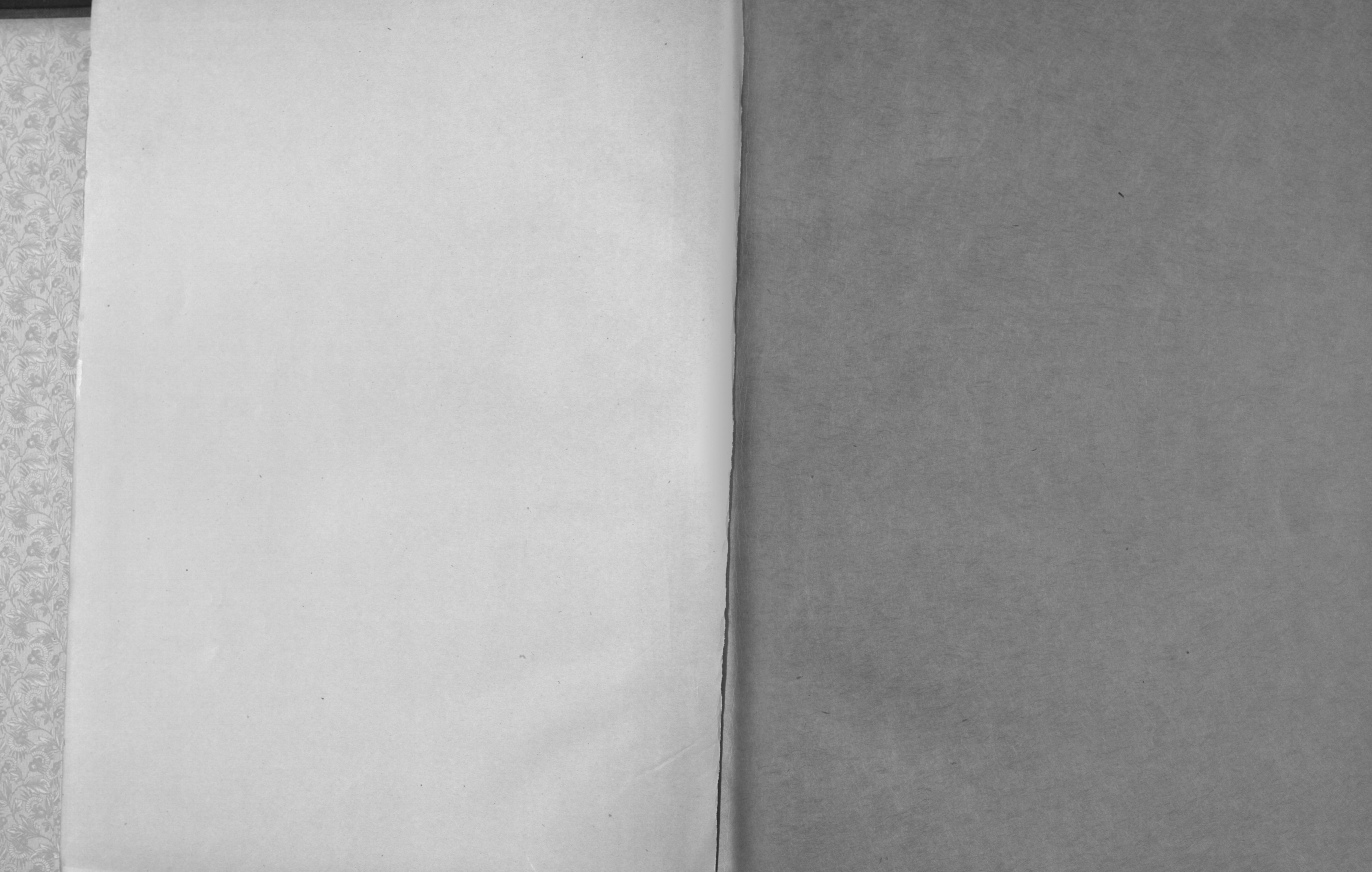


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KENTUCKY GEOLOGICAL SURVEY, J. R. PROCTER, DIRECTOR.

Kentucky Fossil Corals

Kentucky Geological Survey

WILLARD ROUSE JILLSON,

Director and State Geologist.

Series VI.

NOTE.—This is an incomplete volume of William J. Davis' works, "Kentucky Fossil Corals," and is the last of the original edition. It has been specially printed to meet a very insistent demand and is presented to the public with the belief that a part of something extraordinarily good is better than none at all.

Old Capitol, Frankfort, Ky., Nov. 15, 1920.

W. R. JILLSON.

BY WILLIAM J. DAVIS

[In Two Parts

Part II]

FRANKFORT, KENTUCKY

ELECTROTYPED AND PRINTED BY JOHN D. WOODS, PUBLIC PRINTER

1885

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KENTUCKY GEOLOGICAL SURVEY, J. R. PROCTER, DIRECTOR.

Kentucky Fossil Corals

A MONOGRAPH OF THE FOSSIL CORALS

OF THE

Silurian and Devonian Rocks of Kentucky

OF KENTUCKY
LIBRARY

BY WILLIAM J. DAVIS

[In Two Parts

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WILLIAM J. DAVIS
Director and State Geologist
Series 71
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Frankfort, Ky. Nov. 15, 1920

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LETTER FROM THE AUTHOR.

Mr. John R. Procter,

Director Kentucky Geological Survey:

DEAR SIR: As you know, several years have passed since I began the work of describing and illustrating the fossil corals of Kentucky. The delays incident to preparing such a work for the press, occupied as I am most of the time with engrossing public duties, have suggested that now, since the plates and the explanations of the plates have been completed, it is best to publish these as PART II., simply prefacing them with an alphabetical index.

The text of Part I. will be finished in a few months. PART I. consists of 1. An **Introduction**, which treats of the growth and habits of coral-making animals, their place in nature, etc.; 2. A **Descriptive Text**, which classifies the fossil corals found in the Silurian and Devonian Rocks of Kentucky, showing the relations of families, genera, and species, and describing them; 3. A chapter of **Popular Notes**, which, following the technical descriptions, presents the salient traits of structure or function characterizing the skeletons of species of the same genus, on the modifications of which the differentiation is based, and collates comprehensively the resemblances and differences of related genera and the more widely divergent family peculiarities; 4. A **Glossary**, in which are given the meanings and, in most cases, the etymologies of the technical terms used in the text; 5. An **Index**, systematically arranged.

The literature of this subject is diffused through many volumes of State and Government reports and society periodical or casual publications. Many zealous students of palæontology, confused by synonymy or per-

plexed by descriptions and figures of badly-preserved fossils, have abandoned research among these interesting and beautiful forms for the easier study of mollusks, crinoids, worms, or crustaceans. May I express the hope that the present work will prove a useful manual to the student?

As will be seen, the number of plates is one hundred and thirty-nine, the number of specimens figured about one thousand. The number of species described is more than three hundred; of these about one hundred and seventy are new and heretofore undescribed. The beautiful condition in which these fossils occur in Kentucky and the care with which they have been freed from their matrix have permitted a satisfactory photographic delineation by the "artotype" process. Mr. E. Klauber, of Louisville, has done this part of the work under my supervision in the most artistic style. My thanks are due to this gentleman for the assistance he rendered me in "setting up" the fossils before the camera, and for his amiable co-operation during the several years we have been engaged together in plate-making.

Permit me also to thank you, sir, the Director of the Survey, and the other officers of the State of Kentucky, whose generous consideration has given me the opportunity to publish this contribution to the geology of the country in so handsome a volume.

Very respectfully, your obedient servant,

WILLIAM J. DAVIS.

LOUISVILLE, 1885.

POLYPI.

ZOANTHARIA TABULATA.

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PLATE 48.

CLADOPORA ACULEATA, Nov. Spec.

Niagara.

1. Lateral view of a fragment from the Upper Niagara white clay, near Louisville. Collection of the author.

CLADOPORA ORDINATA, Nov. Spec.

Niagara.

2. Lateral view of a small fragment from the same horizon as *C. aculeata*, near Louisville. Collection of the author.

CLADOPORA PROBOSCIDALIS, Nov. Spec.

Niagara.

3. Lateral view of a fragment from the same horizon and place as the preceding species. Collection of the author.

CLADOPORA MENIS, Nov. Spec.

Niagara.

4. Lateral view of the upper portion of a frond showing the trichotomous branching; from the horizon and neighborhood of the examples preceding. Collection of the author.
5. Pedicle of a corallum with a portion of the trunk; from the horizon and place of example 4. Collection of the author.

CLADOPORA STRIATA, Nov. Spec.

Niagara.

6. Lateral view of several fronds of a corallum, from the horizon of the above examples. Collection of Mr. Nettelroth.

CLADOPORA EQUISETALIS, Nov. Spec.

Niagara.

7. Several fronds springing from the same base; from the same horizon as the above. Collection of Mr. Nettelroth.

CLADOPORA LAQUEATA.

Niagara.

8. Corallum, pedicle wanting, from the Upper Niagara white clay, near Louisville. Collection of the author.
9. Nearly entire corallum from the Upper Niagara red clay, near Louisville. Partly invested by *Stromatopora concentrica*. Collection of Mr. Nettelroth.

PLATE 49.

CLADOPORA COMPLANATA, Nov. Spec.

Niagara.

1. Lateral view (half inverted) of a portion of a frond from the Upper Niagara white clay, near Louisville. Collection of Dr. Knapp.

CLADOPORA ACULEATA, Nov. Spec.

Niagara.

2. Lateral view (half inverted) of a portion of a corallum, from the horizon and place where the preceding specimen was gathered. Collection of Dr. Knapp.

SYRINGOPORA TUBIPOROIDES.

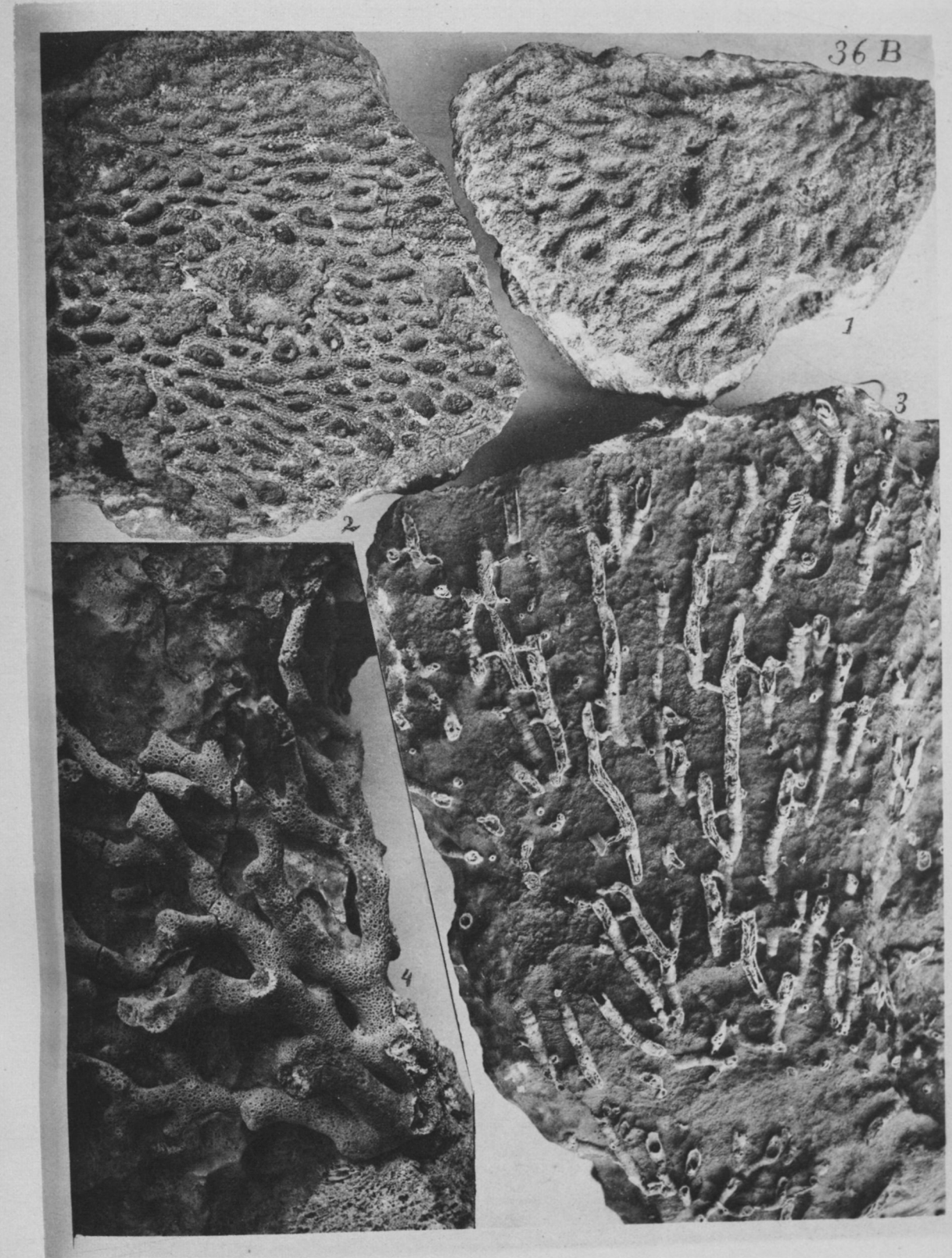
Devonian.

3. Section of several corallites partly imbedded in the rock matrix, showing the conical invaginating diaphragms; from the Lower Devonian rocks, Falls of the Ohio. Collection of Dr. Knapp.

FAVOSITES CLAUSUS.

Devonian.

4. Portion of a corallum from the Lower Devonian rocks, Falls of the Ohio. Collection of the author.



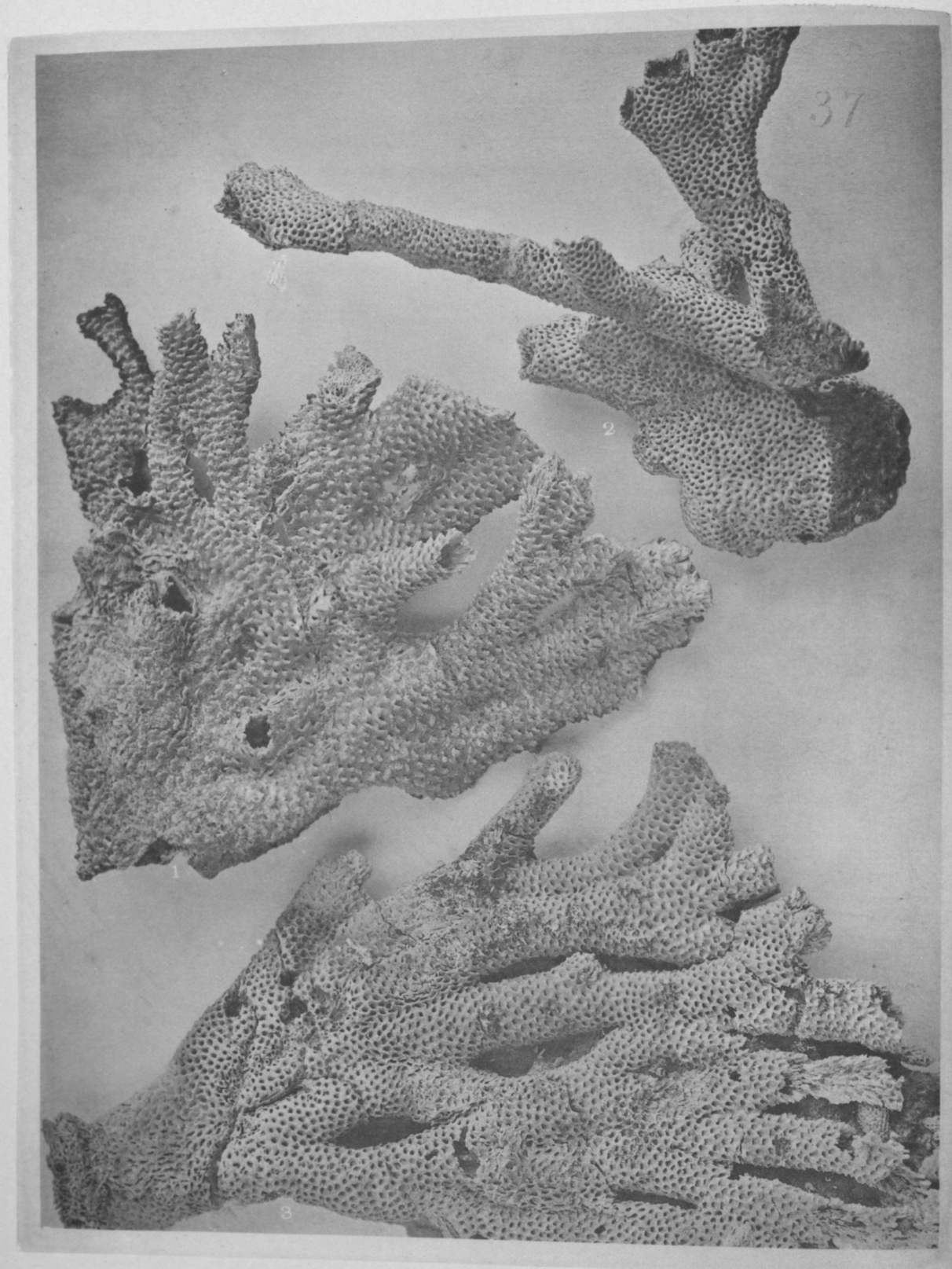


PLATE 50.

CLADOPORA ASPERA.

Devonian.

1. Front lateral view of a corallum from the Lower Devonian rocks, Falls of the Ohio. Collection of the author.

CLADOPORA EXPATIATA.

Devonian.

2. Portions of fronds with part of pedicle, from the ferruginous clay of the Lower Devonian, near Louisville. Collection of the author.
3. Front lateral view of a corallum (prostrate) from the Lower Devonian, Falls of the Ohio. Collection of the author.

PLATE 51.

CLADOPORA DENTATA, Nov. Spec.

Devonian.

1. Under surface of basal expansion and rear lateral view of portions of fronds of a corallum from the Lower Devonian, Falls of the Ohio. Collection of Dr. Knapp.

CLADOPORA FRANCISCI, Nov. Spec.

Devonian.

2. Front Lateral view of fragment from the Lower Devonian, Falls of the Ohio. Collection of Dr. Knapp.

STRIATOPORA HURONENSIS.

Niagara.

3. Fragment imperfectly freed from the matrix; from the Upper Niagara white clay, near Louisville. Collection of Dr. Knapp.

ERIDOPHYLLUM SENTUM, Nov. Spec.

Niagara.

4. Lateral view of a fragment from the ferruginous clay of the Upper Niagara, near Louisville. Collection of Dr. Knapp.

LYELLIA PUELLA, Nov. Spec.

