Mary Cameron

REPORT.

TO THE LEGISLATURE OF THE STATE OF NEW-YORK.

The Regents of the University

RESPECTFULLY REPORT:

That during the past year, many and various additions have been made to the Cabinet. For the Zoological department, there have been procured a number of specimens of animals native to the State, and which were not previously in the collection. A list of those presented and purchased accompanies this report.

The engagements of Dr. Fitch, during the last season, have prevented him from increasing the collection of Insects, but the matter is still left in his charge, and he will doubtless, ere long, forward additional specimens.

The Regents have to state with regret, that some of the preserved animals have recently been found to be injured by the moth. An examination of them is now making by a competent person, who is directed to destroy such as may be too far affected, and also to take every means to prevent future loss through this cause.

The Botanical Collection continues in excellent order, and is carefully preserved.

Valuable donations have been received from various persons, for the Mineralogical and Geological Museum. These are particularly specified in the accompanying documents, but the Regents deem it proper to add, that a few months since, Dr. Nathaniel F. Moore, late President of Columbia College, tendered to them a collection of

PROPERTY OF:
CHESTER HISTORY SOC.
47 MAIN STREET
CHESTER NY 10918

minerals, fossils and shells, made by his deceased nephew, Casimir De Rham, Jr. Although the State Cabinet is peculiarly appropriated to our native productions, still the interest attached to these memorials of a young and successful student of Natural History, required that the offer should be cheerfully accepted. Any anticipations that were entertained as to their value, have been greatly exceeded on their examination and arrangement. The collection includes many rare minerals, and highly prized fossils and shells. The curator has prepared a catalogue of them, which will give some idea of the industry and discrimination of one who was too early lost to science.

The Historical and Antiquarian collection continues to increase and flourish, beyond the most sanguine hopes of its projectors. Numerous and valuable presents have been made, and more are promised. Among these are some precious relics from the battle grounds of Saratoga, and a memorial of the victory of Commodore Perry on Lake Erie.

Donations also continue to be received of Indian relics, and in the spirit of the views expressed to the Legislature in their last annual report, the Regents deemed themselves justified in purchasing from Mr. E. G. Squire a number of aboriginal remains, which he had obtained in western New-York, and elsewhere.

A few months since, Mr. Lewis H. Morgan, of Rochester, whose liberal gifts have been enumerated in a former report, and who has continued them during the present year, suggested the propriety of endeavoring to bring together a full exhibition of the manufactures of the Indian tribes still remaining within our State, and thus to show, as it were, their transition condition, in the union of their ancient and rude constructions, with the improvements received through the whites. Mr. Morgan added, that he would with pleasure superintend the disposition of any appropriation that might be resolved upon. The Regents could not hesitate to agree to his offer. So rapid, indeed, is the progress of change, with the ancient lords of the soil, that what is to be done must be done quickly. A sum of money was accordingly placed at the disposal of Mr. Morgan, and the result has been the beautiful and interesting collection which now adorns the rooms. It is intended shortly to label each article with its English and Indian name, and the whole will be perfectly illustrated by the sketches accompanying the memoir which forms part of this report.

Dr. Franklin B. Hough, of St. Lawrence county, a contributor to the Mineralogical and the Antiquarian Collection, has also forwarded a "notice of several ancient remains of art in St. Lawrence and Jefferson counties," accompanied with sketches of the same, and the Regents transmit them as worthy of publication.

Our country presents many examples of the rapid progress from rude art to the most striking exhibitions of human kill, and the State Cabinet would scarcely be complete, without containing specimens of each. Through the liberality of Mr. McAlpine, engineer of the United States Dry Dock, at Brooklyn, there is now to be seen a plaster model of that great work; various specimens of granite employed in its construction, and a collection of soils, through which the necessary excavations for this purpose were made.

Several years have now elapsed since the publication of most of the volumes of the "Natural History of New-York," and it occurred to the Regents that means should be taken to ascertain, and as it were, post up, the progress of discovery and science in each of the departments to the present time. The suggestion was communicated to several of the persons formerly engaged in the State Survey, and the Regents have now the pleasure to present, as its first fruits, a report from Dr. Lewis C. Beck, the author of the Mineralogy of New-York, comprising notices of the additions made since 1842. Its intrinsic merits, and the labor evidently bestowed upon it, are its best recommendations.

The Regents, on the resignation of the curator, appointed John Gebhard, Jr., of Schoharie county, to that place, and he accordingly entered on its duties on the 1st of November last. Great reliance is placed on his well known devotion to, and his knowledge of, Natural History; and he has already given an abundant earnest, in the industry and zeal with which he has entered on the engagements of his office.

As to the pecuniary affairs of the Institution, the Regents beg leave to refer to the accompanying account current of receipts and expenditures. They have every assurance, that through a clerical error, the appropriation made last year for 1849 and 1850, was reduced one-half, through the omission of the words "for each of the years." Had it not been discovered that a small balance in the treasury de-

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voted to this purpose, remained uncalled for, the committee acting under the direction of the Regents would have been altogether precluded from carrying out their views, and as they were well assured, those also of the Legislature. They therefore solicit that the present appropriation for 1850, viz: two hundred and fifty dollars, may be increased to five hundred dollars, and the last amount also granted for 1851.

Should this request be complied with, it is intended to order preserved specimens of the larger animals, still indigenous to our State. The Beaver, it is said, can still be obtained, but it may be extinct ere another year elapses; the Moose is rapidly diminishing; the Bear, the Wolf, and the Panther, should all be represented. But they must be captured at particular times and seasons; the hunter must be assured that he will be rewarded for his hazardous labors; and the taxidermist has too little of general encouragement, to attend to their proper preservation, unless he can rely on a sure and liberal patron.

It is principally for these reasons, that the Regents solicit an early and kind attention to the wishes now expressed.

By order of the Regents of the University.

G. Y. LANSING,
Chancellor.

T. ROMEYN BECK,
Secretary.

Papers accompanying the Report.

A. Account current of receipts and expenditures during 1849.

B. Catalogue of Quadrupeds, Birds, Reptiles, Amphibians, Fishes, and Crustaceans, added from January 1, 1849, to January 1, 1850.

C. Catalogue of Minerals, Geological specimens and Fossils, (including the Cabinet of the late Mr. De Rham,) added from January 1, 1849, to January 1, 1850.

D. Catalogue of additions (by donation and purchase) to the Historical and Antiquarian collection, from January 1, 1849, to January 1, 1850.

E. Catalogue of Reptiles and Amphibians, native to the State, and contained in the Cabinet, January 1, 1850.

F. Report to the Regents of the University upon the articles furnished to the Indian collection, by Lewis H. Morgan, of Rochester.

G. Notice of several ancient remains of art in Jefferson and St. Lawrence counties, by Franklin B. Hough, M. D., of Somerville, St. Lawrence county.

H. Report on the Mineralogy of New-York, comprising notices of the additions which have been made since the year 1842, by Lewis C. Beck, M. D., late Mineralogist of the Survey of New-York.

I. References to various essays and writings on the NATURAL HISTORY of New-York, mostly published subsequent to the respective volumes on that subject.

K. Index to the volumes in the State Cabinet of Natural History, containing the Plants of the State of New-York.

L. Description of new species of Fossils, from the Trenton limestone, by James Hall. (This paper was received immediately after the adoption of the annual report, but in compliance with a promise made early in the year.)

(A.)

The Regents of the University, in account current with the appropriations towards preserving and increasing the "State Cabinet of Natural History, and the Historical and Antiquarian collection annexed thereto, and for defraying the incidental expenses of the same."

By balance remaining in the State Treasury, from the appropriations for 1847 and 1848, as per annual report, made January 12, 1849. (See Senate document No. 20, of 1849.).....			$88 93
By balance remaining in the State Treasury, on an appropriation made for the same purpose, and of which there has been drawn,.....			313 00
1849.			
April 14.	By the annual appropriation for 1849, deposited this day in the Albany City Bank,.....		250 00
			$651 93
1849.			
Jan'y 18.	By cash paid John G. Bell, for preserved animals and birds; settled as follows:		
	By a draft on the Comptroller,.....	$88 93	
	By voucher No. 1,.....	5 07	
			$94 00
April 17.	By cash paid Wells & Co., and (receipt left with the Comptroller) freight of boxes containing the above animals and birds, voucher No. 1.....		2 50
	By cash paid J. Gladding, for glazing, No. 2,		1 38
	By cash paid J. T. Robinson, by Dr. Torrey, for printing 1,674 labels for the State Herbarium, and for other expenses in arranging and re-examining the same, No. 3,.....		62 78
	Amount carried forward,.....		$160 66

	Amount brought forward, ...		$160 66
	By cash paid E. G. Squire, for his collection of Indian relics, from western New-York, No. 4.		50 00
	By cash paid J. A. Hurst, for sundry preserved animals and birds, No. 5,.....		10 50
	By cash paid T. R. Beck, for the shell of a tortoise, purchased, No. 6,.....		2 00
	By cash paid for contingent expenses, viz: No. 7.		
	Tozzoni, for repairing model of the Dry Dock, ...	$1 50	
	Freight and cartage of State Herbarium,	1 25	
	Hoffman's City Directory,.....	1 00	
			3 75
	By cash paid Mrs. Carroll, for cleaning rooms, No. 8,.....		4 00
	By cash paid for various contingent expenses, on the 24th of Oct., 1849, 7 vouchers, No. 9,		9 89
	By cash paid Lewis H. Morgan, of Rochester, by a draft on the Comptroller, for procuring a collection of Indian manufactures, &c., (voucher left with the Comptroller,)		215 00
	By cash paid J. A. Hurst, for collection of preserved animals, birds, and fishes,..	$88 50	
	To Wells & Co., for freight of Mr. Morgan's Indian collection, from Rochester, ...	7 87	
	Wm. Wall, for cleaning rooms in October, ...	1 00	
	Cartage of Indian collection to the State Cabinet, ...	0 63	
			98 00
	(Paid by a draft on the Comptroller, and vouchers left with him.)		
1850.			$553 80
January.	By balance to new account,.....		98 13
			$651 93

(Copy.)

Albany City Bank, 1*st Jan'y*, 1850.

I certify that there is a balance of ninety-eight dollars and thirteen cents, standing to the credit of the "State Cabinet of Natural History," in the books of this bank.

(Signed) WATTS SHERMAN,
Cashier.

Albany, *January* 8, 1850.

We have examined the foregoing account, and believe it to be correct, having compared the same with the vouchers.

HAMILTON FISH,
G. Y. LANSING,
CHRISTOPHER MORGAN.

(B.)

CATALOGUE

OF THE

QUADRUPEDS, BIRDS, REPTILES, AMPHIBIANS, FISHES, &c.,

ADDED TO THE

State Cabinet of Natural History,

FROM JANUARY 1, 1849, TO JANUARY 1, 1850.

(B.)

CATALOGUE

OF THE

QUADRUPEDS, BIRDS, REPTILES, AMPHIBIANS, FISHES, &c.

ADDED TO THE

State Cabinet of Natural History,

FROM JANUARY 1, 1849, TO JANUARY 1, 1850.

MAMMALIA.

ORDER CARNIVORA.

FAMILY VESPERTILIONIDÆ.

Zoology—Part I.

VESPERTILIO NOVEBORACENSIS, *New-York Bat*, (male.) - - p. 6
VESPERTILIO SUBULATUS, *Little Brown Bat*, (male.) - - - 8
VESPERTILIO NOCTIVAGANS, *Silver-haired Bat*, (male & fem.) 9
VESPERTILIO CAROLINENSIS, *Carolina Bat*, (male.) - - - - 10

FAMILY SORECIDÆ.

CONDYLURA CRISTATA, *The Common Starnose*, (male.) - 12

FAMILY MUSTELIDÆ.

PUTORIUS NOVEBORACENSIS, *New-York Ermine*, (male, summer dress.) - - - - - - - 36
PUTORIUS VISON, *The Mink*, (male.) - - - - - - 37

FAMILY FELIDÆ.

LYNCUS BOREALIS, *Northern Lynx*. - - - - - - - 50

ORDER RODENTIA.

FAMILY SCIURIDÆ.

SCIURUS VULPINUS, *The Fox Squirrel*, (male & fem.) - 59

FAMILY ARCTOMIDÆ.

ARCTOMYS MONAX, *Woodchuck*, (male & female.) - - 68

FAMILY GERBILLIDÆ.

MERIONES AMERICANUS, *Deer Mouse*, (female.) - - - - 70

FAMILY CASTORIDÆ.

FIBER ZIBETHICUS,	*Muskrat*, or *Musquash*, (male & f.)	75

FAMILY MURIDÆ.

MUS DECUMANUS,	*Brown Rat*, (male & female.) - -	79
MUS MUSCULUS,	*Common Mouse*, (male & female.)	82
MUS LEUCOPUS,	*Jumping Mouse*, (female.) - - -	82
ARVICOLA RUFESCENS,	*Tawny Meadow Mouse*, (male.) -	85
ARVICOLA HIRSUTUS,	*Beaver Field Mouse*, (male.) - -	86

BIRDS.

ORDER ACCIPITRES.

FAMILY FALCONIDÆ

BUTEO HARLANI,† *Harlan's Buzzard*, (female.) - p. 11

FAMILY STRIGIDÆ.

STRIX PRATINCOLA, *American Barn Owl.* - - - - 31

ORDER PASSERES.

FAMILY HIRUNDINIDÆ.

HIRUNDO RIPARIA, *Bank Swallow*, (male.) - - - - - 39

FAMILY AMPELIDÆ.

BOMBYCILLA GARRULA, *Black-throated Waxwing.* - - - 43

FAMILY CERTHIDÆ.

TROGLODYTES AMERICANUS, *Wood Wren.* - - - - - - - - 54

FAMILY SYLVIADÆ.

SIALIA WILSONI, *Bluebird*, (female.) - - - - - - 65

FAMILY MOTACILLIDÆ.

ANTHUS LUDOVICIANUS, *American Titlark*, (female.) - - 76

† Presented by A. F. HOLMES, of Washington county, and mounted by T. C. HENRY, gratuitously.

FAMILY SYLVICOLIDÆ.

VERMIVORA CELATA,	*Orange-crowned Warbler*, (female.)	87
SYLVICOLA RUFICAPILLA,	*Red-poll Warbler.* - - - - - -	89
SYLVICOLA ÆSTIVA,	*Summer Yellowbird*, (male.) - -	99
SYLVICOLA VIRENS,	*Black-throated Green Warbler*, (male & female.) - - - - -	100
SYLVICOLA MARITIMA,	*Cape May Warbler*, (male.) - -	104
CULCIVORA CŒRULEA,	*Blue-grey Gnatcatcher.* - - - -	109

FAMILY MUSCICAPIDÆ.

MUSCICAPA ACADICA,	*Small Green-crested Flycatcher.* -	112

FAMILY VIREONIDÆ.

VIREO OLIVACEUS,	*Red-eyed Greenlet*, (male.) - - -	124

FAMILY FRINGILLIDÆ.

EMBERIZA AMERICANA,	*Black-throated Bunting*, (m. & f.)	155
*SPIZA CYANEA,	*Indigobird*, (male.) - - - - -	173
*PYRANGA RUBRA,	*Black-winged Redbird*, (male.) -	176

ORDER GRALLÆ.

FAMILY GRUIDÆ.

ARDEA HERODIAS,	*Great Blue Heron*, (female.) - -	219
ARDEA EXILIS,	*Small Bittern*, (male.) - - - -	225
ARDEA MINOR,	*American Bittern*, (female.) - -	226

FAMILY TANTALIDÆ.

IBIS MEXICANUS,	*Glossy Ibis*, (male.) - - - - -	231

This beautiful specimen was shot on Grand island, in the Niagara river, by J. A. HURST, in the month of August, 1844.

FAMILY SCOLOPACIDÆ.

HETEROPODA SEMIPALMATA,†	*Semipalmated Sandpiper.* - - -	236
TRINGA PUSILLA,†	*Wilson's Sandpiper*, (2 specimens.)	244

* To replace imperfect speeimens.

† Presented by WILLIAM GALBRAITH, of New-Jersey.

ORDER NATATORES.

FAMILY ALCIDÆ.

		Zoology—Part II.
URIA GRYLLE,	*Black Guillemot*, (male.) - - -	278

FAMILY PROCELLARIDÆ.

THALASSIDROMA WILSONI,	*Wilson's Petrel.* - - - - - - -	290

FAMILY PELECANIDÆ.

PHALACRACORAX CARBO,	*Cormorant.* - - - - - - - - -	292
PELECANUS FUSCUS,	*Brown Pelican.* - - - - -	294

FAMILY ANATIDÆ.

ANSER CANADENSIS,	*Wild Goose.* - - - - - - - -	348
CYGNUS AMERICANUS,	*American Swan.* - - - - - - -	353

ORDER NATATORES.

FAMILY ALCIDÆ.

		Zoology—Part II.
URIA GRYLLE,	*Black Guillemot*, (male.) - - -	278

FAMILY PROCELLARIDÆ.

THALASSIDROMA WILSONI,	*Wilson's Petrel.* - - - - - - -	290

FAMILY PELECANIDÆ.

PHALACRACORAX CARBO,	*Cormorant.* - - - - - - - - -	292
PELECANUS FUSCUS,	*Brown Pelican.* - - - - -	294

FAMILY ANATIDÆ.

ANSER CANADENSIS,	*Wild Goose.* - - - - - - - -	348
CYGNUS AMERICANUS,	*American Swan.* - - - - - - -	353

ORDER NATATORES.

FAMILY ALCIDÆ.

Uria grylle, Black Guillemot, (male.) - - - 293
Description—Part II.

FAMILY PHOCIDÆ.

Phalangiodon wilsoni, Wilson's Petrel. - - - - - - - 290

FAMILY PELECANIDÆ.

Phalacrocorax carbo, Cormorant. - - - - - - - - - 292
Pelecanus fuscus, Brown Pelican. - - - - - - 294

FAMILY ANATIDÆ.

Anser canadensis, Wild Goose. - - - - - - - - 248
Cygnus americanus, American Swan. - - - - - - 252

REPTILES.

ORDER TESTUDINATA.

FAMILY CHELONIDÆ.

Genus CHELONIA.

ZOOLOGY—Part III.

CHELONURA SERPENTINA, *Snapping Turtle.* - - - - - - p. 8

AMPHIBIA.

FAMILY SALAMANDRIDÆ.

ZOOLOGY—Part IV.

SALAMANDRA SUBVIOLACEA,* *Violet-colored Salamander.* - - 74

FISHES.

SUB-CLASS I. *Bony Fish*

ORDER II. *Abdominal.*

FAMILY SALMONIDÆ.

ZOOLOGY—Part V.

SALMO CONFINIS, *Lake Trout.* - - - - - - - p. 238

* Presented by GEORGE TODD, of Waterford.

ORDER VI. *Plectognathi.*

FAMILY GYMNODONTIDÆ.

TETRAODON ——,

This fish, which belongs to the genus Tetraodon, and apparently not described or figured in DE KAY's Natural History, was taken in the Hudson river in 1848, off Sing-Sing, Westchester county, and presented by JOAKIM URMEY, of Sing-Sing.

SUB-CLASS II. *Cartilaginous Fishes.*

ORDER I. *Eleutheropomi.*

FAMILY STURIONIDÆ.

[ZOOLOGY—Part V.

ACIPENSER OXYRHINCUS, *Sharp-nosed Sturgeon.* - - - - 346

CRUSTACEA.

ORDER DECAPODA.

[ZOOLOGY—Part VII 5

ASTACUS BARTONII,* *Freshwater Lobster*, or *Crawfish*, p. 23

From West river, Warren county.

CRANGON SEPTEMSPINOSUS,† *Bait Shrimp.* - - - - - - - - 25

From Haverstraw bay.

* Presented by PIERRE VAN CORTLANDT.

† Presented by JOHN HOLMES.

C.)

LIST

OF

MINERALS, GEOLOGICAL SPECIMENS AND FOSSILS,

ADDED TO THE

State Cabinet of Natural History,

(Including the collection of the late Mr. De Rham.)

FROM JANUARY 1, 1849, TO JANUARY 1, 1850.

(1)

LIST

OF

MINERALS, GEOLOGICAL SPECIMENS AND FOSSILS,

ADDED TO THE

State Cabinet of Natural History,

(Including the collection of the late Mr. De Kalb.)

FROM JANUARY 1, 1841, TO JANUARY 1, 1842

CATALOGUE

OF

MINERAL AND GEOLOGICAL SPECIMENS,

RECEIVED FROM

FRANKLIN B. HOUGH, A. M., M. D.,

OF SOMERVILLE, ST. LAWRENCE COUNTY, N. Y.

The following is Dr. HOUGH's description of the specimens:

1, 2. SULPHATE OF BARYTES. From the farm of V. Phelps, Gouverneur, St. Lawrence county.

3, 4, 5. SULPHATE OF BARYTES. Farm of R. Dean, Antwerp, (near Ox Bow) Jefferson county.

6, 7, 8. SATIN SPAR. Banks of Oswegatchie river, Rossie, St. Lawrence county.

9, 10. SCAPOLITE. Gouverneur, St. Lawrence county.

11. GRAPHITE. Rossie, near Indian river, one mile south of village, St. Lawrence county.

12. SPECULAR IRON ORE. Bank of Vrooman's lake, Antwerp, Jefferson county.

13. TREMOLITE. Near Church's mills, Rossie, St. Lawrence co.

14, 15. SULPHATE OF BARYTES. (Locality of Nos. 1, 2.) Found between the Parish and Kearney ore beds, Rossie, St. Lawrence county, and referred to in the Geological Report of the third district, page 267.

16. BRECCIATED BLACK SERPENTINE. Keene iron mine, Antwerp, Jefferson county.

17. POTSDAM SANDSTONE, WITH SPHERICAL CONCRETIONS. Vicinity of the Caledonia or old Parish iron mine, Rossie, St. Lawrence county.
18. SERPENTINE AND STEATITIC PYROXENE. Village of Gouverneur, St. Lawrence county.
19. SPHENE (black) in crystals, imbedded in GNEISS. Near Gouverneur village, St. Lawrence county.
20. CALCAREOUS SPAR. Banks of Vrooman's lake, Antwerp, Jefferson county.
21. IRON SAND, (magnetic.) Shore of Buonaparte's lake, Diana, Lewis county.
22. CAST OF THE LABRUM OF AN ISOTELUS. Found in Ohio.
23. DODECAHEDRAL CRYSTALS OF SULPHURET OF IRON. Farm of John Robinson, Gouverneur, St. Lawrence county.
24. CUBIC CRYSTALS OF SULPHURET OF IRON. Same locality.
25. SPINELLE, (pale red.) Farm of Mr. Ayers, Gouverneur, near Somerville, St. Lawrence county.
26. CALCAREOUS TUFA. Martinsburgh, Lewis county.
27. CRYSTALIZED MICA. (5 specimens.) Vrooman's lake, Antwerp, Jefferson county.
28. MINUTE CAPILLARY CRYSTALS OF SULPHURET OF NICKEL? Found on ANKERITE, and associated with CACOXENITE. Sterling iron mine, Antwerp, Jefferson county.
29. POTSDAM SANDSTONE, (cylindrical structure.) Rossie, St. Lawrence county.

This curious structure is frequently observed in this section of the country, and I do not recollect of having seen a satisfactory theory to account for its formation. These cylindrical masses are of all sizes, from three inches, to fifteen or twenty feet in diameter; and their *axes* are always nearly, if not exactly vertical. At times, two or more encroach on each other.

The large circle represented in the following figure, is about twelve feet in diameter, at the locality in Somerville, and the whole is nearly of the same level. The concentric lines of stratification are sometimes obscure, but the cylindrical structure is always sufficiently apparent. To no active agent can we attribute these interesting appearances with more plausibility, than that of water, revolving in the little vortices or eddies, and causing the sand, which is the principal constituent in the

MINERALS.

DONATIONS.

From James H. Ball.

SULPHURET OF IRON, in limestone. From Stephentown, Rensselaer county.

STEATITE, or SOAPSTONE. Locality unknown.

From C. F. Emery.

CARBONATE OF LIME, or calcareous deposit, enclosing pebbles. From the town of Ithaca.

From N. S. Collier.

LIMONITE. From Hillsdale.

BLACK OXIDE OF MANGANESE. Hillsdale.

From John Fitch, Esq. of Troy.

CALCAREOUS SPAR. From Mount Ida, Rensselaer county.

From Herr Driesbach.

SULPHURET OF IRON. From St. Johnsville, Montgomery county.

GEOLOGICAL, INCLUDING FOSSILS.

DONATIONS.

From Ledyard Lincklean, Esq.

A large mass of LIMESTONE, taken from the Marcellus shales of Manlius, Onondaga county, in which are imbedded four beautiful GONIATITES, the largest of which measures one foot in diameter.

Also a lesser mass, from the same locality, split apart longitudinally, exhibiting on one inner surface a GONIATITE and an ORTHOCERA, and on the other the matrices of the same fossils.

From Jonathan B Hart.

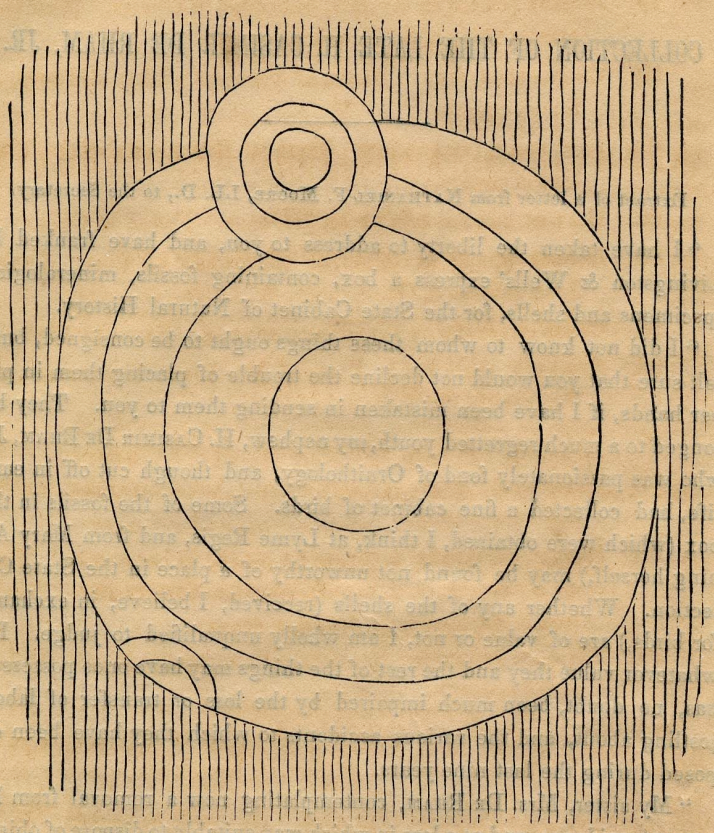
Seven specimens of Oriskany SANDSTONE, containing fossils. Found in Condor, Tioga county.

Also one specimen, with fossils, from the Hamilton Group. Found in the same county.

These specimens have been placed in the case containing the minerals, &c., of Tioga county, by the request of the donor.

rock, to be deposited in circular layers; or entirely excavating a cylindrical cavity in the sand, before it had assumed the consistence of rock, and leaving it to be filled subsequently.

The following sketch is from the surface of the rock, in a field adjoining Somerville village.



The existence of smaller circular masses in the border of, or entirely within a larger one, without in the least interfering with the stratification of it, shows that the causes which produced them operated at distinct intervals of time, although their ages appear to be very nearly the same.

This must, upon the whole, be considered a very interesting problem in Geology. F. B. H.

N. B. Mr. McAlpine's donation will be found in the additions to the "Historical and Antiquarian Collection."

COLLECTION OF THE LATE H. CASIMIR DE RHAM, JR.

Extract of a letter from NATHANIEL F. MOORE, LL. D., to the Secretary.

"I have taken the liberty to address to you, and have franked by Livingston & Wells' express a box, containing fossils, mineralogical specimens and shells, for the State Cabinet of Natural History.

"I did not know to whom these things ought to be consigned, but I felt sure that you would not decline the trouble of placing them in proper hands, if I have been mistaken in sending them to you. They belonged to a much regretted youth, my nephew, H. CASIMIR DE RHAM, Jr., who was passionately fond of Ornithology, and though cut off in early life, had collected a fine cabinet of birds. Some of the fossils in this box (which were obtained, I think, at Lyme Regis, and from Mary Anning herself,) may be found not unworthy of a place in the State Collection. Whether any of the shells (received, I believe, in exchange for birds,) are of value or not, I am wholly unqualified to judge. But whatever value they and the rest of the things may have once possessed, has, no doubt, been much impaired by the loss or transfer of labels, jostling about, and the various accidents to which they have been exposed during the last nine years.

"My sister, Mrs. DE RHAM, contemplating now a removal from her present residence, and at a loss in which way suitably to dispose of objects with which in some sort is connected the memory of her son, has thought she could not better show her respect therefor, than by sending them where, if they possess any intrinsic value, they will be rightly cared for. If any thing should be found among them worth inserting in the Annual Catalogue, and it should be thought necessary to give credit to the donor, it will be proper to name as such, H. C. DE RHAM, Esq."

CATALOGUE.

GEOLOGICAL.

1 to 50, inclusive. Rock specimens, from Cumberland. There is no catalogue accompanying these geological specimens, and the late day at which they were received, has not afforded sufficient time to determine and name them. It is hoped, however, that the next Annual Report will contain the name of each specimen.

MINERALOGICAL.

51. Carbonate of barytes, incrusted with copper pyrites and carbonate of lime.
52. Crystalized sulphate of barytes. Crystals in the form of *épointée*, of *Haüy*. From Devonshire, England.
53. Calcareous concretion. From the *Lago de Tartari*, near Rome.
54. Carbonate of lime, in botryoidal concretions.
55. Botryoidal magnesian limestone. From Durham.
56. Fibrous limestone, edges polished.
57. Fibrous sulphate of lime. Derbyshire, England.
58. Fibrous gypsum. Nova Scotia.
59. Compact fluor spar.
60. Crystalized fluor spar, polished.
61. Crystalized fluor, on blende. Matlock. England.
62. White crystalized fluor, upon zinc ore. Derbyshire, England.
63. Fluor spar, crystalized in cubes, of a beautiful bluish tint. Cumberland, England.
64. Fluor spar, crystalized in cubes, of a beautiful green. From Cumberland.
65. Fluor spar, crystalized in cubes; colorless.
66. Fluor spar, incrusted with crystals of carbonate of lime.
67. Veined fluor, polished. Derbyshire.

68. VEINED FLUOR, called by the miners, Blue John.
69. GROUP OF QUARTZ CRYSTALS, incrusted with transparent, terminated, six-sided prisms of heavy spar.
70, 71. Two six-sided prisms of QUARTZ, with six-sided pyramids, of a beautiful brownish tint.
72. PSEUDOMORPHOUS QUARTZ, sprinkled with blende. From Alston, England.
73. TALC.
74. GREEN TALC.
75. BLACK SPINELLE.
76. BROWN GARNET. Crystals with twenty trapezoidal faces.
77. GREEN FELDSPAR. Siberia.
78. GLASSY FELDSPAR. Near Bonn.
79. CHRYSOBERYL. Near Saratoga Springs.
80. BERYL. Acworth, N. H.
81. BERYL, (imbedded.) Acworth, N. H.
82. STAUROTIDE. Litchfield, Massachusetts.
83. STAUROTIDE. Franconia.
84. BRUCITE, in carbonate of lime. Warwick, New-York.
85. ONYX AGATE. Siberia.
86. CHRYSOPRASE. Baumgarten.
87. OLIVINE. Habichtwald.
88. CYANITE. Chesterfield.
89. ASBESTUS. Greenwood furnace, Orange county, New-York.
90. GOLD ORE. Charlotte, North Carolina.
91. SILVER ORE. Siberia.
92. MURIATE OF SILVER. Siberia.
93. COPPER ORE. Franklin, New-Jersey.
94. ARSENIATE OF COPPER, on arsenical iron. Amity, New-York.
95. RED OXIDE OF COPPER. Siberia.
96. RED OXIDE OF COPPER, incrusted with green carbonate of copper and quartz. Siberia.
97. BLUE CARBONATE OF COPPER. Siberia.
98. MALACHITE. Siberia.
99. VEINS OF LEAD ORE. From the Odin mine.
100. SLICKEN SIDE GALENA. From the Odin mine.
101. ARSENIATE OF LEAD. From Caldbeck Fells, Cumberland.
102. ARSENICAL PYRITES ? incrusting quartz crystals. Caldbeck Fells, Cumberland.
103. MOLYBDENA. Caldbeck Fells.

104. Uranite. Cornwall, England,
105. Oxide of tin. Cornwall, England.
106. Axinite. Cornwall, England.
107. Axinite. Cornwall, England.
108. Volcanic basalt. Cassel.
109. Mineral caoutchouc. England.
110. Elastic bitumen.
111. Carbonate of lead.
112. Sulphuret of zinc and tin. Hartz, Germany.
113. Crystalized brown oxide of iron. Cornwall.
114. Massive garnet.
115. Semi opal.
116. Porphyry, containing bronzite,
117. Lepidolite and rubellite. Paris, Maine.
118. Drusy quartz.
119. Auriferous pyrites. North Carolina.

FOSSILS.

