. 22. PHILLIPS, Palæozoic fossils, pl. 23, figs. 90, 91 and 92.)

ORGANIC REMAINS OF THE CHEMUNG GROUP.

No. 57.

No. 58.

No. 59.

ORGANIC REMAINS OF THE CHEMUNG GROUP.

No. 60.—No. 119, page 264.

- Fig. 1. *Pterinea? suborbicularis*, H. Hobbieville, Allegany county.
 Fig. 2. *Pecten duplicatus*, H. Phillipsburgh, Allegany county.
 Fig. 3. *Lima rugæstriata*, H. Rockville, Allegany county.
 Fig. 4. *Pecten cancellatus*, H. Phillipsburgh.
 Fig. 5. *Avicula? signata*, H. Rockville.
 Fig. 6. *Pecten? convexus*, H. Rockville.
 Fig. 7. *Pecten striatus*, H. Painted-Post.
 Fig. 8. *Pecten? crenulatus*, H. Rockville.
 Fig. 9. *Pecten? dolabriliformis*, H. Rockville.
 Fig. 10. *Lima glaber*, H. Phillipsburgh.
 Fig. 11. *Lima? obsoleta*, H. Phillipsburgh.

No. 61.—No. 120, page 266.

- Fig. 1. *Strophomena nervosa*, H.
 Fig. 1 *a*. An enlarged portion of the shell. Campbelltown, Steuben county.
 Fig. 2. *Strophomena bifurcata*, H. Napoli, Cattaraugus county.
 Fig. 3. *Strophomena arctostriata*, H. Hobbieville, Allegany county.
 Fig. 4. *Strophomena pectinacea*. Hobbieville.
 Fig. 5 *a, b, c*. *Strophomena interstitialis*, *Orthis interstitialis* and *Leptaena interstitialis*.
 (PHILLIPS, Palæozoic fossils, pages 61 and 216, pl. 25, fig. 103.) 5 *a*. Inner side of a flat valve. Chemung. 5 *a*. A magnified portion of the shell. 5 *b*. The two valves somewhat compressed. Ithaca. 5 *c*. The convex valve with the shell partially removed. Elmira.

No. 62.—No. 121, page 267.

- Figs. 1 and 1 *a*. *Orthis carinata*, H. Painted-Post.
 Fig. 2. *Orthis impressa*, H. Near Elmira.
 Figs. 3 and 4. *Orthis interlineata*, (SOWERBY in Geol. Trans. 2d series, Vol. 5, pl. 54, fig. 14. PHILLIPS, Palæozoic fossils, p. 63, pl. 26, f. 106.)
 Fig. 5. *Orthis unguiculus*, *Atrypa unguiculus*, (SOWERBY in Geol. Trans. 2d series, Vol. 5, pl. 54, fig. 8. *Spirifera unguiculus*, Pal. fossils, pl. 26, f. 119.)
 Fig. 5 *a*. A cast from Bald Hill, near Ithaca.
 Fig. 5 *b*. Lower valve, broad variety. Dexterville, Chautauque county.
 Fig. 5 *c*. Upper valve. Painted-Post.
 Fig. 5 *d*. Fragment of brownish sandstone, filled with casts of the shell. Jasper, Steuben county.

ORGANIC REMAINS OF THE CHEMUNG GROUP.

No. 60.

No. 61.

No. 62.

ORGANIC REMAINS OF THE CHEMUNG GROUP.

No. 63. — No. 122, page 269.

- Figs. 1 and 1 *a*. *Delthyris mesastrialis*, H. Cayuta creek.
Fig. 2. *Delthyris mesacostalis*, H. Angelica.
Fig. 3. *Delthyris disjuncta*? PHILLIPS (Palæozoic fossils, pl. 29, fig. 128, f. g. h., and 129, pl. 30, fig. 129). Chemung.

No. 64. — No. 123, page 270.

- Fig. 1. *Delthyris cuspidata*, H. This fossil resembles some of the varieties of *Spirifera disjuncta*. (SOWERBY, Geol. Trans. 2d series, Vol. 5, pl. 54, figs. 12, 13; pl. 55, fig. 2; also Pal. fossils as quoted above.) Cayuta creek.
Fig. 2. *Delthyris acanthota*, H. Upper and lower valves. Chemung.
Fig. 3. *Delthyris mucronata*? (See fossils of Hamilton group.) This is the only specimen resembling this fossil seen in the Chemung group.
Figs. 4 and 4 *a*. *Delthyris inermis*, H. Twenty-mile creek, Chautauque county.
Fig. 5. *Delthyris acuminata*, H. 5 and 5 *a*. Internal casts of the shell. 5 *b*. Enlarged portion of a cast of the external surface. Ithaca.

ORGANIC REMAINS OF THE CHEMUNG GROUP.

No. 63.

No. 64.

ORGANIC REMAINS OF THE CHEMUNG GROUP.

No. 65. — No. 124, page 271.