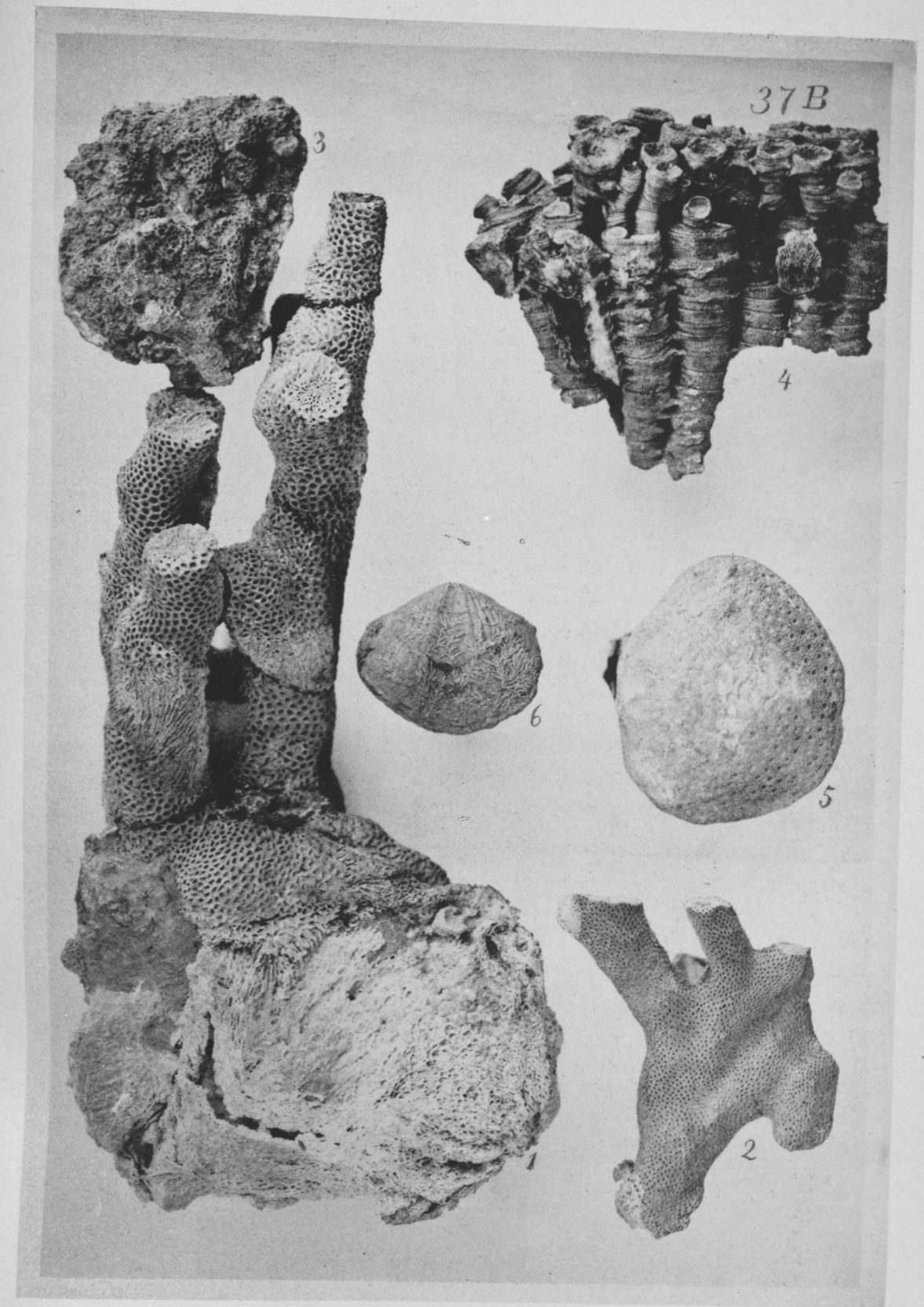
Niagara.

5. Upper surface of a corallum from the Upper Niagara white clay, near Louisville. Collection of Dr. Knapp.

NICHOLSONIA (Nov. Gen.) CANADENSIS.

Devonian.

6. Corallum incrusting *Spirifera oweni*, from the red clay of the Middle Devonian, near Louisville. Collection of Dr. Knapp.



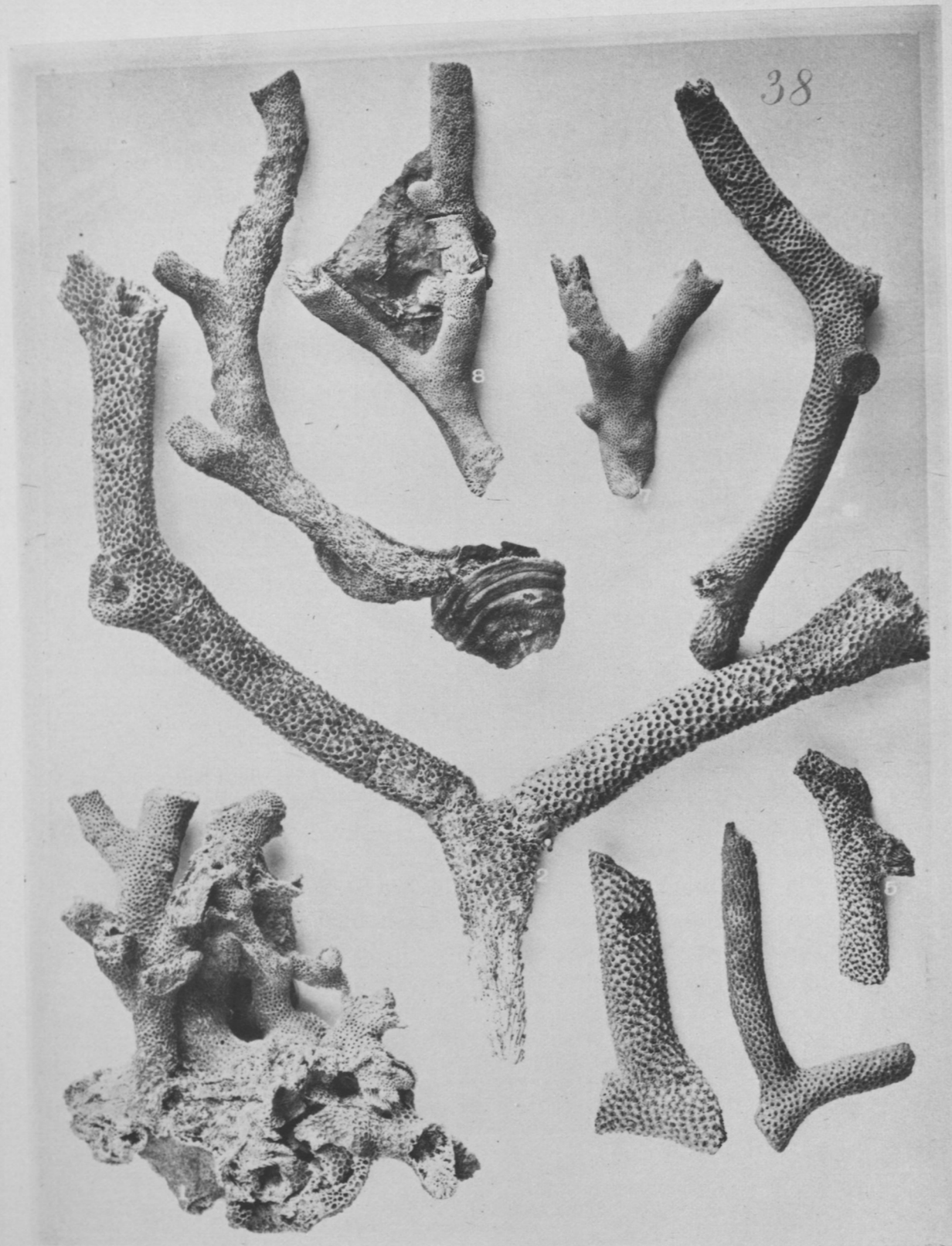


PLATE 52.

CLADOPORA BIFURCA, Nov. Spec.

Devonian.

1. Portion of a corallum investing Favosites ramulosus, from the Lower Devonian, Falls of the Ohio. Collection of the author.

CLADOPORA CRYPTODENS.

Devonian.

2. Dichotomously branching example, from the Lower Devonian, Falls of the Ohio. Collection of the author.
3. Frond (inverted) from the same horizon and locality. Collection of the author.
4. Fragment from the ferruginous clay of the Lower Devonian, near Louisville. Collection of the author.

CLADOPORA BILLINGSI.

Devonian.

5. Fragment (inverted) from the Lower Devonian clay, near Louisville. Collection of the author.

CLADOPORA ALPENENSIS.

Devonian.

6. Fragment from the horizon and place of example 5.

CLADOPORA ACUPICTA, Nov. Spec.

Devonian.

7. 8. Portions of fronds from the Lower Devonian, Falls of the Ohio. Collection of the author.

CLADOPORA DESQUAMATA, Nov. Spec.

Devonian.

9. Portion of a corallum with its pedicle attached to the interior of the calyx of Zaphrentis unguia, from the Lower Devonian, Falls of the Ohio. Collection of the author.

PLATE 53.

CLADOPORA IMBRICATA.

Devonian.

1. 2. 3. Fronds of different sizes and modes of growth.
4. Pedicle of a corallum from which fronds are beginning to spring.

The examples are from the Lower Devonian, Falls of the Ohio, and belong to the collection of the author.





PLATE 54.

CLADOPORA PINGUIS.

Devonian.

1. Front lateral view of a corallum from the Lower Devonian, Falls of the Ohio.
2. Basal expansion with portions of fronds, from the red clay of the Middle Devonian, near Louisville.
3. Basal expansion with portions of fronds, from the encrinal limestone dark red clay of the Upper Devonian, near Louisville.

CLADOPORA ROEMERI.

Devonian.

4. 5. 6. Fragments found in the red clay of the Lower Devonian, near Louisville.

The examples figured in this Plate belong to the collection of the author.

PLATE 55.

CLADOPORA PINGUIS.

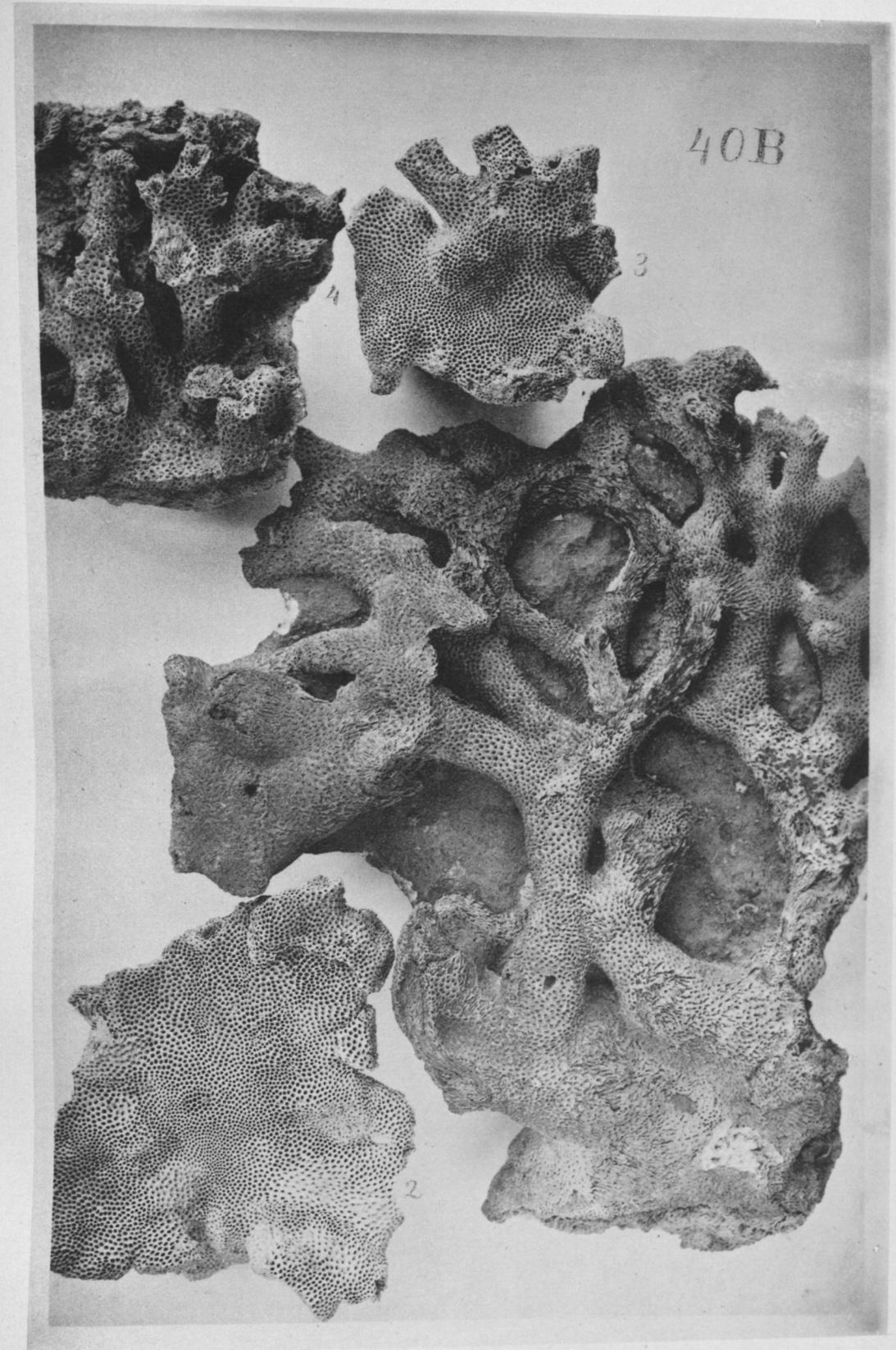
Devonian.

1. Front lateral view of a corallum from the Lower Devonian, Falls of the Ohio. Collection of Dr. Knapp.
2. Upper surface of a basal expansion, showing corallets of different sizes; from the ferruginous clay of the Lower Devonian, near Louisville. Collection of the author.
3. Front lateral view of the pedicle with portions of fronds, showing differently sized corallets; from the horizon and neighborhood of example 2. Collection of the author.

CLADOPORA RÆMERI.

Devonian.

4. Fragment from the Lower Devonian red clay, near Louisville. Collection of Dr. Knapp.



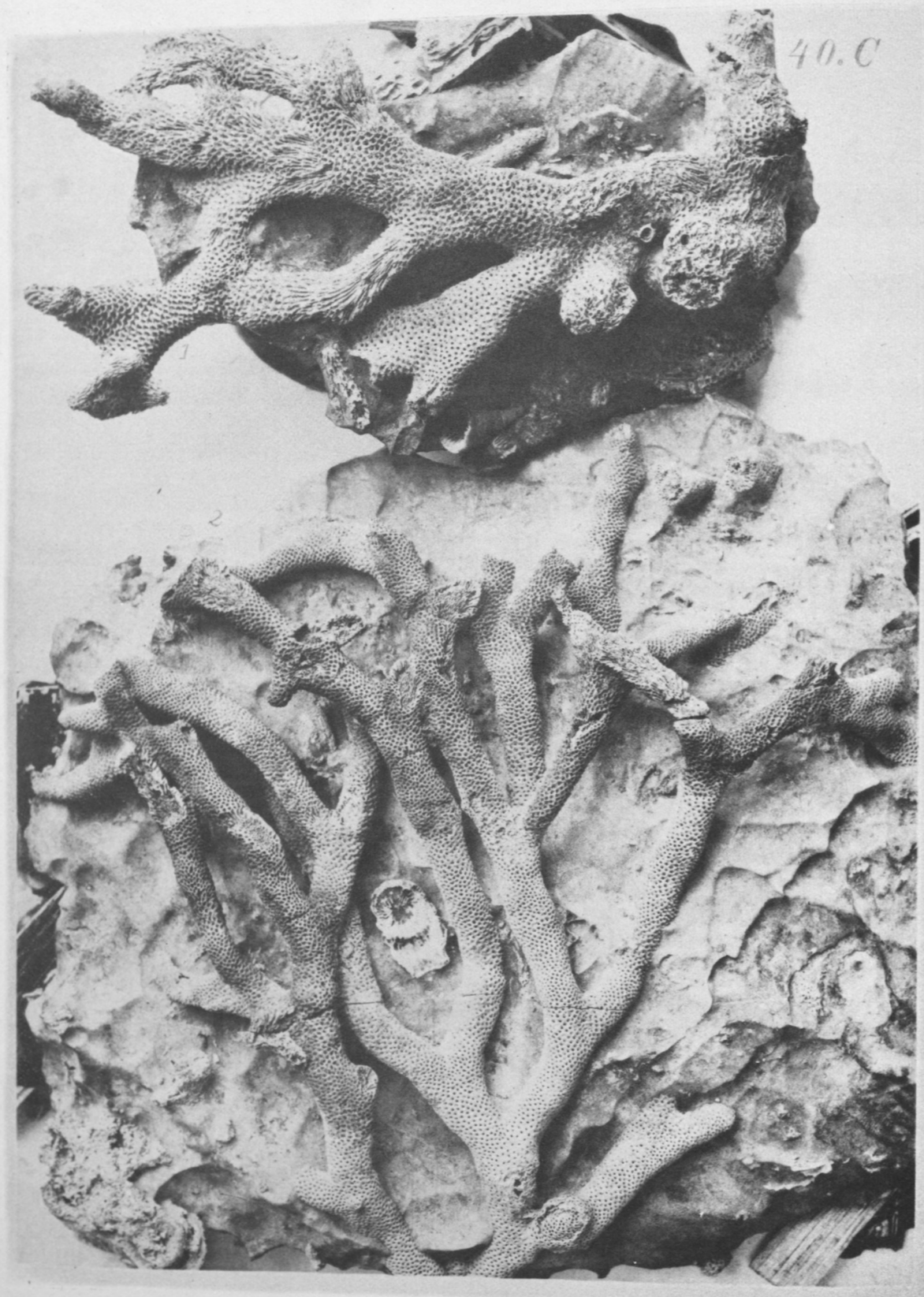


PLATE 56.

CLADOPORA RÆMERI.

Devonian.

1. Corallum (prostrate) partly imbedded in its matrix; from the Lower Devonian strata, Falls of the Ohio. Collection of the author.

CLADOPORA BIFURCA, Nov. Spec.

Devonian.

2. Upper fronds of a corallum partly imbedded in its rock matrix; from the Lower Devonian, Falls of the Ohio. Collection of the author.

PLATE 57.

CLADOPORA TELA, Nov. Spec.

Devonian.

1. Front lateral view of a portion of the base and fronds of a nearly perfect corallum, from the Middle Devonian rocks, Falls of the Ohio. Collection of the author.

CLADOPORA FIBRATA, Nov. Spec.

Devonian.

2. Front lateral view of the reticulating fronds of a fragment, from the Lower Devonian, Falls of the Ohio. Collection of the author.