120. Calymene senaria, (folded.) (Hall.) Trenton limestone.
121. Head and post abdomen of Calymene senaria. (Hall.) Trenton limestone.
122. Cephalic shield, of Trinucleus concentricus. (Hall.) Trenton limestone.
123. Matrix of calymene senaria. (Hall.) Trenton limestone?
124. Bellerophon bilobatus, *variety*, corrugatus. (Hall.) Trenton limestone.
125, 126, 127. Chætetes lycoperdon. (Hall.) Trenton limestone.
128. Calymene blumenbachii, (in two positions.) (Brongniart.) From Dudley, England.
129. A slab, covered with small bivalves, fragments of crustaceans, corallines, &c. From Dudley, England.
130. Post abdomen of an asaph. (Not described in Murchinson.) From Dudley, England.
131. Euomphalus pentangularis. From the mountain lime of Samplough, Cumberland, England.
132. Spirifer obtusis. From Egalsfield, Cumberland, England.
133. Spirifer attenuatus. From Samplough, Cumberland, England.
134. Bivalve, (genus Allorisma, of King.) From Parkhead, Cumberland, England.

135. BIVALVE, (genus ALLORISMA, of King.) Parkhead, Cumberland.
136. SPIRIFER GLABER. Mountain limestone, of England.
137. SPIRIFER LYNX. Mountain limestone. England.
138, 139. ORTHIS RESUPINATUS. Mountain limestone. England.
140. FAVOSITES, (polished.) Mountain limestone. England.
141. SPIRIFER. Mountain limestone. England.
142. ACROCULIA. From Oriskany sandstone.
143, 144. CORNULITES ARCUATUS. Niagara limestone.
145. CAST OF LEPTÆNA. From Schoharie grit.
146. CRINOIDAL COLUMN. Mountain limestone. England.
147. CORALLINE, (silicified.) Corniferous limestone.
148. ENCRINAL MARBLE, (polished.) Derbyshire, England.
149. ENCRINAL MARBLE, (polished.) Peak Castle, England.
150. PECTEN? From the top of one of the mountains of the Jura chain, Switzerland.
151, 152. CALAMITES. Cumberland, England.
153. CALAMITES ——? Workington, Cumberland.
154. CALAMITES ——? Parton, Cumberland.
155. STIGMARIA ——. Cumberland, England.
156. LEPIDODENDRON ——. Cumberland, England.
157. LEPIDODENDRON ——. Cumberland, England.
158. LEPIDODENDRON ——. Cumberland, England.
159. ODONTOPTERIS ——. Parton, Cumberland.
160. NEUROPTERIS ——. Somerset, England.
161, 162. PECOPTERIS MANTELLII. Near White Haven, Cumberland.
163. ODONTOPTERIS ——. From White Haven, England.
164. SPHENOPTERIS AFFINIS? White Haven, England,
165, 166. SPHENOPTERIS ——. White Haven, England.
167. ASTEROPHYLLITES PARKINSONI. Parton, Cumberland.
168. ASTEROPHYLLITES ——. Parton, Cumberland.
169, 170. VERTEBRA of the ICHTHYOSAURUS. Lyme, in Dorsetshire, England.
171. LEFT HIND PADDLE of the ICHTHYOSAURUS PLATYODON. From the Lias, England.
172. RIGHT FORE PADDLE of ICHTHYOSAURUS PLATYODON. From the Lias, England.
173. COPROLITE. One of the sides is polished, exhibiting a fish scale, and the enamelled portions of fishes that remained undigested by the ICHTHYOSAURUS. From the Lias, England.
174. FOSSIL FISH. Scotland.

175, 176. Fossil teeth of Ichthyosaurus. From the Blue Lias of Lyme, Dorset, England.
177. Ammonites obtusus. From the Lias, England.
178. Ammonites nodosus? From the Lias, England.
179, 180. Ammonites. Matlock, England.
181. Ammonite. From the Lias, England.
182. Ammonite. From the Lias, England.
183. Ammonite. From the Lias, England.
184. Ammonite. From Whitby, England.
185, 186. Gryphæa incurva. Clifton, Somerset, England.
187. Gryphæa columba. Beds of the Tiverlane.
188. Ammonite. From Oolite, England.
189. Gryphæa? 13 specimens. Lias? England.
190. Shark's tooth. From the Oolite, England.
191, 192. Terebratula. From the Oolite, England.
193. Ichthyodorulite, (mineralized by sulphuret of iron.) From the Lias, England.
194. Shark's tooth, imbedded in chalk. From the cretaceous formation, England.
195. Turrelites costatus. Chalk marl, England.
196. Belemnites mucronatus. Cretaceous formation, Yorkshire, Eng.
197. Exogyra costata. Green sand, New-Jersey.
198, 199, 200. Gryphæa mutabilis. Green sand, New-Jersey.
201. Galerites. From the cretaceous formation, Yorkshire, England.
202. Ananchytes ovatus. From the cretaceous formation, Yorkshire, England.
203. Scutella. From the cretaceous formation, England.
204. "Murex (Fusus) contrarius. (Sowerby.) Given to me by Prof. Sedgwick, at the Woodwardian Museum, Cambridge, March 6th, 1837. H. C. De Rham Jr." From the Red crag, Eng.
205. Fusus, covered with Balanæ. From the Red crag, England.
206. Fossil wood. From Alabama.
207. Petrified wood. From near Utica.
208. Nautilus truncatus. Lias, England.
209. Cast of Pleurotomaria. Lias, England.
210, 211. Casts of a univalve. Lias, England.

MAMMALIA.

212, 213. SKULL of the SKUNK, (*Mephites americana.*)

214. SKULL of the FISHER, (*Mustela canadensis.*)

215, 216. SKULL of the AMERICAN SABLE, (*Mustela martes.*)

217. SKULL of the NORTH AMERICAN OTTER, (*Lutra canadensis.*)

ORNITHOLOGICAL.

218. UPPER MANDIBLE of the ALBATROSS. From South America.

ICHTHYOLOGICAL.

ORDER PLECTOGNATHI.

FAMILY GYMNODONTIDÆ.

219. DIODON PILOSUS, *Hairy Balloonfish.* New-York bay.

FAMILY OSTRACIONIDÆ.

220. LACTOPHRYS DE RHAMII? Taken on the shore of Long Island. Not described in DE KAY's Zoology.

CHARACTERISTICS. No orbital spines; back elevated in the form of a crescent, longitudinally, with two spines, centrally situated on the periphery of the crescent, and distant one-third of an inch from each other; three spines on each side of the abdomen; length four inches.

Should this prove to be an undescribed species, it is proposed to name it *De Rhamii*, in honor of the late HENRY C. DE RHAM, Jr.

CONCHOLOGICAL.

Specimens arranged and named according to LAMARCK.

CLASS ANNELIDES.

ORDER SEDENTARIA

FAMILY SERPULACEA.

221, 222, 223. SERPULA VERMICULARIS.

CLASS CIRRIPEDES.

ORDER SESSILE CIRRIPEDES.

224. TUBICINELLA BALÆNARUM. The Tubicinellæ are found with nearly the whole shell buried in the thick skin of the Whale.

225. CORONULA BALÆNARIS.

226. CORONULA BALÆNARIS. 6 specimens, on a piece of Whale skin.

CLASS CONCHIFERA.

ORDER C. DIMYARIA.

FAMILY CONCHACEA. (*Marine.*)

227. CYTHEREA MACULATA.

228. CYTHEREA DIONE.

229. CYTHEREA ——.

230. CYTHEREA ——.

FAMILY CARDIACEA.

231. CARDIUM ——.

232. CARDIUM ——.

233. CARDIUM ——.

234. ISOCARDIA MOLTKIANA.

FAMILY ARCACEA.

235. ARCA ——.

FAMILY NAYADES.

236. UNIO ——.

ORDER MONOMYARIA.

FAMILY MYTILACEA.

237. PINNA SQUAMOSA?

FAMILY PECTINIDES.

238. PECTEN ——.
239. PECTEN ——.

CLASS MOLLUSCA.

ORDER GASTEROPODA.

FAMILY PHYLLIDINA.

240. CHITON ——. 5 specimens.
241. CHITON ——.
242. CHITON ——.

FAMILY BULLÆANA.

243. BULLA AMPULLA.

ORDER TRACHELIPODA.

FAMILY COLIMACEA.

244. HELIX POMATIA. England.
245. HELIX ASPERSA. England. 3 specimens.
246. HELIX MELANOTRAGUS. Africa.
247. HELIX NEMORALIS. England.
248. HELIX ——. England. 2 specimens.
249. HELIX ——. West Indies.
250. HELIX ——. West Indies.
251. HELIX ——. West Indies.
252. CAROCOLLA ——. West Indies.
253, 254. BULINUS ROSACEUS. West Indies
255. BULINUS ROSACEUS, (young.)
256, 257. PUPA ——. West Indies.
258. AURICULA ——. West Indies.

FAMILY LIMNEANA.

259. LIMNÆA STAGNALIS.
260. PLANORBIS CORNEUS.

FAMILY PERISTOMATA.

261. AMPULLARIA FASCIATA. 3 specimens.
262. AMPULLARIA GUINAICA. West Indies.
263. PALUDINA ——. 2 specimens.

FAMILY NERITACEA.

264. NERITINA SPINOSA.
265. NERITINA ——.
266. NATICA MAMILLA. 2 specimens.
267. NATICA ——.
268. NATICA ——.
269. NATICA ——. 2 specimens.
270. NERITA PELORONTA. 2 specimens.
271. NERITA VERSICOLOR.
272. NERITA ——.

FAMILY MACROSTOMATA.

273. SIGARETUS CONCAVUS.
274. HALIOTIS TUBERCULATA.
275. HALIOTIS CANALICULATA.
276. HALIOTIS ——. 5 specimens.

FAMILY TURBINACEA.

277. SOLARIUM GRANULATUM.
278. ROTELLA. Not figured or described by Kiener. Seas of Tropical climates.
279. ROTELLA. Not figured or described by Kiener.
280. ROTELLA. Not figured or described by Kiener. The three preceding species would be considered by Kiener as *varieties* of ROTELLA LINEOLATA.
281. TROCHUS MACULATUS.
282. TROCHUS ——. 2 specimens.
283. TROCHUS ——.
284. MARGARITA ——. 2 specimens.
285. MARGARITA ——.
286. PLANAXIS ——.
287. TURBO ——.
288. TURBO ——.

289. TURRITELLA DUPLICATA. Ceylon.
290. TURRITELLA CINGULATA. (Sow.) Pacific ocean.

FAMILY CANALIFERA.

291. CERITHIUM TUBERCULATUM.
292. TURBINELLA CORNIGER.
293. TURBINELLA POLYGONA.
294. FASCIOLARIA AURANTIACA?
295. FUSUS MORIO. (Varietas.)
296. PYRULA MELONGENA.
297. PYRULA CARICA.
298. PYRULA MELONGENA. (Varietas.)
299. RANELLA BECKII. (Kiener.)
300. MUREX REGIUS. 4 specimens.
301. MUREX BRASSICA. 2 specimens.
302. MUREX RADIX. 3 specimens.
303. MUREX BRANDARIS. 2 specimens.
304. MUREX PINNATUS. (Swains.)
305. MUREX ELONGATUS.
306. MUREX ERINACEUS.
307. MUREX CALCAR. (Kiener.)
308. MUREX CRASSILABRUM? (Gray.)
309. TRITON VARIEGATUM.
310. TRITON SUCCINCTUM.
311. TRITON SUCCINCTUM. (Young shell.)

FAMILY ALATÆ.

312. ROSTELLARIA PES-PELICANI. 2 specimens.
313. STROMBUS LENTIGINOSUS. 2 specimens.
314. STROMBUS CANARIUM.
315. STROMBUS PUGILIS. 2 specimens.
316. STROMBUS GRANULATUS. (Sow.) Indian ocean.
317. STROMBUS GRACILIO. (Sow.) Pacific ocean.
318. STROMBUS GIBBERULUS. Moluccas.
319. STROMBUS FLORIDUS. Moluccas.
320. STROMBUS VITTATUS. (Linn.) Moluccas.

FAMILY PURPURIFERA.

321. CASSIDARIA ——.
322. CASSIS TESTICULUS. 3 specimens.
323. CASSIS ERINACEUS.
324. RICINULA HORRIDA.
325. PURPURA HÆMASTOMA. 2 specimens.
326. PURPURA MARGINALBA. (De Blainv.) (Varietas, Kiener.)

327. Purpura intermedia. (Kiener.)
328. Purpura deltoidea.
329. Purpura patula.
330. Purpura textilosa. (Young shell.)
331. Purpura costata. (De Blainv.)
332. Purpura chocolatum. (Duclos.)
333. Purpura sertum. 2 specimens.
334. Monoceros crassilabrum.
335. Monoceros ——.
336. Dolium variegatum. (Young shell.)
337. Dolium variegatum.
338. Dolium perdix.
339. Buccinum papillosum. 7 specimens.
340. Buccinum undatum. 3 specimens.
341. Buccinum reticulatum.
342. Buccinum quoyii. (Kiener.)
343. Terebra cœrulescens. 2 specimens.

FAMILY COLUMELLATA.

344. Columbella meleagris. (Duclos.)
345. Mitra melongena.
346. Voluta musica.

FAMILY CONVOLUTÆ.

347. Ovulum ovum. From the hole pierced in the outer lip of this shell, it was undoubtedly worn by a native female of one of the South Sea islands, as an ear ornament.
348. Cypræa nucleus. Pacific ocean.
349. Cypræa tigris. 3 specimens.
350. Cypræa mauritiana.
351. Cypræa histrio. 2 specimens.
352. Cypræa talpa.
353. Cypræa adusta.
354. Cypræa achatina. New-Holland.
355. Cypræa lurida.
356. Cypræa lynx. 3 specimens.
357. Cypræa caput-serpentis.
358. Cypræa zigzag.
359. Cypræa caurica. 4 specimens.
360. Cypræa vitellus.
361. Cypræa carneola. East Indies. 2 specimens.
362. Cypræa erosa. Indian ocean.

363. CYPRÆA ——. (Young shell.)
364. CYPRÆA RUVEI. New-Holland. 3 specimens.
365. CYPRÆA XANTHODON.
366. OLIVA PORPHYRIA.
367. OLIVA INFLATA. 2 specimens.
368. OLIVA ANGULATA.
369. OLIVA SAYII. 3 specimens.
370. OLIVA EPISCOPALIS.
371. OLIVA PERUVIANA.
372. OLIVA UTRICULUS. (Varietas.)
373. OLIVA DACTYLEA. 3 specimens.
374. OLIVA SUBULATA.
375. OLIVA RETICULARIA.
376. OLIVA UTRICULUS. 2 specimens.
377. OLIVA ——.
378. OLIVA ——.
379. OLIVA ——.
380. CONUS NEBULOSUS.
381. CONUS MUSTELINUS. (Brug.)
382. CONUS ACHATINUS. (Brug.)
383. CONUS COLUMBA. (Brug.)
384. CONUS MONILE. (Brug.)
385. CONUS TEREBRA. (Brug.)
386. CONUS VERRICULUM.

RADIATA.

CLASS ECHINODERMATÆ.

387. ASTERIAS ACULEATA.
388. ASTERIAS ——. (GONIASTER of Agassiz.)
389. ECHINUS SPHÆRA.

CLASS POLYPI.

390. FUNGIA AGARICIFORMIS.
391. FUNGIA ——.
392. OCULINA RAMEA.
393. OCULINA ——.
394. MADREPORA MURICATA.
395. MADREPORA ——.
396. NULLOPORA ——.
397. SPONGIA ——. Attached to an ARCA

(D.)

ADDITIONS

TO THE

HISTORICAL AND ANTIQUARIAN COLLECTION

IN THE

State Cabinet of Natural History,

(By Donation and Purchase.)

FROM JANUARY 1, 1849, TO JANUARY 1, 1850.

(D.)

ADDITIONS

TO THE

HISTORICAL AND ANTIQUARIAN COLLECTIONS

IN THE

State Cabinet of Natural History.

(By Donation and Purchase.)

FROM JANUARY 1, 1838, TO JANUARY 1, 1839.

DONATIONS.

From SAMUEL G. EDDY, Esq., *of Stillwater, N. Y.*

The following description, drawn up by Mr. EDDY, accompanies the Relics.

1. CARD OF INDIAN ARROW HEADS, (17) found in the immediate vicinity of the battle ground at Bemis' Heights. Arrow heads of similar materials and construction, are to be found, after the spring rains, on all the plowed lands between Stillwater village and Wilber's basin, a distance equal to five miles.
2. CANNON BALLS, (2) found on the battle ground at Bemis' Heights.
3. CARD OF MILITARY BUTTONS, (5) with the Roman numerals XX, distinctly visible on the faces. These buttons were worn by a soldier or soldiers of the 20th regiment of Hamilton's brigade, in Burgoyne's army. The 9th, 20th, 21st, and 62d regiments, were that portion of Burgoyne's army which was engaged in the bloody conflict at "Freeman's Cottage," Bemis' Heights, on the 19th day of September, 1777. These buttons, together with human bones, a large pocket knife, belt buckle, pewter spoon, and a stick of healing salve, were plowed up in the month of October, 1849, within the grounds enclosed by the British entrenchments.
4. LEAD BALLS and IRON GRAPE SHOT, (13 in all) found on the "Freeman Farm," in the year 1848.
5. A SPANISH SILVER COIN, (*Pistareen*) dated 1721. This coin, together with two others of the same date and denomination, three Spanish milled quarter dollars, twelve guineas and two half joes, (in all about eighty dollars) were plowed up by Mr. Ebenezer Leggett, in the fall of 1849, within the British entrenchments, and near the celebrated "Freeman Cottage." A portion of this coin is now in my possession.

6. PIECE of the PLANK on which Gen. FRAZER DIED. This gallant officer was mortally wounded on the 7th of October, 1777, about two miles west of the Hudson river, by a rifleman of Col. Morgan's company. He was brought from the field of battle and taken to the "Smith house," (then used as a British hospital) which was situated on the Whitehall turnpike, some six miles north of the present village of Stillwater, and expired about eight o'clock A. M., the following day. By his own request, he was buried in the great redoubt on the hill, at six o'clock in the evening of the same day on which he expired. The "Smith house" was taken down in the year 1844, and the plank on which General Frazer died, and of which the piece presented to the State Cabinet is a portion, was preserved by the proprietor for the Antiquarians of his country.

7. PIECE OF A SOLDIER'S BLANKET, dug up with human bones, near the camp of Lord Balcarras, (who was one of the commanding officers in Burgoyne's army) at Bemis' Heights, seventy-one years after the battle of October 7, 1777.

8. A BOMB SHELL. This was one of the trophies taken at Bemis' Heights in October, 1777. The following spring several bateaux were loaded with shells, cannon balls, &c., for shipment to Albany, one of which sunk at Stillwater village, a short distance above the falls, in the Hudson river. During the season of low water the past summer, many of these shells and balls were dug from the bed of the river, one of which is the one now presented to the State Collection. The greater part of them I have in my collection of revolutionary relics.

From E. A. BALDWIN, *of Lysander, January* 15, 1849.

STONE SKINNING CHISEL. Found in Lysander, Oswego county.

From A. C. HASCY, *of Albany.*

INDIAN ARROW HEAD. Found in Watervliet, Albany county.

From DAVID EMERY, *Esq.*

STONE PESTLE, used in pounding maize. Found at the head of Cayuga lake, Tompkins county, by Henry Hungerford.

From JOHN DELAFIELD, *of Oaklands, near Geneva.*

A copy of an "Inquiry into the origin of the Antiquities of America, by John Delafield, Jr.; with an appendix by James Lakey, M. D." 4to. Cincinnati, 1839.

From CHRISTOPHER MORGAN, *Secretary of State.*

SPECIMENS OF SHELL CONCRETIONS, forming the surface rock on which the city of St. Augustine, in Florida, is built.

From NATHANIEL MILLER, M. D., *member of Assembly from the county of Suffolk*, 1849.

A PLATE OF MICA, turned up by the plow several years since, in the town of Brookhaven, at a depth of about two feet below the ground. On one side of this plate, are several engravings of geometrical and other figures.

From ASA FITCH, M. D., *of Salem, Washington county, Dec.* 6, 1849.

1. SWORD, which belonged to Burgoyne's army.
2. BAYONET, do do

Thomas Whiteside, one of the Cambridge (Washington county) militiamen, in service at Saratoga at the time of Burgoyne's surrender, on his return home, brought the above articles. They have been preserved in his family ever since, and are now given to the State Collection by his son, Thomas C. Whiteside.

3. INDIAN AXE, found at Fort Miller. From John Pattison.
4. Part of an INDIAN SPEARHEAD, made of subhyaline quartz. Found at Fort Miller. From John Pattison.
5. INDIAN SPEARHEAD. Salem.
6. INDIAN SPEARHEAD. Salem.
7. INDIAN ARROWHEAD. Salem.
8. INDIAN ARROWHEAD. Salem.

From STEPHEN VAN RENSSELAER.

A part of the STEM of the AGAVE AMERICANA, (Century Plant) which flowered in his greenhouse some years since.

From FRANKLIN B. HOUGH, M. D.

Two pieces of WOOD, from the hull of Commodore Perry's flag-ship, the Lawrence. Obtained at Erie, Pennsylvania.

From HENRY VAN RENSSELAER, *of Ogdensburgh.*

COPPER PICKAXE. Found on his farm.

From WILLIAM J. MCALPINE, *Engineer.*

1. A PLASTER MODEL of the UNITED STATES DRY DOCK, at Brooklyn.
2. Fourteen specimens of GRANITE, viz: 6 from Staten Island quarry, New-York; 6 from Quincy quarry, Massachusetts; and 2 from Blue Hill quarry, Maine; being samples of the granite used in the construction of the Dry Dock.
3. A GLASS TUBE, hermetically sealed, containing specimens of the various SOILS through which the excavations were made, stratigraphically arranged; with figures on the tube, indicating the aggregate depth of the excavations, and the proportional thickness of the different strata of earth excavated.
4. A VIAL, containing EARTH, excavated at the depth of sixty-eight and a half feet.

The Dry Dock at Brooklyn, taking into consideration the strength, accuracy and beauty of workmanship, has been pronounced, by competent judges, to be the finest piece of masonry in the world. And the Engineers, not only of this country, but of Europe, have justly denominated it THE GREAT WORK OF THE AGE.

Additional donations from LEWIS H. MORGAN, Esq., *of Rochester.*

50. STONE SKULL CRACKER. From Aurora, Cayuga county. This is the vulgar name. It was fastened in the head of a club, and thus made a formidable weapon.
51. NECKLACE BEAD. From Scipio, Cayuga county.
52. UNFINISHED ARROWHEAD. From Cayuga county.
53. WHITE CHERT ARROWHEAD. From Ledyard, Cayuga county.
54. FRAGMENT of the BOWL of an Ah-so-quä-tä, or PIPE. From Scipio, Cayuga county.
55. SIX ARROWHEADS, or Gä-nuh-yä. From Ledyard and Scipio, Cayuga county.
56. FRAGMENT of a WHITE CHERT ARROWHEAD.
57. TWO TWIST ARROWHEADS. From Ontario county.
58. FRAGMENT of a Ga-jih, or EARTHEN BASIN. From Cayuga county.
59. Gä-ne-gä-tä, SENECA MORTAR, for pounding corn.
60. Gä-nih-gä-dä, POUNDER. (Same name as mortar.) Two specimens.
61. Gä-ne-ah, BALL BAT. Two specimens.
62. Wä-a-no, INDIAN BOW. Two specimens.
63. Gä-no, FEATHERED ARROW. Six specimens.
64. Gä-wä-sä, Snow snake. Two specimens.
65. BARK TRAY, OR PLATTER.

66. Splint basket. Two varieties.

67. A quantity of white corn. The New-York Indians cultivate this variety of corn principally; which is known, I believe, as the Tuscarora. They put it up and preserve it in bunches.

From the Rev. Duncan Kennedy, D. D., *Albany.*

1. Pequod stone hatchet. From New-England.

2. Pequod stone hatchet. From New-England. This relic differs from No. 1 in its form, and in the material from which it is constructed.

3. Stone axe. From Westmoreland, Oneida county, New-York.

4. Stone chisel. From Westmoreland, Oneida county, New-York.

Additional articles constituting the Collection of Indian Relics purchased from William H. C. Hosmer, *of Avon, Livingston county, and as described by him.*

34. Stone, of octagonal shape, hollowed out. Supposed to have been used by Indian jugglers. Paint stone ? Found on the Street farm, (so called) which is situated three miles from Avon, in a northwest direction, on the west side of the river, in Livingston county.

35. Stone chisel, (in two pieces) used in excavating canoes. Found near Spanish hill, a few miles from Athens, in Tioga county, New-York. The place has been occupied, for purposes of fortification, and Indian traces abound.

36. Stone deerskin dresser ; and

37. A Fragment of a pipe, (so supposed by Squire.) These implements were found near Fowlerville bridge, in the town of Avon, on a farm of W. W. Wadsworth, (leased by Hamilton, a Scotchman) after the first plowing of a new field, about one mile from the river bed, and three and a half miles, in a southwestern direction, from Avon Springs. They refute the position of O. H. Marshall, that the valley was more recently occupied by the Red man, than the higher ground, or upper terrace.

38. A bone fish spear. Found on the Hurlburt farm, in Avon, four miles from the springs, in a northeast direction. The place where it was found, is known to the inhabitants as Fort Hill. It was unquestionably a Jesuit station. Corn, in a charred state, is found commingled with the subsoil. This place was destroyed by De Nonville, in 1687. Bone crosses have been discovered, and rosaries; also many articles used by the French traders in Indian traffic.

39. A STONE IMPLEMENT, with a handle like a mason's smoothing trowel. This implement was found near a spring, on the farm of Ira Pierson, in Avon, about two miles from the village of West Avon, in a southeast direction, while the proprietor was ditching near the spring. Two miles south of the place, on the Conesus outlet, was a Jesuit station.

40. VARIOUS BEADS. These beads were found in various places in the valley of the Genesee—at the Jesuit stations previously referred to—the old Indian burial place, near the Red bridge, that crosses the river one mile west of West Avon village, and a few were found near Fort Niagara, and in the valley of the Susquehannah.

41. STONE DEERSKIN DRESSER. Found on the farm of Francis Marion Cutler, (brother-in-law of the late Samuel Ward) in West Avon.

42. STONE DEERSKIN DRESSER. Found on the Wilbur farm.

NOTE TO No. 39. This unique relic is made of the STEATITIC PYROXENE, of Prof. Lewis C. Beck, (RENSSELAERITE, of Dr. Emmons,) and from its strong resemblance to the specimens of that mineral from Edwards, St. Lawrence county, the material from which it is constructed is undoubtedly from that locality. It was probably used in dressing deerskins, and for smoothing and softening the seams in manufacturing moccasins and other articles made from skins. It evidently belongs to the ante Columbian period.

JOHN GEBHARD, JR.

CATALOGUE OF INDIAN RELICS,

Obtained principally from various parts of Western New-York, by E. G. SQUIER. *Purchased May*, 1849.

1. FLINT ARROWHEADS. From Cayuga county, 7 specimens; Monroe county, Livingston county, 2 specimens; Livonia, Livingston county, 2 specimens; vicinity of Buffalo, 1; Ellisburgh, Jefferson county, 1; and 4 from localities not named.
2. FRENCH AXES, (2.) From Cayuga village, Cayuga county.
3. INDIAN PESTLE. From Cayuga county. New-York.
4. COPPER KETTLE. From an Indian grave. Scipio, Cayuga county.
5. GUNBARREL. From the site of De Nonville's battle with the Senecas, (1687) near Victor, Ontario county.
6. SCALPING KNIFE. From the grave of a Cayuga warrior. Scipio, Cayuga county.
7. STONE AXES, (4.) From Springport, Cayuga county; Adams, Jefferson county; Ellisburgh, Jefferson county; and one locality not named.
8. FRAGMENTS OF POTTERY. From the site of a Seneca village, Livonia, Livingston county.
9. FRAGMENTS OF POTTERY. From the site of an old Seneca village, in Mendon, Monroe county.
10. PIPES, POTTERY. From an ancient enclosure, town of Ellisburgh, Jefferson county. 5 boxes.
11. PIPES, POTTERY, &c., as No. 10. 4 boxes.
12. TERRA COTTAS. From Le Roy, Genesee county, 2 specimens; Ellisburgh, Jefferson county, 7 specimens; Scipio, Cayuga, 1; and locality not named, 1.
13. POTTERY. From Ellisburgh, Jefferson county, 3 specimens; and from an ancient village of the Senecas, Livonia, Livingston county, 1 specimen.
14. COPPER KNIVES, and other metallic articles. From an old Seneca village, Livonia, Livingston county.

15. POTTERY. From an ancient enclosure, Jefferson county, 2 specimens; from Scipio, Cayuga county, 2 specimens; and from Livonia, Livingston county, 2 specimens.
16. Various articles of POTTERY. From an enclosure or mound near Buffalo. 2 boxes.
17. Various articles of POTTERY. From a large mound on Tonawanda island, in Niagara river. Excavated by E. G. Squier, November, 1848.
18. HUMAN REMAINS. From the great mound on Tonawanda island.
19. BONE IMPLEMENTS. From Ellisburgh, Jefferson county, 3 specimens; from Dekay, Jefferson county, 1.
20. STONE AXES. From Buffalo, 1; Livonia, Livingston county, 1; Ellisburgh, Jefferson county, 1.
21. DEPOSITS. From altar mounds of the Mississippi valley.
22. DEPOSITS. From sepulchral mounds of the Mississippi.
23. MORTAR. From the old tower at Newport, Rhode Island.

SCHEDULE OF ARTICLES

Obtained from Indians residing in western New-York, being the product of their own handicraft and manufacture, for the New-York Historical and Antiquarian Collection, under the direction of LEWIS H. MORGAN, *of Rochester.*

Mr. Morgan has furnished the following, and adds, that the name of each article is in the Seneca dialect of the Iroquois language.

(ä, is sounded as in arm — ă, as in at — a, as in ale.)

1. Gä-no-jo-o. Indian drum, used in dances. 3 varieties.
2. Gus-dä-wa-să. Turtle-shell Rattle, used in dances. 2 specimens.
3. Gus-dä-wa-să. Squash-shell Rattle, used in dances. 4 varieties.
4. Gus-dä-wa-să Yen-che-no-hos-ta. Knee Rattle, of deer hoofs. Used in dances. 1 pair.
5. Gä-geh-tä Yen-nis-hä-hos-ta. Arm Bands. 1 pair.
6. Yen-nis-ho-quä-hos-ta. Wrist Bands. 1 pair.
7. Gä-geh-tä Yen-che-no-hos-ta-ta. Knee Bands. 1 pair.
8. Gä-geh-tä. Indian Belt. 3 varieties.
9. Ah-tä-quä-o-weh. Moccasin, for male. 1 pair.
10. The same. Mocassin, for female. 1 pair.
11. Gä-kä-ah. Kilt or Skirt, worn in war dance.
12. Gä-kä-ah. Kilt or Skirt, worn by Indian women.
13. Gise-hă. Leggin, for male. 1 pair.
14. Gise-hă. Leggin, female. 1 pair.
15. Gä-swhen-tä. Necklace.
16. Ya-wa-o-dä-qua. Pin Cushion. 3 varieties.
17. Gä-yä-ah. Work Bag. 5 varietics.
18. Got-gwen-dä. Pocket Book. 6 varieties.
19. Gä-kä. Breech cloth. Used in ball game, foot race, &c.
20. Gä-de-us-ha. Wampum Necklace.
    Da-yu-yä-sont. Name of a cross.
21. Ya-wa-o-dä-quä. Needle Book. 5 varieties.
22. Ga-on-seh. Baby Frame.
23. Gä-o-wä. Bark Tray. 3 specimens.

24. Ah-de-gwas-hă. Hominy Blade, or Soup Stick. 4 specimens.
25. Ah-was-hă. Ear Ring. 1 pair.
26. Gä-jih. Bowl, for a game with peach stones.
27. Gus-ka-eh. Peach Stones. 6 specimens.
28. Gus-ga-e-sa-tä. Deer Buttons, for an Indian game. 8 specimens, or one set.
29. Gä-geh-dä. Javelin or Shooting Stick, for an Indian game. 18 specimens.
30. Yun-ga-sa. Tobacco Pouch. 4 specimens.
31. Gä-ne-gä-tä. Mortar, for pounding corn. 2 specimens.
32. Gä-nih-gä-dä. Mortar Pounder. 2 specimens.
33. Gä-ne-ah. Ball Bat, used in playing an Indian game. 4 specimens.
34. Gä-wä-sä. Snow Snake. 4 specimens.
35. Gä-je-wä. War Club, with ball head. 4 specimens.
36. Gä-ne͡-u-ga-o-dus-ha. War Club, with deer-horn tooth. 2 specimens
37. O-sque-sont. Tomahawk.
38. Ah-so-quä-tä. Pipe, (made from a *Cyathophyllum.*)
39. Wä-a-no. Indian Bow. 6 specimens.
40. Gä-no. Arrow. 50 specimens.
41. Gä-go-shä. False Face.
42. Gä-weh-ga-ă. Snow Shoe. 3 pairs.
43. O-tä-quă-osh-ha. Snow Shoe, of splint. 1 pair.
44. Gä-sken-dä. Bark Rope, made of Slippery Elm.
45. Gus-hä-ah. Burden Strap, made of Slippery Elm.
46. Gus-hä-ah. Burden Strap, made of Basswood.
47. Ose-gä. Skein of Slippery Elm strings.
48. Ose-hä. Skein of Basswood-bark strings.
49. Ah-da-dä-quä. Indian Saddle.
50. Gä-na-quă. Bark Barrel. Used for beans, dried corn, &c.
51. Gä-oo-wä. Bark Sap Tub. 3 specimens.
52. O-nus-quä Ah-hose-hă. Knot Ball. Used in playing a game. 2 specimens.
53. O-no-nc͡-ä Gos-ha-dä. Husk Salt Bottle. 2 specimens.
54. O-je-she-wä-tä. Cake of deers' brains and moss, for tanning deerskins.
55. Gä-nuh-sä. Breast-plate of sea shells.
56. Got-kase-hä. Axe-helve.
57. Gä-ga-an-dä. Air Gun.
58. Dä-ya-yä-dă-gä-ne-at-hä. Bow and wheel for striking fire.
59. Gä-gis-dä. Steel, Flint and Punk, for striking fire.