- Fig. 1 and 1 *a*. *Atrypa dumosa*, H. 1 *b*. Cast of the same. Chemung and Elmira.
Fig. 2. *Atrypa hystrix*, H. Bath, Steuben county.
Fig. 3 and 3 *a*. *Atrypa tribulis*, H. 3 *b*. Cast of the same. Ithaca and Chemung.
Fig. 4. *Atrypa? tenuilineata*, H. Cattaraugus county.

No. 66.

- Fig. 1 *a*, *b*, *c*, *d*. *Atrypa laticostata*, *Terebratula laticostata*. PHILLIPS (Palæozoic fossils, p. 85, pl. 34, fig. 153). These are all apparently varieties of the same shell, and referable to this species.
Fig. 2. *Atrypa laticostata*, var.? This species has six ribs distinctly elevated in front, while the other varieties have usually but three ribs elevated. It is probably a distinct species.
Fig. 3. *Atrypa*. (Species undetermined.) Greenwood, Steuben county.
Fig. 3 *a*. *Atrypa contracta*, H. About three ribs elevated in front. Shell contracted. Greenwood, Steuben county.
Fig. 4, 4 *a* and 4 *b*. *Atrypa eximia*, H. This is an abundant form at Ithaca; often associated in great numbers, but rarely with any other fossil.
Fig. 5. *Atrypa polita*, H. A very neat shell, with the lower valve much elevated in front. Jasper, Steuben county.

No. 67.

- Fig. 1, 1 *a*, and 1 *b*. *Atrypa mesacostalis*, H. Shell with from four to six strong ribs along the mesial elevation and depression of either valve, while they become obsolete toward the margins. The casts are very common everywhere. Ithaca, Chemung, &c.
Fig. 2, 2 *a*, and 2 *b*. *Atrypa duplicata*, H. Shell with two ribs elevated in front, and two on each side the mesial fold. Dexterville, Chautauque county.

ORGANIC REMAINS OF THE CHEMUNG GROUP.

No. 65.

No. 66.

No. 67.

GEOLOGY OF THE FOURTH DISTRICT.

ORGANIC REMAINS OF THE CHEMUNG GROUP.

No. 68,—No. 125, and part of 127, pages 273 and 275.

Fig. 1. *Filicites?* An abundant fossil at Ithaca and other places in Tompkins county.

Fig. 2. *Sigillaria Chemungensis*, H. One-half the natural size. Elmira.

ORGANIC REMAINS OF THE CHEMUNG GROUP.

No. 68.

GEOLOGY OF THE FOURTH DISTRICT.

ORGANIC REMAINS OF THE CHEMUNG GROUP.

No 69. — No. 127, page 275.

Fig. 1. *Sphenopteris laxus*, H. Pine valley. This is the only specimen of this fossil yet observed.

ORGANIC REMAINS OF THE CHEMUNG GROUP.

No. 69.

GEOLOGY OF THE FOURTH DISTRICT.

ORGANIC REMAINS OF THE OLD REDSANDSTONE.

No. 70. — No. 130, page 281.

Fig. 1. Scale of *Sauripteris Taylora*, H.

Fig. 2. Scale of *Holoptychus nobilissimus*, AGASS. (Silurian Researches, plate 2 bis. flgs. 1, 2, 3, 4, 8 and 9).

Fig. 3. A smaller scale of *Holoptychus* ?

Fig. 4. A fragment of a tooth waterworn before being imbedded.

No. 71. — No. 131, page 282.

Jaw-bone and teeth of *Holoptychus*.

For further illustration of the fossils of the Old red sandstone, see plate 3 of this report.

No. 72. — Page 186.

Cypricardia ? *angustata*. Report of Third District.

ORGANIC REMAINS OF THE CONGLOMERATE.

No. 73. — No. 139, page 291.

Fig. 1. *Euomphalus depressus*, H. (Reference *E. serpens*, PHIL. Pal. Fossils, pl. 36, fig. 172.)

Figs. 2 and 3. *Cypricardia rshombea*, H.

Fig. 4. *Cypricardia contracta*, H.

These fossils are all from a single locality in Chautauque county, and the only place where I have seen fossils in the conglomerate.

ORGANIC REMAINS OF THE OLD REDSANDSTONE, etc.

No. 70.

No. 71.

No. 72.

No. 73.

REMAINS OF THE MASTODON.

No. 74.

Tooth of *Mastodon maximus* (see page 363).

CLINTON GROUP.

Illustrations No. 7 and 8, transposed.

NIAGARA GROUP.

No. 11 is repeated at the head of the page over *Strophomena*. The numbers in this one and the five following ones should be made to correspond with those on the opposite pages, viz. 12, 13, 14, 15, 16, 17.

In the names and references for No. 13, *Delthyris sinuatus*, with its synonyms, follows in the same line with *Delthyris decemplicata*; this should commence the line below, preceded by fig. 8.

CORNIFEROUS LIMESTONE.

In the illustration No. 38, fig. 8 is accidentally removed from *Strophomena lineata* (See page 175 of this Report).

GENESEE SLATE.

Illustration 51: the numbering of fossils, after 4, should be 5, 6, 7, 8 (See page 223 of Report).

CHEMUNG GROUP.

Illustration 59, fig. 2, *Avicula acanthoptera*, name omitted.