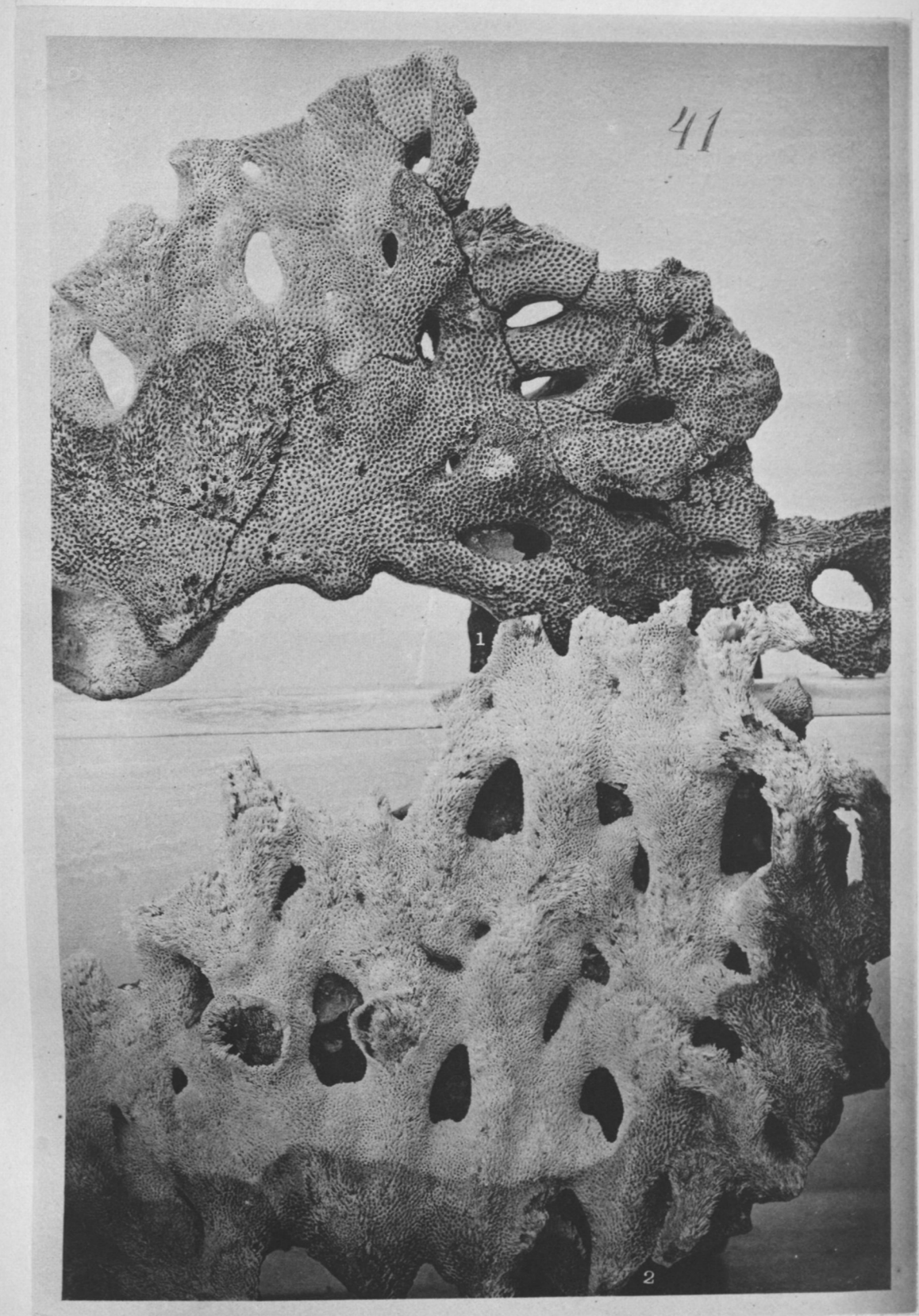




PLATE 58.

CLADOPORA RADULA, Nov. Spec.

Devonian.

1. (Upper specimen.) Front Lateral view of a corallum, pedicle wanting, invested by *Stromatopora texilis*; from the Lower Devonian, Falls of the Ohio. Collection of the author.

CLADOPORA ROBUSTA.

Devonian.

2. Front lateral view (prostrate) of a frond from the Lower Devonian, Falls of the Ohio. Collection of the author.

CLADOPORA ACUPICTA, Nov. spec.

Devonian.

3. (Lower specimen.) Fronds (inverted) partly imbedded in rock matrix. Projecting from the matrix, in the lower right corner, are the terminal branches of a frond of *Favosites ramulosus*. A calyx of *Ptychophyllum coniferum* appears in the same matrix. From the Lower Devonian, Falls of the Ohio. Collection of the author.

PLATE 59.

CLADOPORA RIMOSA.

Devonian.

1. Front lateral view of a corallum commensally attached to *Stromatopora texilis*; from the manganese limestone of the Lower Devonian, Falls of the Ohio. Collection of the author.
2. Fragment from the blue clay of the Middle Devonian, Falls of the Ohio. Collection of the author.
3. (Upper central specimen.) Pedicle with parts of fronds from the red clay of the Middle Devonian, near Louisville. Collection of the author.

CLADOPORA LABIOSA.

Devonian.

4. 5. (Specimens above and to the left of 3.) Fronds from the red clay of the Middle Devonian, near Louisville. Collection of the author.

CLADOPORA ALPENENSIS.

Devonian.

6. (Upper left corner.) Trichotomously ramous frond from the blue clay of the Middle Devonian, Falls of the Ohio. Collection of the author.

CLADOPORA PULCHRA.

Devonian.

7. (Lower specimen.) Fronds partly imbedded in rock matrix, from the Lower Devonian, Falls of the Ohio. Collection of Mr. McConathy.

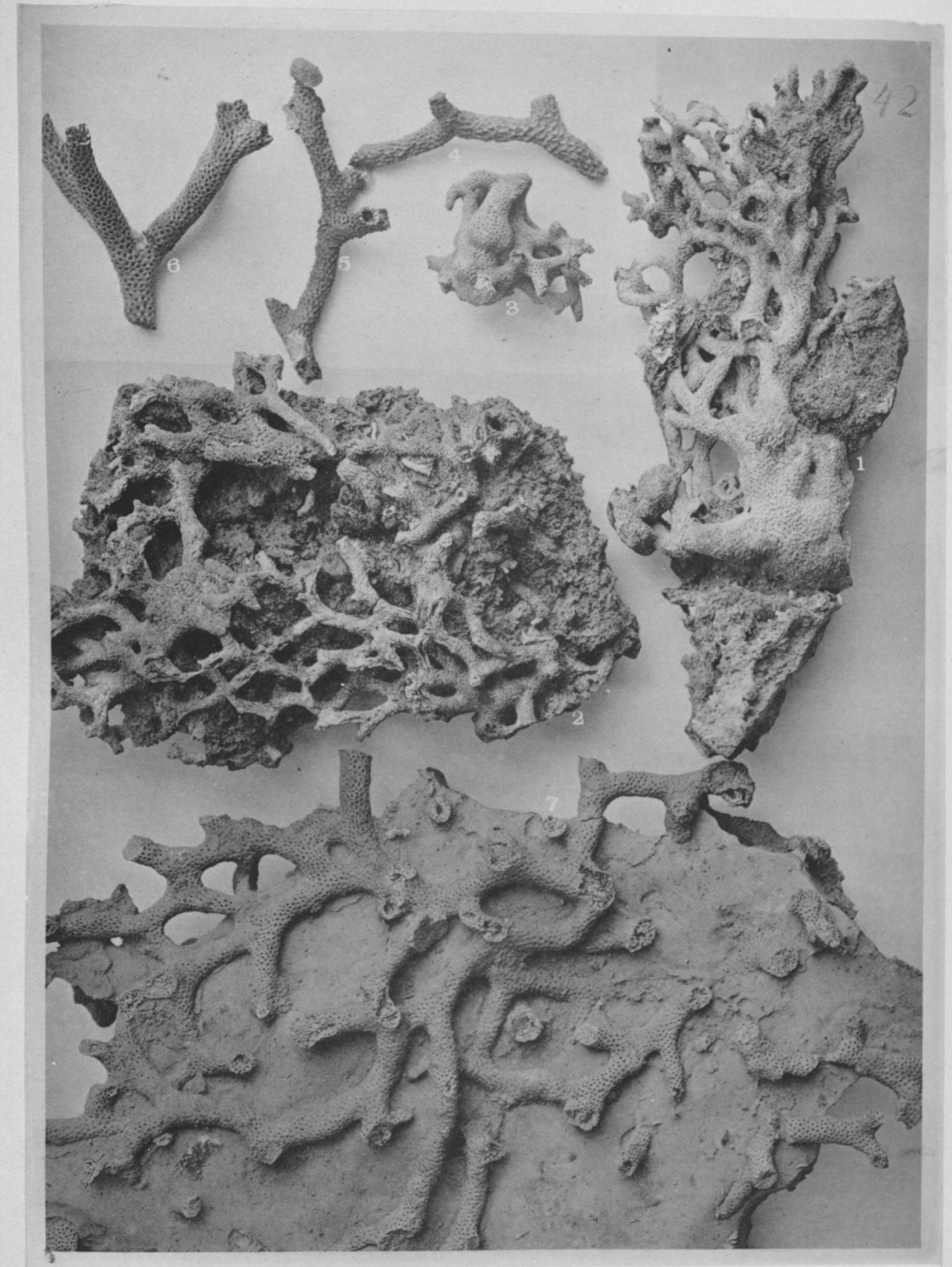




PLATE 60.

PLATYAXUM (Nov. Gen.) TURGIDUM.

Devonian.

1. 2. Fragments showing front lateral views, from the Lower Devonian, Falls of the Ohio.

PLATYAXUM (Nov. Gen.) FISCHERI.

Devonian.

3. Fragment showing front lateral view, from the Lower Devonian, Falls of the Ohio.

PLATYAXUM (Nov. Gen.) CANADENSE.

Devonian.

4. Front lateral view of fragment from the Lower Devonian, Falls of the Ohio.
5. Rear lateral view of fragment from dark-red encrinal limestone clay of the Upper Devonian, near Louisville.

PLATYAXUM (Nov. Gen.) UNDOSUM, Nov. Spec.

Devonian.

6. Front lateral view of a fragment from the Lower Devonian, Falls of the Ohio.

The examples herein figured belong to the collection of the author.

PLATE 61.

CLADOPORA DISPANSA, Nov. Spec.

Devonian.

1. Upper surface of a cymous corallum from the Lower Devonian, Falls of the Ohio.
2. Lateral view of a cyme of unusual altitude, from the horizon and neighborhood of example 1.
3. Under surface of a fragment of typical growth, from the horizon and vicinage of examples 1 and 2.

PLATYAXUM (Nov. Gen.) CORIOIDEUM, Nov. Spec.

Devonian.

4. Front lateral view (prostrate) of a portion of a frond from the Lower Devonian, Falls of the Ohio. The inner walls of the corallets of the rear side are seen springing from the plane axis in the left lower corner of the specimen.

These specimens belong to the private collection of the author.

PLATE 62.

CLADOPORA DISPANSA, Nov. Spec.

Devonian.

1. Upper surface of a sub-cymous corallum from the Lower Devonian, Falls of the Ohio. Collection of the author.

CLADOPORA CRASSA, Nov. Spec.

Devonian.

2. Upper surface of a fragment of typical growth.
 3. Upper surface of a specimen with corallets less erect than those of the preceding example.
- Both specimens from the Lower Devonian strata, Falls of the Ohio.
Collection of the author.

PLATE 63.

CLADOPORA DENTATA, Nov. Spec.

Devonian.

1. Front lateral view of a corallum from the Lower Devonian, Falls of the Ohio.
2. Fragment of a frond from the ferruginous clay of the Lower Devonian, near Louisville.
3. Portion of a pedicle obtained *in situ* two feet above the horizon of example 1, Falls of the Ohio.

CLADOPORA RICTA, Nov. Spec.

Devonian.

4. Rear view of a fragment showing fronds laterally joined by approximation.
5. Front lateral view of the base of an example.
Both specimens gathered from the Lower Devonian rocks, Falls of the Ohio.

PLATYAXUM (Nov. Gen.) FOLIATUM, Nov. Spec.

Devonian.

6. Front lateral view of the lower half of a corallum from the Lower Devonian, Falls of the Ohio.

DENDROPORA ORNATA.

Devonian.

7. Side view of a corallum from the dark-red clay derived from the decomposition of the encrinal limestone of the Upper Devonian, near Louisville.

DENDROPORA PROBOSCIDALIS.

Devonian.

8. (Artificially attached, for convenient photographic delineation, to the side of the Cyathophyllum imbedded in the rock matrix of *C. Dentata*, Fig. 1.) Frond from the Lower Devonian, Falls of the Ohio.

The specimens figured in this plate belong to the collection of the author.

PLATE 64.

CLADOPORA IOWENSIS.

Devonian.

1. 2. 3. 4. Fragments from the Lower Devonian, Falls of the Ohio. In Fig. 3 the specimen is inverted. Collection of the author.

STRIATOPORA HURONENSIS.

Niagara.

5. Fragment from the Upper Niagara red clay, near Louisville. Collection of the author.
6. Front side view of an eroded specimen, showing mural pores and faint longitudinal striae, from the white clay of the Upper Niagara. Collection of Mr. McConathy.

STRIATOPORA LINNÆANA.

Devonian.

7. Fragment (prostrate) from the Lower Devonian rocks two feet above the Niagara and Devonian passage-beds, near Louisville. Collection of the author.
8. Fragment (prostrate) from the ferruginous clay of the Lower Devonian, near Louisville. Occurring in a horizon eight feet above that of example 7. Collection of the author.

STRIATOPORA ALBA, Nov. Spec.

Devonian.

9. 10. 11. Portions of fronds from the red clay beds of the Middle Devonian, near Louisville. Collection of the author.

CLADOPORA GRACILIS, Nov. Spec.

Devonian.

12. 13. Fronds from the rotten chert of the Middle Devonian, Falls of the Ohio. Example 12 is artificially attached to the matrix of example 13. The latter fails to photograph satisfactorily because of its color. Collection of the author.

PLATE 65.

DENDROPORA ELEGANTULA.

Devonian.

1. Portion of a frond partly imbedded in its rock matrix, from the Lower Devonian, Falls of the Ohio.

DENDROPORA ALTERNANS.

Devonian.

2. Fragment from the red clay of the encrinal limestone of the Upper Devonian, near Louisville.

DENDROPORA NEGLECTA.

Devonian.

3. 4. 5. Fragments from the horizon and vicinage of *D. alternans*.

DENDROPORA ORNATA.

Devonian.

6. Fragment from the red clay of the Middle Devonian, near Louisville.

DENDROPORA OSCULATA, Nov. Spec.

Devonian.

7. 8. 9. Fragments from the horizon and vicinage of *D. alternans*.
10. Two fronds inosculating or joining by approximation; from the same place.
11. Portion of a basal expansion with parts of fronds intimately united; from the horizon and neighborhood of the preceding specimens of the species.

The examples herein figured belong to the collection of the author.

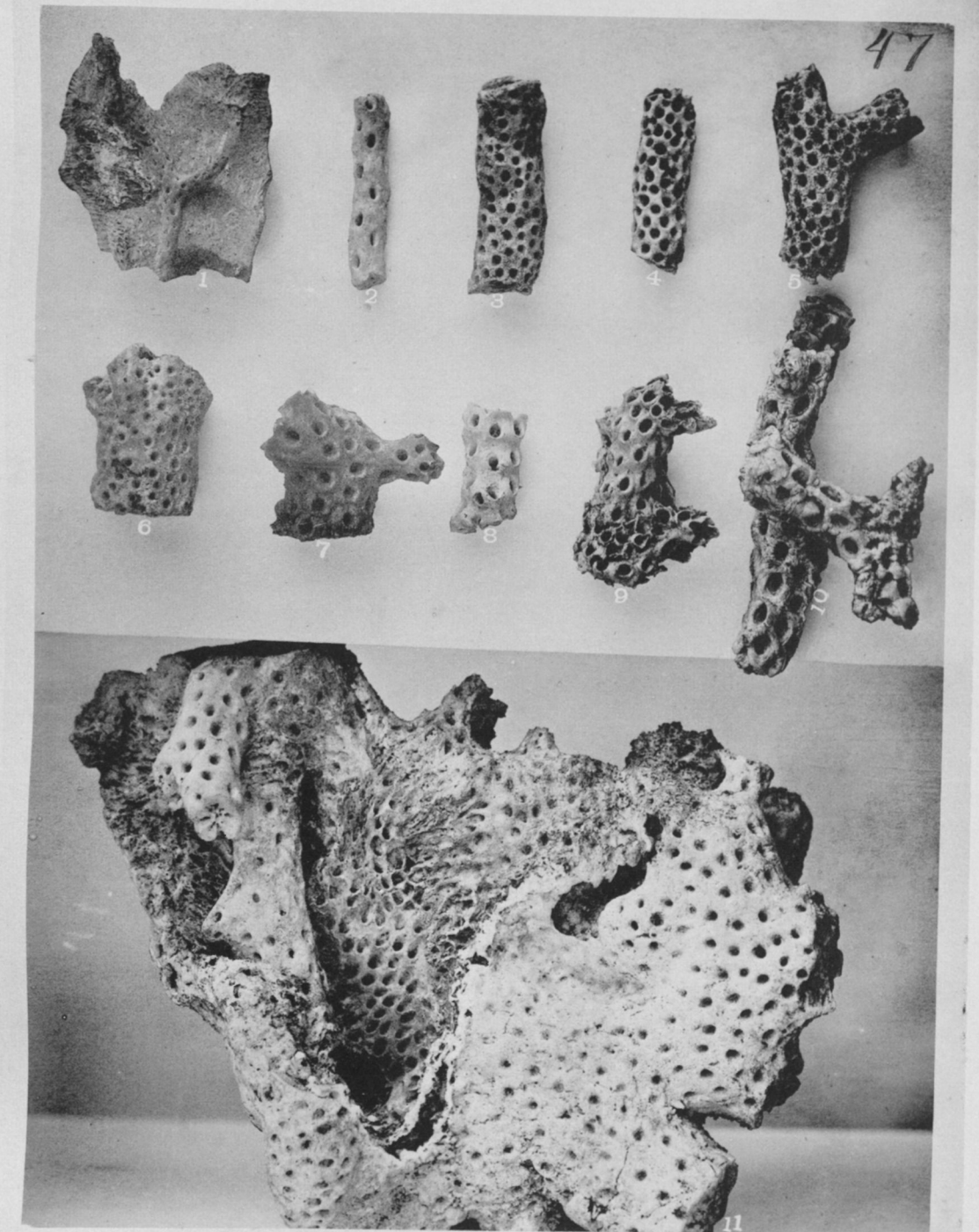


PLATE 67.

HALYSITES CATENULATUS.

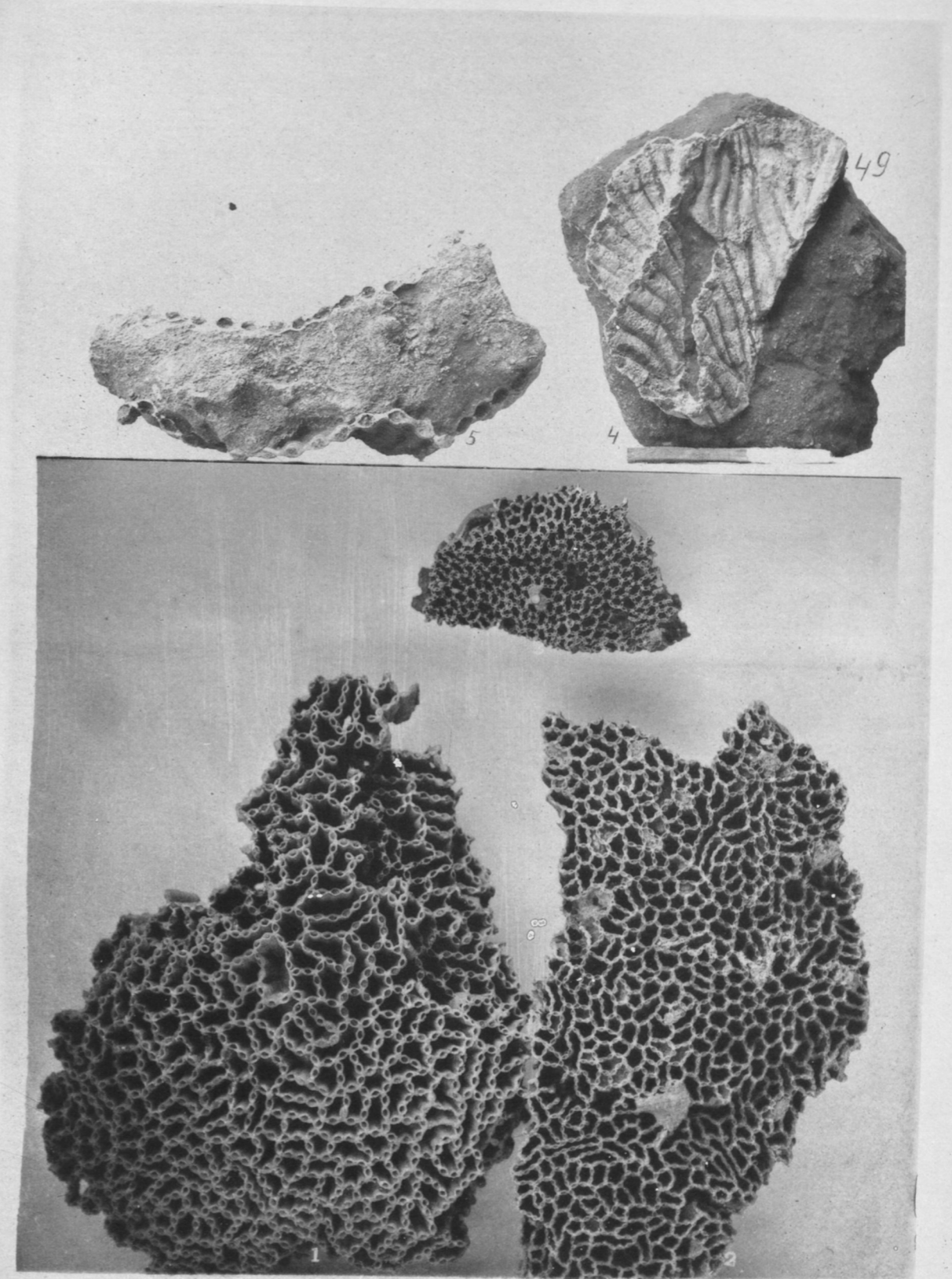
Niagara.