60. Gis-tak-he-ä. Skin Bag. (Speckled Faun.)
61. Gis-tak-he-ä. Skin Bag. (Bearskin.)
62. Tuesh-tä-ga-tas-tä. Tin Breast-plate.
63. Skä-wä-ka. Splint Broom.
64. Ya-o-dä-was-tä. Indian Flute.
65. Ne-us-tase-ah. Basket Sieve. Used for sifting white corn.
66. O-ne-ose-to-wa-nes. Basket Sieve; coarser. For White Flint corn.
67. Ta-gase-hă. Market Basket.
68. Gase-hă. Covered Basket.
69. O-gä-kä-ah. Open-work Basket. 3 specimens.
70. Ga-yuh. Splint Cradle.
71. Gä-nose-hă. Husk and Flag Basket. 4 specimens.
72. Ya-nuh-ta-dä-quä. Toilet Basket.
73. O-gus-ha-ote. Small square Basket. 17 specimens. These baskets are numbered from 1 to 17, inclusive, and contain specimens of the several varieties of corn, beans, squashes, tobacco, dried corn, &c., raised and prepared by the Senecas, viz:
    1. O-na-o-ga-ant. White corn.
    2. Tic-ne. Red corn.
    3. Ha-go-wä. White Flint corn.
    4. O-nä-dä. Charred, or roasted corn.
    5. O-go-ou-să. Baked corn.
    6. O-si-dä. Long-vine bean.
    7. Gweh-dä-ă- O-si-dä. Red bean.
    8. Te-o-gä-ga-wă O-si-dä. Speckled bean.
    9. Ta-gä-gä-hät. Short-vine bean.
    10. Ah-wa-own-dä-go. Red-flower pole-bean.
    11. Hä-yoke. Cranberry pole-bean.
    12. O-gä-gä-ind. Gray squash.
    13. Gä-je-ote. Big-handle squash.
    14. Sko-ak. Toad squash.
    15. O-ne-ä-să-ä-weh. Small squash.
    16. O-yeh-quä-ä-weh. Indian tobacco.
    17. O-so-wa. Parched corn, pounded into flour, with maple sugar.
74. Gä-no. Arrow for air-gun. 2 specimens.
75. O-sque-sont. Tomahawk. Used in the Bear hunt.
76. Da-ya-no-a-quä-tä Gä-ga-neä-să. Scalping knife. 2 specimens.
77. O-na-o-ga-ant. Two ears of White corn.

78. Tic-ne. Two ears of Red corn.
79. Ho-go-wä. Two ears of White Flint corn.
80. Gus-to-weh. Head Dress.
81. Gä-ger-we-sä Dun-daque-quä-do-quä. New Year's Shovel.
82. To-do-war-she-do-wä. Ribbon for hair.
83. Gä-de-us-ha. Necklace.
84. De-con-deä-da-hust-tă. Belt for female costume.
85. Ah-de-a-dä-we-să. Female upper dress, with silver broaches, &c.
86. Dä-yase-ta-hos-ta. Silver Hat Band.
87. Yen-nis-ho-quä-hos-ta. Silver Wrist Bands. 1 pair.
88. To-an-jer-go-o O-no-no-do. Ground-nuts, (*Apios tuberosa*) from Tonawanda.

(E.)

CATALOGUE

OF THE

REPTILES AND AMPHIBIANS

IN THE

State Cabinet of Natural History,

JANUARY 1, 1850,

(E)

REPTILES.

ORDER TESTUDINATA.

FAMILY CHELONIDÆ.

Chelonura serpentina,	*Snapping Turtle.* - - - - - - p.	8
Emys picta,	*Painted Tortoise.* - - - - - -	12
Sternothærus odoratus,	*Musk Tortoise.* - - - - - - -	22

ORDER SAURIA.

FAMILY IGUANIDÆ.

Anolius carolinensis,	(*Extra limital.*) - - - - - - -	28

FAMILY AGAMIDÆ.

Phrynosoma cornutum,	*Texan Toad,* (*extra limital.*) - -	31
Tropidolepis undulatus,	*Brown Swift.* - - - - - - - -	31

ORDER OPHIDIA.

FAMILY ANGUIDÆ.

Ophisaurus ——,	Not described in De Kay's Zoology.

FAMILY COLUBERIDÆ.

Coluber constrictor,	*Blacksnake.* - - - - - - - -	35
Coluber vernalis,	*Grass-snake.* - - - - - - - -	40
Coluber occipitomaculatus,	(*Extra limital.*) - - - - - - -	41
Tropidonotus sipedon,	*Water-snake.* - - - - - - - -	42
Tropidonotus tænia,	*Striped-snake.* - - - - - - -	43
Tropidonotus leberis,	*Yellow-bellied snake.* - - - -	45
Tropidonotus de kayi,	*Small Brownsnake.* - - - - -	46
Leptophis saurita,	*Ribbon-snake.* - - - - - - - -	47

FAMILY CROTALIDÆ.

Crotalus durissus,	*Northern Rattlesnake.* - - - -	55

AMPHIBIANS.

FAMILY RANIDÆ.

Rana palustris,	*Marsh Frog.* - - - - - - - -	p. 62
Rana helecina,	*Shad Frog.* - - - - - - - -	63

FAMILY SALAMANDRIDÆ.

Salamandra subviolacea,	*Violet-colored Salamander.* - -	74
Salamandra erythronota,	*Red-backed Salamander.* - - -	75
Salamandra granulata,	*Granulated Salamander.* - - -	78
Salamandra rubra,	*Red Salamander.* - - - - - -	80
Salamandra glutinosa,	*Blue-spotted Salamander.* - - -	81
Triton tigrinus,	*Tiger Triton.* - - - - - - -	83
Triton millepunctatus,	*Crimson-spotted Triton.* - - -	84
Triton niger,	*Dusky Triton.* - - - - - - -	85
Triton porphyriticus,	*Gray-spotted Triton.* - - - -	85



AH-TA-QUA-O-WEH, OR MOCCASON.
FOR MALE.



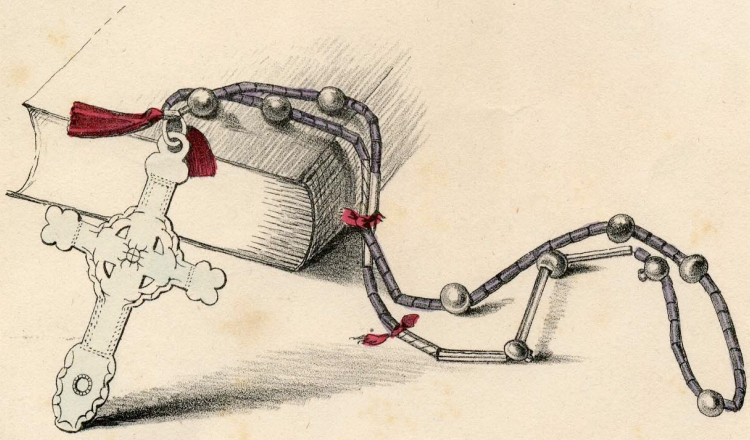


AH-TÄ-QUÄ-O-WEH, OR MOCCASON.
FOR FEMALE.





GUS-TO-WEH OR HEAD DRESS.



GÄ-DE-US-HA OR NECKLACE.

Gise-hä, or Female Leggin. Pl. 4.





GÄ-KÄ-AH OR SKIRT.





AH-DE-A-DÄ-WE-SÄ OR OVER-DRESS.
FRONT

Pl. 6[a].



AH-DE-A-DÄ-WE-SÄ OR OVER DRESS.

BACK.



Gä-kä-ah, or Kilt

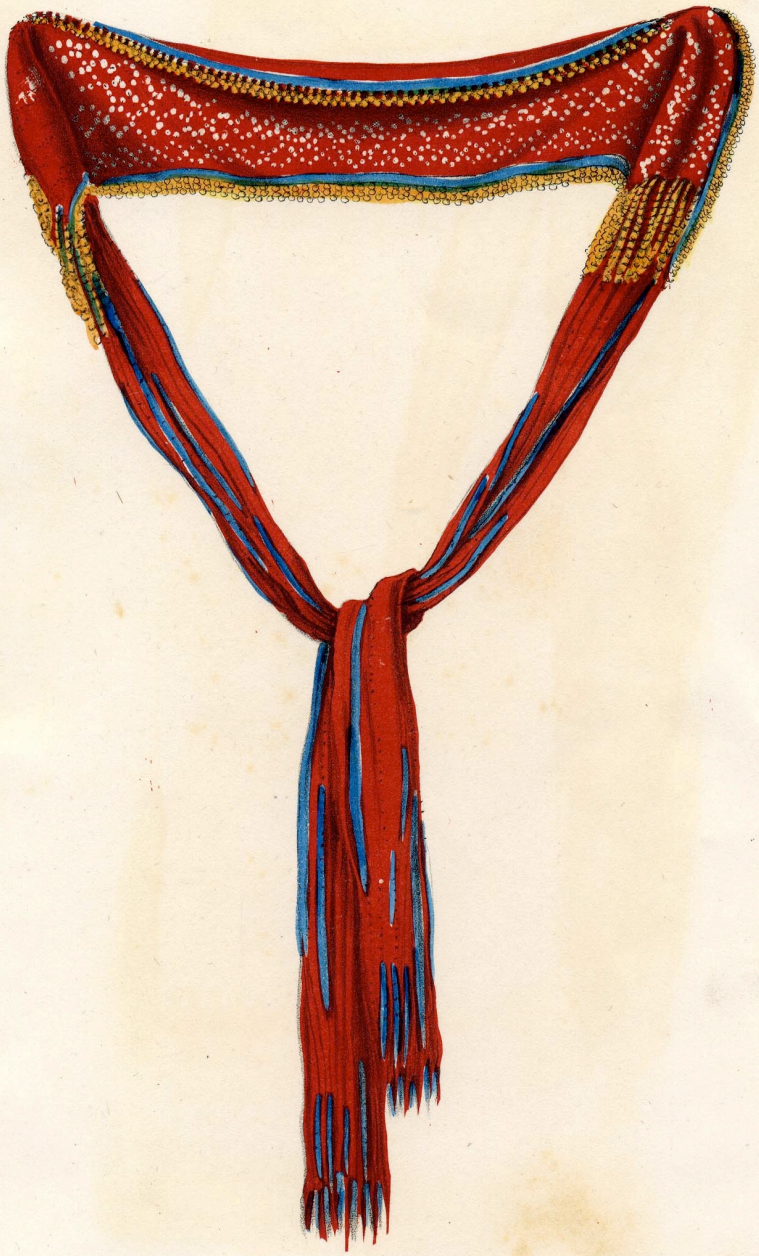
Gise-hă, or Male Leggin. Pl. 8.

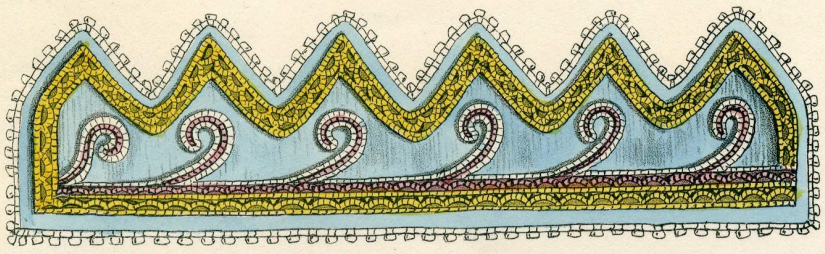




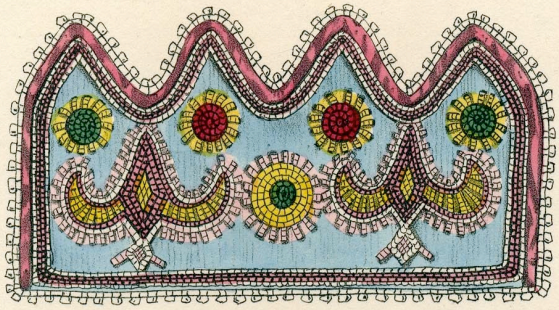
Gä-geh-ta, or Belt.

Pl. e.

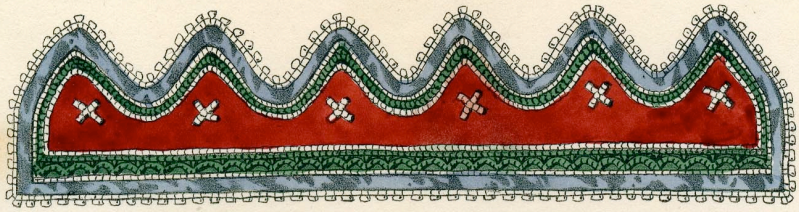




GÄ-GEH-TÄ. YEN-CHE-NO-HOS-TA-TÄ,
OR KNEE BAND



YEN-NIS-HO-QUÄ-HOS-TÄ,
OR WRIST BAND



GA-GEH-TA. YEU-NIS-HÄ-HOS-TA,
OR ARM BAND



Gä-yä-ah, or Work Pocket.



Yä-wä-o-dä-guä, or Needle Book.



Yä-wä-o-dä-guä, or

Pin Cushion.



Got-gwen-da, or Pocket-Book.



Gä-kä, or Breech Cloth.

Ga-on-seh, or Baby-Frame. Pl. 16.





AH-SO-QUÄ-TÄ.
PIPES

(F.)

REPORT

TO THE

REGENTS OF THE UNIVERSITY,

UPON THE ARTICLES FURNISHED THE

THE INDIAN COLLECTION:

BY L. H. MORGAN. DECEMBER 31, 1849.

(E.)

REPORT

TO THE

REGENTS OF THE UNIVERSITY,

UPON THE ARTICLES FORMING THE

THE INDIAN COLLECTION:

BY L. H. MORGAN. DECEMBER 31, 1849.

REPORT.

The Regents of the University having made an appropriation for the enlargement of the Indian Collection, and having entrusted the execution of their resolution with the undersigned, he asks leave to submit the following report.

Within the past century great changes have been wrought among the descendants of the ancient Iroquois. Their primitive fabrics have mostly passed away, and with them many of their original inventions. The substitution of the fabrics of more skillful hands, has led to the gradual disuse of many of their simple arts. At the present moment, therefore, much of the fruit of their inventive capacity is entirely lost. Fragments, indeed, are frequently disentombed from the resting places to which they had been consigned by filial or parental affection; but they are mere vestiges of the past, and afford but a slight indication of their social condition, or of the range of their artisan intellect. It is impossible, therefore, at the present day, to make a full collection of the implements, domestic utensils, and miscellaneous fabrics of our Indian predecessors. Many of their inventions are still preserved among their descendants, who yet reside within our limits; but that portion of them which would especially serve to illustrate the condition of the hunter life, have passed beyond our reach.

In the present advanced condition of our Indian population, a large proportion of their articles are of a mixed character. They rather exhibit the application of Indian ingenuity to fabrics of foreign manufacture, as shown in their reduction into use, than originality of invention. But this class of articles are not without a peculiar interest. They furnish no slight indication of artisan capacity, and will make a species of substitute for those articles which they have displaced, and those inventions which they have hurried into forgetfulness.

The specimens collected, are as diversified as the shortness of the time and the means appropriated would permit. In the accompanying schedule they are classified, under their aboriginal names, into eighty-three distinct classes, and number in all about three hundred. They were obtained among the Senecas, in the western part of the State. It is hoped that they will prove an acceptable addition to the State Collection, and will induce its further enlargement. After the lapse of a few more years, it will be impossible to bring together these silent memorials of our primitive inhabitants. Their social condition has changed greatly, and is changing from day to day; while their simple arts are dropping from their hands one after the other, as they gradually take up agricultural pursuits. It is but just to them, to save from oblivion the fruits of their inventive intellect, however rude and simple they may be, that they themselves may be at least correctly judged. Succeeding generations, also, have a right to require of us these memorials of a departed race; of that race who christened our rivers, lakes, and hills; who maintained them against hostile bands, with a patriotism as glowing as such a fair domain could inspire in the heart of man, but to surrender them at last, and without an equivalent, to a more fortunate possessor.

It is not deemed necessary to describe the articles in detail. A few of the leading specimens will be selected, and some notice given of their origin, manufacture, and uses. Their names are in the Seneca dialect. In their pronunciation the following signs will indicate the several sounds of the vowal a, upon which the greatest variations are made.

(ä, as in arm — ă, as in at — a, as in ale.)

Ah-tä-quä-o-weh, or MOCCASIN, (for male.) See plate 1.

MOCCASIN, (for female.) See plate 2.

The moccasin is preëminently an Indian invention, and one of the highest antiquity. It is true to nature in its adjustment to the foot, beautiful in its materials and finish, and durable as an article of apparel. It will compare favorably with the best single article for the protection and adornment of the foot ever invented, either in ancient or modern times. With the sanction of fashion, it would supersede among us a long list of similar inventions. Other nations have fallen behind the Indian, in this one particular at least. The masses of the Romans wore the Calceus Ligneus, or wooden shoe; the masses of Germany and Ireland, and many of the nations of Europe, formerly wore the same.

With the cothurnus, and sandal of the ancients, and the boot of the moderns, the perfection of pedal inventions, the moccasin admits of no unfavorable comparison. It deserves to be classed among the highest articles of apparel ever invented, both in usefulness, durability and beauty.

The mocassin is made of one piece of deerskin. It is seamed up at the heel, and also in front, above the foot, leaving the bottom of the moccasin without a seam. In front the deerskin is gathered, in place of being crimped; over this part porcupine quills or beads are worked, in various patterns. The plain moccasin rises several inches above the ankle, like the Roman cothurnus, and is fastened above the ankle with deer strings; but usually this part is turned down, so as to expose a part of the instep, and is ornamented with bead work, as represented in the plate. A small bone near the ankle joint of the deer, has furnished the moccasin needle from time immemorial; and the sinews of the animal, the thread. These bone needles are found in the mounds of the West, and beside the skeletons of the Iroquois, where they were deposited with religious care. This isolated fact would seem to indicate an affinity, in one act at least, between the Iroquois and the mound builders, whose name, and era of occupation and destiny, are entirely lost.

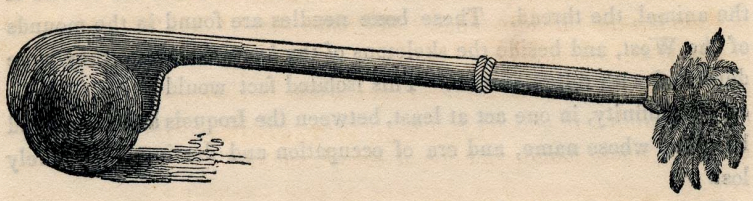
In ancient times the Iroquois used another shoe, made of the skin of the elk. They cut the skin above and below the *gambrel* joint, and then took it off entire. As the hind leg of the elk inclines at this joint nearly at a right angle, it was naturally adapted to the foot. The lower end was sewed firmly with sinew, and the upper part secured above the ankle with deer strings.

In connection with this subject is the art of tanning deer skins, as they still tan them after the ancient method. It is done with the brain of the deer, the tanning properties of which, according to a tradition, were discovered by accident. The brain is mingled with moss, to make it adhere sufficiently to be formed into a cake, after which it is hung up by the fire to dry. It is thus preserved for years. When the deerskin is fresh, the hair, and also the grain of the skin are taken off, over a cylindrical beam, with a wooden blade or stone scraper. A solution is then made by boiling a cake of the brain in water, and the moss, which is of no use, being removed, the skin is soaked a few hours in the solution. It is then wrung out and stretched, until it becomes dry and pliable. Should it be a thick one, it would be necessary to repeat the process until it becomes thoroughly penetrated by the solution. The

skin is still porous and easily torn. To correct both, a smoke is made, and the skin placed over it in such a manner as to enclose it entirely. Each side is smoked in this way until the pores are closed, and the skin has become thoroughly toughened, with its color changed from white to a kind of brown. It is then ready for use.

They also use the brain of other animals, and sometimes the back bone of the eel, which, pounded up and boiled, possesses nearly the same properties for tanning. Bear skins were never tanned. They were scraped until softened, after which they were dried, and used without removing the hair, either as an article of apparel, or as a mattress to sleep upon.

Gä-je-wä, or WAR CLUB.



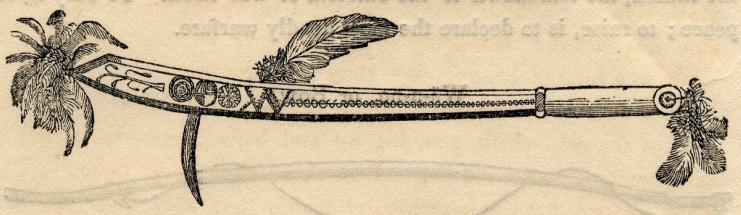
2 feet 2 inches.

WAR CLUB, smaller size.



Before the tomahawk came into use among the Iroquois, their principal weapons were the bow, the stone tomahawk, and the war club. The Gä-je-wä was a heavy weapon, usually made of ironwood, with a large ball of knot at the head. It was usually about two feet in length, and the base five or six inches in diameter. In close combat it would prove a formidable weapon. They wore it in the belt, in front.

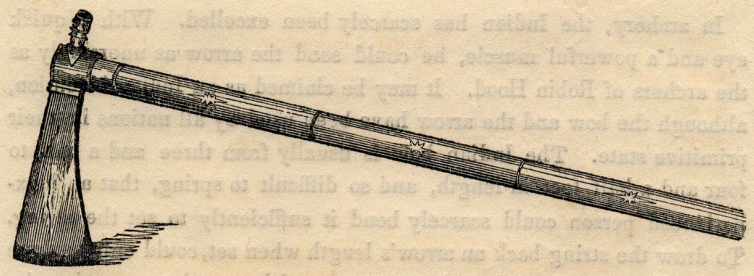
Gä-ne-u-ga-o-dus-ha, or Deer-horn War Club.



2 feet 4 inches.

This species of war club was also much used. It was made of hard wood, elaborately carved, painted, and ornamented with feathers at the ends. In the lower edge, a sharp-pointed deer's horn, about four inches in length, was inserted. It was thus rendered a dangerous weapon in close combat, and would inflict a deeper wound than the former. They wore it in the girdle. In the collection are six war clubs, of the two kinds above described. One of them is a light article, designed for the war dance.

O-sque-sont, or Tomahawk.



The tomahawk succeeded the war club, as the rifle did the bow. With the invention of this terrible implement of warfare the Red man had nothing to do, except in having it so fashioned as to be adapted to his taste and usage. The tomahawk is known as widely as the Indian, and the two names have become apparently inseparable. They are made of steel, brass, or iron. The choicer articles are surmounted by a pipe-bowl, and have a perforated handle, that they may answer the double purpose of ornament and use. In such the handle, and often the blade itself, are richly inlaid with silver. It is worn in the girdle, and behind the back, except when in actual battle. They used it in

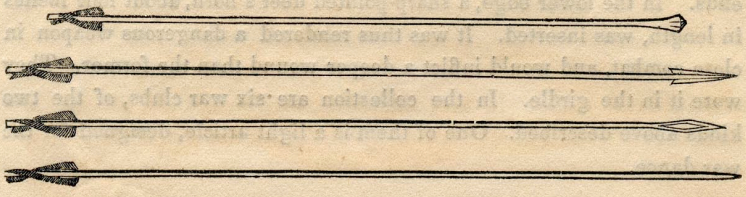
close combat with terrible effect, and also threw it with unerring certainty at distant objects, making it revolve in the air in its flight. With the Indian, the tomahawk is the emblem of war itself. To bury it, is peace; to raise, is to declare the most deadly warfare.

Wä-a-no, or Bow.



4 feet.

Gä-no, or ARROW.



3 feet.

In archery, the Indian has scarcely been excelled. With a quick eye and a powerful muscle, he could send the arrow as unerringly as the archers of Robin Hood. It may be claimed as an Indian invention, although the bow and the arrow have been used by all nations in their primitive state. The Indian bow is usually from three and a half to four and a half feet in length, and so difficult to spring, that an inexperienced person could scarcely bend it sufficiently to set the string. To draw the string back an arrow's length when set, could only be done by practice, superadded to the most powerful muscular strength. An arrow thus sent would strike its object with fearful velocity. The arrow is feathered at the small end with a twist, to make it revolve in its flight. It gives to its motion uniformity and quickness, and, doubtless, suggested the idea of the twist in the rifle barrel, by which the ball is made to revolve in the same manner. The English and Scottish archer feathered his arrow, but without this peculiarity. Three feathers were also used, which were set parallel with each other, and with the arrow, but upon one side. Originally the Indian arrow was pointed with a flint or chert head, which would make it penetrate deeply any object at which it was directed. With such an arrow it was an easy

matter to bring down the deer, the wild fowl, or the warrior himself. Skeletons have been disentombed having the skull penetrated by an arrowhead of this description, with the flint head itself still in the fracture, or entirely within the skull. In Oregon, and on the upper Mississippi, the Indian arrow is still pointed with flint. Thus it was with the Iroquois, until the bow was laid aside for the rifle. Arrow heads of this description are still scattered over the whole surface of the State. Six bows, of different sizes, and some bundles of feathered arrows, will be found in the collection. With Indian youth, the bow and arrow is still a favorite source of amusement.

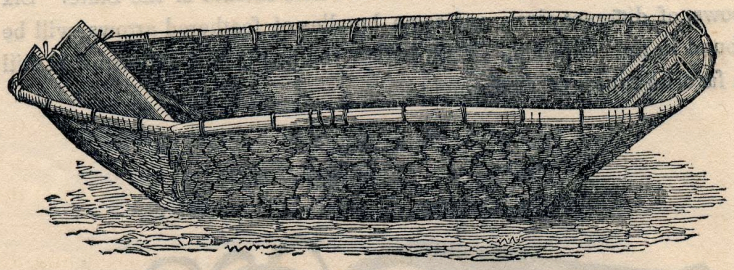
Gus-hä-ah, or Burden Strap.



Rope-making, from filaments of bark, is also an Indian art. The deer string answers a multitude of purposes in their domestic economy; but it could not supply all necessities. The bark rope (Gä-sken dä) has been fabricated among them from time immemorial. In its manufacture they use the bark of the slippery elm and the basswood. Having removed the outer surface of the bark, they divide it into narrow strips, and then boil it in ashes and water. After it is dried it is easily separated into small filaments, the strings running with the grain several feet without breaking. These filaments are then put up in skeins (specimens of which are furnished) and laid aside for use. Basswood makes the most pliable rope; it is soft to the touch, can be closely braided, and is very durable. The burden strap is worn around the forehead and lashed to a litter, which is borne by Indian women on their back. It is usually about fifteen feet in length, and braided into a belt in the centre, three or four inches wide. Several specimens are furnished, one of which is new, and neatly manufactured. A clothes line, of three-strands bark rope, about forty-feet in length, is also among the articles. This art, like many others, is falling into disuse. But few Indian families now provide themselves with skeins of bark thread, or make any use of ropes of this description.

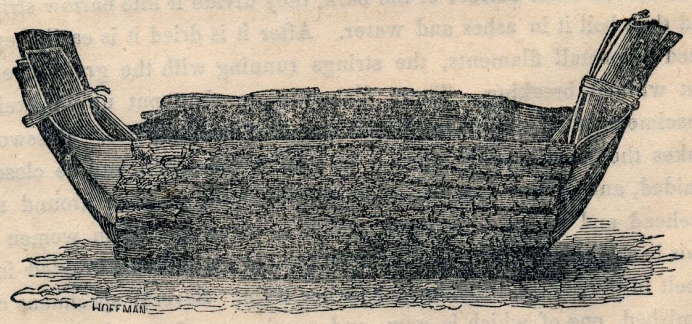
A bark barrel, (Gä-na-quă) which has been used about thirty years, will also be found with the other specimens. It is stitched up the side, has a bottom and lid, and shows no signs of decay. Such barrels are used to store dried corn, fruit, beans, &c.

Gä-o-wä, or BARK TRAY.



Trays of this description are found in every Indian family. They serve a variety of purposes, but are chiefly used for kneading, or rather preparing corn bread. A strip of elm bark, of the requisite dimensions, is rounded and turned up on the sides and at the ends, so as to form a shallow concavity; around the rim, both outside and in, splints of hickory are adjusted, and stitched through and through with the bark. It thus makes a durable and convenient article for holding corn meal, for preparing corn bread, and for many other purposes.

Gä-oo-wä, or BARK SAP TUB.



Our Indian population have been long in the habit of manufacturing sugar from the maple. Whether they learned the art from us, or we received it from them, is uncertain. One evidence, at least, of its antiquity among them, is to be found in one of their ancient religious

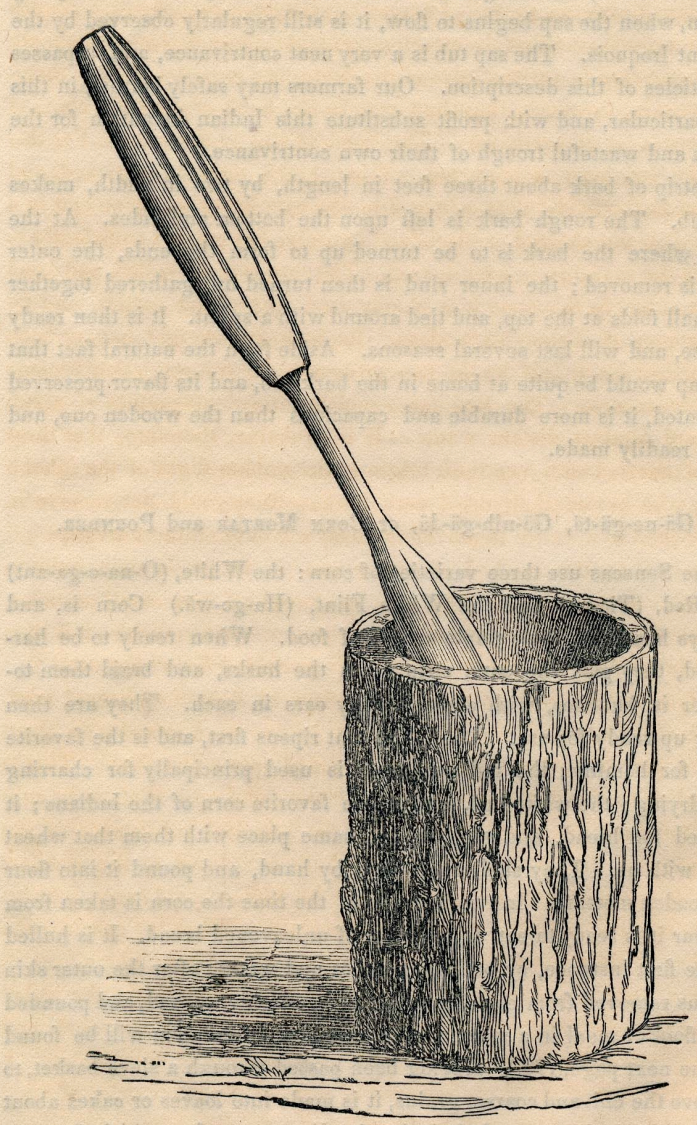
festivals, instituted to the maple. It is called the Maple Dance, (O-tä-de-none-neo-wa-tä) which signifies "Thanks to the Maple." In the spring season, when the sap begins to flow, it is still regularly observed by the present Iroquois. The sap tub is a very neat contrivance, and surpasses all articles of this description. Our farmers may safely borrow, in this one particular, and with profit substitute this Indian invention for the rough and wasteful trough of their own contrivance.

A strip of bark about three feet in length, by two in width, makes the tub. The rough bark is left upon the bottom and sides. At the point where the bark is to be turned up to form the ends, the outer bark is removed; the inner rind is then turned up, gathered together in small folds at the top, and tied around with a splint. It is then ready for use, and will last several seasons. Aside from the natural fact that the sap would be quite at home in the bark tub, and its flavor preserved untainted, it is more durable and capacious than the wooden one, and more readily made.

Gä-ne-gä-tä, Gä-nih-gä-dä, or Corn Mortar and Pounder.

The Senecas use three varieties of corn: the White, (O-na-o-ga-ant) the Red, (Tic-ne) and the White Flint, (Ha-go-wä.) Corn is, and always has been, their staple article of food. When ready to be harvested, they pick the ears, strip down the husks, and braid them together in bunches, with about twenty ears in each. They are then hung up ready for use. The white flint ripens first, and is the favorite corn for hominy; the red next, and is used principally for charring and drying; the white last, and is the favorite corn of the Indians; it is used for bread, and supplies the same place with them that wheat does with us. They shell their corn by hand, and pound it into flour in wooden mortars. In two hours from the time the corn is taken from the ear it is ready to eat, in the form of unleavened bread. It is hulled in the first instance, by boiling in ashes and water; after the outer skin is thus removed from each kernel, it is thoroughly washed, and pounded into flour or meal in a mortar, of which a representation will be found on the next page, (76.) Having been passed through a sieve basket, to remove the chit and coarser grains, it is made into loaves or cakes about an inch in thickness, and six inches in diameter; after which they are cooked by boiling them in water. Upon bread of this description, and upon the fruits of the chase, the Indian has principally subsisted from time immemorial.

MORTAR AND POUNDER.



Mortar, 2 feet. Pounder, 4 feet.