1. Upper surface of a portion of a corallum, in which the corallets are of average size; from the white clay of the Upper Niagara, near Louisville. Collection of the author.
2. Upper surface of a fragment whose corallets are below the medium size; from the ferruginous clay of the Upper Niagara, near Louisville. Collection of the author.
3. Upper surface of a jejune corallum, from the horizon and neighborhood of example 2.

HALYSITES NEXUS, Nov. Spec.

Niagara.

4. Oblique lateral view of a corallum from the Upper Niagara white clay, two feet below the Niagara and Devonian passage-beds, near Louisville. Collection of Mr. McConathy.
5. Upper surface of a divaricating chain, imbedded in its chert matrix; from the ferruginous clay of the Upper Niagara, just below the passage-beds above referred to, near Louisville. Collection of the author.



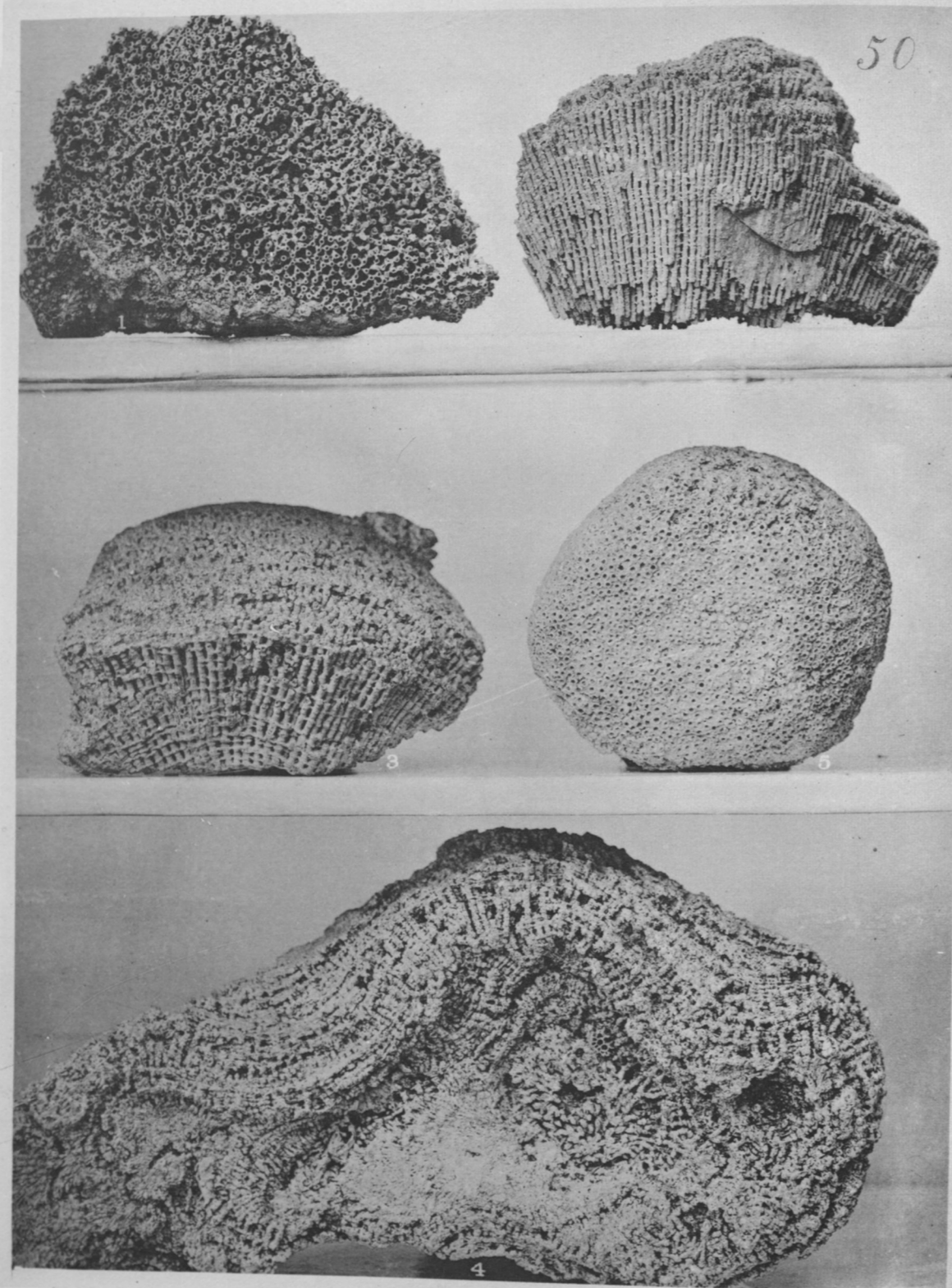


PLATE 68.

SYRINGOPORA HISINGERI.

Devonian.

1. Upper surface of a fragment from the ferruginous clay of the Lower Devonian, near Louisville.

SYRINGOPORA STRAMINEA, Nov. Spec.

Devonian.

2. (Upper right specimen.) Lateral view of a fragment whose horizon is about one foot lower than the lowest stratum in which *S. hisingeri* is found; from the ferruginous clay of the Lower Devonian, near Louisville.

SYRINGOPORA TABULATA.

Devonian.

3. Lateral view and also an oblique view of the upper surface of a fragment from the red clay of the Middle Devonian, near Louisville.

SYRINGOPORA BOUCHARDI.

Devonian.

4. Under surface of a corallum whose appressed corallets indicate the form of the marine object to which the incipient community was attached; from the Middle Devonian red clay, near Louisville.
5. Upper surface of a corallum incrusting *Cyathophyllum corniculum*, from the upper rock strata of the Middle Devonian, Falls of the Ohio.

The specimens figured in this plate belong to the collection of the author.

PLATE 69.

SYRINGOPORA TUBIPOROIDES.

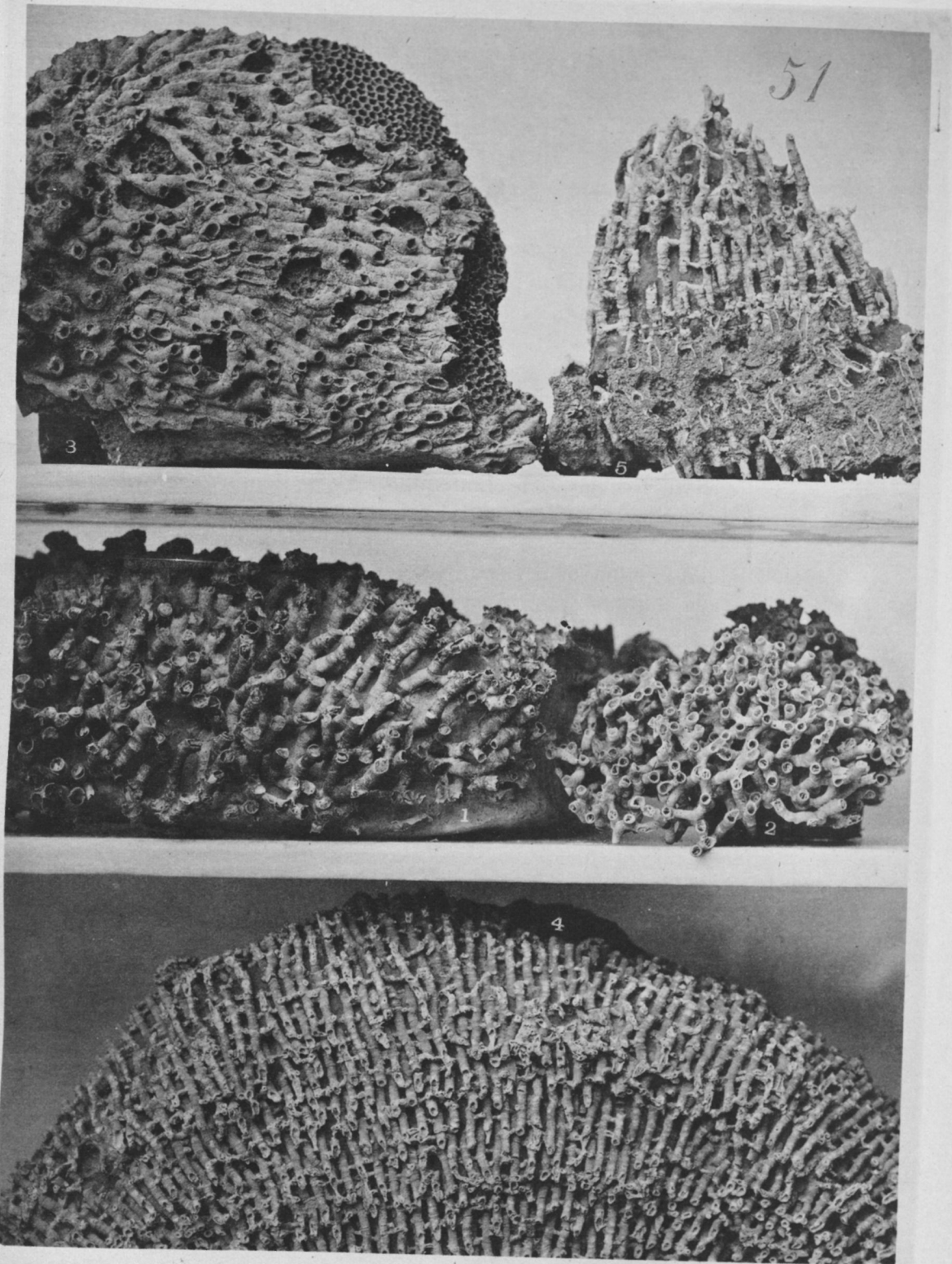
Devonian.

1. Oblique view of the Upper surface of a corallum from the ferruginous clay of the Lower Devonian, near Louisville. Collection of the author.
2. Upper surface of a corallum from the Lower Devonian rocks, Falls of the Ohio. Collection of Mr. Gaines.
3. Basal expansion incrusting Favosites emmonsii, from the Lower Devonian red clay, near Louisville. Collection of Mr. McConathy.

SYRINGOPORA PERELEGANS.

Devonian.

4. Oblique section of a corallum from the upper strata of the Lower Devonian group of rocks, Falls of the Ohio. Collection of the author.
5. Variety (inverted) from the same locality as example 4, but whose horizon is a little higher, showing more widely separated corallets, and more remote processes of connection. Collection of the author.



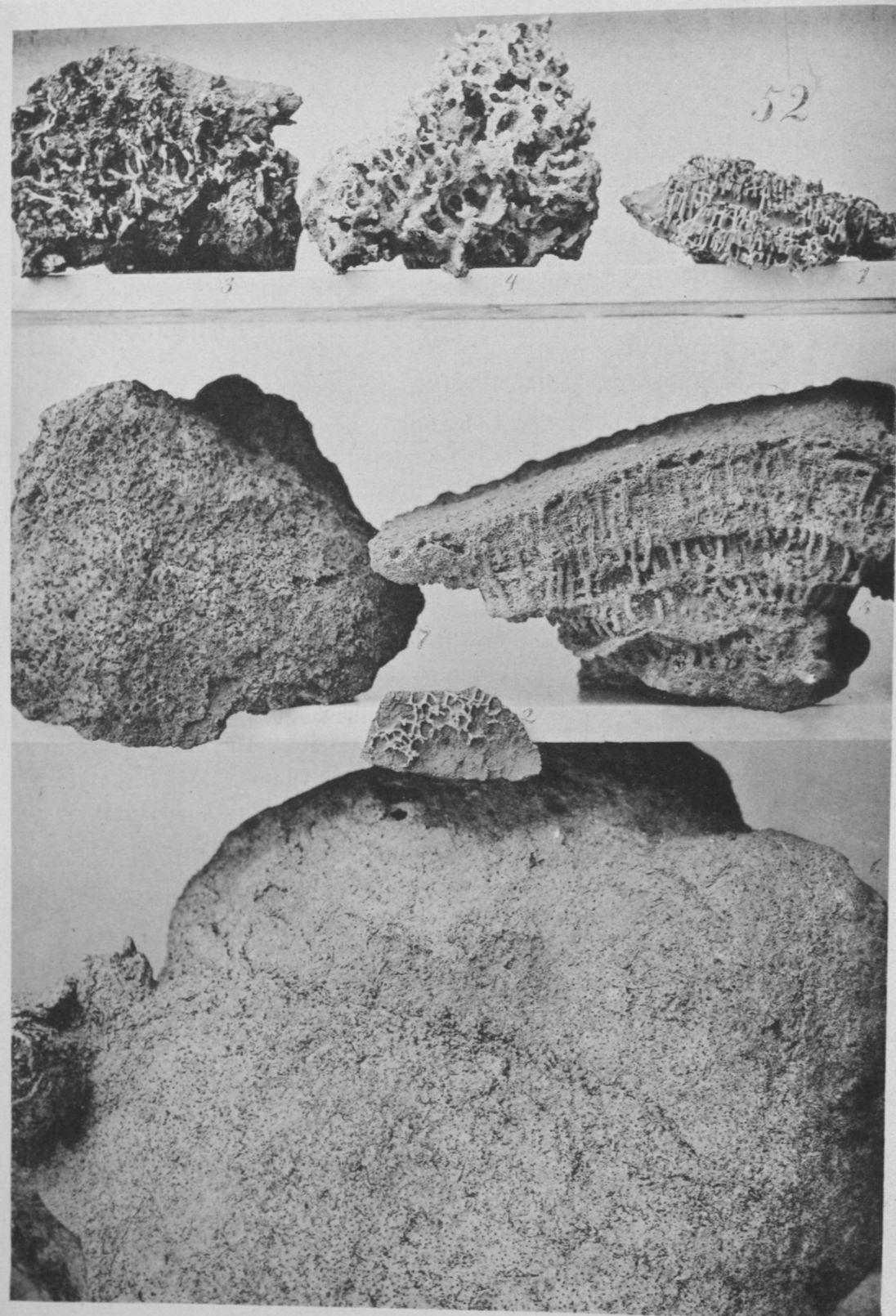


PLATE 70.

DRYMOPORA (Nov. Gen.) FASCICULARIS.

Niagara and Devonian.

1. Lateral view (inverted) of a fragment from the Upper Niagara white clay, near Louisville.
2. Base of a corallum attached to *Stromatopora concentrica*; from the Upper Niagara red clay, near Louisville.
3. Portion of a corallum invested by *Stromatopora*, from the ferruginous clay of the Lower Devonian, near Louisville.
4. Portion of a corallum similarly inclosed, from the manganese limestone of the Lower Devonian, Falls of the Ohio.

DRYMOPORA COMMENSALIS, Nov. Spec.

Devonian.

5. Vertical section of a corallum growing in commensality with *Stromatopora texilis*, as it is the habit of the species to do with some form of *Stromatopora*; most of the corallets appear larger than their proper size because of their investiture; from the manganese limestone of the Lower Devonian, Falls of the Ohio.
6. 7. Upper surfaces of coralla, the orifices of the corallets showing at the surfaces of the sarcodemes; from the ferruginous clay of the Lower Devonian, near Louisville.

All from the collection of the author.

PLATE 71.

DRYMOPORA NOBILIS.

Devonian.

1. Lateral view of a corallum from the Lower Devonian rocks, Falls of the Ohio.
2. Upper surface of a corallum, from the same horizon and place.
3. Upper surface of a corallum of procumbent habit; from the same place.
4. Basal corallets of a young community, attached to *Cyathophyllum halli*; from the ferruginous clay of the Lower Devonian, near Louisville.

Examples from the collection of the author.



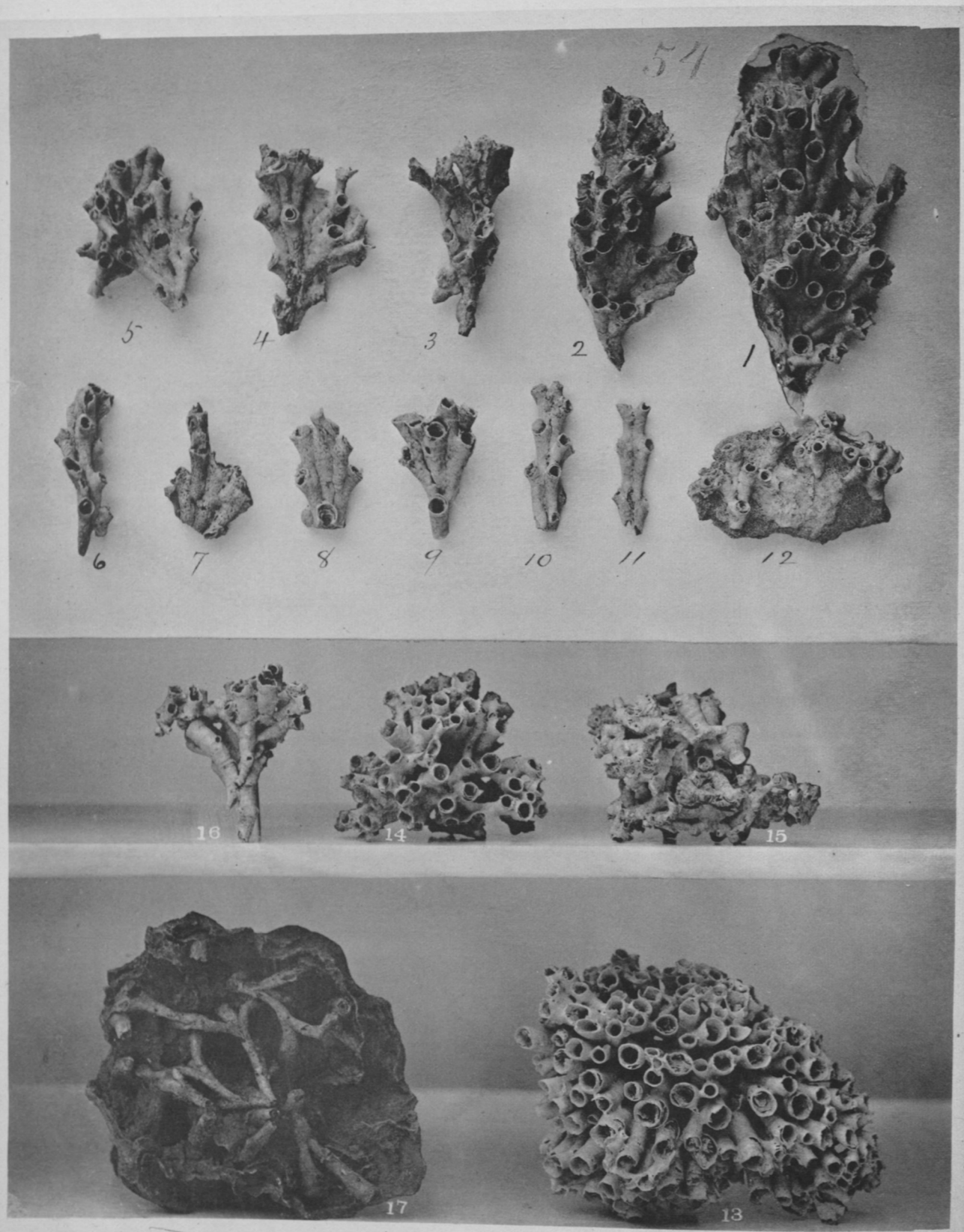


PLATE 72.

DRYMOPORA AULOPOROIDEA, Nov. Spec.

Devonian.

1. 2. 3. 4. Front lateral views of corallites of prolific habit.
5. Lateral views of two inosculating coralla.
6. 10. 11. Coralla of biserial growth.
7. 8. Examples of quadriseriate growth.
9. A triseriate form.
12. Basal corallites of a jejune community, attached to the upper surface of a Chonetes.

Examples 1-11 are found in the encrinal limestone dark red clay of the Upper Devonian, near Louisville. Specimen 12 was gathered from the rotten chert of the Middle Devonian, Falls of the Ohio.

DRYMOPORA FRUTECTOSA, Nov. Spec.

Devonian.

13. Upper surface of a corallum composed of large corallites.
14. Upper surface of a corallum whose corallites are of medium size.
15. Under surface of a corallum.
16. Front lateral view of a corallum.

All from the horizon and vicinage of *D. auloporoidea*, Figs. 1-11.

DRYMOPORA INTERMEDIA.

Devonian.

17. Rear lateral view of corallites invested by *Stromatopora granulata*, from the Lower Devonian ferruginous clay, near Louisville. Specimen 1 belongs to the collection of Mr. Gaines. The other specimens herein figured are from the collection of the author.

PLATE 73.

AULOPORA EDITHANA.

Devonian.

1. Corallum incrusting the dorsal valve of *Strophomena hemispherica*, from the rotten hornstone of the Middle Devonian, Falls of the Ohio. Collection of the author.

ROMINGERIA INCRUSTANS, Nov. Spec.

Devonian.

2. Corallum, somewhat eroded, incrusting *Cyathophyllum pocillum*.
3. Under surface and lateral view of a corallum.
4. Upper surface of a corallum.
From the Middle Devonian, Falls of the Ohio. Collection of the author.

AULOPORA PYGMÆA, Nov. Spec.

Niagara.

5. Corallum incrusting *Thecia swindernana*, from the Upper Niagara white clay, near Louisville.
6. Example incrusting *Stromatopora concentrica*, from the Upper Niagara red clay, near Louisville.
Collection of the author.

AULOPORA CORNUTA.

Devonian.

7. Corallum incrusting interior and margin of calyx of *Cyathophyllum corniculum*, from the Middle Devonian, Falls of the Ohio. Collection of the author.
8. Corallum incrusting fragment of *Cyathophyllum scyphus*, from the Upper Devonian dark red encrinal limestone clay, near Louisville. Collection of Mr. Gaines.

AULOPORA CULMULA, Nov. Spec.

Devonian.

9. Corallum incrusting a jejune frond of *Favosites clausus*, from the Lower Devonian, Falls of the Ohio. Collection of the author.

NICHOLSONIA (Nov. Gen.) CANADENSIS.

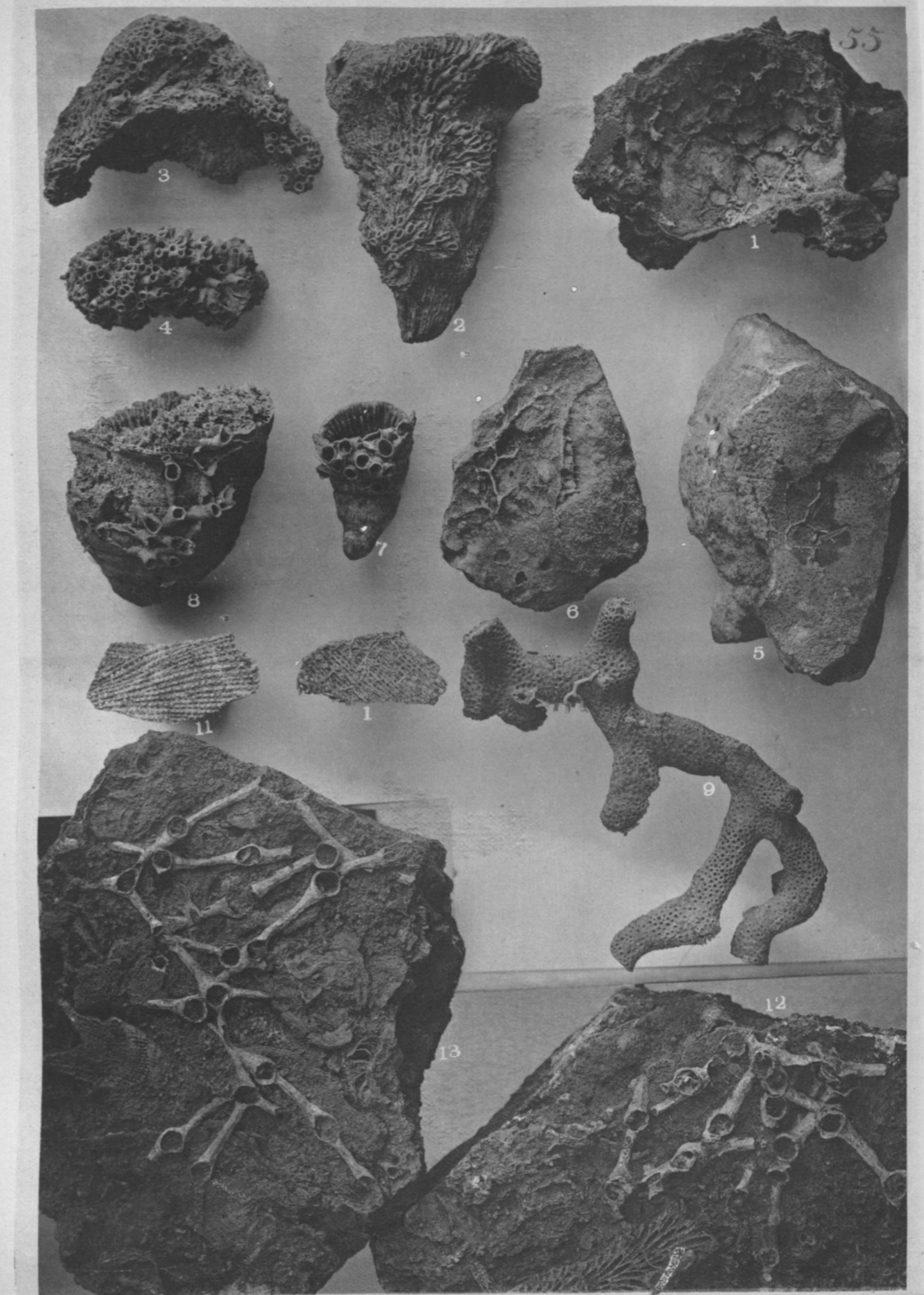
Devonian.

10. 11. Corallets incrusting a *Fenestella*, from the rotten chert of the Middle Devonian, Falls of the Ohio. Collection of the author.
[The corals and bryozoa both being white, the photographic delineation of the former is unsatisfactory, although the examples are good.]

AULOPORA PROCUMBENS, Nov. Spec.

Devonian.

12. Corallets incrusting a species of *Stromatopora*, from the Lower Devonian ferruginous clay, near Louisville. Collection of the author.
13. Corallets similarly incrusting *Stromatopora*, from the horizon and place of example 12. Collection of Mr. McConathy.



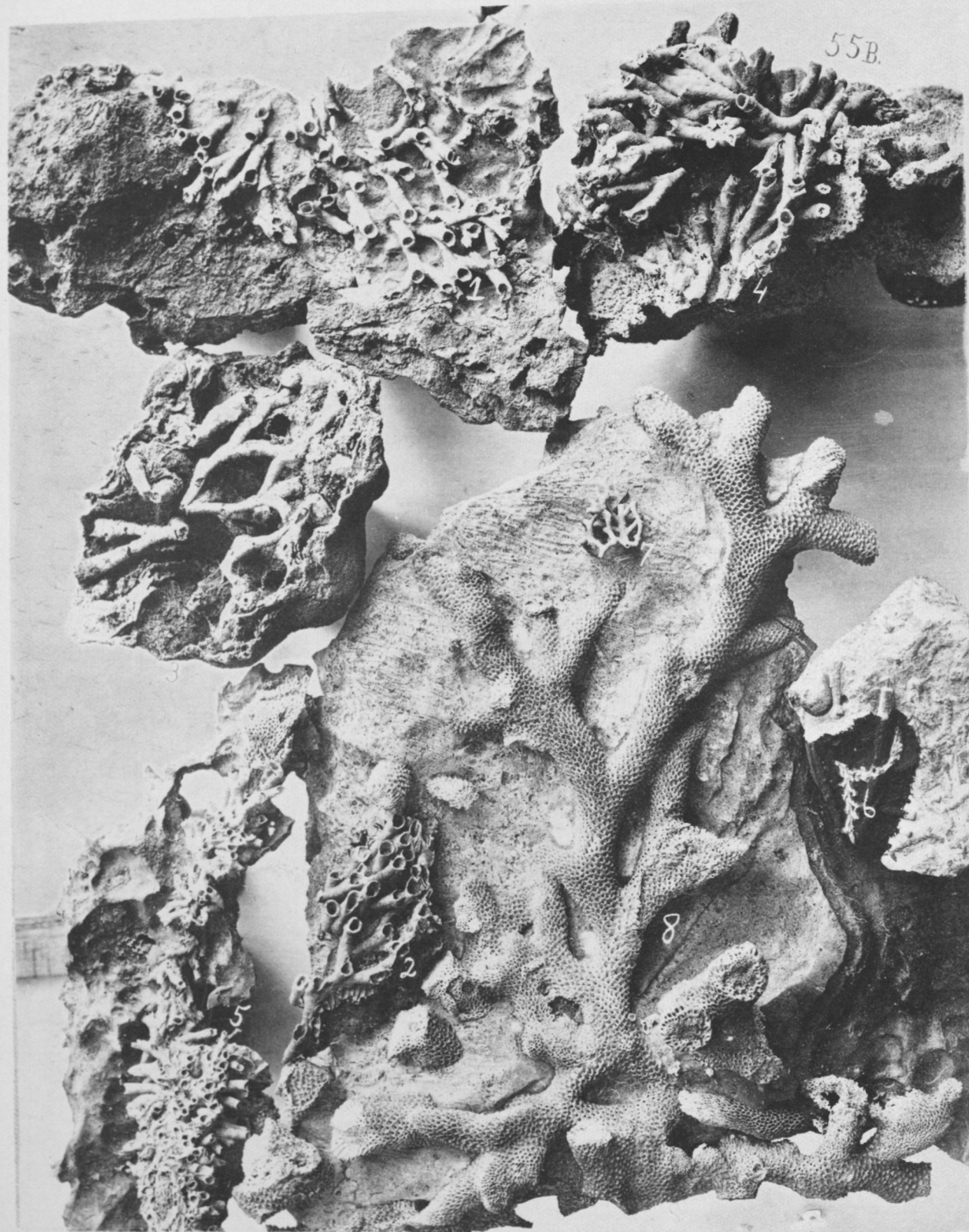


PLATE 74.

AULOPORA SERPENS.

Devonian.

1. (Upper left-hand specimen.) Corallites incrusting under surface of *Stromatopora texilis*, from the Lower Devonian rocks, Falls of the Ohio.
2. Corallites incrusting a fragment of *Favosites*, from the Lower Devonian red clay, near Louisville.

DRYMOPORA INTERMEDIA.

Devonian.

3. View of the corallum figured in Plate 72.
4. Basal corallites attached to a fragment of *Favosites canadensis*, from the Lower Devonian rocks, Falls of the Ohio.

ROMINGERIA INCRUSTANS, Nov. Spec.

Devonian.

5. Corallites incrusting a frond of *Cladopora cryptodens*, from the Lower Devonian, Falls of the Ohio.

DIORYCHOPORA (Nov. Gen.) TENUIS, Nov. Spec.

Niagara.

6. Corallum (inverted) from the Upper Niagara white clay, near Louisville.

DRYMOPORA FASCICULARIS.

Devonian.

7. Fragment from the Lower Devonian, Falls of the Ohio. Collected by Dr. Theiss.

CLADOPORA FRANCISCI.

Devonian.

8. Upper fronds of a corallum from the Lower Devonian, Falls of the Ohio.

The specimens herein figured are from the collection of the author.

PLATE 75.

ROMINGERIA VANNULA, Nov. Spec.

Niagara.

1. Upper surface of corallets from the Upper Niagara white clay, near Louisville. Collection of Mr. Nettelroth.
2. Similar view of corallets from the same horizon and locality. Collection of Mr. Gaines.
5. Similar view of corallets attached to a Favosites, from a lower horizon of the same group, near Louisville. Collection of the author.
3. Under surface of two inosculated cymes, from the Upper Niagara red clay, near Louisville. Collection of the author.

ROMINGERIA UVA, Nov. Spec.

Niagara and Devonian.

6. Basal corallets incrusting a Fenestella frond, from the rotten chert of the Middle Devonian, Falls of the Ohio. Collection of the author.
7. Corallum from the Upper Niagara white clay stratum three feet below the passage-beds, near Louisville. Collection of the author.

ROMINGERIA UMBELLIFERA.

Devonian.

4. Upper surface of two cymes, from the Lower Devonian, Falls of the Ohio. Collection of the author.
8. Fragment showing verticillate sprouts, from the Lower Devonian red clay. Collection of Mr. Nettelroth.
9. Similar fragment from the Lower Devonian rocks, Falls of the Ohio. Collection of the author.
10. 11. 12. Fragments from the horizon and place of example 9. Collection of the author.
13. Jejune corallets from the same place. Collection of the author.

ROMINGERIA FASCICULATA, Nov. Spec.

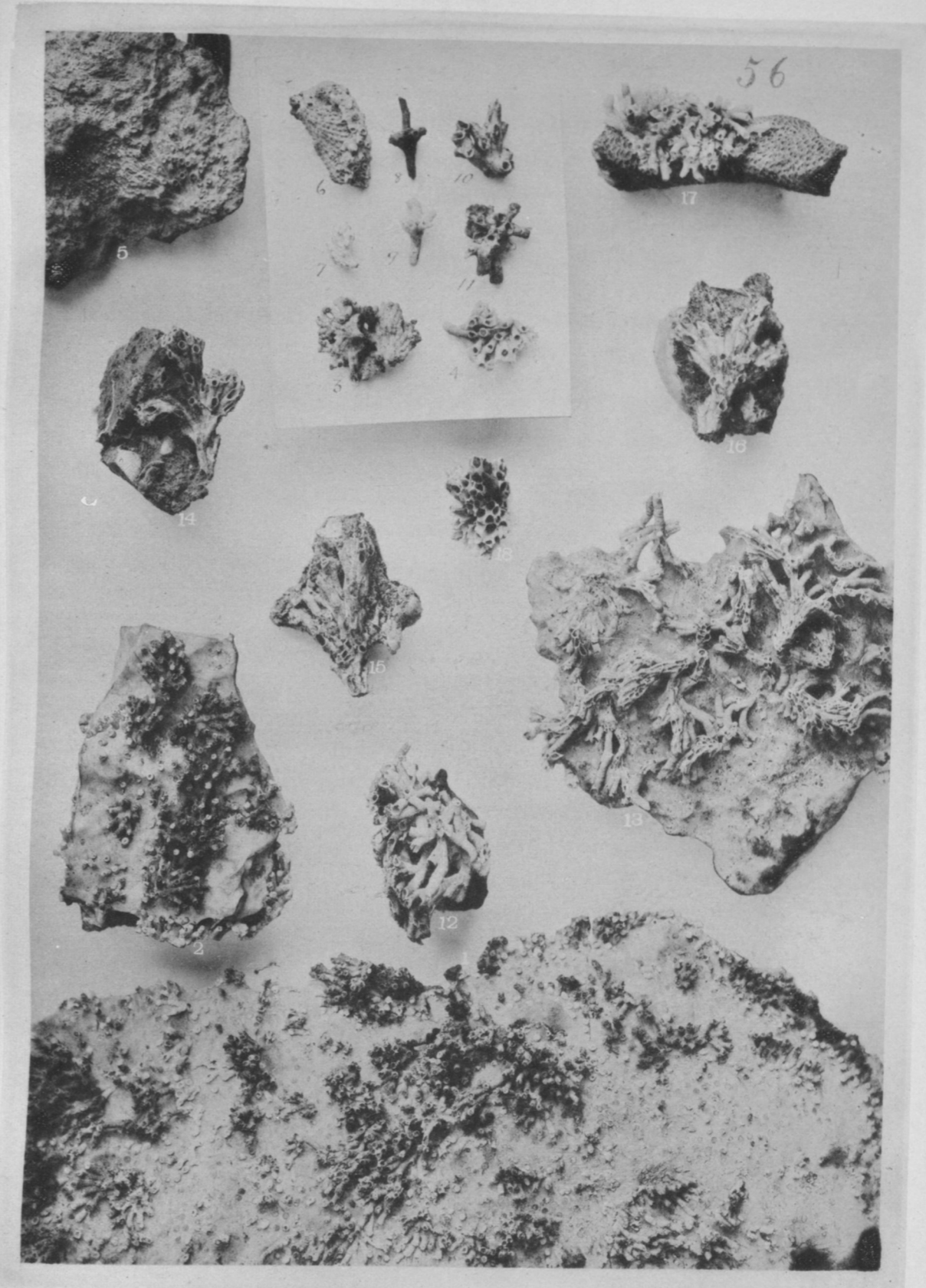
Devonian.

14. 15. 16. Lateral views of corallets from the decomposing chert of the Middle Devonian, Falls of the Ohio.
18. Upper surface of corallets from the same place. Collection of the author.

ROMINGERIA INCRUSTANS, Nov. Spec.

Devonian.

17. Corallets incrusting Cladopora imbricata, from the Lower Devonian rocks, Falls of the Ohio. Collection of the author.