The practice of charring corn is of great antiquity among the Red race. In this condition it is preserved for years without injury. Caches or pits of charred corn, have been found in the vicinity of ancient

works and deserted settlements, in various parts of the country. Many of these are supposed to reach back to the period of the Mound builders. How far this custom prevailed among the Iroquois, cannot with certainty be determined; neither do we know whether those caches, which are still discovered in various parts of the State, are to be ascribed to them. It is certain, however, that they were in the habit of charring corn, to preserve it for domestic use. The Senecas still do the same. For this use the red corn is preferred. When green the corn is picked, and roasted in the field before a long fire, the ears being set up on end in a row. It is not charred or blackened entirely, but roasted sufficiently to dry up the moisture in each kernel. The corn is then shelled, and dried in the sun. In this state it is chiefly used by hunting parties, and for subsistence on distant excursions. Its bulk and weight having been diminished about half by the two processes, its transportation became less burdensome. The Red races seldom formed magazines of grain, to guard against distant wants. It is probable, therefore, that these pits of charred corn owe their origin to the sudden flight of the inhabitants, who buried their dried corn because they could not remove it, rather than to a desire to provide against a failure of the harvest.

There is another method of curing corn in its green state, quite as prevalent as the former. The corn is shaved off into small particles, and having been baked over the fire in pans or earthen dishes, it is then dried in the sun. In this condition it is preserved for winter use.

A favorite article of subsistence is prepared from the charred corn. It is parched a second time, after which, having been mixed with about a third part of maple sugar, it is pounded into a fine flour. This is carried in the bearskin pocket of the hunter, and upon it alone he subsists for days together. It was also the principal subsistence of the war party on distant expeditions. Its bulk is reduced to the smallest possible compass, and it is so light that the Indian could carry, without inconvenience, sufficient for a long adventure. When we consider the rapidity of their journeys, and their powers of enduring abstinence, it becomes easy to understand how the war party could leave the valley of the Genesee, make an inroad upon the Cherokees of the south, and return, relying almost entirely upon this species of subsistence. A basket of each of the three varieties of corn, of the two species of dried corn, and of this flour, will be found among the specimens.

This noble grain, one of the gifts of the Indian to the world, is destined eventually to become one of the staple articles of human consumption. Over half of our republic lies within the embrace of the

tributaries of the Mississippi. Upon their banks are the corn-growing districts of the country; and there, also, at no distant day, will be seated the millions of our race. Experience demonstrates that no people can rely wholly upon exchanges for the substance of their bread-stuffs, but that they must look chiefly to the soil they cultivate. This law of production and consumption, is destined to introduce the gradual use of corn flour, as a partial substitute at least, for its superior rival, in those districts where it is the natural product of the soil. In the southern portions of the country this principle is already attested, by the fact that corn bread enters as largely into human consumption as wheaten. Next to wheat, this grain, perhaps, contains the largest amount of nutriment. It is the cheapest and surest of all the grains to cultivate; and is, also, the cheapest article of subsistence known among men. Although wheat can be cultivated in nearly all sections of the country; although its production can be increased to an unlimited degree by a higher agriculture; we have yet great reason to be thankful for this secondary grain, whose reproductive energy is so unmeasured as to secure the millions of our race, through all coming time, against the dangers of scarcity or the pressure of want.

O-yeh-quä-ä-weh, or INDIAN TOBACCO.

Tobacco is another gift of the Indian to the world; but a gift, it must be admitted, of questionable utility. We call both corn and tobacco the legacy of the Red man; as these indigenous plants, but for his nurture and culture through so many ages, might have perished, like other varieties of the fruits of the earth. Many of our choicest fruits owe their origin to vegetable combinations entirely fortuitous. They spring up spontaneously, flourish for a season and become extinct, but for the watchful care of man. Nature literally pours forth her vegetable wealth, and buries beneath her advancing exuberance the products of the past. But few of the fruits and plants, and flowers of the ancient world, have come down to us unchanged; and still other plants, perhaps, have perished unknown in the openings of the past, which contained within their shrivelled and stinted foliage, the germ of some fruit, or grain, or plant, which might have nourished or clothed the whole human family. We may therefore, perchance, owe a debt to the Indian, in these particulars, beyond our utmost acknowledgments.

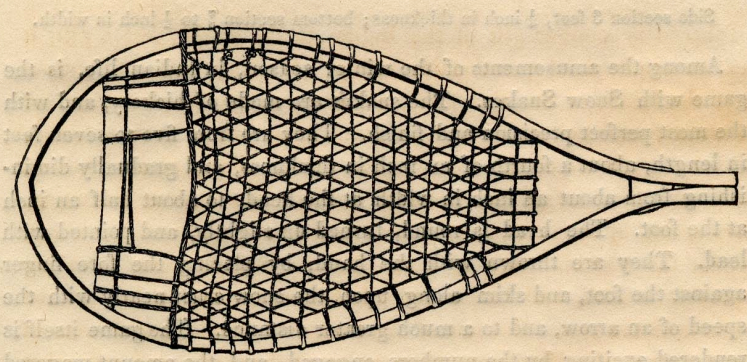
The Senecas still cultivate tobacco. Their name signifies "*The only Tobacco*," because they considered this variety superior to all others. A specimen is furnished. It is raised from the seed, which is sown or

planted in the spring, and requires but little cultivation. The leaves are picked early in the fall, when their color first begins to change, and when dried are ready for use. After the first year it grows spontaneously, from the seed shed by the plant when fully ripened. If the plants become too thick, which is frequently the case, from their vigorous growth, it becomes necessary to thin them out, as the leaves diminish in size with their increase in number. This tobacco is used exclusively for smoking. The custom of chewing the cud, appears to have been derived from us. Although this tobacco is exceedingly mild, they mingle with it the leaves of the sumac, to diminish its stimulating properties. The sumac has been used by the Indian to temper tobacco from time immemorial.

Until within a few years, the Iroquois used the wild potato as an article of food. It still grows spontaneously upon the western reservations, and is usually about the size of a hen's egg. They never cultivated this potato, but gathered it in its wild state.

Six varieties of the bean, and four of the squash, are also furnished. Which varieties were of original cultivation and indigenous, the writer cannot state.

Gä-weh-ga-ă, or Snow Shoe.



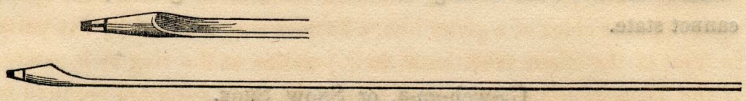
2 feet 10 inches.

The snow shoe is an Indian invention. Upon the deep snows which accumulate in the forest, it would be nearly impossible to travel without them. They were used in the hunt, and in warlike expeditions undertaken in the season of winter.

The snow shoe is nearly three feet in length, by about sixteen inches in width. A rim of hickory, bent round with an arching front, and brought to a point at the heel, constitutes the frame, with the additio

of cross pieces to determine its spread. Within the area, with the exception of an opening for the toe, is woven a net work of deer strings, with interstices about an inch square. The base of the foot is lashed at the edge of this opening with thongs, which pass around the heel for the support of the foot. The heel is left free to work up and down, and the opening is designed to allow the toe of the boot to descend below the surface of the shoe, as the heel is raised in the act of walking. It is a very simple invention, but exactly adapted for its uses. A person familiar with the snow shoe can walk as rapidly upon the snow, as without it upon the ground. The Senecas affirm that they can walk fifty miles per day upon the snow shoe, and with much greater rapidity than without it, in consequence of the length and uniformity of the step. In the bear hunt, especially, it is of the greatest service, as the hunter can speedily overtake the bear, who, breaking through the crust, is enabled to move but slowly.

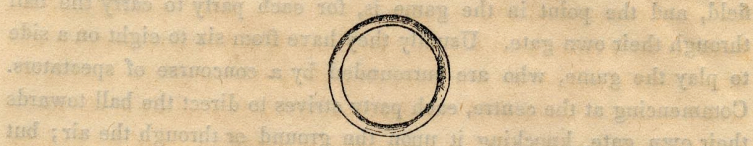
Gä-wä-sä, or SNOW SNAKE.



Side section 6 feet, $\frac{1}{4}$ inch in thickness; bottom section $\frac{7}{8}$ to $\frac{1}{2}$ inch in width.

Among the amusements of the winter season, in Indian life, is the game with Snow Snakes. The snakes are made of hickory, and with the most perfect precision and finish. They are from five to seven feet in length, about a fourth of an inch in thickness, and gradually diminishing from about an inch in width at the head, to about half an inch at the foot. The head is round, turned up slightly, and pointed with lead. They are thrown with the hand, by placing the fore finger against the foot, and skim along upon the snow crust nearly with the speed of an arrow, and to a much greater distance. The game itself is rendered exciting by the numbers engaged, and the amount wagered upon the result. As in all Indian games, the people divide by tribes, certain tribes playing against the others. A limited number are chosen to play the game from each side. The snake which runs the farthest wins, and a count is made by each snake which leads all upon the opposite side. A minute description is necessary, to a full understanding of the game, but enough has been said to designate the uses of the article. Specimens are furnished.

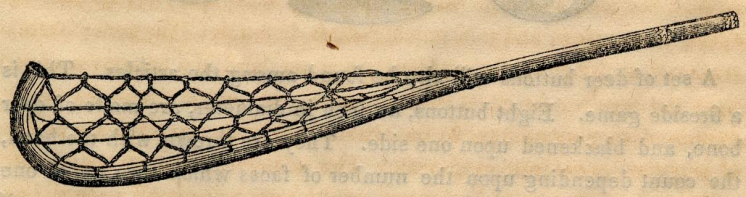
Gä-geh-dä, or JAVELIN.



Javelin 5½ feet, ½ inch in diameter. Ring 6 inches in diameter.

The game of Javelins, or shooting sticks, is also of Indian invention. It is a simple game, depending upon the dexterity with which the javelin is thrown at the ring, as it rolls upon the ground. The javelin itself is the forfeit, and the game is lost when all the javelins upon one side are won. As in other Indian games, the people array themselves according to their tribal divisions; the Wolf, Bear, Turtle, and Beaver tribes, playing against the Deer, Snipe, Heron, and Hawk. From fifteen to thirty on a side are chosen, each taking from three to six javelins. The parties having stationed themselves several rods apart, upon opposite sides of a given line, a hoop or ring is rolled by one party in front of the other, who throw their javelins at the ring as it passes. If the hoop is struck by one of them, the other party are required to stand in the place of the successful person and throw all their javelins in succession at the ring. Those which hit are saved, and those which fail are handed over to the other party, who in turn throw them at the ring. Of this number, those which hit the hoop are won finally, and laid out of the play; the balance are returned to their original owners. The successful party then rolls back the ring, and the game is thus continued until all the javelins upon one side are forfeited.

Gä-ne-ä, or BALL BAT.

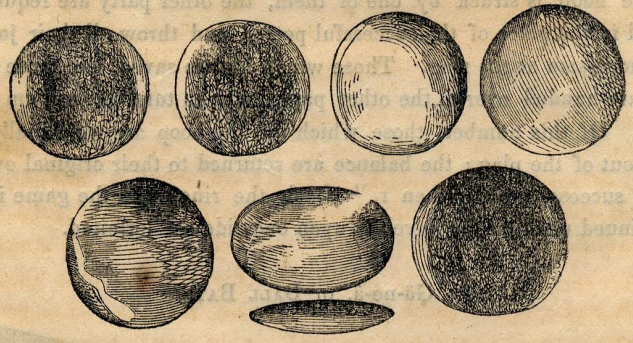


5½ feet.

This is the great game of the Indians. It is also of the highest antiquity, universal among the Red races, and played with a zeal and enthusiasm which would scarcely be credited. In playing it they

denude themselves entirely, with the exception of the Gä-kä, or waist cloth, each one holding a bat, of the species represented in the figure. Gates are erected about sixty rods apart, upon opposite sides of a field, and the point in the game is, for each party to carry the ball through their own gate. Usually they have from six to eight on a side to play the game, who are surrounded by a concourse of spectators. Commencing at the centre, each party strives to direct the ball towards their own gate, knocking it upon the ground or through the air; but more frequently taking it up upon the deerskin net-work of the ball bat, and carrying it in a race towards the gate. When an opposite player strikes it ahead of the runner, the latter throws the ball over the head of the former towards the gate. Oftentimes the play is contested with so much animation, that the ball is recovered at the edge of the gate; and finally, after many shifts in the tide of success, is carried to the opposite side. The game is usually from five to seven, and requires from noon until evening to determine it, each trial is conducted with so much ardor and diversity of success. Specimens of the ball bat are furnished.

Gus-ga-e-sa-tä, or DEER BUTTONS.

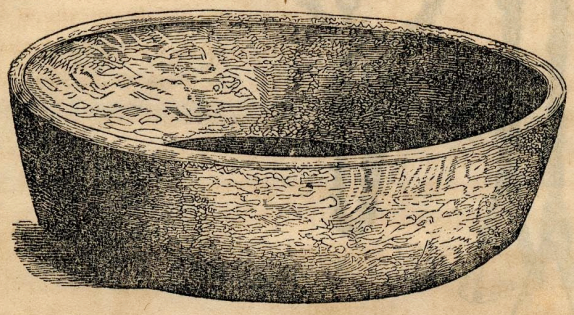


A set of deer buttons will also be found among the articles. This is a fireside game. Eight buttons, an inch in diameter, are made of deer bone, and blackened upon one side. They are thrown with the hand, the count depending upon the number of faces which turn up of one color. If they all come up white, for instance, it counts twenty; if seven of the eight, it counts four; if six, two. These are the only counts. Fifty beans make the bank, and the game continues until one party has won them.

Gus-ka-eh, or Peach Stones.



Gä-jih, or Bowl.



Another favorite game of the Iroquois is played with a bowl and peach stones. A dish, about a foot in diameter, is carved out of a knot, or made of earthen. Six peach stones are then filed or cut down into an oval form, reducing them about half in size; after which they are burned slightly upon one side, to blacken them. These are shook in the bowl, and the count depends upon the number which turn up of the same color. This game is one of their amusements after holding a council. They divide by tribes, as in other games, and bet largely upon the result. It is played by persons selected on each side, who are skilled in the game. The Iroquois ascribe its invention to To-do-dä-ho, the renowned sachem of the Onondagas, who flourished at the time of the formation of the league.

Betting upon all Indian games, when played by tribe against tribe, was as common among the Iroquois, as betting at races by the whites. No restraint whatever was laid upon this practice, and from their fondness for excitement, it frequently led to the most reckless indulgence. It not unfrequently happened that the Indian gambled away every hing which he possessed, his rifle, his tomahawk, and even his blanket.

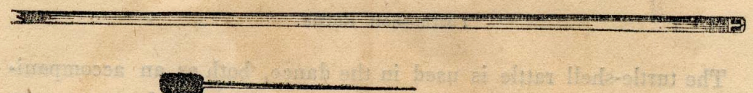
Ah-da-dä-quä, or INDIAN SADDLE.



This is an Indian invention, but came originally from the west. It closely resembles the saddle of the native Mexicans in its general plan, but its pommel is not as high, and its side pieces are longer. It is still used among the Iroquois, and among the Indian tribes of the west. The frame is made of four pieces of wood, firmly set together, over which is a covering of raw hide. The side pieces are about eighteen inches in length, six in width, and about an inch in thickness at the centre, but terminating in a sharp edge above and below. In front the pommel rises about five inches above the side pieces. It is made of a stick having a natural fork, which is so adjusted as to embrace the side pieces, and determine the spread of the saddle. Another piece, in the same manner, embraced the side pieces at the opposite end, rising several inches above, and descending nearly to their lower edges. These side pieces at the top, are about three inches apart, leaving a space for the back-bone of the horse. The fastenings of the saddle, including

those of the stirrup, were originally of ropes, made of Buffalo's hair. Triangular stirrups, of wood, completed the trappings of the saddle. As the Iroquois seldom made use of the Indian horse, the saddle with them was rather an accidental, than a usual article. A specimen, of Seneca manufacture, will be found among the articles.

Gä-ga-an-dä, or Air Gun; and Gä-no, or Arrow.



Air gun, 6 feet. Arrow, 2½ feet.

The air gun is claimed as an Indian invention, but with what correctness the writer cannot state. It is a simple tube or barrel, about six feet in length, above an inch in diameter, and having a uniform bore, about half an inch in diameter. It is made of alder, and also of other wood, which is bored by some artificial contrivance. A very slender arrow, about two and a half feet in length, with a sharp point, is the missile. Upon the foot of the arrow, the down or floss of the thistle is fastened on entire, with sinew. This down is soft and yielding, and when the arrow is placed in the barrel, it fills it air tight. The arrow is then discharged by the lungs. It is used for bird shooting.

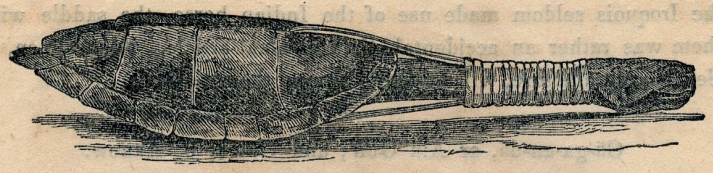
Ya-o-dä-was-tä, or Indian Flute.



1½ feet.

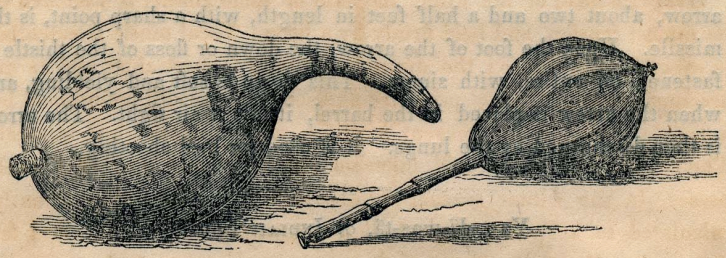
This instrument is unlike any known among us, but it clearly resembles the clarionet. Its name signifies "a blow pipe." It is usually made of red cedar, is about eighteen inches in length, and above an inch in diameter. The finger holes, six in number, are equidistant. Between them and the mouth-piece, which is at the end, is the whistle, contrived much upon the same principle as the common whistle. It makes six consecutive notes, from the lowest, on a rising scale. The seventh note is wanting, but the three or four next above are regularly made. This is the whole compass of the instrument. As played by the Indians, it affords a species of wild and plaintive music. It is claimed as an Indian invention.

Gus-dä-wa-să, or RATTLE.



Turtle-shell Rattle.

The turtle-shell rattle is used in the dance, both as an accompaniment to the singing, and to mark the time. In all of their dances, except the war dance, the singers are seated in the centre of the room, and the dancers pass around them in an elliptical line. They strike the rattle upon the bench, in beating time, as frequently as thrice in a second, and accompany it with singing. After removing the animal from the shell, a handful of flint corn is placed within it, and the skin sewed up. The neck of the turtle is stretched over a wooden handle.

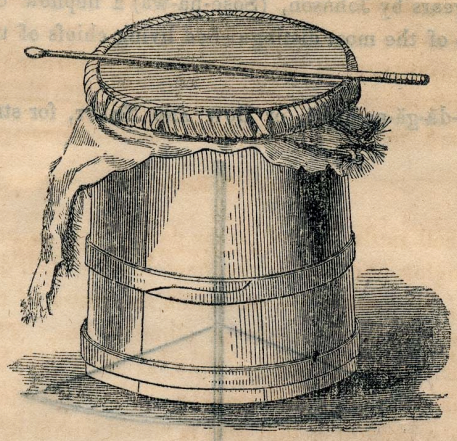


Squash-shell Rattle.

As an accompaniment for singing, the squash-shell rattle is also used. Corn is placed within the hollow shell, and the sound of the rattle varies with its size. In their songs for the dead, it is chiefly used. Frequently twenty of these rattles are heard in one song, each one giving a different note, and the whole together making a very strange substitute for music.

The Iroquois have about twenty distinct dances, a few of them, as the war dance, are performed by select dancers, who dress in full costume and paint for the occasion. A few, also, are exclusively for the females, but in the most of them all participate. The thanksgiving, or religious dance, (O-sto-weh-go-wä) is the most spirited and striking in the list; but the war dance (Wä-säs-seh) is the greatest favorite. In this dance the drum is chiefly used.

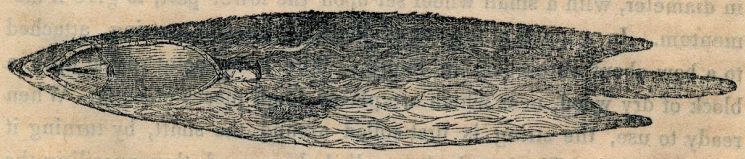
Gä-no-jo-o, or Indian Drum.



1 foot.

Over one head of the drum the skin of some animal is stretched to its utmost tension, and held firmly by a hoop. Vocal music is essential to every Indian dance; the drum being used to mark time, and as an accompaniment. These primitive amusements are still maintained by a certain portion of the present Iroquois, with undiminished interest. Their social intercourse still takes on this form, and scarcely a week passes, in the winter season, without a dance. They are eminently calculated to keep alive their Indian sympathies and notions; and for this reason, the first efforts of their missionaries are, with great propriety, directed to their suppression. There is a wildness in the music and excitement of the dance, exactly attuned to the nature of the Indian; and when he loses his relish for the dance, he has ceased to be an Indian.

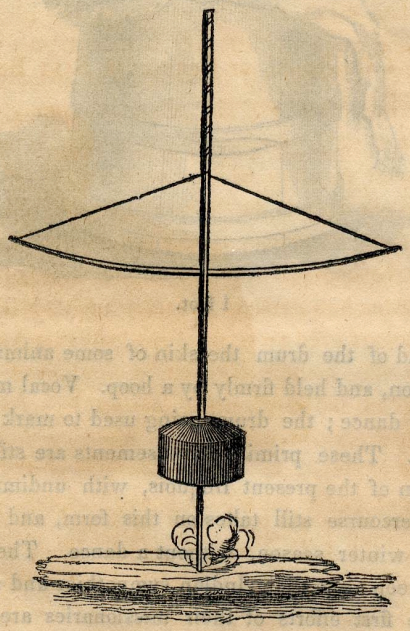
Yun-ga-sa, or Tobacco Pouch.



The tobacco pouch is made of the skin of some small animal, which s taken off entire. It was anciently an indispensable article, and was

worn in the girdle. Four specimens are furnished, one of white weasel, one of squirrel, one of mink, and one of fisher skin. The latter was worn many years by Johnson, (Sose-ha-wä) a nephew of Red Jacket, and now one of the most distinguished living chiefs of the Senecas.

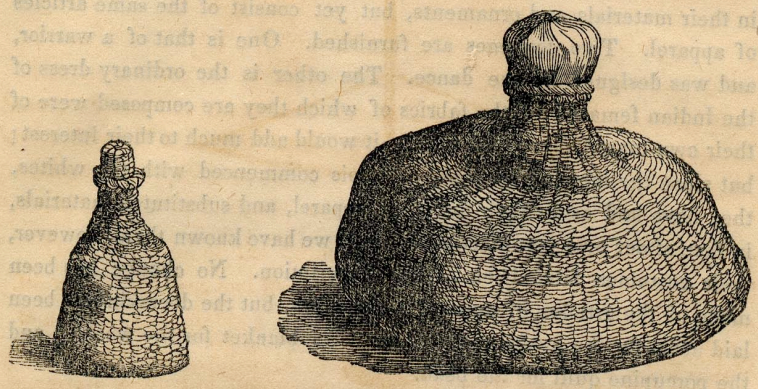
Dä-ya-yä-dă-gä-ne-at-hä, or BOW AND SHAFT, for striking fire.



This is an Indian invention, and of great antiquity. Its rudeness may excite a smile, in this day of lucifer matches, but yet the step backward to the steel and flint is about the same, as from the latter to the contrivance in question. Not knowing the use of metals or of chemicals, it was the only method of creating fire known to the Red man. It consisted of an upright shaft, about four feet in length and an inch in diameter, with a small wheel set upon the lower part, to give it momentum. In a notch at the top of the shaft was set a string, attached to a bow about three feet in length. The lower point rested upon a block of dry wood, near which are placed small pieces of punk. When ready to use, the string is first coiled around the shaft, by turning it with the hand. The bow is then pulled downward, thus uncoiling the string, and revolving the shaft towards the left. By the momentum given to the wheel, the string is again coiled up in a reverse manner

and the bow again drawn up. The bow is again pulled downward, and the revolution of the shaft reversed, uncoiling the string, and recoiling it in reverse as before. This alternate revolution of the shaft is continued, until sparks are emitted from the point where it rests upon the piece of dry wood below. In a moment's time sparks are produced by the intensity of the friction, and ignite the punk, which speedily furnishes a fire.

O-no-ne-ä Gos-ha-dä, or Corn-husk Salt Bottle.



Several varieties of basket work will be found among the articles. In this useful art the Indian women excel. They are made with a neatness, ingenuity and simplicity, which deserve the highest praise. Among the number are two sieve baskets, used for sifting corn meal. Another variety is made of corn-husks and flags, an ingeniously manufactured basket, which is seldom met with. Two corn-husk bottles for salt, are also furnished.

Gä-de-us-ha, or Necklace. See plate 3, fig. 2.

This necklace is made of silver and wampum beads. The latter are of a dark color, and are cut from a species of sea shell. Beads of this description are held in the highest estimation. In strings of wampum beads, the laws of the ancient confederacy of the Iroquois were recorded. According to their method of expressing the idea, the law was "talked into the string of wampum," and it became ever afterwards the visible record of the law itself. By an original law of the league, a sachem of the Onondagas (Ho-no-we-nă-to) was made the

hereditary keeper and interpreter of these strings; and to this day, the Onondaga sachem who holds this title, performs this duty.

A silver cross is also attached to this necklace. The Indian women wear a profusion of silver ornaments, and among them the cross is frequently conspicuous.

In their costumes for the war dance, the Iroquois indulged their taste for finery and ornament to its fullest extent. Some of them would excite admiration by the exactness of their finish and adjustment, the neatness of the materials, and the striking appearance of the whole, as seen in the graceful movements of the dance. They are diversified in their materials and ornaments, but yet consist of the same articles of apparel. Two costumes are furnished. One is that of a warrior, and was designed for the dance. The other is the ordinary dress of the Indian female. If the fabrics of which they are composed were of their own manufacture exclusively, it would add much to their interest; but since the intercourse of the Iroquois commenced with the whites, they have laid aside their deerskin apparel, and substituted materials, in fact, of our own manufacture. Since we have known them, however, their costumes have been of this description. No change has been made of the articles of apparel themselves, but the deerskin has been laid aside for the broadcloth, the bearskin blanket for the woolen, and the porcupine quill for the bead.

Much taste is exhibited in the bead work, which is so conspicuous in the female costume. The colors are blended harmoniously, and the patterns are ingeniously devised and skilfully executed. It sufficiently appears, from the furnished specimens of their handywork, that the Indian female can be taught to excel with the needle. It remains to notice briefly the several articles of apparel, of which these costumes are composed; and first, of the female.

Ah-tä-quä-o-weh, or MOCCASIN.

This has been sufficiently described elsewhere in this report.

Gise-hă, or PANTALETTE. Plate 4.

The Gise-hă is usually made of red broadcloth, and ornamented with a border of bead work around the lower edge, and also up the side. It is secured above the knee, and falls down upon the moccasin. The one furnished is beautifully made, and a fine specimen of bead work.

Gä-kä-ah, or Skirt. Plate 5.

The skirt is secured around the waist, and descends about half way to the bottom of the pantalette. It is usually of blue broadcloth, and is more elaborately embroidered with bead work than any other portion of the dress. A heavy border is worked around the lower edge. Up the centre, in front, it is also embroidered. At the angle upon the right side, a figure is worked representing a tree or flower. This part of the costume furnished, is a rare specimen of Indian needle work.

Ah-de-a-dä-we-să, or Over Dress. Plate 6, and 6 *a*.

The over dress is generally of calico, of the highest colors. It is loosely adjusted to the person, and falls below the waist. Around the lower edge is a narrow border of bead work. In front they wear a profusion of silver broaches, of various sizes and patterns, and arranged agreeably to the taste of the wearer.

E-yose, or Blanket.

This indispensable and graceful garment is of blue or green broadcloth, of which it requires two yards. It falls from the head or neck in natural folds, the width of the cloth, and is gathered around the person like a shawl. It is worn very gracefully, and makes a becoming article of apparel. Other ornaments are worn, but the costume has been described with sufficient minuteness to give a general idea of its character.

Gus-to-weh, or Head Dress. Plate 3, fig. 1.

Upon the head dress, the most conspicuous part of the male costume, much attention was bestowed. The frame consists of a band of splint, adjusted around the head, with a cross band arching over the top, from side to side. A cap of net work, or silk, is then made to enclose the frame. Around the splint a silver band is fastened, which completes the lower part. From the top, a cluster of white feathers depends. Besides this a single feather, of the largest size, is set in the crown of the head dress, inclining backwards from the head. It is secured in a small tube, which is fastened to the cross splint, and in such a manner as to allow the feather to revolve in the tube. This feather, which is usually the plume of the Eagle, is the characteristic of the Iroquois

head dress. The feather, in the specimen furnished, has been worn for many years by Sose-ha-wä, (above referred to) and has been conspicuous at many of the councils of the Senecas.

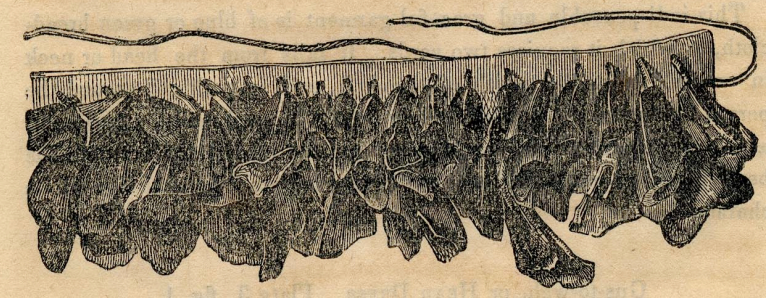
Gä-kä-ah, or KILT. Plate 7.

The kilt is secured around the waist by a belt, and descends nearly to the knee. It is fringed around the lower edge, and covered with various ornaments. This article of Indian apparel is not much unlike the kilt of the Highlander.

Gise-hă, or LEGGIN. Plate 8.

The leggin is usually made of red broadcloth. It is embroidered around the lower edge and up the side, with bead work. Two narrow bands depend from the knee in front. It is secured above the knee, and descends to the moccasin.

Gus-da-wä-să Yen-che-no-hos-ta, or KNEE RATTLE OF DEER'S HOOFS.

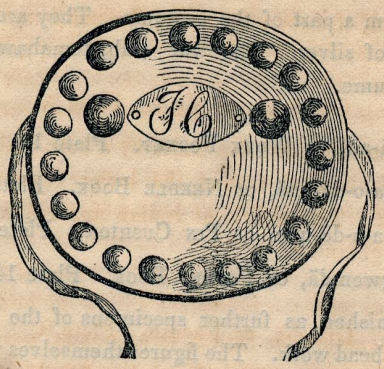


In the dance, rattles were worn around the knee. They are usually made of the hoofs of the deer, which are strung in two or three rows upon a belt, and the belt itself then tied around the knee.

Gä-geh-tä, or BELT. Plate 9.

The belt is of Indian manufacture. It is braided by hand, the beads being interwoven in the process of braiding. They are worn around the waist, and over the left shoulder. No part of the costume is prized so highly as the belt.

Gä-nuh-sä, or Sea-shell Medal.



The government have long been in the habit of presenting silver medals to the chiefs of the various Indian tribes, at the formation of treaties, and on the occasion of their visit to the seat of government. These medals are held in the highest estimation. Red Jacket received one from Washington, in 1792, which is now worn by the Seneca chief Sose-ha-wä. It is an elliptical plate of silver, surrounded by a rim, and is about six inches in its greatest diameter. On each side it is engraved with various devices. Medals of sea shell, inlaid with silver, are also worn suspended from the neck, as personal ornaments. A specimen of the latter description is furnished.

Tuesh-tä-ga-tas-tä, or Tin Breast-plate.



The above is a representation of a species of tin breast-plate, worn by the Seneca Indians.

ARM BANDS, KNEE BANDS, AND WRIST BANDS. Plate 10.

These, also, form a part of the costume. They are usually of bead work, but often of silver. The war club, tomahawk, and moccasin, complete the costume.

Gä-yä-ah, or WORK POCKET. Plate 11.

Ya-wa-o-dä-quä, or NEEDLE BOOK. Plate 12.

Ya-wa-o-dä-qua, or PIN CUSHION. Plate 13.

Got-gwen-dä, or POCKET BOOK. Plate 14.

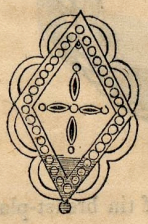
These are furnished as further specimens of the handiwork of the Indian female in bead work. The figures themselves will dispense with the necessity of any description. The patient industry of the Indian female is quite remarkable, when seen in contrast with the impatience of labor in the Indian himself. In the work of their reclamation and gradual induction into industrial pursuits, this fact furnishes no small degree of encouragement.

Gä-kä, or BREECH CLOTH. Plate 15.

In the ball game the players denude themselves entirely, with the exception of a belt, which is secured below the waist, and the Gä-kä, which passes under it before and behind. It is usually of broadcloth, and ornamented with bead work.

Several articles of silver ware will also be found in the collection. They consist of hat bands, arm and wrist bands, ear rings and broaches, of various patterns and sizes. They are principally of Indian manufacture. The following cuts represent a pair of ear rings worn by Ho-ho-e-yu, in 1849.

Ah-was-hă, or EAR RING.



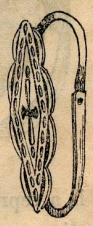


Plate No. 17 is an engraving of Pipes, in use among the Indians.

Ga-on-seh, or Baby Frame. Plate 16.