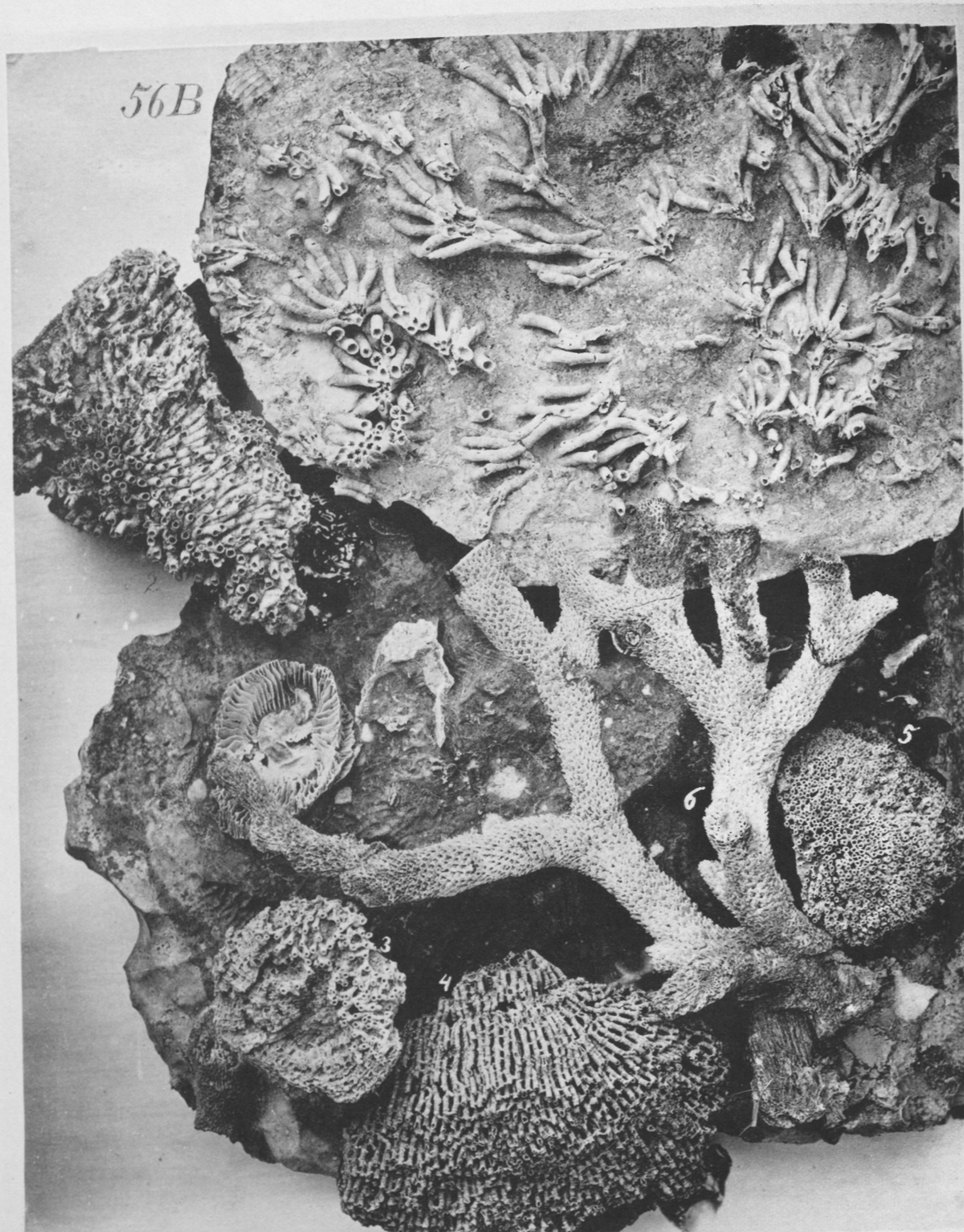


PLATE 76.

ROMINGERIA UMBELLIFERA.

Devonian.

1. Rear lateral view of verticillate umbels, showing spinulous inner-walls, from the Lower Devonian, Falls of the Ohio. Collection of the author.

ROMINGERIA INCRUSTANS, Nov. Spec.

Devonian.

2. Corallum incrusting *Zaphrentis gregaria*, from the Middle Devonian, Falls of the Ohio. Collection of Mr. Gaines.

AULOPORA EDITHANA.

Devonian.

3. Corallum attached to *Favosites hemisphericus*, from the Middle Devonian, Falls of the Ohio. Collection of the author.

SYRINGOPORA HISINGERI.

Devonian.

4. Lateral view (inverted) of example figured in Plate 68, Fig. 1.

SYRINGOPORA STRAMINEA, Nov. Spec.

Devonian.

5. Upper surface of corallum, from the Lower Devonian rocks, Falls of the Ohio. Collection of the author.

CLADOPORA DESQUAMATA, Nov. Spec.

Devonian.

6. Corallum partly imbedded in matrix, from the Lower Devonian rocks, Falls of the Ohio. Collection of the author.

PLATE 77.

CYATHOPHYLLUM HALLI.

Devonian.

1. Left lateral view of corallum, from the blue clay of the Middle Devonian, Falls of the Ohio.
 2. Right lateral view of corallum, from which the epitheca is worn; from the Lower Devonian ferruginous clay, near Louisville.
- Collection of the author.





ANTHOLITES (Nov. Gen.) SPECIOSUS, Nov. Spec.

Devonian.

1. View of the upper surface of a corallum, from the dark-red clay derived from the encrinal limestone of the Upper Devonian, near Louisville.
2. Sectional view of the same specimen, showing avituous corallites attached to a crinoid column.

CYATHOPHYLLUM PUSTULOSUM, Nov. Spec.

Devonian.

3. Oblique front and right lateral view of a corallum of typical shape and size.
4. Calyx of a corallum.
Found in the vicinage of the antholite, but in a horizon about a foot lower.

CYATHOPHYLLUM INSIGNE, Nov. Spec.

Devonian.

5. View of the calyx of a corallum, found associated with the former species.

CHONOPHYLLUM MULTIPLICATUM, Nov. Spec.

Devonian.

6. View of the calyx of a corallum, from the Lower Devonian limestones, Falls of the Ohio.

CYATHOPHYLLUM EXIGUUM.

Devonian.

7. View of the calyx of a huge corallum, from the Lower Devonian clay, near Louisville.

CYATHOPHYLLUM GREENI, Nov. Spec.

Devonian.

8. Rear lateral view of an adult corallum.
9. Left lateral view of a weathered example.
10. A jejun specimen.
Cut from the Lower Devonian rocks, Falls of the Ohio.

PLATE 78.—*Continued.*

- CYATHOPHYLLUM FLOS, Nov. Spec. *Niagara and Devonian.*
11. View of the calyx of a proliferous corallum, from the stratum of white clay seven feet below the Niagara and Devonian passage-beds, near Louisville.
 12. Central view of a corallum of average size, from the same horizon and place.
 13. View of the calyx of a small corallum, from the Lower Devonian clay, near Louisville.
 14. View of the calyx of a large corallum, from the red clay of the Middle Devonian, near Louisville.

- ZAPHRENTIS GREENANA, Nov. Spec. *Devonian.*
15. Right lateral view of a medium-sized corallum.
 16. View of the calyx of a corallum.
From the Middle Devonian clay, near Louisville.

- ZAPHRENTIS ROMINGERI, Nov. Spec. *Devonian.*
17. View of the calyx of a corallum, from the red clay of the Middle Devonian, near Louisville.

- NICHOLSONIA (Nov. Gen.) CANADENSIS. *Devonian.*
18. Corallets of continuous growth attached to a zaphrentis, from the blue clay of the Middle Devonian, near Louisville.

- NICHOLSONIA ADNATA, Nov. Spec. *Devonian.*
19. Corallets incrusting a zaphrentis and overrunning a portion of the less robust *N. canadensis*.
The specimens figured in this plate belong to the collection of the author.

PLATE 79.

- CYATHOPHYLLUM CORNICULUM. *Devonian.*
1. Left lateral view of corallum of uncommon altitude, from the Middle Devonian red clay, near Louisville.
 2. 4. Left lateral views.
 3. 5. Right lateral views.
 6. Central view.
 7. View of calyx.
 8. View of gemmiferous calyx.
The several coralla are from the Middle Devonian, Falls of the Ohio.

- CYATHOPHYLLUM JUVENE. *Devonian.*
9. Central view.
 10. 11. Right lateral views.
 12. View of calyx.
The several coralla are from the dark-red encrinal limestone clay of the Upper Devonian, near Louisville.

- CYATHOPHYLLUM BREVICORNE, Nov. Spec. *Devonian.*
13. Apertural view.
 14. Central view.
 15. 16. Left lateral views.
 17. 18. Views of calyces.
The coralla are from the Middle Devonian, Falls of the Ohio.
Examples herein figured are from the collection of the author.

PLATE 80.

CYATHOPHYLLUM TORNATUM, Nov. Spec.

Devonian.

1. Exterior apertural view of a corallum from the superior stratum of the encrinal limestone dark-red clay, near Louisville.

CYATHOPHYLLUM JUVENE.

Devonian.

2. Right lateral view of a young corallum.
6. View of the gemmiferous calyx of a corallum.
7. Apertural view of a corallum of more than average altitude.
8. Explanate calyx of a corallum of medium size.
From the horizon and vicinage of examples figured in Plate 79.

CYATHOPHYLLUM ETHELANUM, Nov. Spec.

Devonian.

3. Lateral and apertural-gap view of corallum of slender, tortuous growth.
5. Oblique anterior view of a corallum of medium size.
Found from three to four feet below the shale which caps the Upper Devonian, near Louisville.

CYATHOPHYLLUM TRAUTHANUM, Nov. Spec.

Devonian.

4. Right lateral view of a corallum of average size.
Associated with *C. ethelanum*.

CYSTIPHYLLUM CUYAGAENSE.

Devonian.

9. Right lateral view of corallum with flattened apex.
10. View of the calyx of a corallum.
Both examples from the Middle Devonian red clay, near Louisville.

CHONOPHYLLUM NANUM, Nov. Spec.

Devonian.

11. Left lateral view of a corallum of average size.
12. Similar view of a corallum of unsymmetrical growth above medium size.
13. View of the calyx of a small corallum.
From the dark-red clay of the Upper Devonian encrinal limestone, near Louisville

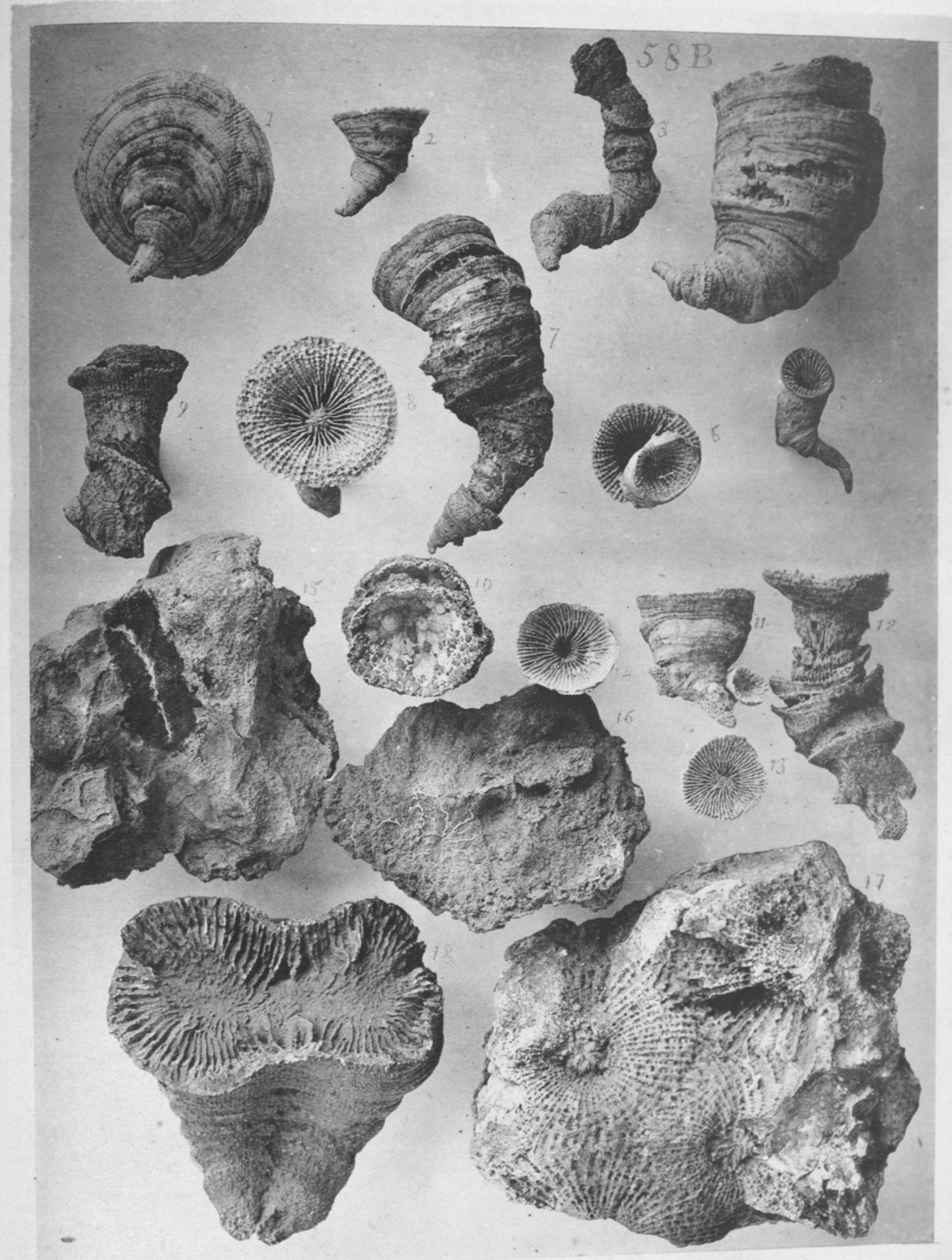


PLATE 80.—*Continued.*

CYATHOPHYLLUM GREENI, Nov. Spec.

Devonian.

14. View of the calyx of a corallum, from the Middle Devonian, Falls of the Ohio.

NICHOLSONIA CANADENSIS.

Devonian.

15. Corallets attached to Stromatopora, from the Middle Devonian, Falls of the Ohio.

NICHOLSONIA ANGULATA, Nov. Spec.

Devonian.

16. Corallum incrusting Stromatopora texilis, from the blue clay of the Middle Devonian, Falls of the Ohio.

CYATHOPHYLLUM MULTIGEMMATUM, Nov. Spec.

Devonian.

17. View of confluent calyces of corallets, from the Middle Devonian waste, Marion county, Kentucky.

ZAPHRENTIS IMMANIS, Nov. Spec.

Devonian.

18. Central view and oblique view of calyces of twin coralla, from the Middle Devonian clay, near Louisville.

The examples figured in this plate belong to the collection of the author.

PLATE 81.

CYATHOPHYLLUM POCILLUM, Nov. Spec.

Devonian.

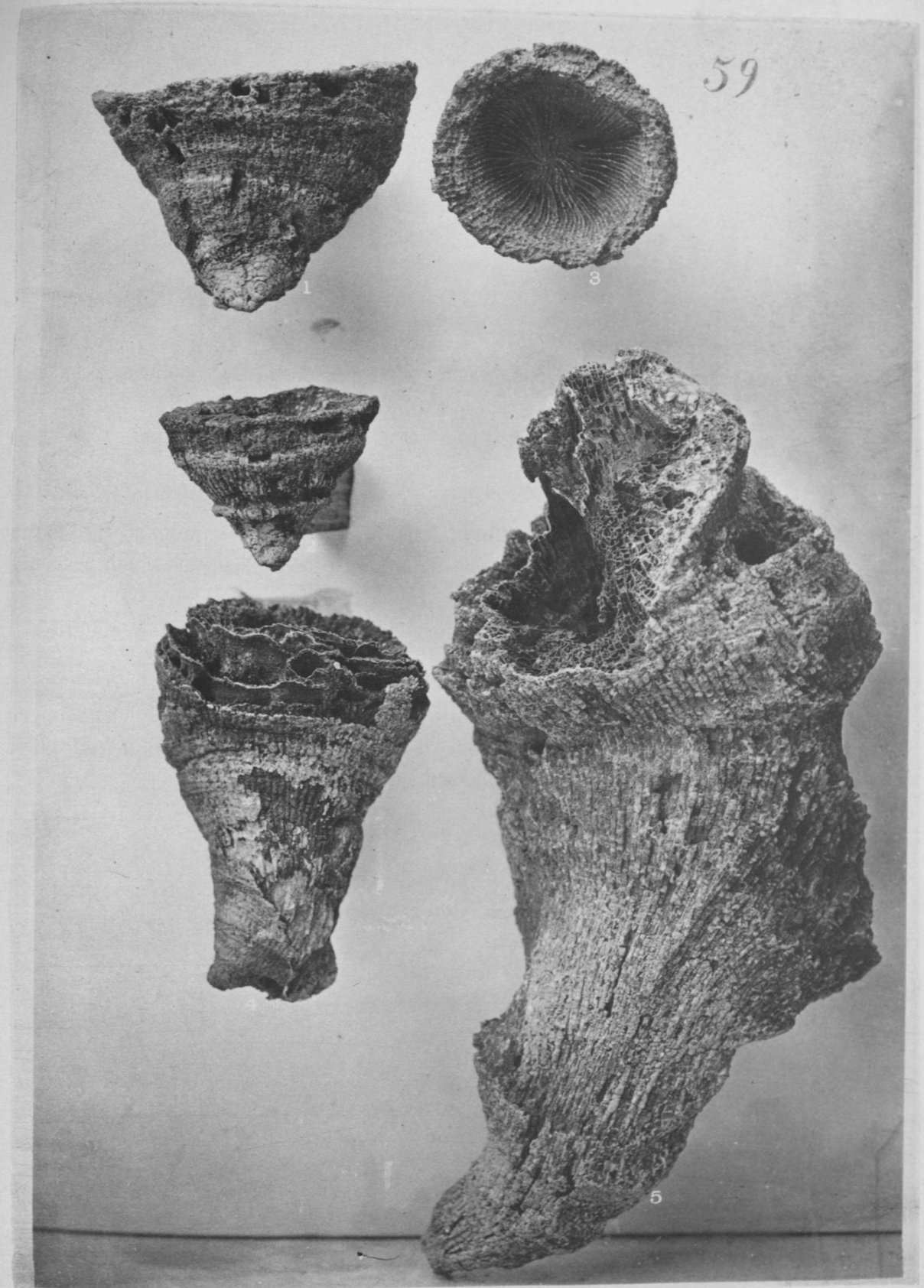
1. Central view of a rapidly expanding corallum. Collection of Mr. McConathy.
2. Central view of a corallum of typical size and shape. Collection of the author.
3. Calyx of a corallum. Collection of the author.
5. Corallum of gigantic dimensions, with oblique section of the calyx-wall, showing the sub-vesicular cellulose tissue of the interloculi. Collection of the author.

Found in the red clay of the Middle Devonian, near Louisville.

BLOTHROPHYLLUM CORIUM, Nov. Spec.

Devonian.

4. Right lateral view of corallum, with apex flattened by attachment to an extraneous object, from the Middle Devonian red clay, near Louisville. Collection of the author.



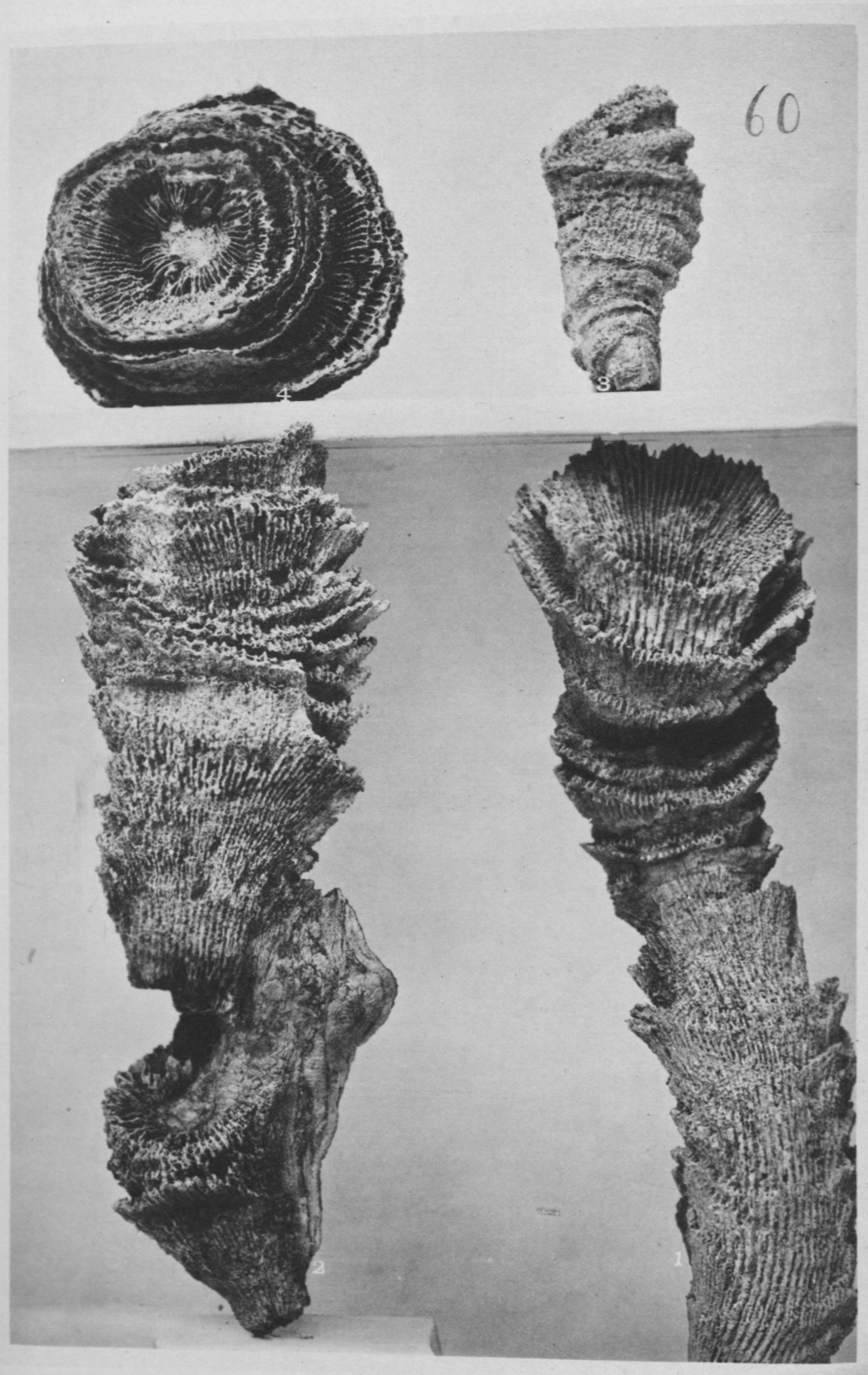


PLATE 82.

CYATHOPHYLLUM FIMBRIATUM, Nov. Spec.

Devonian.

1. Central view of a flexuous corallum, with epitheca denuded, from the blue clay of the Middle Devonian, Falls of the Ohio.
2. Right lateral view of a weathered corallum, from the same horizon and place.
3. Calyx of a corallum; the figure also shows the margins of some of the inferior invaginated calyces; from the Middle Devonian red clay, near Louisville.

Collection of the author.

CYATHOPHYLLUM INSIGNE, Nov. Spec.

Devonian.

4. Right lateral view of a jejune corallum, with apical scar of attachment during growth.

PLATE 83.

CYATHOPHYLLUM MULTICRENA, Nov. Spec.

Devonian.

1. Right lateral view of a corallum of slender habit, from the Middle Devonian red clay, near Louisville.
 2. Left lateral view of a symmetrical corallum of average size, from the same horizon and neighborhood.
 3. Right lateral view of a young corallum, from the blue clay of the Middle Devonian, Falls of the Ohio.
 4. Calyx of a corallum.
 5. Calyx of a very large corallum of which the circular elevated rim of the diaphragm has been fortuitously broken down.
- Examples 4 and 5 are from the horizon and locality of example 3.

CYATHOPHYLLUM ŒDIPUS, Nov. Spec.

Devonian.

6. Left lateral view of a small corallum, from the Lower Devonian ferruginous clay, near Louisville.
 7. Central view of a small corallum.
 8. Left lateral view of a corallum of medium size.
 9. Right lateral view of a corallum.
- Examples 7, 8, 9, are from the horizon and vicinage of example 6.

CYATHOPHYLLUM FLOS, Nov. Spec.

Niagara.

10. Calyx view of a corallum from the Upper Niagara white clay, near Louisville.

CYATHOPHYLLUM CORALLIFERUM.

Devonian.

11. Calyces of corallets, varying in size, imbedded in Stromatopora, as is usual with the species; from the blue clay of the Middle Devonian, Falls of the Ohio.

CYATHOPHYLLUM PUMILUS, Nov. Spec.

Devonian.

12. Left lateral view of a corallum slightly below medium size, with apical scar; from the Middle Devonian blue clay, Falls of the Ohio.

CYATHOPHYLLUM WINCHELLI, Nov. Spec.

Devonian.

13. Right lateral view of a corallum of average size, with small circular apical scar.
 14. Calyx of a corallum.
- From the Middle Devonian blue clay, Falls of the Ohio.
- The examples figured in this Plate are from the collection of the author.

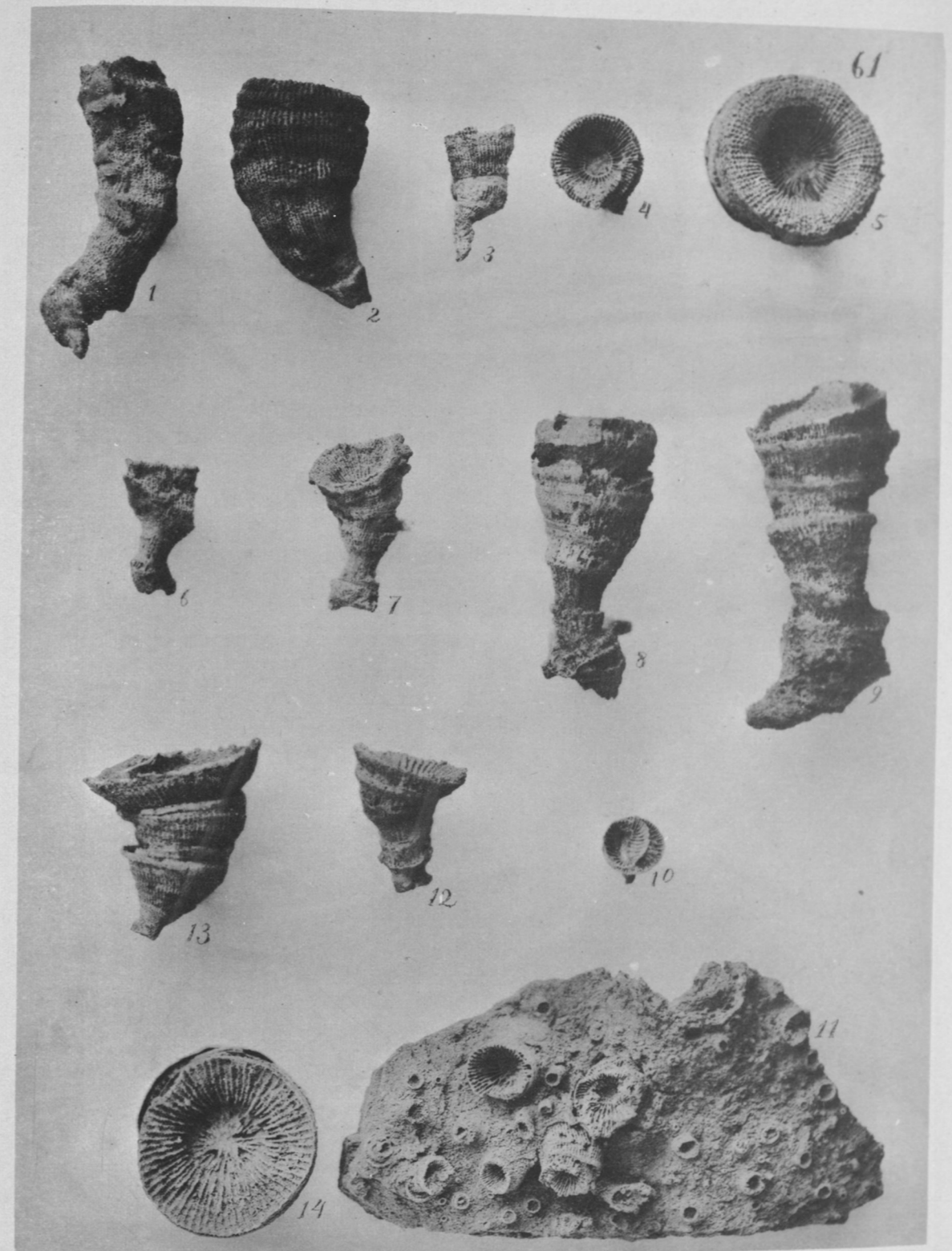




PLATE 84.

CYATHOPHYLLUM ÆDIPUS, Nov. Spec.

Devonian.

Composite corallum, partly imbedded in rock matrix, from the

Lower Devonian, Falls of the Ohio.

Collection of the author.

PLATE 85.

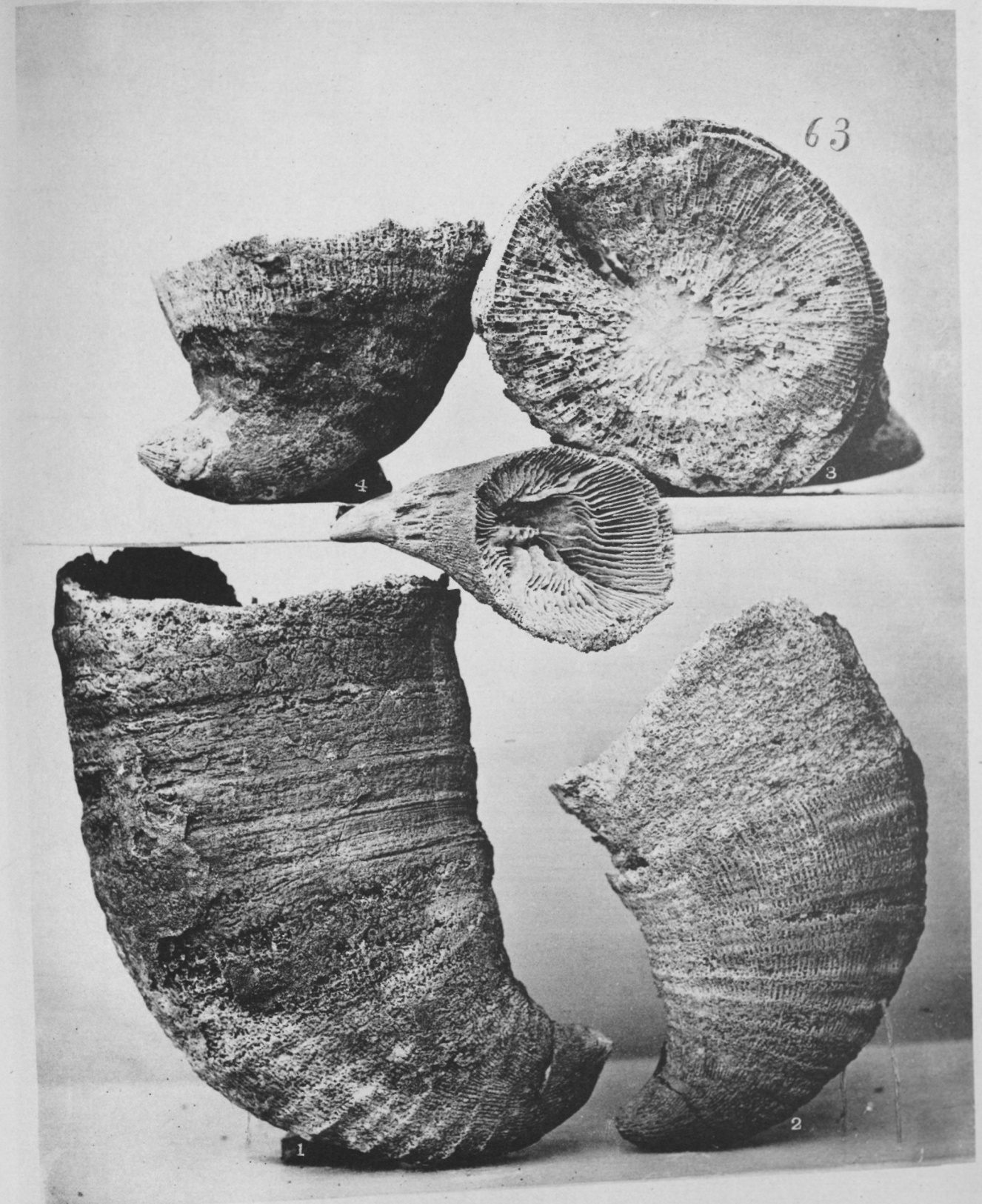
CYATHOPHYLLUM ROBUSTUM.

Devonian.

1. Adult corallum: left lateral view.
2. Right lateral view of a corallum.
3. Calyx of a corallum, the linear edges of whose lamellæ are broken down so as to show the cellulose inner walls.
4. Right lateral view of a young corallum.
5. (Central specimen.) View of calyx and central exterior of an unsymmetrical jejune corallum, with well-preserved acute lamellæ but abnormally shaped diaphragm.

The examples figured were cut from the Lower Devonian rocks, Falls of the Ohio.

Example 4 is from the collection of Mr. Gaines; the others from the collection of the author.





CYATHOPHYLLUM RADICULA.

Niagara.

1. Left lateral view of large corallum, with the gem of an inferior calyx still adherent, from the Upper Niagara white clay, near Louisville. Collection of Mr. Gaines.
2. 3. 4. Typically flexuous coralla: example 4 from the Upper Niagara red clay, the others from the slightly lower horizon of the white clay, near Louisville. Collection of the author.
5. A sessile corallum, with calycinal gem, from the horizon and neighborhood of example 4. Collection of the author.
6. Right lateral view of a stout sessile corallum, with inchoate root-like processes of attachment, common to most Niagara cyathophylloids; from the horizon and locality of example 4. Collection of the author.

CYATHOPHYLLUM TORNATUM, Nov. Spec.

Devonian.

7. Left lateral view of a corallum from the inferior stratum of the dark-red encrinal-limestone clay of the Upper Devonian, near Louisville. Collection of the author.
8. Exterior view of a corallum, showing rounded apex and wrinkled epitheca, from the horizon and neighborhood of example 7. Collection of the author.
9. Calyx of a corallum, from the same horizon and place. Collection of the author.
10. 11. Left lateral views (prostrate) of unusually long and slender coralla, from the horizon and vicinage of the previous examples. Collection of the author.

CYATHOPHYLLUM SCYPHUS.

Devonian.

12. Right lateral view of a corallum of geniculated form.
13. Left lateral view of a corallum of medium size, with circular apical scar.
14. Calyx of a corallum, with gem. From the horizon and vicinage of *C. tornatum*, figured in this Plate. Collection of the author.

PLATE 87.

CYATHOPHYLLUM MULTIGEMMATUM, Nov. Spec.

Devonian.

View of exterior apertural side of ancestral corallet. The central form is not a corallet of the community, but is held in embracement. Cut from the Lower Devonian limestone, near Louisville. Collection of the author.

[NOTE.—Turn the Plate so as to view it from the right side.]



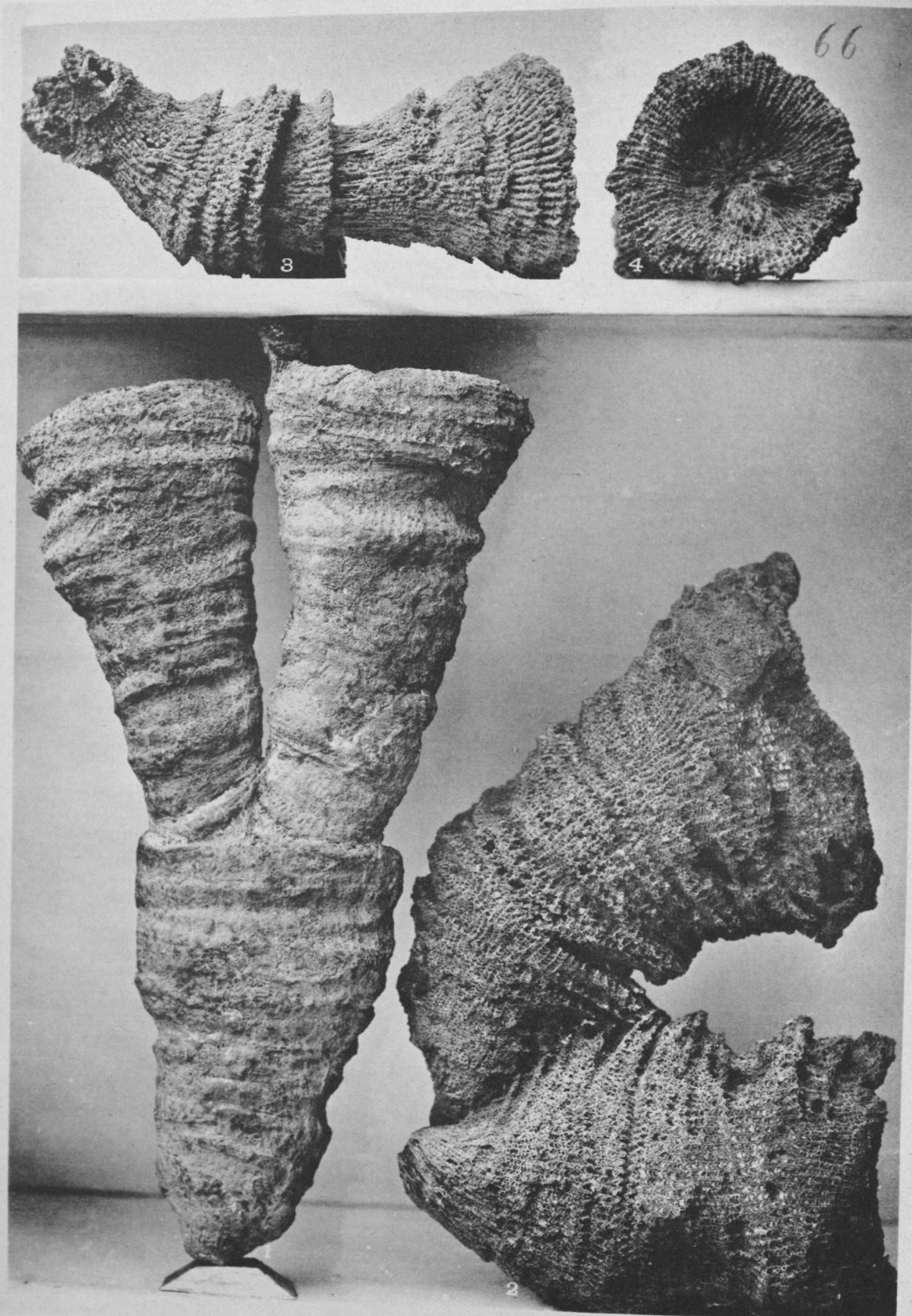


PLATE 88.

CYATHOPHYLLUM MULTIGEMMATUM, Nov. Spec.

Devonian.

1. View along the line of the apertural gap of the ancestral corallet; right and left lateral views of its progeny. From the horizon and locality of the specimen figured in Plate 87.

CYATHOPHYLLUM LIGATUM, Nov. Spec.

Devonian.

2. Right and left lateral views of inosculating gems detached from the maternal corallum, with epitheca removed so as to show the concave interocular dissepiments. From the Lower Devonian rocks, Falls of the Ohio.
4. Calyx of a corallum, with bell-shaped wall, from the ferruginous clay of the Lower Devonian, near Louisville.