This is likewise an Indian invention. It appears to have been designed rather as a convenience to the Indian mother, for the transportation of her infant, than, as has generally been supposed, to secure an erect figure. The frame is about two feet in length, by about fourteen inches in width, with a carved foot-board at the small end, and a hoop or bow at the head, arching over at right angles. After being enclosed in a blanket, the infant is lashed upon the frame with belts of bead work, which firmly secure and cover its person, with the exception of the face. A separate article for covering the face, is then drawn over the bow, and the child is wholly protected. When carried, the burden strap attached to the frame is placed around the forehead of the mother, and the Ga-on-seh upon her back. This frame is often elaborately carved, and its ornaments are of the choicest description. When cultivating the maize, or engaged in any out-door occupation, the Ga-on-seh is hung upon a limb of the nearest tree, and left to swing in the breeze. The patience and quiet of the Indian child, in this close confinement, are quite remarkable. It will hang thus suspended for hours, without uttering a complaint.

With the Ga-on-seh, closes the enumeration of articles. Several have been necessarily omitted, and others noticed but slightly. Sufficient, however, has been written, to illustrate the general character of our Indian fabrics, implements and utensils. Some of them have been noticed minutely, as they appeared calculated to exhibit the artisan intellect of our primitive inhabitants. It is in this view that they are chiefly interesting. Some general observations naturally present themselves upon this branch of the subject, but the prescribed limits of this report will not permit their introduction.

Such is the diffusion of Indian arts and Indian inventions among the Red races, that it is impossible to ascertain with what nation or tribe they in fact originated. Many of them were common to all, from Maine to Oregon, and from the St. Lawrence to the peninsula of Florida. To this day Indian life is about the same over the whole republic. If we wished to discover the inventions of the Iroquois, we might expect to find them as well among the Sioux of the upper Mississippi, as among the descendants of the Iroquois themselves. It is for this reason, that in forming an Indian collection, we should take in the whole range of Indian life, from the wild tribes dwelling in the seclusions of Oregon, to the semi-agricultural Cherokees of the south, and the present Iroquois

who reside among ourselves. They have passed through all the intermediate stages, from extreme rudeness to comparative civilization. If we wished to connect the fabrics of the former with those of our own primitive inhabitants, we may find that connection in the fact, that similar implements and similar fabrics, at no remote period, were in the hands, and of the manufacture, of the Iroquois themselves. Many of the relics disentombed from the soil of New-York, relate back to the period of the Mound builders of the west; and belong to a race of men and an age which have passed beyond the ken of even Indian tradition. Our first Indian epoch is thus connected with that of the Mound builders. In the same manner, the fabrics of the Iroquois are intimately connected with those of all the tribes now resident within the republic. One system of trails belted the whole face of the territory, from the Atlantic to the Pacific; and the intercourse between the multitude of nations who dwelt within these boundless domains was constant, and much more extensive than has ever been supposed. If any one, therefore, desired a picture of Iroquois life before Hendrick Hudson sailed up the river upon whose banks rested the eastern end of their "Long House,"* he should look for it in Catlin's Scenes at the skirts of the Rocky Mountains. There are diversities, it is true, but Indian life is essentially the same.

A collection, therefore, which embraced within its range the utensils, implements, and miscellaneous fabrics of the whole Indian family, would best illustrate the era of Indian occupation within our own State. Such a collection can, and ought to be made. It would be doing, in our republic, what European nations have taken unwearied pains to accomplish within their own territories. They have treasured up, with watchful care, the memorials of their own territorial history. These memorials unlock the social history of the past; and although silent, they speak more eloquently than all human description. Our own are essentially Indian. An Indian collection is all that we can offer to the European, in acknowledgment of the gratification and instruction we have derived from theirs. While every petty State abroad has its Historical Cabinet, the visitation of which furnishes the chief pleasure of the traveler, our own States, one of which numbers three millions of people, have nothing of the kind for the entertainment of the foreign traveler. The custom among all civilized nations, of making such col-

* Ho-de-no-sau-ne, the name of the Iroquois as one people, signifies "The People of the Long House." They symbolized the League by a house, which reached from the Hudson to the Genesee; and afterwards to Niagara, on the expulsion of the Eries and Neuter Nation, about the year 1650.

lections, rests upon sound considerations of public utility; and the reasons which induce them are just as applicable here, as elewhere; and just as appropriate to each single State, as to the National Government.

This enterprise has been fairly entered upon, under the fostering care of the Regents of the University. The foundation, at least, of an Indian Collection, has been established. Were it enlarged, upon the principles suggested in this report, it would soon become one of the most interesting of all Historical Cabinets. It would grow in public value, as the people whose social condition it reveals, recede from public observation; and in after years it would become inestimable. But such are the changes, and causes of change at work among our Indian races, that the present moment should be improved with diligence. Time buries every thing in a common tomb.

The Red races are passing away before the silent, but irresistible spread of civilization. The tenure of Indian sovereignty is as precarious as the habitation of the deer, his co-tenant of the forest. Their gradual displacement is as inevitable as the progress of events. A portion, indeed, of the Indian family, if present indications are to be trusted, is destined eventually to be reclaimed, and raised to a citizenship among ourselves. But this can only be accomplished by their adoption of agricultural pursuits, and the diffusion of knowledge among them. When this change is effected, they will cease to be Indians. A different destiny awaits the residue. At no distant day the war shout of the Red man will fall away into eternal silence, upon the shores of the distant Pacific. Industry will then have taken up her abode in the seclusions of the forest, the church will rise upon the ruins of the council-house, the railway pursue the distant trail, the ploughshare turn the sod of the hunting ground; and the pursuits of peace having diffused themselves over the whole republic, one universal and continuous hum of industry will rise from ocean to ocean. When the destiny of the Indian is thus fulfilled, the words of the great Seneca orator will rise up in perpetual remembrance:

"Who then lives to mourn us? None. What marks our extermination? Nothing."

All which is respectfully submitted.

LEWIS H. MORGAN.

All which is respectfully submitted.

LEWIS H. MORGAN.

(G.)

DR. HOUGH'S PAPER

ON

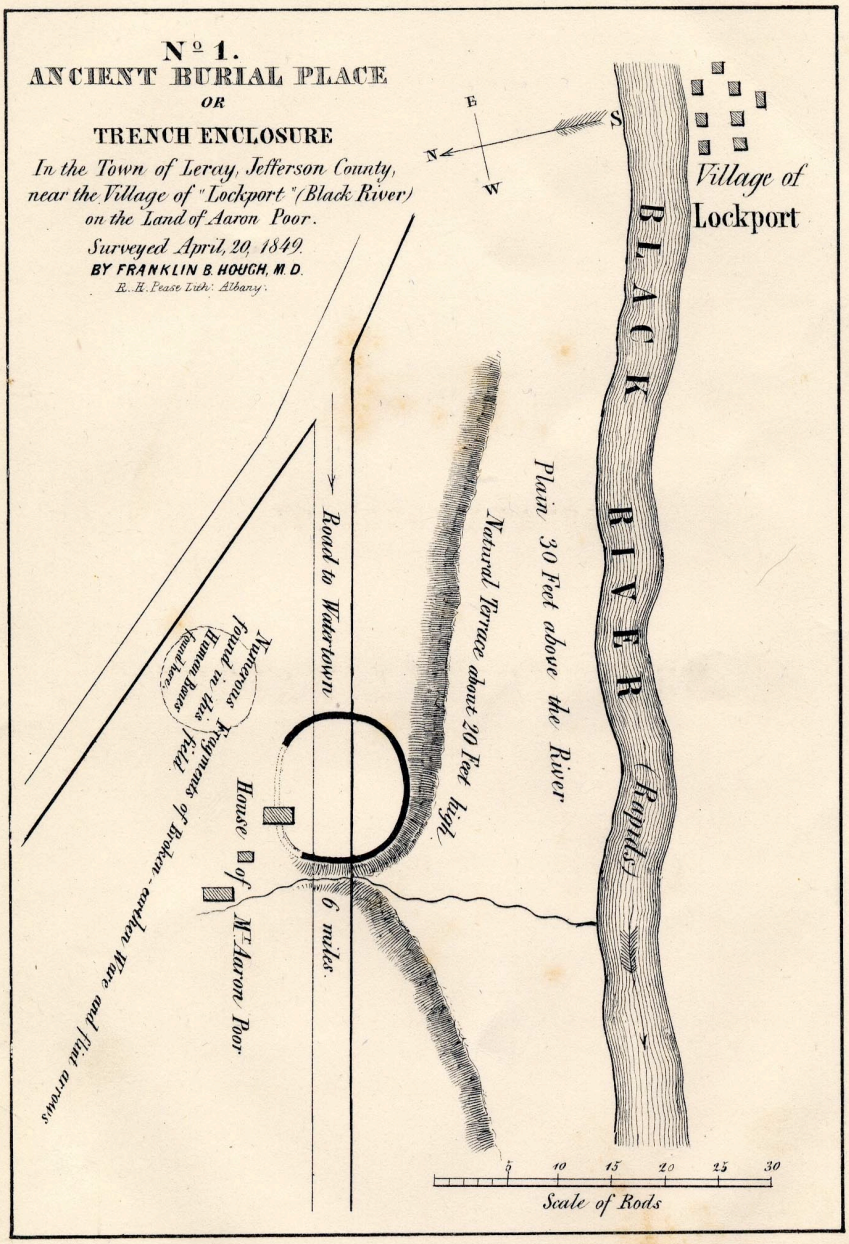
INDIAN ANTIQUITIES.

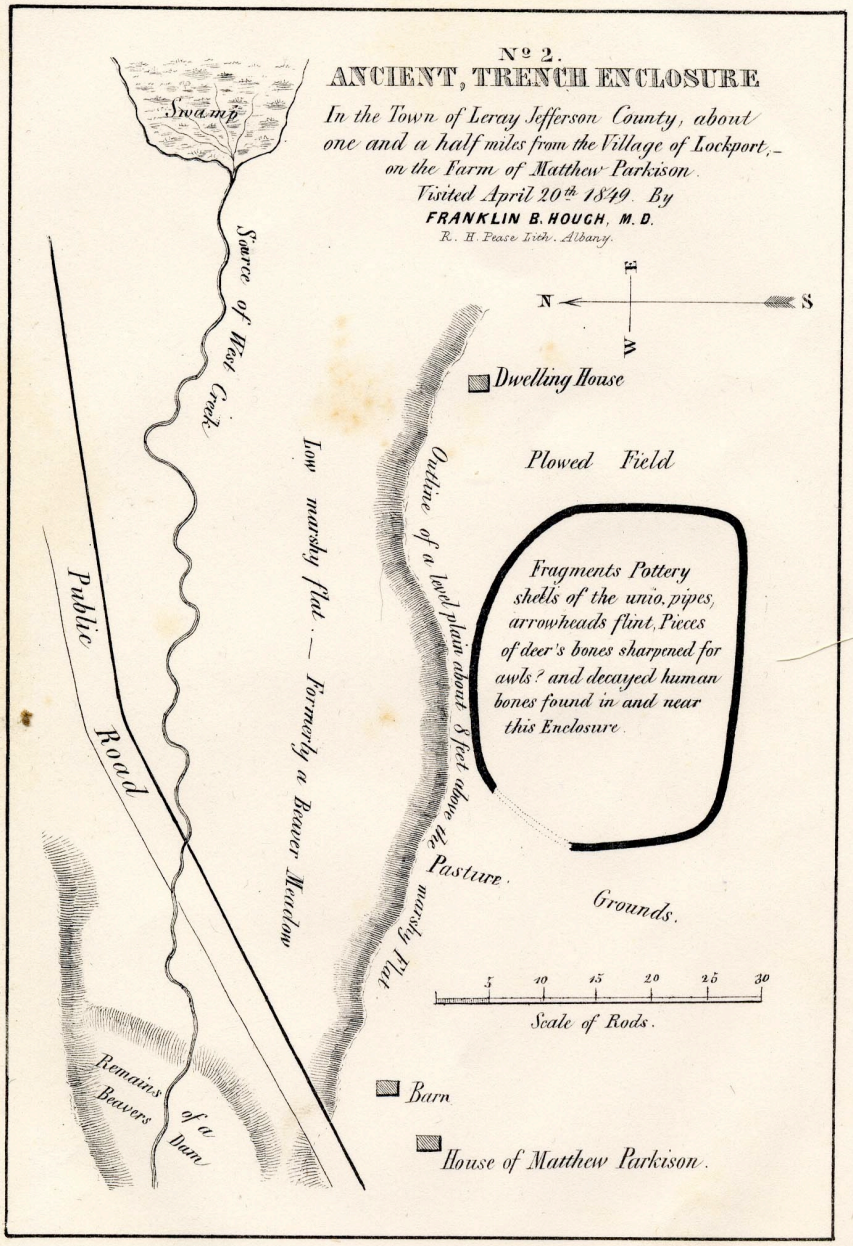
(G.)

DR. HOYER'S PAPER

ON

INDIAN ANTIQUITIES.


Nº 1.
ANCIENT BURIAL PLACE
OR
TRENCH ENCLOSURE
In the Town of Leray, Jefferson County, near the Village of "Lockport" (Black River) on the Land of Aaron Poor.
Surveyed April, 20, 1849.
BY FRANKLIN B. HOUGH, M.D.
E. H. Pease Lith: Albany.
E
N
S
W
Village of
Lockport
BLACK RIVER (Rapids)
Natural Terrace about 20 Feet high
Plain 30 Feet above the River
Road to Watertown
6 miles.
House of Mr Aaron Poor.
Fragments of Broken earthen Ware and flint arrows found in this field
Numerous Human bones found here
5 10 15 20 25 30
Scale of Rods


Nº 2.
ANCIENT, TRENCH ENCLOSURE
In the Town of Leray Jefferson County, about one and a half miles from the Village of Lockport, on the Farm of Matthew Parkison.
Visited April 20th 1849. By
FRANKLIN B. HOUGH, M.D.
R. H. Pease Irch. Albany.
Swamp
Source of West Creek
Public Road
Low marshy flat. — Formerly a Beaver Meadow
Remains of a Beavers Dam
E
N
S
W
Dwelling House
Plowed Field
Outline of a level plain about 8 feet above the marshy Flat
Fragments Pottery shells of the unio, pipes, arrowheads flint, Pieces of deer's bones sharpened for awls? and decayed human bones found in and near this Enclosure.
Pasture.
Grounds.
5 10 15 20 25 30
Scale of Rods.
Barn
House of Matthew Parkison.

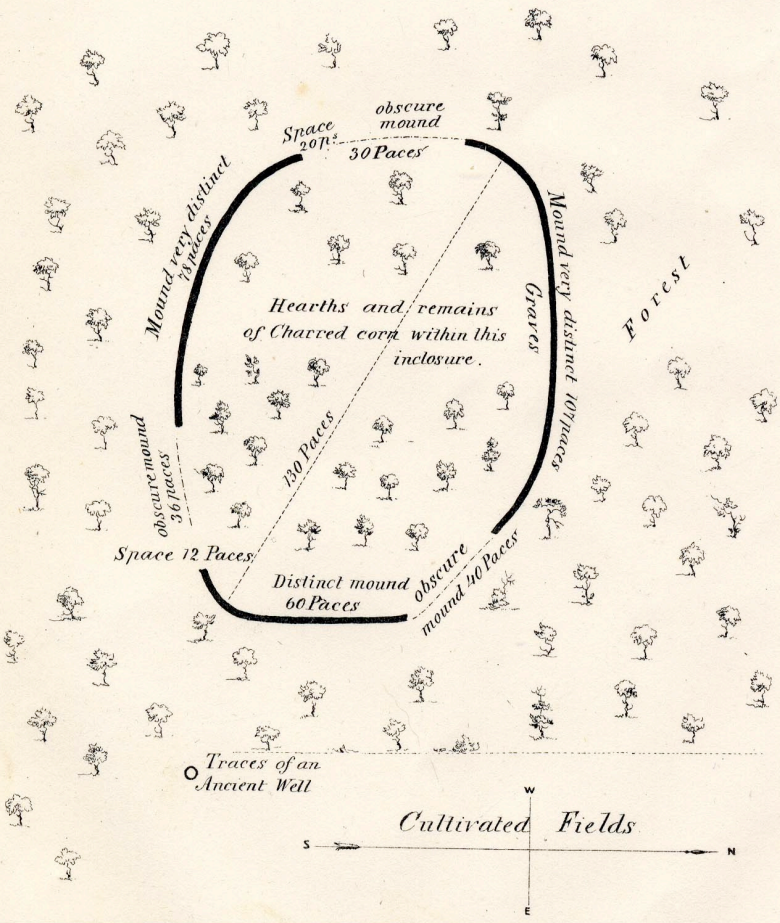
No 3

ANCIENT TRENCH ENCLOSURE

IN THE TOWN OF RUTLAND JEFFERSON COUNTY

near the Residence of Abner Tomlin.
Visited and surveyed June 1849 by F.B.Hough.

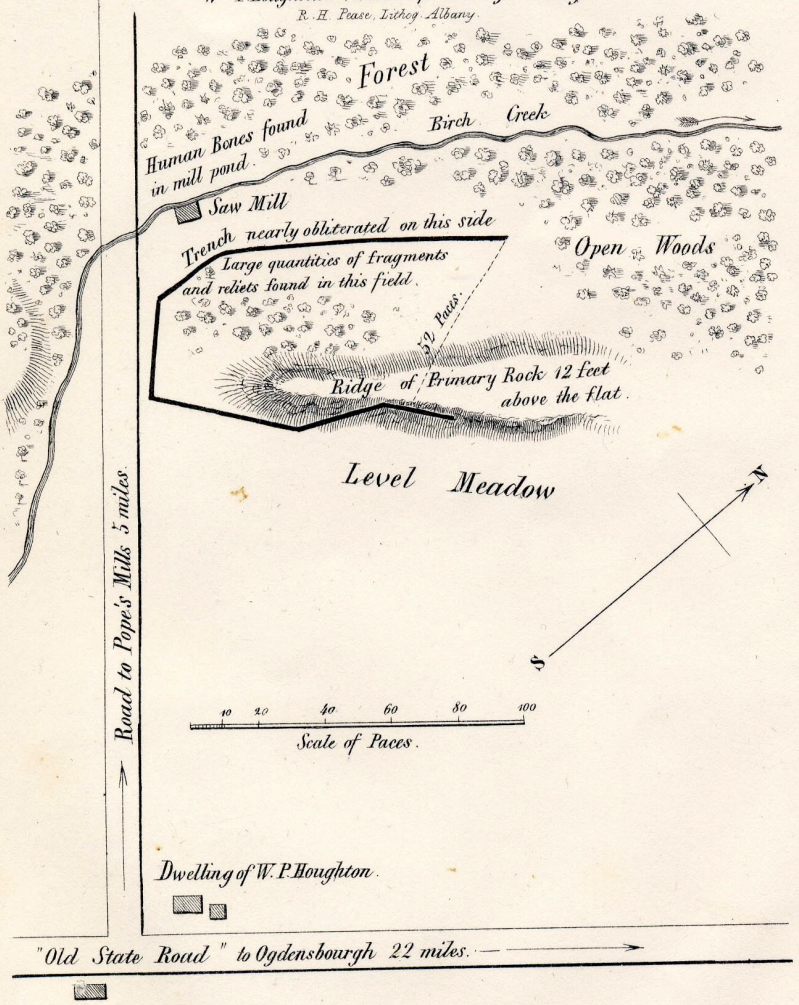
R.H. Pease Lith. Albany, 1850.



Nº 4.
ANCIENT ENCLOSURE
OR
BURIAL PLACE

In the Town of Macomb, St Lawrence Co. on the farm of
Wm P. Houghton. Visited Sepr 1849. By F. B. Hough.

R. H. Pease, Litho. Albany

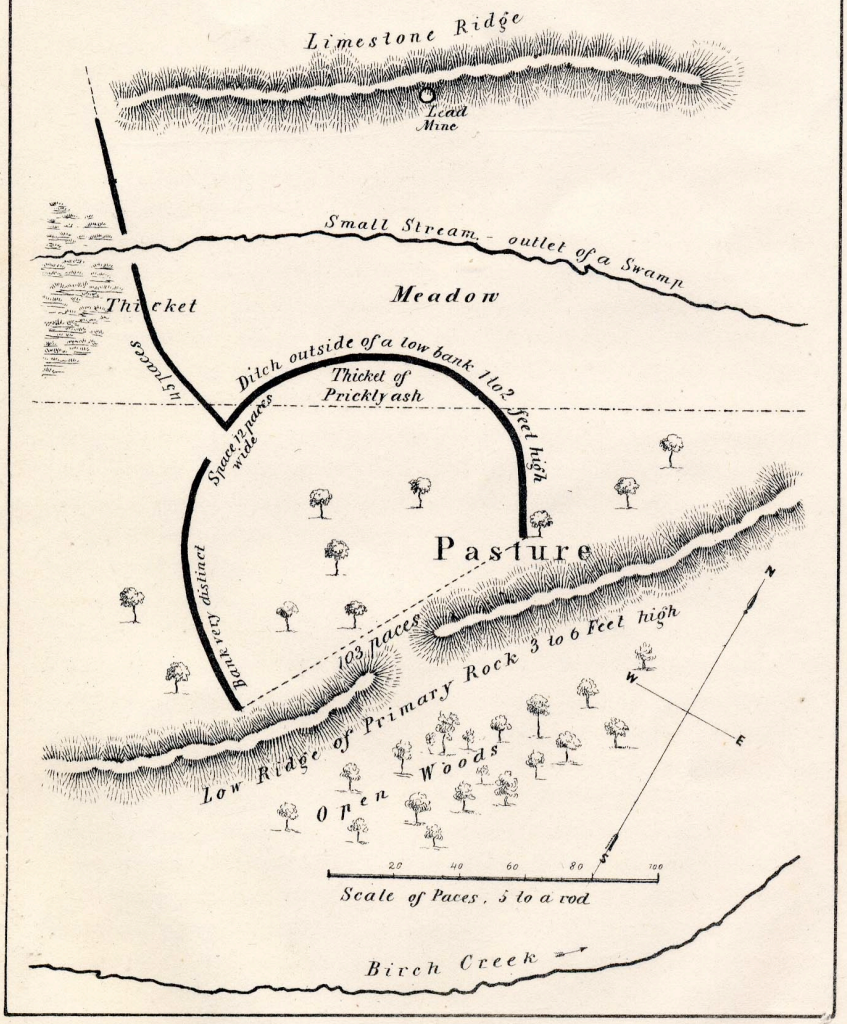


No 5

ANCIENT TRENCH ENCLOSURE
or
BURIAL PLACE

In the town of Macomb St Lawrence Co. on the farm of Robt Wilson
Visited and Surveyed Sept 1st 1849 by Franklin B. Hough.

R.H. Pease Lith. Albany, 1850.



NOTICE OF SEVERAL ANCIENT REMAINS OF ART,

IN JEFFERSON AND ST. LAWRENCE COUNTIES,

BY FRANKLIN B. HOUGH, M. D.

In the town of Leray, Jefferson county, there have been found two ancient trench enclosures. One of these is situated near the bank of Black River, a short distance below the little village of "Lockport," (Black River) and is now nearly obliterated by the plough; except the section that crosses the road, and that which lays in a pasture between the road and the river. For the relative situation of this enclosure with surrounding objects, reference is made to the accompanying plan, No. 1.

In the cultivated field north of the road, are found in many places traces of fireplaces, both within and without the trench; and in a circular area to the northeast, several skeletons have been exhumed. From the state of preservation in which these bones are found, it is inferred that they belonged to the recent tribes of Indians that inhabited the region. No aboriginal settlements were known to exist here at the time of the first settlement by the whites, about fifty years since. The same remark applies to all the other remains of ancient enclosures in Jefferson and St. Lawrence counties.

The other trench enclosure is about one mile north of this, is larger, and like the first, contains in and around it numerous traces of hearths, fragments of pottery, shells of edible fresh water shell-fish, and the bones of men and animals. Its outline is in many places very obscure, and the plough will in a few years efface the last vestige of mound or trench. The adjoining flat was once flowed by a beaver dam, making a shallow pond of several acres in extent. The remains of this dam are still distinct. It is built in a curve, the convex side being up the stream. For the dimensions and topography of this enclosure, see plan No. 2.

In the town of Rutland are vestiges of several ancient works. One of these is on land owned by the heirs of the late James Wilson, and near the residence of Abner Tomlin. The space is still covered with a forest, and trees of several centuries growth are standing upon and within the enclosure. Decayed and fallen trunks of others, of which but slight traces remain, indicate that the present growth of timber has been preceded by another quite as ancient, and carry back the origin of these works to a period exceedingly remote.

The little hillocks formed by fallen trees, have in some places so confused and obliterated the original work, that it is difficult to determine its precise extent. The annexed plan (No. 3) conveys a good idea of the extent and form of this trench enclosure. Great numbers of human skeletons have been found buried in the trench which surrounds the slight mound yet remaining. Within the area have been found graves, and fireplaces; while in the fields around, which have been cultivated, great numbers of flint arrowheads, stone chisels, pipes, and fragments of coarse earthen ware, have been found. Among the charcoal found within the enclosure, charred corn has been found in considerable qnantities. The skeletons appeared to have been deposited in something like a regular manner, with their heads to the west, and the knees drawn up to the body. This place is about one mile from the western line of the town of Rutland, and two miles from Black River. There is said to have been found in this locality several years since, a *copper* arrowhead. Whether of ancient or recent workmanship, is not known. If the former, it would indicate an acquaintance with distant localities of that metal, as none has been found, in the metalic state, nearer than the great mineral regions of Lake Superior.

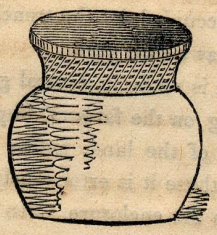
In the year 1842, a collection of human bones, evidently of ancient date, was discovered in Rutland, about three miles east from the village of Watertown, on a commanding height, and in a field owned by Mr. E. Huntingdon.

On removing a circular pile of stones, about three feet high and ten feet in diameter, there was discovered a flat stone, which covered a hole four feet square and two feet deep, filled with bones, thrown promiscuously together. They were evidently nothing but bones at the time of their burial, as the space was too small to have contained so many bodies. Some bones exhibited the marks of teeth, as if they had been gnawed by wild animals.

The surrounding fields contain traces of fireplaces, with much charcoal and charred corn; and the whole appears to bear evidence of an-

cient massacre and pillage, in which an Indian village was destroyed, and the bones of the slain afterwards collected and buried by their friends. The bones were in a tolerable state of preservation, but soon decayed on exposure. It was estimated that there were between thirty and forty skeletons buried here, besides detached bones of animals.

Among fragments of broken pottery found in this vicinity, was an entire pot, having a capacity of about three pints, and the form represented in the sketch.



A fragment of a pipe, contained the representation of a human face on each side, only a part of which remained, was also found; a figure of which is here inserted.



In the town of Macomb, St. Lawrence county, are found three trench enclosures, and numerous places where broken fragments of rude pottery, ornaments of steatite, and beds of charcoal and ashes, indicate the sites of Indian villages. It may be proper to state, that this region was not inhabited at the time of its first settlement by the whites.

One of these ruins is on the farm of William P. Houghton, near the bank of Birch creek, and is the one which has furnished the greatest

quantity of relics. Beads of steatite, pipes, and broken utensils of earthen, the bones of fish and wild animals, shells, &c., occur, mixed with ashes and bits of charcoal, throughout the soil, within and without the limits of the trench, and have been collected and carried off in large quantities. Cultivation has nearly obliterated every trace of the enclosure, but by the aid of several persons who were acquainted with the locality when first discovered, the accompanying plan (No. 4) has been drawn, which is believed to represent the situation and extent of this work, before the land was tilled.

The ground formerly occupied by the trench, is at present the site of an orchard, and used as a mill yard.

Reference to this work is made in several gazetteers and "Historical Collections," as occurring on the farm of Capt. Washburn, in Gouverneur, (the former owner of the land, before the erection of the township of Macomb,) and in these it is erroneously stated that rude remains of sculpture occur within the enclosure. No traces of sculpture (except the beads, pipes, and other articles,) have ever been found here.

About half a mile northeast of this place, is the trace of another enclosure, but so obliterated by cultivation, that it could not be surveyed with any degree of certainty. It occurs on the farms of Josiah Sweet and William Houghton, the greater portion being upon the farm of the latter.

It is situated on a small stream, the outlet of a tamarack swamp, formerly a beaver meadow; is of an irregular oval figure, and can be traced with tolerable accuracy about 160 paces, which is nearly half of the original circumference. Its longest direction was NNE. and SSW. Numerous fire-beds occur within the enclosure, and in one instance, a quantity of ashes and charcoal was found five feet below the surface. In a field a few rods distant, large quantities of broken pottery, and traces of an Indian village, are found. About three-fourths of a mile from the enclosure first described, (plan No. 4) there occurs another trench, of semicircular form, and in a far more perfect state of preservation than either of the others. This is on the farm of Robert Wilson, and about 25 rods south of "Wilson's Lead Mine."

For the topography and extent of this trench, reference is made to the accompanying plan, No. 5.

As the land around this has never been ploughed, it has not furnished any relics of interest.

In the town of Massena, St. Lawrence county, is an ancient trench enclosure, on the farm of Josiah C. Bridges, about half a mile south-

west of the bridge over the Racket river, at a place called Racket River P. O. It is on a considerable eminence, about half way between the Racket and Grasse rivers, and three miles from the mouth of the latter. The hill may be fifty feet higher than either river; the ancient work is on the southern declivity of the hill, near the top, and the outer ditch may enclose perhaps an acre. It is nearly square, with the corners projecting beyond the line of the sides; from which it may perhaps be inferred that it was a defensive work, and belonging to a different period from the circular works above described. The bank when first discovered, was surrounded by a ditch about three feet wide, and between one and two feet deep. In the ditch were the remains of old pine trees, some of which must have been at least five hundred years old. Within the enclosure were two elevations, about fifteen feet square, and two feet above the level of the surrounding ground. The location commands a prospect of the country around, in every direction, to a considerable distance.

In Potsdam, St. Lawrence county, there existed, on the first settlement of the country, a work similar to the one last described, but which is now nearly obliterated by the plough. It was on the west side of Racket river, about half way from Potsdam village to Norfolk. Like the other, it was situated near the top of an elevation, conspicuous from all the surrounding country. Like it, also, it was quadrilateral; its size was nearly the same, and the vicinity of both furnishes numerous remains of rude pottery, stone axes, flint arrows, and various ornaments wrought in steatite.

The location in Potsdam is about eighteen miles distant to the southwest, from that in Massena, and there is little doubt but that one might be seen from the other, if the intervening timber was cut away.

The foregoing are the only remains of ancient art which the writer has been able to learn of in St. Lawrence county, after making the most diligent inquiries. In Jefferson county there are many others, in the towns of Adams, Ellisburgh, &c., of which it is hoped a satisfactory account will hereafter be given.

west of the bridge over the Bucket river, at a place called Bucket River P. O. It is on a considerable eminence, about half way between the Bucket and Crusso rivers, and three miles from the mouth of the latter. The hill may be fifty feet higher than either river; the ancient work is on the southern declivity of the hill, near the top, and the outer ditch may enclose perhaps an acre. It is nearly square, with the corners projecting beyond the line of the sides; from which it may perhaps be inferred that it was a defensive work, and belonging to a different period from the circular works above described. The bank when first discovered, was surrounded by a ditch about three feet wide, and between one and two feet deep. In the ditch were the remains of old pine trees, some of which must have been at least five hundred years old. Within the enclosure were two elevations, about fifteen feet square, and two feet above the level of the surrounding ground. The location commands a prospect of the country around, in every direction, to a considerable distance.

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(H.)

REPORT

ON THE

MINERALOGY OF NEW-YORK;

Comprising Notices of the Additions which have been made since 1842.

BY LEWIS C. BECK, M. D.,

LATE MINERALOGIST TO THE SURVEY OF NEW-YORK.

(II.)

REPORT

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BY LEWIS C. BECK, M.D.,

LATE MINERALOGIST TO THE SURVEY OF NEW-YORK.

REPORT.

TO THE HONORABLE THE REGENTS OF THE UNIVERSITY.

GENTLEMEN:

On the 2d of June, 1836, I was appointed by Governor MARCY, Mineralogist of the Geological Survey of the State, and was entrusted with that part of the work "which relates to an examination, a scientific description, and a chemical analysis of its soils and minerals."

In the discharge of the duty thus assigned to me, I from year to year visited the most important mineral localities in the State, collected many suites of specimens for the General Cabinet and for distribution to the several colleges, and devoted the rest of my time to arranging the materials collected, and to the analysis of such rare and useful products as seemed worthy of particular examination. At the close of the year 1842, the final report of the results of my investigations, under the title of the Mineralogy of New-York, was made to Governor SEWARD; five annual reports having been previously presented to the Legislature.

Although since the publication of the Mineralogy in 1842, my connection with the survey of the State has ceased, I have still endeavored to keep pace with the progress of this department of science. The additions which I have thus been able to make to the former report are so considerable, that I am induced to offer them to the Regents as a supplement to that work. I consider it as a most fortunate circumstance that the preservation and increase of the invaluable State Cabinet are placed in charge of a Board who duly appreciate the importance of Science, in all its multifarious departments.

I have only further to say, that the arrangement of the following notices is the same as that followed in the Mineralogy of New-York.

Your obedient servant,

LEWIS C. BECK.

RUTGERS COLLEGE, December, 1849.

CLASS I.

ORDER I. COMBUSTIBLE GASES.

SULPHURETTED HYDROGEN.

(Mineralogy of New-York, page 173.)

Since the publication of my account of the Sulphur springs of New-York, several new ones have been discovered; and of those previously known, some have been analyzed. Among these are to be noticed:

The *Bellevue Mineral Spring*, situated two miles below Niagara Falls, a few rods from the Niagara river, where the bank rises perpendicularly from the edge of the stream more than two hundred feet. The water of this spring has been analyzed by Dr. J. Torrey, with the following results in one pint, viz:

Sulphate of lime,	3·68	grains.
Sulphate of magnesia,	1·92	"
Carbonate of magnesia,	0·76	"
Carbonate of lime,	0·32	"
Chloride of sodium,	1·31	"
Traces of iron,		
	7·99	grains.
Sulphuretted hydrogen,	9·33	cub. inches.
Carbonic acid gas,	0·48	"

(*From a pamphlet published by the proprietor of the spring, in* 1842.)

Sylvan, or Iodine Spring, Avon, Livingston county. We have an analysis of the water of this spring, by James R. Chilton, M. D., with the following results in a wine pint, viz:

Sulphate of magnesia,	1·62	grains.
Sulphate of lime,	10·05	"
Chloride of sodium,	12·18	"
Chloride of magnesium,	7·80	"
Carbonate of lime,	3·35	"
Carbonate of magnesia,	2·00	"
Vegetable matter,	0·03	"
Iodine of sodium,		
	37·03	grains.
Sulphuretted hydrogen,	2.58	cub. inches.
Carbonic acid gas,	0·62	"

(*From an Avon paper, containing an account of the springs at that place.*)

Upon this analysis I have to remark, that if the results are correctly stated, it is one of the most notable that has heretofore been published; at least, in so far as the New-York Sulphur Springs are concerned. The amount of solid matter is unusually large, and it must serve to keep up the high reputation of this favorite watering place.

Sulphur Springs at Sharon, Schoharie county. Three springs at Sharon were analyzed by Prof. Lawrence Reid, of New-York, in 1844, and the results published in the Proceedings of the Academy of Natural Sciences of Philadelphia, vol. 2, p. 120, (for October, 1844.) The following are the contents in a wine pint, the original being in reference to a gallon:

White Sulphur Spring, Sharon:

Bicarbonate of magnesia,	3·00 grains.
Sulphate of magnesia,	4·25 "
Sulphate of lime,	10·67 "
Hydrosulphates of magnesia and lime,	0·37 "
Chlorides of sodium and magnesium,	0·34 "
	18·63 grains.
Sulphuretted hydrogen,	2.56 cub. inches.

Blue Sulphur Spring, Sharon:

Bicarbonate of magnesia,	4·00 grains.
Sulphate of magnesia,	0·94 "
Sulphate of lime,	9·69 "
Chlorides of sodium and magnesium,	0·31 "
Solid contents,	14·94

Magnesia Spring, Sharon:

Bicarbonate of magnesia,	3·81 grains.
Sulphate of magnesia,	2·84 "
Sulphate of lime,	9·50 "
Hydrosulphates of magnesia and lime,	0·06 "
Chlorides of sodium and magnesium,	0·38 "
Solid contents,	16·59
Sulphuretted hydrogen,	0·8 cub. inches.

Prof. Reid states that the temperature of each of the above springs' taken at various times during a four days residence, was invariably 48° Fahr., and was not influenced by changes in the temperature of the atmosphere.

Richland Springs, Otsego county. The analysis of two springs by Prof. Reid, is published in the Proceedings of the Philadelphia Academy of Natural Sciences, for October, 1844. The contents in one wine pint are as follows:

	No. 1, A.	No. 3, C.
Bicarbonate of lime, - - -	2·50 grains.	2·50 grains.
Sulphate of magnesia, - - -	1·25 "	1·25 "
Hydrosulphates of magnesia and lime,	3·75 "	3·38 "
Chlorides of magnesium and sodium,	0·25 "	0.31 "
Sulphate of lime, - - - - -	11·25 "	11.62 "
	19·00 grains.	19·06 grains.
Sulphuretted hydrogen, - -	2.57 cub. inch.	2.38 cub. inch.

Sulphuretted springs occur at Rosendale, in Ulster county. One of these has acquired some celebrity. It is on the verge of the south shore of the Rondout creek. It is principally remarkable for the large proportion of chloride of sodium which it contains. The following is the result of the analysis of Dr. James R. Chilton, in one pint of the water:

Chloride of sodium, - - - - -	6·69 grains.
Chloride of magnesium, - - - - -	0·31 "
Carbonate of magnesia, - - - - -	0·32 "
Carbonate of lime, - - - - - -	1·18 "
Sulphate of magnesia, - - - - -	0·67 "
Sulphate of soda, - - - - - -	0·96 "
Sulphate of lime, - - - - - -	0·17 "
Hydrosulphurets of sodium and calcium, -	0·26 "
	10·56 grains.
Sulphuretted hydrogen, - - - - -	1·51 cub. inches.
Carbonic acid gas, - - - - - -	1·75 "

Massena Sulphur Springs. These springs are situated on the banks of the Racket river, in St. Lawrence county. They are somewhat remarkable, and their waters are said to have been very serviceable in cutaneous diseases and in rheumatisms.

Their temperatures are 52° in what is called the warm spring, and 46° in the cold spring.

The following is the composition of these waters in one pint, according to the analyses of Prof. Emmons:

	Warm Spring.	Cold Spring.
Chloride of sodium, - - - -	6·99 grains.	6·20 grains.
Chloride of magnesium, - - -	0·64 "	0·84 "
Chloride of calcium, - - - -	1·03 "	0·47 "
Carbonate of lime, - - - -	2·79 "	1·96 "
Carbonate of ——,* - - - -	1·63 "	1·10 "
Hydrosulphuret of sodium, - -	——	——
Magnesium and organic matter, -	0·00 "	1·87 "
	13·08 grains.	12·44 grains.

There are three springs within thirty feet of each other, and they possess nearly the same properties. The quantity of sulphuretted hydrogen which they contain, is considerable. *Emmons' American Journal of Agriculture and Science, February*, 1847.

Sour Springs. In the Mineralogy of New-York, there are notices of the occurrence of springs charged with sulphuric acid, in various parts of Genesee, Ontario, and Niagara counties. Perhaps the most remarkable of these springs, is that which exists in the southwest corner of the town of Byron, where it occurs in a hillock composed of vegetable matter, which has been charred by the action of the acid. It was for a long time supposed that this might be an acid sulphate of some basis, but an analysis which I made of the water proved it to be nearly pure, although very dilute, sulphuric acid. This has recently been published as a new discovery, and seems at this late day to have excited fresh interest. There is now very little doubt in regard to the origin of the acid in this and similar localities. Dumas has shown that sulphuretted hydrogen, mixed with air by the assistance of a porous body, and especially of tannin, and under the influence of a slightly elevated temperature, is slowly converted into sulphuric acid. It is stated that this oxidation of sulphur is observed in the rooms where they take sulphur baths, at Aix, in Savoy; the linen curtains which in the pools serve to isolate the patients, are very rapidly impregnated with free sulphuric acid, and the fabric is strongly acted on if it is kept without being washed. *Millon and Reiset's Annuaire, for* 1847.

* In the published analysis, "Carbonate of lime" is twice repeated, which is undoubtedly an error of the press. Carbonate of magnesia may have been intended.

CARBURETTED HYDROGEN.

(Mineralogy of New-York, pages 128 and 172.)

The work as above quoted, contains a full account of the occurrence of this gas in various parts of the State. Subsequent researches have shed very little further light upon the question of its origin. We have indeed the negative evidence that in the western part of the State, where its evolution is most abundant, it does not arise from the decomposition of coal; and Mr. Hall asserts that "the amount of organic matter, both animal and vegetable, known in this rock, (Medina sandstone) is so exceedingly small, that it could scarcely be supposed to give rise to the constant emission of this gas. The impervious nature of the lower part of the mass, and the absence of fossils in the next rock below, would preclude the idea of its origin in that direction, as there are no disturbances known in the district." *Report of the Geology of the Fourth Geological District*, p. 44.

One of these gas springs is noticed by Prof. Mather, as occurring at Haverstraw, in Rockland county. *Report on the Geology of the First District*, p. 107.

ORDER II. NON-COMBUSTIBLE GASES.

NITROGEN.

(Mineralogy of New-York, pages 133 and 174.)

Mr. Hall remarks, "that there is scarcely a doubt but the Canoga springs have their origin along a line of fault or fracture in the strata. Those of Chateaugay, in Franklin county, are near the junction of the granite and Potsdam sandstone, and in the calciferous sandrock." *Report on the Geology of the Fourth District*, p. 309.

CARBONIC ACID.

(Mineralogy of New-York, page 175.)

ACIDULOUS, OR CARBONATED SPRINGS.

Congress Spring, Saratoga. In the appendix to Fownes' Chemistry, 1845, Phila. edition, I find a table of the anhydrous ingredients in one pound Troy of the water of this spring, by Dr. Schweitzer. The number of substances there given is much larger than that heretofore detected in these waters by other chemists. Among these are, carbonate of strontia, protocarbonate of manganese, sulphate of potassa, nitrate

of magnesia and chloride of ammonium; which are rarely met with under these circumstances. It is to be regretted that the fluid quantity of water analyzed by Dr. Schweitzer is not stated. The whole analysis differs greatly from those previously published.

Empire Spring, Saratoga. This is another of those, so called, new discoveries which are every few years made at Saratoga. That the proprietors of these new springs should find it to their interest to laud their waters as possessing remarkable properties, is not perhaps surprising. But a little reflection must satisfy us that there can be no great difference in the composition of springs which undoubtedly have a common origin.

The spring which has received the above name, was, it is said, partially made known in 1846, under that of *New Congress Spring*. According to the analysis of Dr. Emmons, the saline matters contained in one pint of this water, are as follows:

Chloride of sodium, - - - -	33·71 grains.
Bicarbonate of soda, - - - -	3·85 "
Bicarbonate of lime, - - - -	17.73 "
Bicarbonate of magnesia, - - -	5·25 "
Hydriodate of soda, - - - -	1·50 "
	62·04 grains.

The peculiarities of this water are said be the remarkably large proportion of hydriodate of soda, and its freedom from any salt of iron. I am apprehensive, however, that the proportion of iodine may be overstated in the above table, as I have been unable to detect its presence by the most delicate tests, either in the *raw* water, or in a portion partially reduced by evaporation.

CLASS II.

LIQUID MINERALS, NOT COMBUSTIBLE.

HYDROUS SULPHURIC ACID.

Under the head Sulphuretted Hydrogen, I have already introduced some remarks in regard to the occurrence of this acid in a dilute form, in Western New-York.

CLASS III.

COMBUSTIBLE MINERALS, NOT GASEOUS.

SULPHUR.

(Mineralogy of New-York, page 181.)

Native sulphur is of common occurrence in the small cavities in the encrinital limestone at the Cold Spring quarries, two miles east of Lockport, Niagara county, *Report on the Geol. 4th Dist., p* 99.

BITUMEN.

(Mineralogy of New-York, page 182.)

Mr. Hall informs us that fluid bitumen is of common occurrence in the Genesee slate, and with it a bright blue fluid and a substance like spermaceti, but softer. These are volatile, and it has been impossible to preserve any of them. The fluid bitumen and the blue fluid have likewise been noticed in septaria, in the Marcellus slate. *Rep. on the Geology 4th Dist. p.* 221.

Mr. Hall has a cut of the Oil Spring in Freedom, Cattaraugus county. He remarks that the origin of the spring is doubtless from the bituminous matter which is carried down by the water as it percolates through the interstices of the sandstone. *Rep. on the Geol. 4th Dist. p.* 310.

GRAPHITE.

(Mineralogy of New-York, page 186.)

Several localities of this useful mineral occur in Northern New-York, which it is probable will yield an abundant supply. The Ticonderoga deposits are already turned to considerable profit. In the village of Keeseville, at a short distance from these deposits, there are three manufactories of pencil points, which send out several millions annually. Large quantities of the mineral in powder are also consumed for stove blacking, for which purpose it is considered by many equal to the celebrated "British Lustre."

A new method has been recently proposed by Profs. R. E. and W. B. Rogers, for determining the carbon in native and artificial Graphites. For the details, the reader is referred to *Silliman's Journal, May*, 1848; *vol 5, N. S., p.* 352.

ANTHRACITE.

(Mineralogy of New-York, page 188.)

It is believed that nothing has occurred since the publication of the Mineralogy of New-York, to change the views which were then expressed concerning the very unimportant character of the strata of anthracite which have been found in this State. The anthracite in Herkimer and Montgomery counties, is found in the calciferous sandstone, and it appears in the form of drops or buttons; from which Mr. Vanuxem inferred that its previous nature was bituminous, and that the greater part of the rock had been subjected to heat, not dry, but humid, and which accounts for the numerous siliceous and other products which are common to it. Analysis of this anthracite gave carbon, 86·50; water, 11·50; cream-colored ash, consisting of silica, 2·00. The proportion of water is greater than that obtained from the anthracite of the coal series. *Rep. on the Geol. 3d Dist. p.* 34.

CLASS IV.

ALKALINE MINERALS.

COMMON SALT.

(Mineralogy of New-York, pages 119 and 198.)

This is a product of great importance to the State, and I shall therefore occupy some space in presenting a summary of the information which has accumulated since the publication of the Mineralogy of New-York.

Crystalline form. Common salt sometimes occurs in hopper-form crystals, produced by the symmetrical agglomeration of a multitude of little cubes. The largest surface of these crystals is first formed near the top of the solution. The upper part rises, the solution is thus weakened in the immediate vicinity, and the next row of particles retreats from the margin. The same explanation applies to the succeeding rows.

The manufacture of salt at Syracuse, and the surrounding villages in Onondaga county, has been steadily increasing in importance. The annual produce of the works might still be greatly extended, although it has already reached the considerable amount of nearly 4,000,000

bushels annually. The quality of the salt has, also, I have reason to believe, been generally improved. Complaints, however, are yet sometimes made on this score, and the prejudice which was formerly entertained against the "Onondaga salt," has not been entirely removed.

More than twenty years since, my attention was directed to the salines of Onondaga county, when I made an analysis of the water, and carefully examined the various modes of manufacturing salt which were adopted. I have at various times subsequently visited these salines, and have devoted much time to the study of all the facts which I supposed would have an influence in improving the manufacture of salt and of increasing the value of the springs. All the information which I collected up to 1842, was embodied in my work. The following additional facts are conceived to be of sufficient interest to be here introduced.

In June, 1844, I analyzed two specimens of salt, the one from the "Hope Factory," in Onondaga county, and the other the "Liverpool, or Ashton." The composition in 1,000 grains was as follows:

Liverpool, or Ashton:

Insoluble matters,	0·25
Sulphate of lime,	11·65
Sulphate of magnesia,	1·56
Chloride of magnesium,	trace.
Chloride of sodium, (*pure salt*)	986·54
	1,000·00

Hope Factory:

Insoluble matters,	0·15
Sulphate of lime,	11·06
Chloride of calcium,	0·38
Chloride of sodium, (*pure salt*)	988·41
	1,000·00

These results, together with those previously given, sufficiently show the superior purity of the samples of Onondaga salt. Their correctness is generally confirmed by the analyses executed by Dr. Emmons, and of which the results are published in the Transactions of the New-York State Agricultural Society, for 1847, p. 281. The complaints which have been made in regard to this salt, can only have arisen from

carelessness in the manufacture. The presence of an undue quantity of moisture, and of certain déliquescent salts, probably constitute the principal grounds of objection. No pains should be spared by the manufacturers to ensure the perfect dryness of the salt, before it is put up into barrels. It should be recollected that sometimes the character of the salt is judged of by the use of a single barrel, which may have been carelessly prepared. Perhaps it is the fact that the Onondaga salt is manufactured by so many different individuals, and is wanting in uniformity, that has operated injuriously and caused much of the difficulty. That many of the samples, and especially those obtained by solar evaporation, are among the purest found in market, there can be little doubt. And the statement which has been made that "the *Salina salt*, after repeated trials, has been entirely thrown aside by the best western butter makers," must have arisen from the fact that there is still a want of due attention on the part of some of the manufacturers, and that the system of inspection is not so perfect as it should be.

The Transactions of the American Institute for 1847–48, contain a valuable communication from Mr. E. Meriam, who has devoted much time to the study of this important article. His paper embodies much information in regard to the quantity of salt imported into the United States, and manufactured at the most considerable Salines, viz: those of New-York and of Virginia.

In adverting to the prejudice which has been entertained against American salt, Mr. Meriam exhibits the subject, to which I have repeatedly directed the attention of the manufacturers, in a striking point of view. The quality of any sample of salt does not so much depend upon the greater proportion of chloride of sodium, (pure salt) as upon the nature of the other saline matters which are mixed with it. He illustrates this fact by the following statement: "If two parcels of sugar are to be estimated as to their value for family use, one containing 85 per cent pure sugar, and 15 per cent pure silica, (sand;) the other containing 99 per cent pure sugar, and 1 per cent *sulphate of iron*, (common copperas;) the injury done in the latter case would be far greater than in the former. The 1 per cent of sulphate of iron would render the sugar unfit for use, while the 15 per cent of silica would merely reduce its value in that proportion. So it is in regard to the samples of salt. A small proportion of the deliquescing chlorides, (chlorides of calcium and magnesium) by constantly rendering the salt moist, is a most injurious impurity; while sulphate of lime or gypsum,

although in considerable quantity, detracts very little from the real value of the salt."* The suggestion, therefore, which I have from time to time made in regard to the removal of these deliquescing chlorides is, of all others, worthy of attention, and I am satisfied that if this was in all cases carefully attended to, no complaint would be heard in regard to the western salt.

Brine Spring, Galen, Wayne county. Some time during the year 1843, a salt spring was opened at a place called Lockpit, within thirty rods of the Erie canal, about eight miles west of Montezuma, and on the westerly border of the great Montezuma marsh. A boring was executed here which attained the depth of about 400 feet. The water obtained from this well is more highly charged with saline matter than any which has heretofore fallen under my notice. The following are the results of an analysis which I made in November, 1843:

1000 grains of the brine contain 247·50 grains of perfectly dry saline matter. Of these 247·50 grains, 59·66 grains consist of chloride of calcium, mixed with very small proportions of chloride of magnesium, sulphate of lime, and oxide of iron. The remaining 187·84 grains are chloride of sodium, or pure common salt.

The proportions in 100 grains of the Lockpit brine, therefore, are as follows, viz:

Chloride of calcium and other impurities, as above,	5·97
Chloride of sodium (pure salt) - - -	18·78
Water, - - - - - - - -	75·25
	100·00

The richest Onondaga brine that I have examined contains, in 100 grains:

* Mr. Meriam seems to take rather too much credit to himself for this very plain proposition, which he thinks many "excellent chemists" have overlooked. But this is a matter concerning which no chemist can be mistaken. All agree that the great objection to the Onondaga salt, arises from the presence of the deliquescing chlorides. But this is entirely owing to the neglect of the manufacturer. With care they can all be removed, and hence if the proportion of chloride of sodium is large, as in the case of the Lockpit brine, even if it is mixed with a large proportion of these chlorides, salt may still be manufactured from it, by a close attention to the proper drainage of the salt, and washing it with saturated brine. No better evidence of the correctness of this statement need be given, than the fact that sea water, and the brines from which the best foreign varieties of salt are manufactured, contain considerable proportions of these earthy chlorides. Indeed the Onondaga brines are, perhaps, as free from them as any that are elsewhere used.

Sulphate of lime, &c., - - - - -	0·85
Common salt, - - - - - -	17·35
Water, - - - - - - -	81·80
	100·00

The Lockpit sample, therefore, contains a larger proportion of common salt, also of earthy chlorides, usually denominated impurities. Twenty-eight to thirty gallons of brine of this strength, would yield a bushel of merchantable salt.

If this brine should be abundant and the location favorable, salt might be advantageously manufactured from it by the solar evaporation process. Should the mode by boiling be pursued, great care will be required in removing the deliquescent chlorides, by long drainage of the salt, or by washing it with strong brine before it is put up for use.

With this brine is associated small, but very beautiful and transparent crystals of selenite. They seem as if deposited by a water strongly charged with the sulphate of lime. This will account for the small quantity of this salt which is found in the brine. A particular description of these crystals will be given under the appropriate head.

Brine Spring, of York, Livingston county. Prof. Dewey states that this brine gives evidence of a large proportion of iodine, on the application of the usual tests. (*Hall's Report on the Geol. 4th Dist., p.* 315.) I have had no opportunity of repeating these experiments. It is very desirable to ascertain the proportion in which this substance is found.

ALKALINE EARTHY MINERALS.

CELESTINE.

(Mineralogy of New-York, page 210.)

To the localities of this somewhat rare mineral, I may add its occurrence in projecting points on black marble, at Watertown, Jefferson county. (*Emmons' Rep. on the Geol. 2d Dist., p.* 111.) The fibrous variety described as occurring in the town of Stark, Herkimer county, exactly resembles that from Tornberg, in Saxony.

STRONTIANITE.

(Mineralogy of New-York, page 212.)

This interesting mineral, of which we have heretofore had only one or two localities in this State, occurs, according to F. B. Hough, in considerable quantities in the town of Theresa, Jefferson county. (*Sil-*

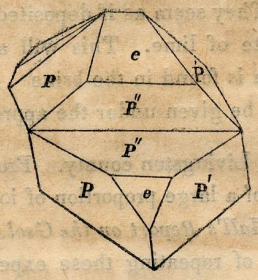
liman's Journal, January, 1848.) Massive strontianite is also said to have been found by Mr. James Heron, at Warwick, in Orange county. *Dana's Mineralogy, 2d ed., p.* 254.

CALCAREOUS SPAR.

(Mineralogy of New-York, page 215.)

Of the crystallized varieties of this mineral, the most interesting localities which have heretofore been found, perhaps, in any part of the world, exist in this State. The finest specimens have been obtained at the mines of Rossie, St. Lawrence county. One gigantic specimen in the cabinet of Prof. B. Silliman, Jr., weighs 165 pounds, and is nearly transparent. *Dana's Mineralogy, 2d ed.*

The accompanying cut is the figure of a twin from Rossie, in the collection of Mr. Alger, of more than a foot in length. *Alger's Phillips, page* 265.



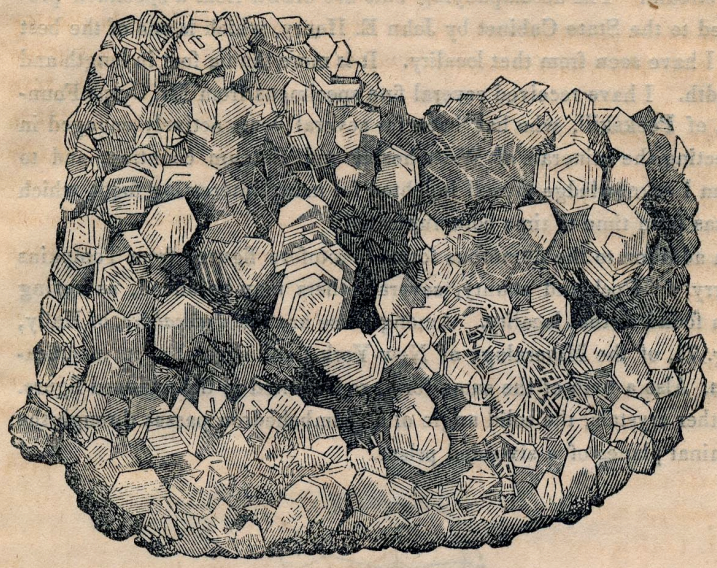
Mr. Dana has given a figure of a crystal differing from any of those contained in my report. *See Sill. Jour.*, xlvi. p. 33.

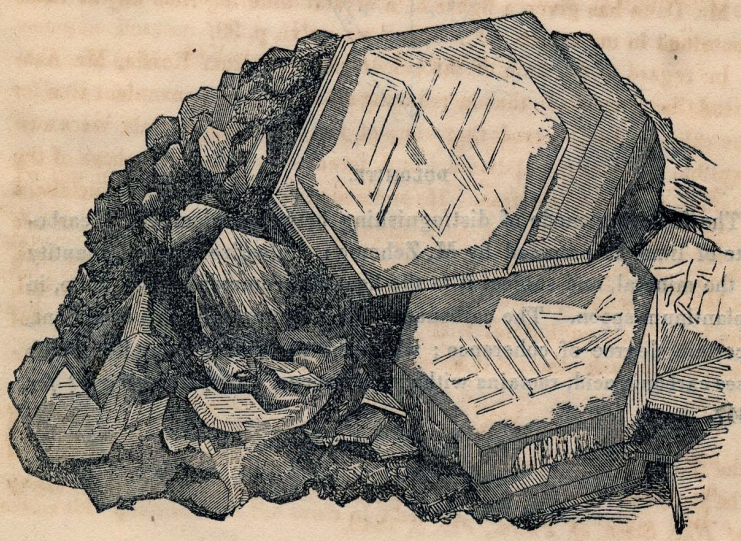
In regard to the form of the calcareous spar from Rossie, Mr. Ashmead has remarked, that in reducing specimens to convenient size for the cabinet, he observed that some of the fractured crystals were susceptible of mechanical division in different directions from those of the planes of a rhombohedron. He succeeded in obtaining as a nucleus, a solid, bounded by six isosceles triangular planes, of similar lustre, or two obtuse, three-sided pyramids, placed base to base; it has but one axis, passing through opposite solid angles; assuming the axis to be vertical, the base is an equilateral triangle. As the faces are not parallel, but inclined to each other, it is susceptible of perfect cleavage in six directions.

"The solid angle of the apex is similar to the obtuse solid angle of the rhombohedron, therefore, by truncating the alternate solid angles of the rhombohedron, this solid is produced." *Proceedings of the Academy of Nat. Scien. of Phila., Feb.* 8, 1848.

Some of the crystals from the Belmont mine, in St. Lawrence, weigh over a hundred pounds. The colors are purple, straw yellow, and limpid. *Emmons' Rep. on the Geol. 2d Dist., p. 365.*

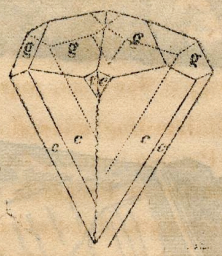
Specimens of Calcareous spar, presented by JOHN E. HENRY.





A novelty in the occurrence of calcareous spar, is the recent discovery of groups of crystals in the form of flat, six-sided tables, of various sizes, from half an inch to two inches in diameter. These crystals have been found in the coarse granite near St. Anthony's Nose, on the Hudson river, during the excavations for the railroad on the banks of that stream. The accompanying cuts are drawn from a specimen presented to the State Cabinet by John E. Henry, which is one of the best that I have seen from that locality. It is more than a foot in length and breadth. I have received several fine specimens from Mr. Cyrus Fountain, of Peekskill, who has been for several years actively engaged in collecting the minerals of Westchester and Putnam counties; and to whom I acknowledge myself indebted for many interesting facts, which he has from time to time communicated.

In addition to the numerous forms heretofore figured from Tompkins quarry, in Rockland county, several others may be added, as having been found at that locality. Among these are the *dodécaèdre*, of Haüy, (Fig. 71, of the Mineralogy of New-York,) and several of its modifications. Also a twin of the same form, represented in the annexed figure. In other crystals, the solid angle of a rhombohedron passes through the terminal planes of a six-sided prism.



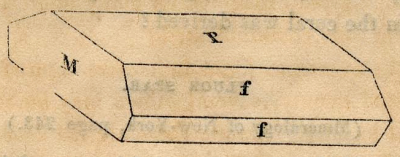
DOLOMITE.

The following mode of distinguishing between dolomite and carbonate of lime, is proposed by M. Zehmen: Pulverize a small quantity of the mineral, and subject it to the heat of a common alcohol lamp, in a plantinum spoon. The carbonate of lime acquires, by this treatment, a certain degree of coherence; while the powder of dolomite, which loses carbonic acid, remains without coherence. *Berzelius' Report for* 1847.

GYPSUM.

(Mineralogy of New-York, page 237.

Beautiful and very perfect crystals of selenite, have been obtained from the deep boring at Lockpit, in Wayne county. They are found imbedded in gypseous marl, which contains chlorides of sodium and magnesium; the whole probably formed by the evaporation of the brine. The crystals are six-sided prisms, from half a line to two lines in diameter, and from one-fourth to five eighths of an inch in length. They are extended in the direction of *f f*; *P* on *f*, 124° 41′ 43″; *f* on *f*, 110° 36′ 34″. They frequently exhibit the primary plane *M*.



A careful trial yielded 21·20 per cent of water.

Several localities of this mineral occur, according to Prof. Mather, in the 1st Geological District, but none of them are of special importance. *See Mather's Rep., p.* 84.

APATITE.

(Mineralogy of New-York, page 239.)

To the localities of this interesting mineral, I have to add its occurrence in Putnam Valley, Putnam county; for which discovery we are indebted to Mr. Cyrus Fountain, of Peekskill.

In the Mineralogy of New-York, I noticed the occurrence of apatite as an associate of magnetic iron ore, at several mines in Essex county. Prof. Emmons states that it is also found similarly at the Rutgers mine, in Clinton county. It is sometimes in large crystals upon the walls of the vein, but it is so extremely brittle that it will be very difficult to procure it in a good form for the cabinet. *Amer. Quart. Jour.*, i. *p.* 60.

Some difference of opinion still prevails, in regard to the modes in which apatite has been formed. Mr. J. D. Dana maintains (*Sill. Jour.* xlvii. 135,) that the apatite found in white limestones, although now in superbly finished crystals, originated from organic structures, from corals, which, after being enclosed in their rocky prison, were exposed to intense heat, and hence were decomposed, &c. Dr. Emmons objects to this view, as a general theory of the formation, and in support of his

objections adduces the occurrence of apatite in iron ore, and in gneiss, mica-slate, and granite; in which we have, at least, no evidence that these organic structures have existed. Again, the limestones which are the richest in phosphate of lime, are always enclosed in granite or gneiss. *Amer. Quar. Jour.*, i. p. 63, 64.

These objections seem to me to be valid. I can see no reason why phosphate of lime, in the form of apatite, may not be an original product, as well as fluor spar, or the magnetic iron ore itself. It is an overstrained view, to refer the formation of every mineral to chemical action exerted upon some previously existing body. And after all, it only removes the difficulty in regard to the formation of these substances one step further, for it may be fairly asked, whence the phosphate of lime in the coral was derived?

FLUOR SPAR.

(Mineralogy of New-York, page 243.)

I have only to add the occurrence of this mineral in small quantities in Gouverneur, St. Lawrence county, reported by Dr. Emmons, and which had escaped my notice in the explorations which I made in that county. *See Rep. on the Geol. 2d Dist. p.* 366.

I may also state, as connected with the general history of this mineral, that it has been found in many of our common waters, and that its existence in recent and fossil bones, has been attributed to this source. See the papers of J. Middleton, Esq., and of Dr. Daubeny, (*Lond. Ed., and Dub. Phil. Mag.*, vol. xxv., p. 14 and 122.)

HYDRAULIC LIMESTONE.

(Mineralogy of New-York, page 256.)

Dr. C. T. Jackson's analysis of the Rosendale hydraulic limestone and cement, will be found in the *Trans. of the Amer. Ass. of Geologists, for* 1845, *p.* 48.

The following fact noticed by Berzelius, throws some light upon the chemical nature of hydraulic limestones: "When muriatic acid is added to hydraulic mortar, which has been under water three months and reduced to powder, it gelatinizes at the end of a few minutes. Hence it is inferred that there is formed a double silicate of lime and alumina, a native zeolite, which gives solidity to the mortar." *Berzelius' Ann. Report for* 1844.

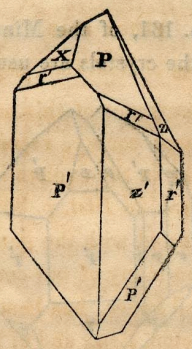
EARTHY MINERALS.

SILICA.

QUARTZ.

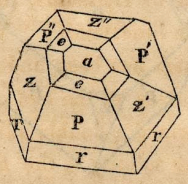
(Mineralogy of New-York, page 257.)

To the full account which is contained in the Mineralogy of New-York, of our remarkable localities of quartz, I have still to make several additions. Herkimer county has furnished such an almost countless number of specimens, which have been distributed among the various cabinets, that it is by no means strange that new and interesting crystalline forms are from time to time discovered. The figure annexed is



from Middleville, and is copied from Mr. Alger's edition of Phillips' Mineralogy, (page 6.) It is similar to the fig. 133, in the Mineralogy of New-York, which is from a crystal found in Greene county.

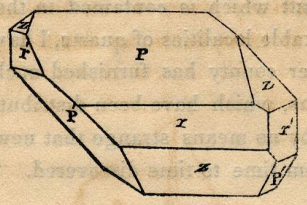
Subsequent examination of the crystalline forms from this county, has led me to doubt whether fig. 152, of the Mineralogy of New-York, and fig. 9 *a*, (page 409) of Dana's Mineralogy, 2d edition, are really true modifications of this mineral. The first was copied from Shepard's



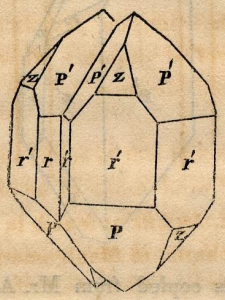
Mineralogy. The faces *o* and *a*, as represented in these figures, seem to be accidental, and to have been formed by the pressure of some por-

tion of the matrix of the crystal during the time of its formation. Individuals exhibiting this peculiarity, are not uncommon, and in some the number of these *so called* planes, is still further increased.

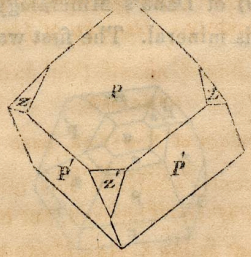
Since the publication of the mineralogy of New-York, I have received sundry specimens of quartz crystals from St. Johnsville, in Montgomery county, collected by Mr. Israel Smith, Jr. One of these is similar to fig. 156, from Middleville, but with the planes, *z* and *z*,



more extended. Also No. 161, of the Mineralogy, and several other more common forms, but the crystals are usually quite small.