CYATHOPHYLLUM DETEXTUM, Nov. Spec.

Devonian.

3. View of a corallum (prone), the lower half of which shows the exterior right lateral gap-line, and the upper half the exterior surface symmetrical with the line of the apertural gap. From the Lower Devonian, Falls of the Ohio.

The specimens figured belong to the collection of the author.

PLATE 89.

DIPHYPHYLLUM VERNEUILANUM.

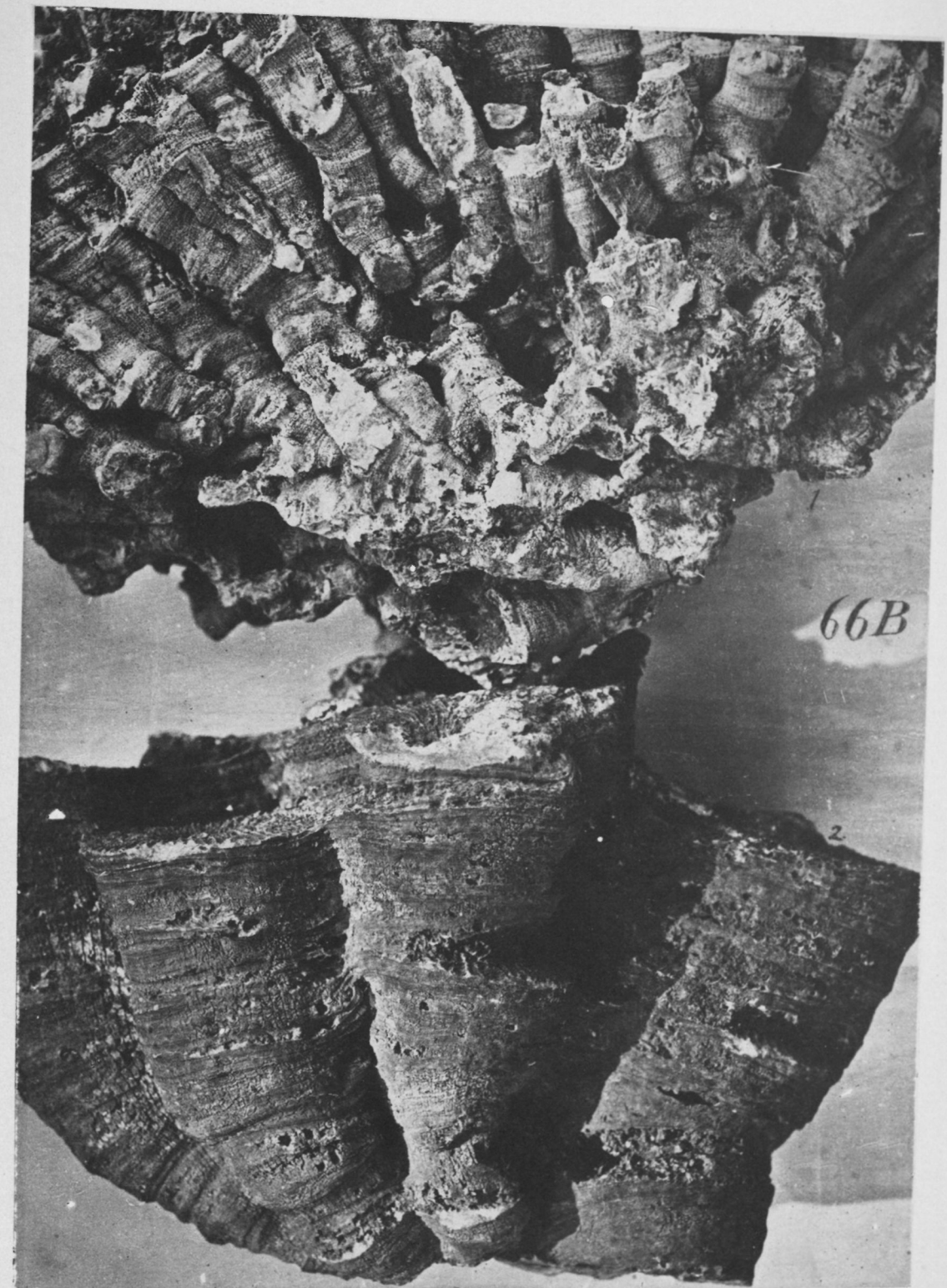
Devonian.

1. Exterior lateral view of a corallum from the Middle Devonian red clay, near Louisville. Collection of the author.

CYATHOPHYLLUM MULTIGEMMATUM, Nov. Spec.

Devonian.

2. Exterior lateral views of inosculated corallets accidentally broken from their parent, from the Middle Devonian waste of Marion county, Kentucky. Collection of Mr. Linney.



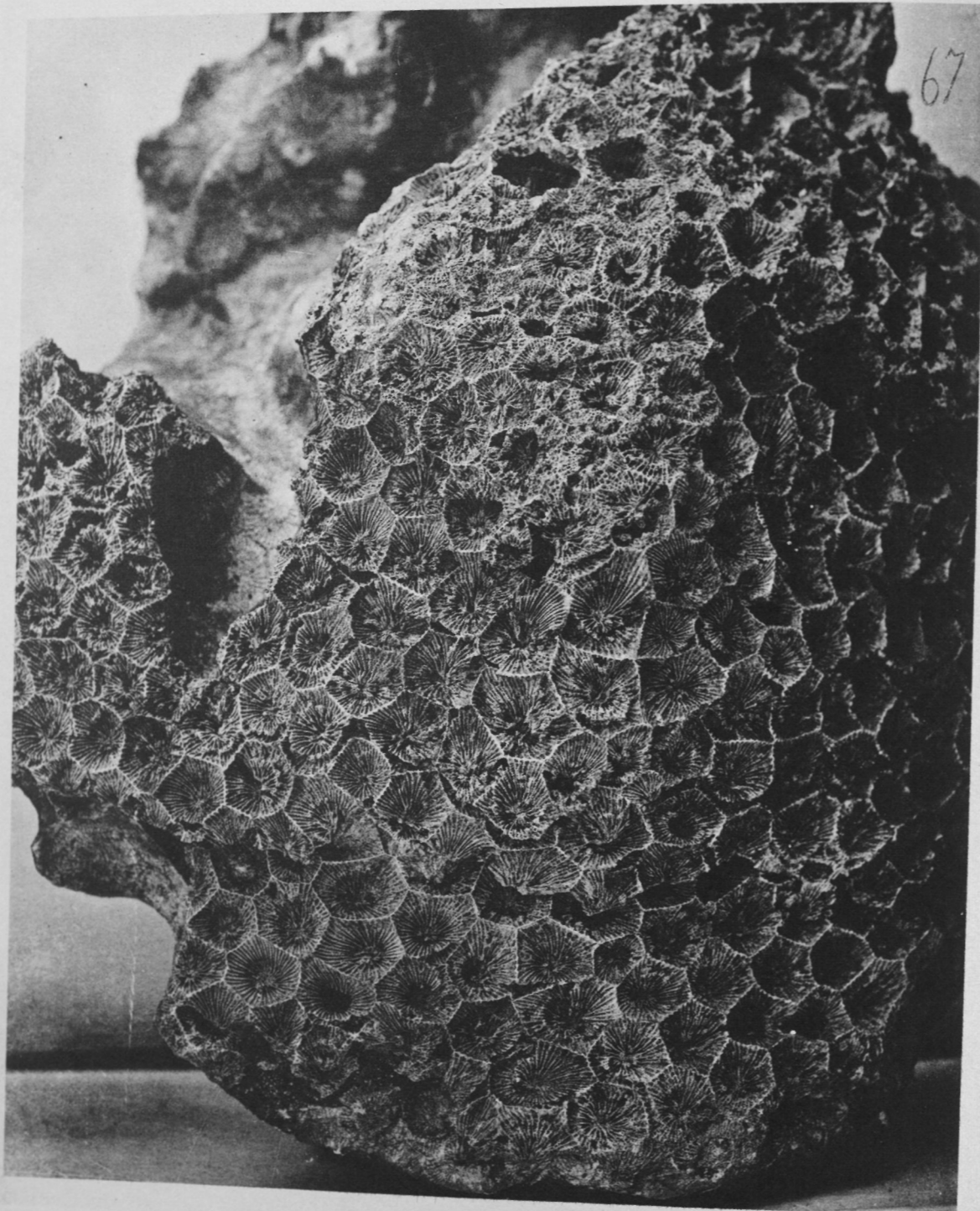


PLATE 90.

CYATHOPHYLLUM RUGOSUM.

Devonian.

Upper surface of a corallum from the Middle Devonian rocks,
Falls of the Ohio. Collection of the author.

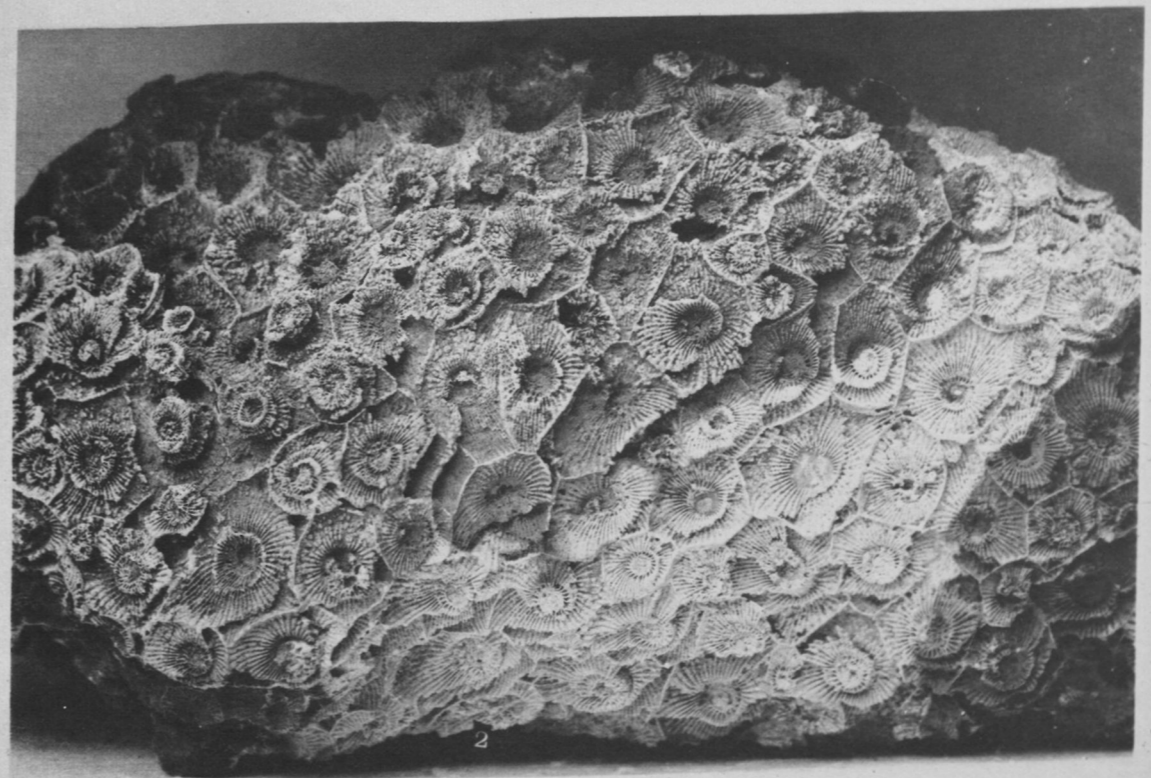
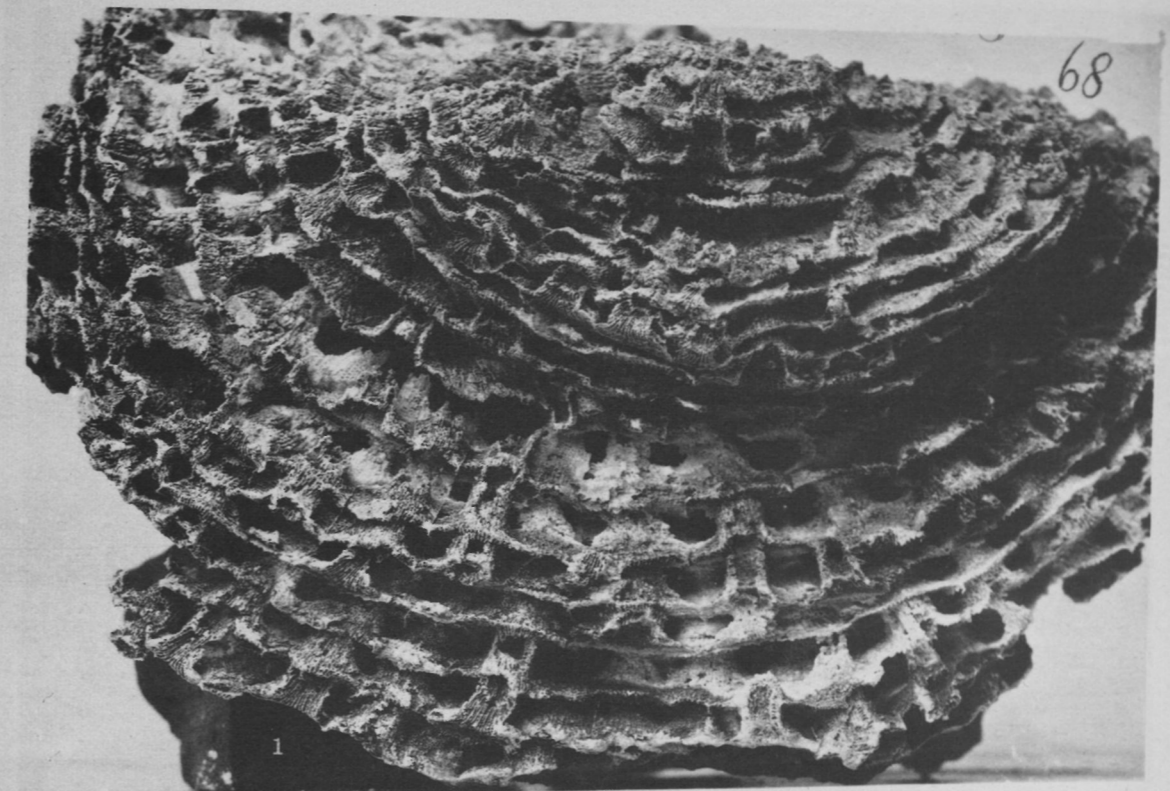
PLATE 91.

CYATHOPHYLLUM COLLIGATUM.

Devonian.

1. Under surface of a corallum from the ferruginous clay of the Lower Devonian, near Louisville.
2. Upper surface of a corallum from the same horizon and neighborhood.

Collection of the author.



KENTUCKY GEOLOGICAL SURVEY.

PLATE 92.

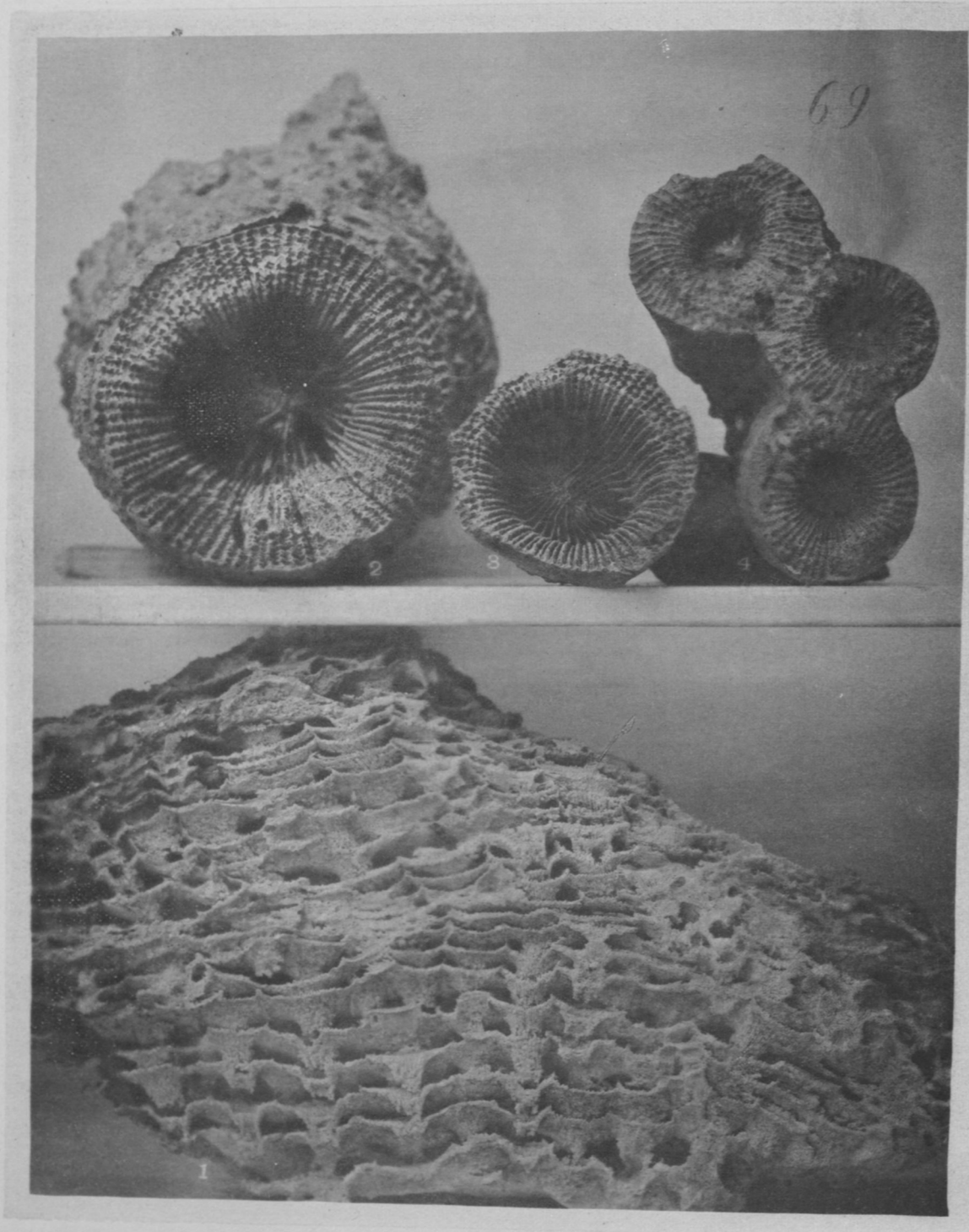


PLATE 92.

CYATHOPHYLLUM COLLIGATUM.

Devonian.

1. Vertical section of specimen Fig. 2, Plate 91.

CYATHOPHYLLUM HALLI.

Devonian.

2. Calyx of corallum Fig. 1, Plate 77.
3. Calyx of a corallum of medium size, bell-shaped, from the red clay of the Middle Devonian, near Louisville. Collection of the author.

CYATHOPHYLLUM MULTIGEMMATUM, Nov. Spec. *Devonian.*

4. Three small inosculated gems fortuitously detached from the inferior corallet; from the Middle Devonian waste, Lincoln county, Kentucky. Collection of Mr. Linney.

PLATE 93.

CYATHOPHYLLUM OVOIDEUM, Nov. Spec.

Devonian.

1. Upper surface of a corallum from the decomposed chert of the Middle Devonian, near Louisville.

CYATHOPHYLLUM DAVIDSONI.

Devonian.

2. Upper surface of a corallum from the rotten chert of the Middle Devonian, Falls of the Ohio.

CYATHOPHYLLUM RUGOSUM.

Devonian.

3. Upper surface of a fragment showing cristate calyx-walls, from the Middle Devonian red clay, near Louisville.
Collection of the author.