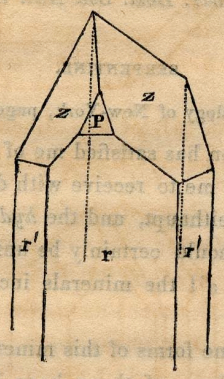
To the figures of crystals heretofore found in the town of Edwards, St. Lawrence county, I have to add the one now introduced, which occurs in a group of dodecahedrons, for which that locality is so remark-



able. It is the same form as that from Ulster county, fig. 172, of my Mineralogy. Some of these crystals have blades of specular iron

diffused through them, like the masses of anthracite found in those from Herkimer county. Occasionally they appear almost like crystals of specular iron itself, but with the form of quartz. It is probably to the disintegration of this ore that the ochrey and cavernous appearance of these crystals is to be ascribed.

The Natural bridge, in Lewis county, has furnished opaque crystals of quartz of considerable size, and presenting some interesting modifications. To those already given, I can now add that which is here figured, and which is remarkable, as exhibiting only three terminal faces.



According to Vanuxem, *hyalite* is found in the Potsdam sandstone, half a mile below Canajoharie, in Montgomery county. *Report on the Geol. 4th Dist., p.* 29.

TABULAR SPAR.

(Mineralogy of New-York, page 270.)

Dr. Emmons states that fine specimens of this rather rare mineral are found in Keene, Essex county. *Geology of the 2d Dist., p.* 286.

NEMALITE.

(Mineralogy of New-York, page 272.)

Prof. Connell has recently analyzed this mineral. His results are very different from those of Dr. Thomson, but he operated upon a very small portion. They are as follows, viz: Magnesia, 57·86; protoxide of iron, 2·84; silica, 0·80; water, 27·96; carbonic acid, 10·00; = 99·46. He supposes the formula to be, $5\ Mg\ O,\ H\ O + Mg\ O,\ C\ O_2\ H\ O$.

This gives: magnesia, 61·67; water, 27·24; carbonic acid, 11·09;= 100. It effervesces sensibly in acids, and contains only a minute quantity of silica. *Proceedings of the British Association, for* 1846.

I cannot but think that the specimen analyzed by Prof. Connell must have been impure. His formula is too complex.

A more recent analysis of this mineral by Mr. J. D. Whitney, shows it to be a fibrous variety of the hydrate of magnesia, or brucite. It afforded him magnesia, 62·89; protoxide of iron, 4·65; carbonic acid, 4·10; water, 28·36. A small portion of magnesia is replaced by protoxide of iron. The formula of brucite ($\dot{M}g\ \dot{H}$) requires magnesia, 69·67; water, 30·33. *Jour. Bost. Soc. Nat. Hist.* 1849, *p.* 36.

SERPENTINE.

(Mineralogy of New-York, page 272.)

Subsequent examination has satisfied me of the protean forms of this mineral, and would lead me to receive with distrust the *dermatin* and *kypholite* proposed by Breithaupt, and the *hydrophite* and *picrophyll* of Svanberg. *Marmolite* should certainly be united with serpentine, and the same may be said of a'l the minerals included under the general name of *magnesite.*

The supposed crystalline forms of this mineral, are, probably, in most cases, pseudomorphs. Some of these have heretofore been noticed. Kersten has examined a specimen of serpentine from Schwarzenberg, which is remarkable, as being a pseudomorph in the crystalline form of garnet. The crystals are blackish green, and contain a mixture of 82·50 of serpentine, and 17·50 magnetic iron ore, which can be separated by the magnet. The serpentine was composed of silicic acid, 41·50; magnesia, 40·34; protoxide of iron, 4·10; oxide of manganese, 0·50; soda, 0·42; water, 12·87. *Berzelius' Annual Report*, 1847.

Upon a comparison of specimens, I find that some of the varieties of serpentine from Phillipstown, (Heustis' farm) in Putnam county, closely resemble those from Smithfield, Rhode Island, and which are usually labelled *nephrite.*

CHONDRODITE.

(Mineralogy of New-York, page 281.)

Two new localities of this mineral are to be added to those heretofore given. The one in Schroon, Essex county, and the other in Carmel, Putnam county.

I have also to add, that Dana (*Mineralogy, 2d ed., p.* 388,) gives a figure of a crystal of chondrodite, drawn from a specimen in the collection of J. A. Clay, Esq., of Philadelphia, and obtained in Orange county, New-York.

PYROXENE.

(Mineralogy of New-York, page 286.)

A fine locality of this mineral has been found in the town of Fine, St. Lawrence county. The crystals, though not perfectly smooth, are still well formed, and more than a yard in length! *Emmons' Jour. of Agriculture*, iii., p. 158.

Pyroxene, as is well known, presents a great variety of forms; distinct names have been applied to many of these varieties, and some have even been described as distinct species. The researches of mineralogical chemists have resulted in the reduction of many of these supposed distinct minerals to one species. Dana has, I think, carried this further than any author; for he not only places under *pyroxene*, diopside, pyrgom, sahlite, coccolite, jeffersonite, and hedenbergite, in which I concur, but he also ranges with it diallage and hypersthene; concerning the propriety of which I still have much doubt. If this wide scope is given to the mineral in question, there seems to be no reason why its limits should not be still further extended, and made to embace many other species.

Hudsonite, proposed in the Mineralogy of New-York as a new species, (p. 405) is thought by Dana to belong to the pyroxene family, and to be very near to hedenbergite. It is certainly more closely allied to the latter mineral than to any other, although it is remarkable for the large per centage of oxide of iron which it contains. The circumstance of its being found in a gangue of quartz, from which it is easily separable, induced me to believe that this was not an accidental ingredient. I regret that I have not yet obtained any specimens which admit the determination of its crystalline form, as this would conclusively settle the point in dispute. Its cleavages, as far as they can be determined, certainly resemble those of pyroxene. But chemical composition ought also to have some weight in the determination of specific distinctions. No one, however, who has a just appreciation of the true interests of science, should hesitate to abandon an opinion which he has advanced, when it is found to be inconsistent with facts subsequently made known. The useless multiplication of species, and the introduction of arbitrary names in natural history, is especially to be avoided.

From an article in the Newburgh Telegraph, it appears that the Rev. R. G. Armstrong has obtained from a locality in the town of Monroe, Orange county, a crystal of pyroxene nearly eight inches in length, and fifteen and a half in circumference. This is one of the largest crystals of this mineral heretofore noticed. It may be remarked, however, that these specimens from Orange county, although remarkable for their size, want the finish which give such beauty to the crystals from some other localities.

In regard to the steatitic-pyroxene, the Rensselaerite of Dr. Emmons, I have nothing further to add, except a reference to the localities cited in the *Report of the Geol. 2d Dist., pages* 350 *and* 365. I believe it is now generally admitted that the views presented in my Mineralogy (p. 297) are correct. It is undoubtedly a mixed mineral, containing steatite or serpentine in variable proportions, but usually presenting the cleavages of pyroxene. It is in fact a pseudomorph on a large scale, as it sometimes occurs in mountain masses.

HORNBLENDE.

(Mineralogy of New-York, page 298.)

This species is so abundant, that with the increasing attention paid to our mineral resources, new localities must from time to time be discovered. No remarkable crystalline forms, however, have come to my knowledge, since the publication of the Mineralogy of New-York. Some researches have been made by Dr. Blum, on the pseudomorphs of hornblende and other minerals, which are worthy of being carefully studied by the mineralogist. A fact mentioned by him, which particularly interests us, is that of a greenish white augite, (pyroxene) in the Leonard collection, which he supposes to have undergone a change from hornblende. This he says is indicated, both by its structure and analysis. *See Sill. Jour.*, xlviii., p. 78.

The analysis of a variety of asbestus, (rockwood) from Staten Island, gave the following results, viz: Silica, 55·20; magnesia, 30·73; oxide of iron, 11·82; water, 2·25. The specimen is of the compact kind, and had a greenish color, with a kind of cleavage resembling that of crystalline hornblende. The above composition is very near that of a specimen of rockwood from the Tyrol, analyzed by Dr. T. Thompson.

Mountain cork and mountain leather, usually placed under hornblende, probably belong to some other species, if not themselves distinct.

HYPERSTHENE.

(Mineralogy of New-York, page 309.)

Damour has published an analysis of a specimen of this mineral, from Labrador; the following are the results: Silica, 51·36; protoxide of iron, 21·27; magnesia, 21·31; lime, 3·09; protoxide of manganese, 1·30; alumina, 0·37. *Phil. Mag., April*, 1845.

A specimen from Orange county, known by the name of hypersthene, is foliated, has a brownish color, and is not unlike feldspar in its appearance. Upon analysis it was found to contain the following ingredients, viz: Silica, 59·50; oxide of iron, 12·00; magnesia, 27·75; (not a trace of lime.) In composition this mineral is almost indentical with Klaproth's bronzite, the hemiprismatic schiller spar of Jameson, (*Man. of Mineralogy, p.* 166,) and with the anthophyllite of Thompson, (*Outlines of Minerology, &c.*, ii., p. 206.) Some obscurity, therefore, still rests upon this species. As before stated, Dana unites hypersthene with pyroxene; but this, it seems to me, is scarcely allowable in the present state of our knowledge.

SPINELLE.

(Mineralogy of New-York, page 315.)

To the localities of this interesting mineral heretofore given, may be added its occurrence in Schroon, Essex county, in pink-colored crystals. (*Emmons' Rep. on the Geol. 2d Dist., p.* 227.) I have also received regular octahedrons of spinelle, having a black color, from Carmel, in Putnam county.

I must again refer to the paper of Dr. Blum, on pseudomorphous minerals, (*Sill. Jour.*, xlviii., p. 73,) for a notice of the soft spinelles described in my report, (p. 318.)

AUTOMALITE.

(Mineralogy of New-York, page 319.)

In regard to this mineral, whose existence as a New-York species is very doubtful, I have to state that recent examinations have rendered it probable that it is identical with dysluite. The two minerals pass into each other, and the difference in hardness, color, specific gravity, &c., can thus be accounted for by the well known fact of the isomorphous replacement of the constituents of certain minerals, the crystalline forms of which remain the same. *See Memoirs Bost. Nat. Hist. Soc.* ii. p. 88

GIBBSITE.

(Mineralogy of New-York, page 320.)

Hermann, of St. Petersburg, has announced that the constitution of gibbsite was that of a hydrous phosphate of alumina, and that the composition assigned to gibbsite by Torrey, belonged only to the hydrargillite of Rose. Prof. B. Silliman, Jr., has repeated the analysis of this mineral, from Richmond, Mass., and finds it to correspond to the formula first given, which requires:

Alumina, - - - - - - - -	65·800
Water, - - - - - - - -	34·200
	100·000

And the mean results of his analyses correspond very closely to the calculated per centages. The phosphoric acid is like the magnesia, iron and silica, contained in gibbsite, only as a contingent impurity. The gibbsite, he says, is sometimes mixed with allophane, which will account for the presence of silica; and he thinks the silica mentioned by Dr. T. Thomson, in his analysis, was derived from the same intermixture of the two species. There is now little doubt that the hydrargillite of Rose, and gibbsite, are identical; the former is the crystalline, the latter the amorphous variety of the same species. *Sill. Jour. July*, 1849, *page* 411.

IDOCRASE.

(Mineralogy of New-York, page 321.)

Subsequent examination has satisfied me that the mineral called idocrase, from Hall's, on Muscolunge lake, in Jefferson county, is pyroxene. The measurement of the primary is, as nearly as can be determined, 87° and 93°; the replacing planes, 134°. Its color, although peculiar, is not unlike that of the pyroxene found on the Rossie turnpike, two miles from the village of Oxbow, in Jefferson county.

GARNET.

(Mineralogy of New-York, page 323.)

The variety colophonite, is reported by Dr. Emmons as being abundant at Johnsburg, Warren county. *Report on the Geology 2d District, page* 192.

SCAPOLITE.

(Mineralogy of New-York, page 329.)

Imperfect crystals of scapolite have been found in Putnam Valley, Putnam county, by Mr. Cyrus Fountain.

In regard to the specimens heretofore described, I have to remark, that some of those from Brush's, in Monroe, Orange county, resemble the wernerite, from Franklin, N. J. They are in the form of small, irregularly crystallized masses, and are imbedded in a reddish carbonate of lime. I formerly supposed the mineral to be apatite. The following notices may, also, be here introduced:

The specimens from Fall Hill, in Orange county, melt into a darker colored globule than any others which I have tried. They are associated with a dark colored pyroxene, which will account for their larger proportion of oxide of iron.

Analysis has proved that the speciments of scapolite from Ticonderoga, in Essex county, are similar in composition to some of the foreign ones, although the proportion of alkaline matter is larger.

Nicol, in his Manual of Mineralogy, published during the present year, describes nuttallite as a distinct species. A recent analysis made in the laboratory of Prof. B. Silliman, Jr., confirms the statement made in my report, of its identity with scapolite. The composition of a specimen from Bolton, Mass., as thus determined, is as follows:

Silica,	45·79
Alumina,	30·11
Peroxide of iron,	1·86
Lime,	17·40
Potash,	3·49
Soda, Manganese,	trace.
Water,	1·63
	100·28

(*Silliman's Journal, Nov.*, 1849, *p.* 394.)

FELDSPAR.

(Mineralogy of New-York, page 334.)

The recent researches of Erdmann, in regard to this mineral, deserve to be noticed. The following abstract is given by Berzelius, in his Annual Report for 1847. He makes four different species of feldspar, which are easily distinguished from each other:

1. *Orthoclase*, (feldspar, with a base of potash.) Sp. gr. from 2·50 to 2·60. Before the blowpipe it melts with more or less difficulty, and yields a bubly or tuberculous pearl.

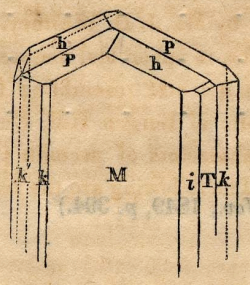
2. *Albite*, (feldspar, with a base of soda.) Sp. gr. 2·59 to 2·65. Before the blowpipe it melts more easily the the preceding, and gives a bubly, semitransparent pearl.

3. *Oligoclase*, (natron spodumen.) Sp. gr. 2·61 to 2·69, and rarely 2·70. One of the faces of cleavage presents very fine striæ. It melts easily, and gives a pearl free from bubbles, sometimes transparent, sometimes opaline, and sometimes like enamel. These differences seem to be due to the proportions of lime which they contain.

None of the three above described, are sensibly acted on by muriatic acid.

4. *Labradorite.* This sometimes presents a striated surface, like the preceding. Sp. gr. from 2·67 to 2·73. It melts more easily than oligoclase, and gives rise to a transparent or opaline pearl; but its most distinctive character is its solubility, when pulverized, in muriatic acid.

Mr. Alger, in the supplement to his edition of Phillips' Mineralogy, (page 420) gives a figure of a twin crystal of feldspar from Hammond, St. Lawrence county. It has smooth planes, is very perfect, and is one of the simplest of the twin forms.



To the locality of crystallized albite, noticed in my Mineralogy, I must now add the hemitropic form found by Dr. Emmons in the Coal Hill mine, St. Lawrence county. *Rep. on the Geol. 2d Dist., p.* 366.

STELLITE.

(Mineralogy of New-York, page 342.)

The mineral from the trap region of Bergen, in New-Jersey, and Piermont, in Rockland county, New-York; which I supposed to be the stellite of Dr. Thomson, has been the subject of some discussion.

It is stated by Dana, (Mineralogy, 2d ed.) that Mr. A. A. Hayes has analyzed the same mineral with quite a different result, as follows: Silica, 55·96; lime, 35·12; soda, 6·75; potash, 0·60; alumina and magnesia, 0·08; protoxide of manganese, 0·64; water, (hygrometric) 0·16; =99·31. Dana adds that the large per centage of soda, and the proportion of silica and lime, would seem to ally the species to *pectolite;* from which, however, it appears to be removed, by containing no water. He has compared specimens of the stellite from Bergen, with the foreign pectolite, and finds them closely similar in external characters; moreover, Frankenheim makes pectolite an anhydrous mineral, stating that the water varies, and is not an essentianl ingredient.

Mr. Alger, in the supplement to his edition of Phillips' Mineralogy, (p. 624) quotes the same analysis of Hayes, and adverts to the very close resemblance in composition and general physical characters, between this mineral and three others: the wollastonite and stellite of Thomson, and the pectolite of Von Kobell, excepting in its entire freedom from water, and its more perfect crystallization. "They undoubtedly all constitute but one species, and while they may be most appropriately designated under the name of stellite, the chemical title of *anhydrous lime* (*mesolite*) is naturally suggested by their crystallographical identity with mesolite, as established by Mr. Teschemacher."

In the number of Silliman's Journal for July, 1849, is a short notice of pectolite and stellite, by Mr. J. D. Whitney. "Pectolite occurs in Isle Royale, Lake Superior, in spheroidal masses, consisting of delicate silky fibres radiating from a centre resembling foreign specimens from Monte Baldo. The stellite of Bergen Hill, New-Jersey, analyzed by Beck, has the external characters of pectolite; and also, as Whitney shows, its composition. The following are the results of four analyses:"

	Isle Royale.		Stellite from Bergen Hill.	
	I.	II.	III.	IV.
Silica, - -	53·45	55·66	54·00	55·00
Lime, - -	31·21	32·86	32·10	32·53
Soda, - -	7·37	7·31	8·89	9·72
Potash, - -	trace.	.....	trace.	.....
Alumina, - -	4·94	1·45	1·90	1·10
Water, - -	2·72	2·72	2·96	2·75
	99·69	100·00	99·85	101·10

The stellite of Thomson, Mr. Whitney observes, was probably impure pectolite, and he refers Thomson's wollastonite to the same species.

The above analyses do not differ much from mine, of the Bergen Hill mineral, except in the presence of soda, which I still think may, in some specimens, be replaced by magnesia. They confirm the results of Von Kobell, and of my own analysis, in regard to the presence of water.

PHAKOLITE.

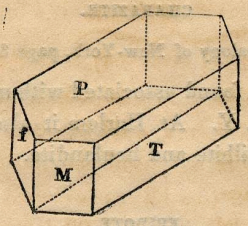
This mineral, which has been usually considered as a variety of chabazite, has been found by Mr. Alger, among specimens of minerals from New-York Island. The crystals are very perfect double six-sided pyramids, implanted on carbonate of lime. They have a wax yellow color, a waxy lustre, and are transparent. They show the incipient modifications, from the primary rhombohedron, to the six-sided pyramid. *Memoirs of the Boston Nat. Hist. Soc.*, ii., p. 86.

It may be remarked that phakolite, although it has a primary form differing only a few minutes in its angles, compared with that of chabazite, is somewhat unlike in its chemical composition. Breithaupt supposes it to be a distinct species; while Rammelsberg, from his own analysis, is disposed to regard it as a mixture of acadiolite and scolesite, with an additional atom of water.

HEULANDITE.

(Mineralogy of New-York page 346.)

Well defined crystals of heulandite, with a form similar to fig. 335, of the Mineralogy of New-York, have been found with stilbite, in the fissures of gneiss, in 23d street, New-York.



The following are the results of an analysis of this mineral by M. Damour: Silica, 59·64; alumina, 16·33; lime, 7·44; soda, 1·16; potash, 0·74; water, 14·33. This composition indicates that heulandite should be ranked with the zeolites. *Philosophical Mag. and Ann.*, xxix., p. 556.

It seems to be now settled, that the *Lincolnite* of Prof. Hitchcock, (*Final Report on the Geological Survey of Massachusetts, p.* 662,) is identical with heulandite. Crystals, exactly like those described by Hitchcock, have beed found in gneiss on New-York Island. *Alger, in Sill. Jour.*, xlvi., p. 235.

PREHNITE.

(Mineralogy of New-York, page 349.)

Since the publication of the Mineralogy, this mineral has been found in the fissures of gneiss in 23d street, New-York. Dr. Emmons also reports localities near Adirondack, and in Keene, Essex county. *Rep. on the Geol. 2d Dist. p*, 31.

LAUMONITE.

(Mineralogy of New-York, page 351.)

It is well known that this mineral when exposed to the atmosphere, soon loses its transparency and becomes so soft as to yield to the finger nail. According to M. M. Malaguti and Durocher, this efflorescence is owing to the loss of a small quantity of water. Specimens of it did not suffer the least alteration when kept for several months in a moist atmosphere. Crystals of laumonite altered, recovered their original transparency and appearance by being immersed in water, and these same crystals, after drying and exposure to dry air, behaved like crystals recently taken from their locality. *Phil. Mag. and Ann.* xxix, p. 555.

Dana states that the rapid decomposition to which this mineral is liable may be prevented by dipping the specimen in a thin solution of gum arabic, by means of which it is preserved from contact with the air. *Mineralogy, 2d ed., p.* 326.

CHABAZITE.

(Mineralogy of New-York, page 353.)

This mineral has been found associated with mezotype, in fissures in the gneiss, 23d street, N. Y. At Harlem it also occurs in yellow or brownish crystals with stilbite and heulandite.

EPIDOTE.

(Mineralogy of New-York, page 354.)

To the particular localities heretofore given, I have to add the occurrence of fine, though small crystals, in the gneiss near the old penitentiary, in 23d street, New-York.

TOURMALINE.

(Mineralogy of New-York, page 356.)

Crystals with very short prisms, generally resembling fig. 360 of the Mineralogy of New-York, but variously modified, have been found in the white limestone, near Amity, in Orange county.

Green and brown crystals of tourmaline are credited to Chester, in Warren county. *Rep. on the Geol. 2d Dist. p.* 64.

BUCHOLZITE.

(Mineralogy of New-York, page 364.)

In my remarks upon this mineral I stated, that its identity with sillimanite, which was urged by some mineralogists, was inconsistent with the difference in chemical composition. This arose chiefly from the fact that Muir, under the direction of Dr, T. Thomson, found sillimanite to contain a large per centage of zirconia. But the early analysis of Bowen and the more recent ones of Prof. Connell, Prof. Norton and Erdmann, failed to detect the presence of this earth. The composition of a specimen of sillimanite from Chester, Penn., as given by Erdmann, is, silica, 40·08; alumina, 58·88; protoxide of manganese, 0·74. which approaches to that of andalusite and gives the same formula.

According to a more recent notice of Dr. T. Thomson, sillimanite and fibrolite are identical with bucholzite. The species should be distinguished by the name of *silicate of alumina.* (*Phil. Mag. and Ann.*, xxvi, p. 536.) Rammelsberg has also shown the identity of bucholzite with xenolite of Nordenskiöld.

Finally, to complete the catalogue of identical minerals, M. Staff states that his analysis of a specimen of sillimanite from Chester, Conn., gives the formula of kyanite, which again is supposed to be identical with the disthene of Haüy. The recent analyses of Prof. B. Silliman, Jun., also show the identity of sillimanite, bucholzite and fibrolite, with kyanite. *Sill. Jour., Nov.* 1849.

If these views are correct, the following minerals should be reduced to one species, viz:

Bucholzite,	Andalusite,
Sillimanite,	Kyanite,
Xenolite,	Disthene.
Fibrolite,	

Sillimanite has been found in the town of Yorktown, Westchester county, about ten miles north-east of Sing Sing, near the road leading from Pine's bridge to Yorktown post office, associated with monazite, tremolite and magnetic iron. The crystals are distinct and run through the iron ore; they are often 6 or more inches in length, much bent and fractured, as they are at Norwich and Chester, Conn. (*Sill. Jour.* xlvi, p. 207.) I have received specimens from my friend, Mr. Cyrus P, Fountain, of Peekskill.

According to the analysis of Prof. Norton, of Yale College, the Yorktown sillimanite contains,

Silica, - - - - - - - -	37·70
Alumina, - - - - - - - -	62·75
Oxide of iron, - - - - - - -	2·29
	102·74

(*Dana's Mineralogy, 2d ed., p.* 378.)

PITCHSTONE.

(Mineralogy of New-York, page 367.)

This is perhaps the most appropriate place for the introduction of a notice of a mineral found by Dr. Emmons at Johnsburg, in Warren county. It is called *obsidian*, and is described as occurring in a trap dyke at the line of contact of the gneiss, in which it is embraced. The mineral has a bluish black color, a vitreous lustre and a conchoidal fracture. It is only about an inch wide on both sides of the dyke. Dr. Emmons says, "it is to be considered as a part of the dyke, which for some cause was more perfectly pure, and in consequence of more sud-

dencooli ng from contact with the rock, assumed the more vitreous form of obsidian." *Rep. on the Geol., 2d Dist., p.* 184.

An analysis of a specimen of this substance gave, silica, 55·50; oxide of iron, 32·00; lime, with a minute portion of alumina, 6·90; magnesia, 4·62. If this is a correct view of its composition, it differs considerably from the varieties of obsidian heretofore examined. But I apprehend that its chemical character will be found liable to great variations.

PYROPHYLLITE.

(Mineralogy of New-York, page 368.)

Well characterized specimens of this curious mineral have been found in Phillipstown, Putnam county. It is supposed to be a mechanical uixture, consisting of greyish green foliated scales, looking like talc or mica in a greyish white, mealy base. It is, however, very distinct in composition. Mr. J. E. Teschemacher thinks it identical with vermiculite. *Proceed. Bost. Nat. Hist. Soc'y*, 1843.

MICA.

(Mineralogy of New-York, page 369.)

This mineral is exceedingly abundant, and fine specimens have been found in various parts of New-York, many of them of great beauty. Attempts have been made to arrange the multiplied varieties under classes or groups, but these have not been entirely successful. They differ principally in their optical characters, but the difficulty which attends their division founded on these is, that the chemical composition does not always accord with them.

Since the publication of my Mineralogy, I have examined several of the New-York specimens and introduce the following notices, which, although incomplete, may be of some use to those who shall hereafter be induced to take up the investigation.

MARGARITE.

Some of the specimens from Orange county, often ticketed talc, belong to this species. The mineral has a vitreous lustre, a pale, pearly gray color, rather brittle, translucent to subtranslucent. It is associated with chondrodite and pseudomorphs of hornblende. It exhibits only one axis of double refraction and fuses *per se* into a white enamel. Similar specimens occur in the town of Rossie, St. Lawrence county. I have not analyzed these specimens.

The micas with a single axis, so far as I have examined them, are usually more easily fusible than those with a double axis. In thin fragments they curl up under the blowpipe and fuse into a vermicular enamel, varying in color with the specimen. The following belong to,

HEXAGONAL OR MONOAXIAL MICA.

Forshees mine, Orange county. Optic axis single; rather difficultly fusible.

Copper colored mica, from Edenville, Orange county. Optic axis single; fuses into a dark enamel.

Silvery mica, from Rossie, St. Lawrence. Optic axis single; fuses into a white string.

Mica, from Vrooman lake, Jefferson county. Optic axis single.

Mica, from Governeur, St. Lawrence county. Optic axis, single. In thin plates it fuses into a string of a white color and high lustre.

Copper colored mica, from Edwards, St. Lawrence county. Crystalized in six-sided tables, sometimes 5 or 6 inches in diameter; optic axis single; fuses with difficulty into a white mass; angles of the crystals about 120°; lustre metallic; plates sometimes curved.

Silvery mica, from Edwards. Crystallized in six-sided tables; optic axis single; fuses rather more easily than the preceding.

The brown mica, from Jefferson county, New-York, has been analyzed by Meitzendorff, whose average results are thus stated by Berzelius, (*Arsb.* 1843, *p.* 211,) silica, 41·30; alumina, 15·25; peroxide of iron, 1·77; magnesia, 28·79; potash, 9·70; soda, 0·65; fluoric acid, 3·30; loss by ignition, 0·28. It thus agrees very nearly with Prof. H. Rose's analysis of magnesian mica from Siberia. *Alger's Phillips*, 619.

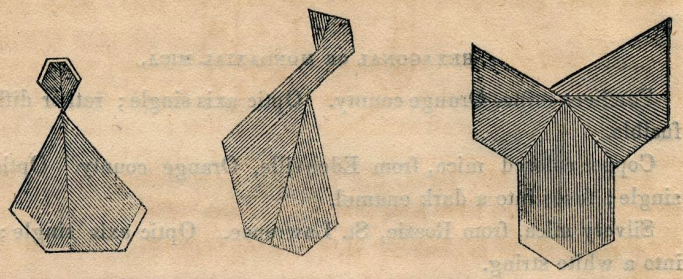
ORDER III. GLUCINA.

CHRYSOBERYL.

(Mineralogy of New-York, page 375.)

To the extensive series of compound crystals figured in the Mineralogy of New-York, I have to add a few others. For the ability to do this, I am indebted to Dr. Leonard, of Lansingburgh, N. Y., who has been uncommonly successful in his exploration of the Greenfield locality. He has obtained from thence specimens of extraordinary size and beauty. Many of them exhibit the forms which I have heretofore

figured; but those which are here introduced are worthy of notice. They are of the actual size, and from one-third to one-half an inch in thickness.



Dr. Leonard informs me that next to the six hemitropes, the most common combination is that of two united by their apexes.

Specimens of columbite have been found by Dr. Leonard, associated with chrysoberyl, at the Greenfield locality.

Descloizeaux has published under the crystalline forms of cymophane, a detailed description, with plates, and M. Biot has made some experiments upon the structure of this mineral in regard to polarized light. *Ann de Chim, et de Phys.* xiii, 329, 335.

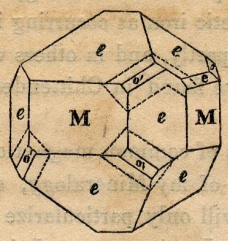
ORDER IV. ZIRCONIA.

ZIRCONITE.

(Mineralogy of New-York, page 378.)

This mineral has been found in New Sweden, Essex county, (*Emmons Rep. Geol., 2d Dist., p.* 286;) in Putnam Valley, Putnam county, (*Fountain;*) and on the farm of Mr. Cleaveland in Diana, Lewis county. At the latter locality it occurs rarely, but the crystals, although small, are very billiant. *F. B. Hough, who quotes Mr. Wilder, Sill. Jour., Jan.*, 1848.

I have also received specimens from Mr. Charles Thomas, which were obtained from a mine of magnetic iron ore, near Port Henry, Essex county. In form and color the crystals resemble those from the Hall mine in the same county.



According to Mr. Dana, the crystals from Johnsburg, in Warren county, sometimes have a tesselated structure. The accompanying figure represents the appearance of one of the crystals. *Sill. Jour.*, xlvi., p. 36.

METALLIC MINERALS.

NATIVE IRON.

(Mineralogy of New-York, page 382.)

Since the publication of my Mineralogy, several interesting facts in regard to the ocurrence of native iron in this State have been made known.

Dr. Emmons has described a specimen which he calls native iron, said to have been obtained from the vicinity of Catskill, in Greene county. It is in the form of laminæ, which are about one-thirtieth of an inch in thickness. Sp. gr. 6·58. It dissolves completely in warm sulphuric or muriatic acid, and when nitric acid is added, ammonia precipitates the peroxide of iron. It is strongly attracted by the magnet. The laminæ are only slightly flexible, but are entirely destitute of malleability. *Amer. Quart. Jour. of Science*, ii., p. 367.

B. Silliman, Jr., describes a mass of meteoric iron found a short distance below the surface of the earth in Cambria, near Lockport, Niagara county. On analysis it was found to contain iron 94·22; nickel 6·35. *Sill. Jour.*, xlviii., p. 388.

For a notice and analysis of a mass of meteoric iron found in the town of Burlington, Otsego county, see *Sill. Jour.*, xlvi., p. 401.

MAGNETIC IRON ORE.

(Mineralogy of New-York, page 383.)

Crystals of this mineral have been found in a mine near Port Henry, in Essex county. They are regular octahedrons from $\frac{1}{2}$ to $\frac{3}{4}$ of an inch in diameter, and are strongly magnetic. For these interesting specimens I am indebted to Mr. Charles Thomas.

Prof. Adams, in his report on the Geology of Vermont, (1846,) describes crystals of magnetic iron as occurring in granular specular iron. In some cases they are partly, and in others wholly, converted into peroxide of iron. They are found in Chittenden, adjoining Lake Champlain.

Several new localities of common magnetic iron have been discovered since the publication of my Mineralogy, especially in the northern parts of the State. I will only particularize its occurrence in beds in the gneiss rock of Greig, Lewis county. It is supposed to exist in some quantity, but it is associated with iron pyrites, an d requires to be purified by the magnet. This is said to be the only known locality of magnetic iron ore on the western side of the great northern forest of New-York. *F. B. Hough, Sill. Jour., Jan.*, 1848.

The sanguine anticipations which were at one time entertained in regard to the conversion of the magnetic iron ore into steel by a direct process, have not been realized. This is no matter of surprise to those who had carefully studied the nature of steel and the peculiarities of structure to which it owes its value. None but the most visionary persons would have sanctioned expenditures based upon such erroneous views.

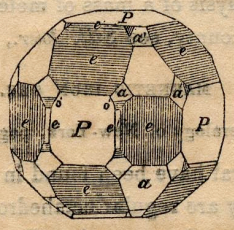
I may add here the composition of the cast and forged iron from the ore of the Long mine, in Orange county. The cast iron contains carbon 2·390; silicium 1·904; phosphorus 0·027; sulphur 0·004; iron 95·603.

The forged iron contains, silicic acid 0·532; phosphorus 0·023; sulphur 0·001; iron, carbon and loss 94·443. The cast iron contains traces of cobalt and nickel. *Berzelius' Annual Report*, 1847.

IRON PYRITES.

(Mineralogy of New-York, page 287.)

To the interesting crystalline forms of this mineral, figured in my Mineralogy, I may add that here introduced, which has been figured by



Mr. Dana from a crystal from Rossie, St. Lawrence county, in the possession of Dr. Emmons. *Sill. Jour.*, xlvi., p. 36.

CACOXENITE.

(Mineralogy of New-York, page 402.)

This mineral is liable to decomposition, even in the closed drawers of a cabinet. My specimens from the Sterling iron mine in Jefferson county, at the end of 2 or 3 years entirely lost their silky lustre, and were converted into a dull yellowish powder.

BABINGTONITE.

(Mineralogy of New-York, page 407.)

The composition of this mineral as determined by Dr. R. D. Thomson is as follows: silica 47·46; protoxide of iron 16·81; protoxide of manganese 10·16; alumina 6·48; lime 14·74; magnesia 2·21; water 1·24. This analysis approaches one by Bonsdorff of a black hornblende from Nordmark and Pargas, the magnesia being replaced by manganese in Babingtonite. *Phil. Mag. & Ann.*, xxvii., 123.

ZINC BLENDE.

(Mineralogy of New-York, page 408.)

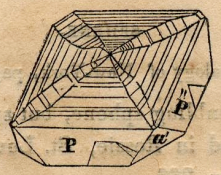
The occurrence of this species in the calciferous sandrock, one or two miles N. E. of Glen's Falls, in Warren county, is mentioned by Dr. Emmons. *Rep. on Geol., 2d Dist., p.* 180.

GALENA.

(Mineralogy of New-York, page 412.)

Various crystalline forms of galena occurring at the Nash vein in St. Lawrence county, are noticed by Dr. Emmons. *Rep., on Geol., 2d Dist., p.* 356.

For some remarks of the singular crystals of this mineral found at Rossie, St. Lawrence county, by Mr. J. E. Teschemacher, see *Phil Mag. & Ann.*, xxv., p. 232.



The crystals of galena from Rossie are sometimes very singularly constituted. Alger introduces a figure representing a crystal of the

natural size in his possession. It is a flattened cube. The lateral planes P P″, as well as the replacements of the lower solid angles *á*, are extremely brilliant and regular; but the upper solid angles and the terminal edges, are replaced by planes, which successively rise, in a step-like manner to the apex, forming a low pyramid. See his explanation of the mode of formation, *Phillips' Mineralogy, Suppl., p.* 623.

WHITE LEAD ORE.

(Mineralogy of New-York, page 414.)

Small crystals of carbonate of lead, an eighth of an inch or less in length, are occasionally found sprinkled thickly over the surface of the galena of Rossie, which when this is the case is deeply roughened or corroded. The crystals are striated prisms, terminating in four brilliant planes, two of which meet at an angle of 117° nearly, and the other two at an angle of 88°. The crystalline form, as well as the blowpipe characters prove that the mineral is carbonate of lead. *Dr. G. Hadley, in Sill. Jour., Jan.*, 1847.

NATIVE COPPER.

(Mineralogy of New-York, page 420.)

Prof. Dewey states that he has found some speculæ of native copper in the pentamerus limestone, (probably near Rochester, Monroe county.) Pyritous copper and green carbonate of copper occur in the same mass. *Hall's Rep. on Geol., 4th Dist., p.* 67.

This mineral is also occasionally found in the Taconic slate. *Emmons' Rep. on Geol., 2d Dist., p.* 158.

RUTILE.

(Mineralogy of New-York, page 428.)

According to Damour, this mineral is identical in composition with anatase. *Phil. Mag. & Ann.*, xxiv., p. 477.

SPHENE.

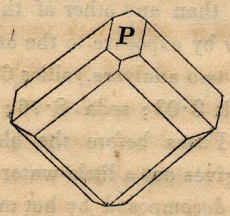
(Mineralogy of New-York, page 433.)

A brown mineral resembling sphene, but supposed to be different, is said to have been found in Rossie, St. Lawrence county. *Emmons' Rep. on Geol., 2d Dist., p.* 366.

Sphene has been found in Putnam Valley, Putnam county, by Mr. Cyrus P. Fountain.

Rose's analysis of the sphene of Zillerthal gave the following results: silica 32·29; titanic acid 41·58; oxide of iron 1·07; lime 29·60. The analysis was effected by sulphuric acid, and the details are given in the *Phil. Mag. & Ann.* xxvii. p. 560.

A new process for the analysis of this mineral, invented by Fuchs, is described in *Berzelius' Annual Rep. for* 1845, *p.* 178.



The *Lederite* of Shepard, it now appears, is identical with common sphene in its crystallographic and other characters. The accompanying figure illustrates its crystallization.

ADDITIONS

Of Mineral Species found in this State since the date of the publication of the Mineralogy of New-York.

COLUMBITE.

This mineral has been found by Dr. Leonard, associated with chrysoberyl at the remarkable locality in the town of Greenfield, Saratoga county.

LOXOCLASE.

This name has been applied by Breithaupt to a mineral received from Prof. Shepard. It was found in Hammond, St. Lawrence county, with pyroxene, graphite and calcareous spar. In many respects it resembles oligoclase (soda spodumene;) color yellowish-gray, yellowish-white, pea yellow and blueish gray. Lustre between vitreous and greasy; pearly on the most perfect cleavage surface. Primary form an oblique rhombic prism. P. on M. 93° 45′, P. on T. 115° 30′.

Cleavage perfect, very distinct in the direction of the short diagonal; indistinct approaching distinctness in the direction of the long diagonal; hemiprismatic in fragments. Fracture uneven to conchoidal and hackly. Hardness 6. Specific gravity=2·609 to 2·620. Translucent in thin laminæ to transparent.

The oblique cleavage in the direction of the long diagonal is characteristic of loxoclase, although not always very distinct; hence its name. The sp. gr. is also higher than any other of the orthoclastic feldspars. It appears subject to decay by exposure to the atmosphere.

Composition. (Mean of two analyses,) silica 63·50; alumina 20·29; oxide of iron 0·67; potash 3·03; soda 8·76; lime 3·22; water and fluoride of silicon 1·23. Fuses before the blowpipe with difficulty. Heated in a glass bulb it gives out a little water and fluoride of silicon, and is very imperfectly decomposed by hot muriatic acid. *Poggendorff's Annalen; Phil. Mag. & Ann.*, xxix., *p.* 150, *Aug.*, 1846.

MONAZITE.

This mineral, associated with sillimanite, as at Chester, Norwich and Saybrook, Conn., has been found in a quarry in Yorktown, Westchester county, by Mr. J. Mekeel. The monazite is in very perfect, transparent prisms, with a simple pyramidal termination; the crystals are small, rarely exceeding one-eighth of an inch in length, and are scattered like small garnets through the brown quartz adjoining the magnetic iron ore which is an associate of this mineral. *Sill. Jour.* xlvi, p. 207.

NITRATE OF LIME.

This is said to be found in Marbletown, Ulster county, and near West Point, Orange county. *Mather's Rep. on the Geol. 1st Dist., p.* 85.

PHYLLITE.

This is a mineral which was first found by Vanuxem, in the town of Newport, Rhode Island. It is in the form of black shining scales, in slate. I have found the same near the Clove iron mine, in Dutchess county.

Composition. According to Dr. T. Thomson, the constituents of phyllite are as follows: silica, 38·40; alumina, 23·68; peroxide of iron, 17·52; magnesia, 8·96; potash, 6·80; water, 4·80.

It is thought to be identical with the ottrelite of Desclozeaux and Damour; but Thomson's name has the priority.

YTTRO-CERITE.

The occurence of this very rare mineral in the limestone of Orange county, N. Y., was first noticed by Mr. Alger.

It presents all the characters of the mineral from Finbo, in Sweden, and cannot be distinguished from it in hand specimens. (*Memoirs of the Boston Nat. Hist. Soc.* ii, p. 88.) It occurs in grains of a beautiful purple color, resembling fluor spar for which it has heretofore passed among the New-York mineralogists. I have specimens from Amity, in Orange connty, associated with talc and other minerals in white limestone.

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References to various Essays and Writings on the Natural History of New-York, mostly published subsequent to issuing the respective volumes on that subject.

MAMMALIA.

Annals of the New-York Lyceum of Natural History, vol. 4, p. 53. Description of five species of Vespertilio, that inhabit the environs of New-York, by William Cooper:

1. VESPERTILIO PRUINOSUS.
2. VESPERTILIO NOVEBORACENSIS.
3. VESPERTILIO NOCTIVAGANS.
4. VESPERTILIO CAROLINESIS.
5. VESPERTILIO SUBULATUS.

All of these are recognized by Dr. DeKay.

BIRDS.

Annals of New-York Lyceum, vol. 4, p. 51. Notice of the appearance of the Pine Groesbeak, (*Pyrrhula enucleator,*) in the vicinity of New-York. By James F. Ward.

Annals of New-York Lyceum, vol. 4, p. 171. Description of a new species of Anser, by George N. Lawrence. Read March 18, 1846. Anser nigricans, (*Black-bellied Goose.*)

Sir Charles Lyell's Second Visit to the United States, vol. 2, p. 247, American edition. "In Wilson's Ornithology it is stated that the Hummingbird migrates from the south to Pennsylvania, the latter part of April and builds its nest there about the middle of May. For the last thirty years Mr. McIlvaine has never been disappointed in seeing it reach Burlington, in New Jersey, on the banks of Delaware, the first

week of that month, generally about the middle of the week; its northward progress being apparently hastened or retarded by the mildness of the season. They seem always to wait for the flowering of a species of horse-chesnut, called here, the Buckeye, from the fancied likeness of its fruit to the eyes of a deer. The bright red blossoms of this tree supply the nourishment most attractive to these birds, whose arrival had been looked for the very day after I came. Strange to say, one of them, the avant-courier of the feathered host, actually appeared and next morning, (May 7, 1846,) hundreds were seen and heard, flitting and humming over our heads."

INSECTS.

Annals of the Lyceum, &c., vol. 4, *p.* 141. Monograph of the species of Psamichus, inhabiting the United States, with descriptions of two new genera belonging to the family Carabica. By John L. LeConte. Read November 9, 1845.

Annals of the Lyceum, &c., vol. 4, *p.* 173. Descriptive catalogue of the Geodephagous coleoptera, inhabiting the United States, east of the Rocky Mountains. By John L. LeConte. Read May 25, 1846.

BOTANY.

Silliman's Journal, new series, vol. 7, *p.* 167. Notes on some Chenopodiacaœ, growing spontaneously about the city of New-York. By John Carey.

Silliman's Journal, new series, vol. 8, *p.* 347. Observations on American species of the genus Potamogeton, by Edward Tuckerman, A. M.

MINERALOGY.

Annals of the New-York Lyceum, vol. 4, *p.* 76. Description of the Vauquelinite, a rare ore of Chromium, in the United States. By John Torrey, M. D.. Read April 27, 1835.

(Noticed by Dr. L. C. Beck, in his Mineralogy of New-York.)

Proceedings of the Academy of Natural Sciences of Philadelphia, vol 4, *p.* 6. Mr. Ashmead on Calcareous Spar from the Rossie lead mines, in New-York.

Boston Medical and Surgical Journal, vol. 40, *p.* 283. Dr. Samuel P. White, on the Acid springs, at Alabama, Genesee county.

Silliman's Journal, new series, vol. 8, *p.* 385. Professor Benj. Silliman, Jr., analysis of Munrolite, occurring at Munroe, Orange county.

GEOLOGY AND PALÆONTOLOGY.

Silliman's Journal, new series, vol. 7, *pages* 45, 218. Parallelism of the Palæozoic formations of North America with those of Europe. By Ed. DeVerneuil, and translated by James Hall.

Silliman's Journal, N. S., vol. 7, p. 175. On the Acid Springs and gypsum deposits of the Onondaga salt group. By T. S. Hunt, of the Geological Survey of Canada.

Proceedings of the American Association for the Advancement of Science, 1st meeting, September, 1848, *p.* 135. Account of a remarkable geological development in Elizabethtown, Essex county.

Quarterly Journal of the Geological Society of London, vol. 2, *p.* 20. Observations on the Caryocrinites of Mr. James Hall.

Quarterly Journal of the Geological Society of London, vol. 4, *p.* 66. On Trematis, a new genus, belonging to the family of the Brachiopodous mollusca. By Daniel Sharpe, F. G. S. (The Orbicula terminalis of Emmons and Hall is here called Trematis terminalis.)

Quarterly Journal of the Geological Society of London, vol. 4, *p.* 146. Remarks on the Palæozoic formations of the United States, contained in the collection of Charles Lyell, Esq., with remarks on the comparison of the North American formations with those of Europe. By Daniel Sharpe, F. G. S.

Quarterly Journal of the Geological Society of London, vol. 5, *p.* 107. On the supposed impressions in shale of the soft parts of an Orthoceras By James Hall, foreign member of the Geological Society, State Geologist of New-York.

The first discovery (probably) of fossil bones and teeth in the State of New-York.

(From Weld's history of the Royal Society, vol. 1, p. 421.)

In 1713, in answer to "instructions to Ministers and Governors proceeding abroad," and which had been directed by the Queen to be prepared, Lord Cornbury made the following communication. It is dated from New-York and addressed to the secretary.

"I did by the Virginia fleet, send you a tooth, which on the outside of the box, was called the tooth of a giant, and I desired it might be given to Gresham College. I now send you some of his bones, and I am able to give you this account. The tooth I sent was found near the side of Hudson's river, rolled down from a high bank, by a Dutch country fellow, about twenty miles on the side of Albany, and sold to one Van Bruggen for a gill of rum. Van Bruggen, being a member of the Assembly, and coming down to New-York to the Assembly, brought the tooth with him and shewed it to several persons here. I was told of it, and sent for it to see, and asked if he would dispose of it; he said it was worth nothing, but if I had a mind to it, 'twas at my service. Thus I came by it. Some said 'twas the tooth of a human creature; others, of some beast or fish, but nobody could tell what beast or fish had such a tooth. I was of opinion that it was the tooth of a giant, which gave me the curiosity to enquire farther. One Mr. Abeel, Recorder of Albany, was then in town, so I directed him to send some person to dig near the place where the tooth was found; which he did, and that you may see the account he gives me of it, I send you the original letter he sent me; you must allow for the bad English. I desire these bones may be sent to the tooth, if you think fit. When I go up to Albany next, I intend to go to the place myself, to see if I can discover any thing more concerning the monstrous creature, for so I think I may call it."

Mr. Abeel's letter runs thus:

"According to your Excellency's order, I sent to Klaverak to make further discovery about the bones of that creature, where the great tooth of it was found. They have dug on the top of the bank, where the tooth was rolled down from, and they found, fifteen feet under ground, the bones of a corpse that was thirty feet long, but was almost all decayed; so soon as they handled them, they broke in pieces; they took up some of the firm pieces and sent them to me, and I have ordered them to be delivered to your Excellency."

(K.)

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State Cabinet of Natural History,

CONTAINING THE

PLANTS OF THE STATE OF NEW-YORK.

☞ A reference to Prof. TORREY's Catalogue of the Plants, of which specimens are preserved in the State Cabinet at Albany, (published in the Annual Report of the Regents of the University, on the condition of the State Cabinet, for the year 1849,) will indicate the individual species of the genera contained in each volume. The Orders and Genera are numbered according to Prof. TORREY's Flora of the State of New-York.

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CONTAINS THE RESIDUE OF

ORDER	100.	SALICACEÆ.	*The Willow tribe.*

VOLUME XXXIV.

CONTAINS

ORDER 101.	RALSAMIFLUÆ.	*The Sweet-gum tribe.*
ORDER 102.	PLATANACEÆ.	*The Plaintree tribe.*
ORDER 103.	UTICACEÆ.	*The Nettle tribe.*

VOLUME XXXV.

GYMNOSPERMOUS PLANTS.

CONTAINS

ORDER 104.	CONIFERÆ.	*The Pine tribe.*

VOLUME XXXVI.

CONTAINS

ORDER 105.	ARACEÆ.	*The Arum tribe.*
ORDER 106.	LEMNACEÆ.	*The Duckweed tribe.*
ORDER 107.	TYPHACEÆ.	*The Cattail tribe.*
ORDER 108.	NAIADACEÆ.	*The Pondweed tribe.*
ORDER 109.	ALISMACEÆ.	*The Water Plantain tribe.*
ORDER 110.	JUNCAGINACEÆ.	*The Arrowgrass tribe.*
ORDER 111.	HYDROCHARIDACEÆ.	*The Frogsbit tribe.*

VOLUME XXXVII.

CONTAINS

ORDER 112.	ORCHIDACEÆ.	*The Orchis tribe.*

VOLUME XXXVIII.

CONTAINS

ORDER 113.	HYPOXIDACEÆ.	*The Stargrass tribe.*
ORDER 114.	IRIDACEÆ.	*The Iris tribe.*
ORDER 115.	DIOSCORACEÆ.	*The Yam tribe.*
ORDER 116.	SMILACEÆ.	*The Smilax tribe.*
ORDER 117.	LILIACEÆ.	*The Lily tribe.*

VOLUME XXXIX.

CONTAINS

ORDER 118.	PONTEDERIACEÆ.	*The Pickerelweed tribe.*
ORDER 119.	MELANTHACEÆ.	*The Colchicum tribe.*
ORDER 120.	JUNCACEÆ.	*The Rush tribe.*

ORDER 121. COMMELYNACEÆ. *The Spiderwort tribe.*
ORDER 122. XYRIDACEÆ. *The Yellow-eyed Grass tribe.*
ORDER 123. ERIOCAULONACEÆ. *The Pipewort tribe.*

VOLUME XL.

CONTAINS THE GENERA, (from 1 to 13 inclusive,) OF

ORDER 124. CYPERACEÆ. *The Sedge tribe.*

VOLUME XLI.

CONTAINS THE SPECIES OF THE GENUS *Carex*, DOWN TO AND INCLUDING *Carex aurea*, OF

ORDER 124. CYPERACEÆ. *The Sedge tribe.*

VOLUME XLII.

CONTAINS THE RESIDUE OF THE SPECIES OF THE GENUS *Carex*, (commencing with *Carex livida*,) OF

ORDER 124. CYPERACEÆ. *The Sedge tribe.*

VOLUME XLIII.

CONTAINS THE GENERA, (from 1 to 13 inclusive,) OF

ORDER 125. GRAMINEÆ. *The Grass tribe.*

VOLUME XLIV.

CONTAINS THE GENERA, (from 14 to 32 inclusive,) OF

ORDER 125. GRAMINEÆ. *The Grass tribe.*

VOLUME XLV.

CONTAINS THE RESIDUE OF THE GENERA, (commencing with *Poa*,) OF

ORDER 125. GRAMINEÆ. *The Grass tribe.*

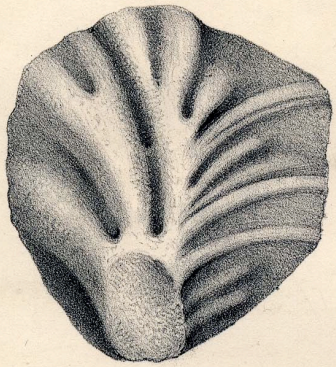
VOLUME XLVI.

CONTAINS

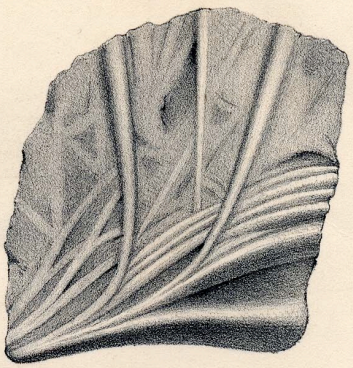
ORDER 126. EQUISETACEÆ. *The Horsetail tribe.*
ORDER 127. FILICES. *The Fern tribe.*
ORDER 128. LYCOPODIACÆ. *The Clubmoss tribe.*
ORDER 129. SALVINACEÆ. *The Salvina tribe.*
ORDER 130. ISOETACEÆ. *The Quillwort tribe.*

Pl. 1.

1 b



1 a



1 c



1b



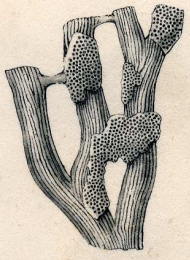
1c



1d



1e

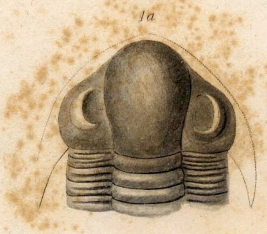


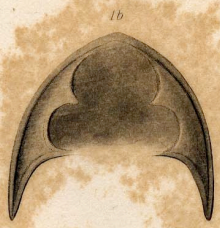
1a

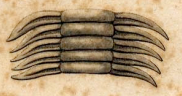


Eng.& Print of Rich.d H Pease















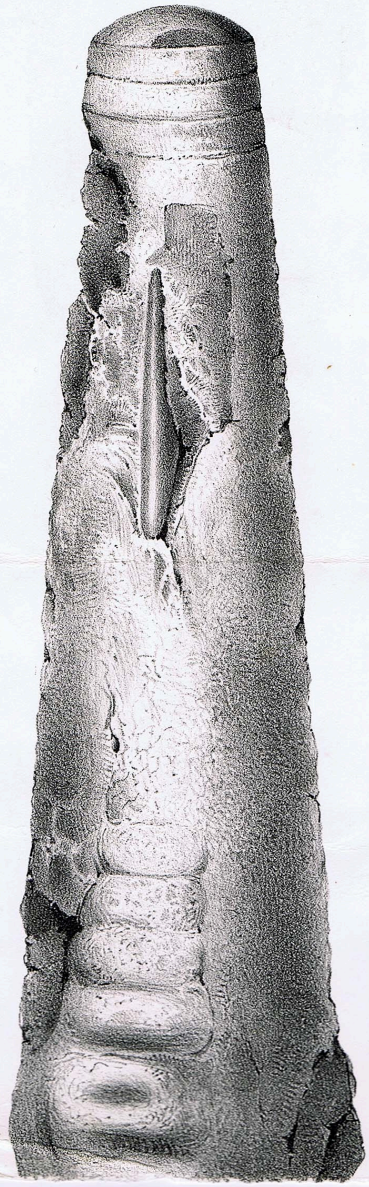




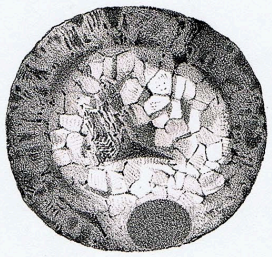
Eng.ᵈ & Print.ᵈ of Richᵈ H. Pease


1a
1b
Pl. 4.
3
2

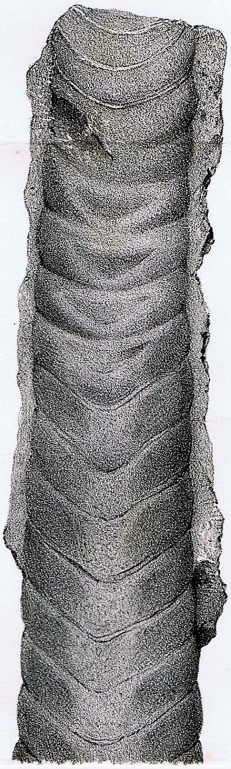
1 a



1 b



2





(K.)

DESCRIPTION OF NEW SPECIES OF FOSSILS,

And Observations upon some other Species previously not well known,

FROM THE TRENTON LIMESTONE.

BY JAMES HALL.

The following described fossils have been obtained from the Trenton limestone since the publication of the first volume on the Palæontology of New-York. Several of these are entirely new, and interesting as adding to our knowledge of several genera, of which few species have yet been described. These fossils were collected during a short excursion in a few localities not thoroughly examined, and from these we may infer that a large number yet remain undescribed in the lower silurian rocks. In these descriptions I have not included several, the characters of which are somewhat equivocal, or of which we may expect to procure more perfect specimens. Several specimens, illustrating in a more perfect and satisfactory manner species already described in the volume referred to, have been added to this list, in order to give those pursuing the study of this subject the best information we possess up to this time.

In commencing a work like the Palæontology of New-York, in a country where comparatively so little had been done in collecting or investigating fossils of the older rocks, it was impossible in all cases to procure perfect specimens of the fossils described. It is expected moreover that the fossils from the older stata are less perfect and more dilapidated than those of newer formations; and the solid and sometimes altered condition of the strata often prevents the procuring of perfect specimens, which may readily be done in the more modern formations.

It would not be satisfactory to the student, nor even to the cursory examiner, to leave unfigured and undescribed, fragments or imperfect specimens of fossils, since the collection of every one, and particularly of beginners, must necessarily consist in part of such, from the difficulty and time required to obtain perfect ones. It is therefore desirable from time to time to present the additional knowledge acquired by the fortunate discovery of a fossil in natural exposures, or their constant development from the increased number of quarries and excavations from public improvements. In this way those species originally figured in an imperfect condition may be represented in their perfect state; and the difficulty and annoyance avoided that may arise, and has often arisen, from describing as two species parts of the same animal.

Moreover, undescribed species can be of little use to the collection of an amateur; and however many he may have thus circumstanced, he cannot use them to advantage in the ordinary mode of exchange for others, since they are not designated by name. A fossil to be valuable in the eyes of a geologist or palæontologist, must have a name and the true geological position given, or it sinks in his estimation at once to a mere object of curiosity; while otherwise, it has a place not only in its zoological relations, but also in the order of its succession, or time, doubly important to the naturalist.

Since it is quite impossible, with the limited means possessed by the palæontologist, to collect and describe every species, and since it must be expected that new species will be obtained, for the next half century, from the rocks already examined it is evident that every year will produce something to be done, to bring the subject up to the best knowledge we possess. It is equally true that whatever means are adopted, much must still remain to be discovered. Excavations for railroads, canals, and the improvement of highways, as well as the increased number of quarries opened to supply the wants of an increasing population, will constantly bring to light new fossils, as well as other objects of natural science. If every student or collector finding fossils undescribed in the State work on Palæontology, would forward them to the curator of the Geological Rooms at Albany, the annual reports of the Regents offer an opportunity for having them properly described and figured; thus permanently preserving in the State collection the originals of these fossils, while it is adding to his own knowledge of the subject and enhancing the interest and value of his collection. Many collectors, residing upon the ground, have it in their power to furnish better specimens to the State collection, than it has been in the power

of the Palæontologist to do, from his limited time for examining individual localities. Such specimens greatly enhance the value of this part of the collection, and furnish facilities for further elucidation of the subject. It may be unnecessary for me to make the same appear for all the departments.

For Palæontology, however, I will make another observation. Species have heretofore been described chiefly from exterior characters, and very few collections are made with a view to the examination of the interior or more vital parts. To the palæontologist the interior of the shell is often of more real importance in his investigations than a perfect specimen; since this part may reveal to him characters more reliable and more constant than the exterior. The same is true of other fossils; whatever exhibits the internal characters and arrangement of parts is very desirable in an extensive and permanent collection, for these furnish at once points of comparison very conclusive, regarding the identity or difference of similar fossils. Every collector, therefore, should understand that those fragments showing internal structure in fossil bodies, are worthy of preservation, and even when these characters are apparently unallied to any other, they are nevertheless important in extensive comparisons. I might instance the columns of crinoidea, which occur in fragments in all our strata. These, when studied, furnish illustrations of the highest interest, and we are often able to connect with certainty the veriest fragment with the perfect form by a minute internal characteristic. Lest there be not observed in this, some important result besides the scientific value and interest, I may mention what every collector knows, that the locations of perfect specimens are few, while those of fragments and detached parts are numerous. Now it is important, upon economical considerations, to be able to recognize fossils by fragments, or from some zoological character, that in seeking for valuable beds we may know our proximity thereto, not only from the occurrence of perfect fossils, but from the fragments which are preserved in the more numerous localities.

Since New-York must always remain the classic ground for the study of the geology and palæontology of the older rocks, no other country having so perfect a development of the systems, it is important that the State collection should contain the most perfect and authentic collection of these as of the other productions of her territory. I would appeal, therefore, to the patriotism of our citizens to consider the interests and wants of this collection before they dispose of their beautiful specimens to private collections which can never be permanent.

As an encouragement to those who have already spoken to me on this subject, expressing hopes of the permanent care and preservation of this part of the collection and who have been only waiting such an arrangement to contribute specimens, I may say that the collection has recently been placed by the Regents of the University, in the charge of Mr. John Gebhard, Jr., of Schoharie, whose quiet zeal and untiring industry have almost solely contributed to bring out the rare and beautiful exhibition of fossils from the rocks surrounding his native valley. Those, therefore, who desire to contribute specimens may feel assured that in the hands of Mr Gebhard, every fossil will be fully appreciated and carefully preserved.

BUTHOTREPHIS ? CÆSPETOSA, (*n. species.*)

Plate 1, fig. 1, *a*, *b*, *c*.

Plant at base composed of numerous coalescing stems which in ascending are frequently bifurcated; branches tapering to acute points.

The mode of growth is very peculiar in this species; in all the individuals seen the base appears like a coalescing or twisted bundle of stems, which separate and expand above, frequently bifurcating in their extension. Several specimens of this species have been found in the lower part of the Trenton limestone. It is extremely different from all the other species of the genus and may perhaps be referred with almost equal propriety to the genus *Palæophycus*, though when better known it will probably be separated from both these genera.

This species has been found in the vicinity of Watertown, Jefferson county, and occurs in thin layers, exposed by the action of the water of the river, near the lower part of the formation.

RETEPORA FENESTRATA, (*n. species.*)

Plate 2, fig. 1, *a*, *b*, *c*, *d*, *e*.

Frond much expanded, loosely reticulate; branches rounded, frequently bifurcating, united laterally by transverse bars; non-poriferous surface striated; poriferous side of branches covered with numerous small angular pores, sometimes with poriferous nodes upon the poriferous side of the branches; fenestrules irregular in size and form.

This species is very peculiar in its character, appearing at first view like a reticulated coral without transverse bars. The growth and bifurcation of the branches appear to have been quite irregular and they approach each other so closely as often to appear as if coalescing. In the presence of transverse bars, which are apparently non-poriferous,

uniting the branches, it differs from Retepora, to which it is closely allied in other respects. In the rounded branches and transverse non-celluliferous dissepiments it resembles Polypora, but the cells are angular as in Retepora, and the coral has the general aspect of that genus.

Fig. 1, *a*, a specimen of this coral upon the surface of a fragment of limestone. In some parts the coral appears to be distinctly reticulated, while in others the branches are united by transverse bars.

Fig. 1, *b*, a portion of the poriferous surface enlarged.

Fig. 1, *c*, another fragment, having elevated nodes upon the surface of the branches.

Fig. 1, *d*, an enlarged portion of the non-poriferous face.

Fig. 1, *e*, a similar fragment of the non-poriferous face, partially covered by an incrusting coral which has the character of Chætetes.

This species occurs in the lower part of the Trenton limestone, near Lowville, Lewis county. (*State Collection.*)

ÆGILOPS, (*new genus.*)

Inequilateral, valves, somewhat trigonal, rounded on the base, sloping abruptly from the beaks, which are incurved at the extremity.

ÆGILOPS SUBCARINATA.

Plate 4, fig. 1, *a*, *b*.

Trigonal, with the beaks much elevated and incurved; anterior slope short, ending in a slightly rounded extremity, which continues into the curve of the rounded base; posterior slope long and straight; surface marked by a rounded ridge or carina extending from the beak nearly to the base, and margined on each side by a corresponding depression.

The form of this shell is peculiar and characteristic, the inequality of the valves is only apparent or due to pressure. It is clearly the type of a genus which has not hitherto been noticed in the lower silurian rocks of this country, if in Europe.

This species was found in the Trenton limestone, near Lowville, Lewis county. (*State Collection.*)

MURCHISONIA SUBFUSIFORMIS.

Plate 4, fig. 2.

Reference.—Palæontology of New-York, vol. i, page 234, plate 39, fig. 2.

The two figures of this fossil referred to, give but a very imperfect idea of the species. Nearly all the specimens procured are so mutila-

ted that the true form is scarcely to be determined. The specimen now figured is the most perfect one that has fallen under my observation and will serve to give a better idea of the form and proportions of the species than those heretofore given. It preserves five volutions, two volutions of the apex are broken off. The specimen is scarcely at all compressed, and it shows the peculiar form which clearly distinguishes it from *M. bellacincta.*

In the shaly portion of the Trenton limestone, near Lowville, Lewis county. (*State Collection.*)

SUBULITES ABBREVIATA, (*n. species.*)

Plate 3, fig. 2, *a*, *b*, *c*.

Short, subfusiform, last volution making nearly the whole bulk of the shell; spire rapidly diminishing; composed of about three volutions; aperture long, very narrow above; outer lip straight and parallel to the axis of the shell; margin of the shell opposite the outer lip, and with the spire above forming a regular curve from apex to base.

This species possesses the character of the genus as expressed in the *S. elongata*, but it is extremely different from that one in the short spire and curved outline of the back of the shell. The specimens are interesting as presenting a second species of a peculiar genus, and one not recognized above the lower silurian period.

The specimens figured were obtained from the semicrystalline limestone in the higher part of the Trenton limestone, near Watertown, Jefferson county. The position and associated fossils are the same as in the other species of the genus. (*State Collection.*)

ONCOCERAS CONSTRICTUM.

Plate 3, fig. 3.

Reference.—Page, 197, plate 41, figs. 6 and 7, Palæontology of New-York, vol. 1.

This species was described from fragments and the characters were not completely defined. The specimen figured is almost entirely perfect, showing the contracted, nearly circular aperture, and the swelling above, which presents a transversely oval section, suddenly tapering from thence towards the apex, which is curved from the commencement of the contraction; surface finely striated, with the striæ arching upward along the dorsal line.

This specimen is almost entire, a small portion of the apex having been broken off only. It is one of the most remarkable forms of