
Transactions of the Albany Institute, Volume 10

#Albany Institute

Title: Transactions of the Albany Institute, Volume 10

Author: #Albany Institute

This is an exact replica of a book. The book reprint was manually improved by a team of professionals, as opposed to automatic/OCR processes used by some companies. However, the book may still have imperfections such as missing pages, poor pictures, errant marks, etc. that were a part of the original text. We appreciate your understanding of the imperfections which can not be improved, and hope you will enjoy reading this book.



TRANSACTIONS

OF THE

ALBANY INSTITUTE,

VOLUME X.

ALBANY, N. Y. :
WEED, PARSONS AND COMPANY, PRINTERS.
1883.

~~1922~~

LSoc 4685.5

1922

CONTENTS.

Officers of the Albany Institute, 1883, - - -	v
The Utica Slate and Related Formations of the Same Geological Horizon, by C. D. Walcott, - - -	1
Fossils of the Utica Slate, by C. D. Walcott, - -	18
Degraded Words, by Gilbert M. Tucker, - - -	39
Descriptions of New Species of Fossils from the Niagara Formation, by James Hall, LL. D., - - -	57
The Origin of Force, by Stephen C. Hutchins, - -	77
Industrial and Material Progress, Illustrated in the History of Albany (Annual Address), by David Murray, LL. D.,	85
Whittington and His Cat, by Ernest J. Miller, -	105
An Account of the Manuscripts of Gen. Dearborn, as Massachusetts Commissioner in 1838 and 1839, for the Sale of the Seneca Indian Lands, by Henry A. Homes, LL. D., -	128
Proposed Erection of Local Historical Monuments; Report of Special Committee on Archæology, - -	137
Bryozoans of the Upper Helderberg and Hamilton Groups, by James Hall, LL. D., - - -	145
The First Men: Their Epoch, Habitat and Crania, by Stephen C. Hutchins, - - -	198
The Principles of Ventilation, by Richard Prescott, M. E.,	217
The Physical Sciences the Products and Promoters of Civilization (Annual Address), by Paul A. Chadbourne, LL. D.,	227

Prehistoric Music, by Armand de Potter, - - -	241
The Correct Arms of the State of New York, by Henry A. Homes, LL. D., - - -	245
The Plea of Insanity, by Horace E. Smith, LL. D., -	290
Linguistic Discussions, by George R. Howell, - -	306
Gravestones Aesthetically and Ethically Considered, by Irving Browne, - - -	320
American English, by Gilbert M. Tucker, - - -	334
Catalogue of Members of the Albany Institute, -	361
Index, - - - - -	366

Plates, in order as below :

Fossils of the Utica Slate (two plates).

Arms of the State — Initial from Commission issued by Governor Clinton, 1778.

Arms of the State — Regimental Flag, 1778.

Arms of the State — Painting in St. Paul's Chapel, New York, 1785.

Arms of the State — As restored for the action of the Legislature.

Arms of the State — Official Representation, as re-established by law taking effect Jan. 1, 1833.

OFFICERS OF THE ALBANY INSTITUTE FOR 1883.

President,
ORLANDO MEADS.

Treasurer,
JOHN TEMPLETON.

Recording Secretary,
DANIEL J. PRATT, PH. D.

Corresponding Secretary,
LEONARD KIP.

First Department — Physical Science and the Arts.

President, and ex-officio one of the Vice-Presidents of the Institute,
DAVID MURRAY, LL. D.

Recording Secretary,
VERPLANCK COLVIN.

Corresponding Secretary,
SAMUEL B. WARD, M. D.

Librarian,
DANIEL J. PRATT, PH. D.

Second Department — Natural History.

President, and ex-officio one of the Vice-Presidents of the Institute,
J. A. LINTNER.

Vice-President,
WILLIAM HAILES, JR., M. D.

Recording Secretary,
CHARLES H. PECK.

Corresponding Secretary,
CHARLES J. BUCHANAN.

Third Department — History and General Literature.

President, and ex-officio one of the Vice-Presidents of the Institute,
HENRY A. HOMES, LL. D.

Vice-President,
THOMAS J. VAN ALSTYNE.

Recording Secretary,
EDWARD M. RANKIN.

Corresponding Secretary,
IRVING BROWNE.

Curators of the Collections in Natural History and the Arts.

MAURICE E. VIELE,
PHILANDER DEMING,
CHARLES M. JENKINS,
ERNEST J. MILLER,

GEORGE R. HOWELL,
JOHN W. MCNAMARA,
JAMES M. CASSETY,
GRANGE SARD, JR.

EUGENE BURLINGAME.

Publishing Committee.

GILBERT M. TUCKER,

JAMES O. FANNING,
STEPHEN C. HUTCHINS.

TRANSACTIONS.

THE UTICA SLATE AND RELATED FORMATIONS OF THE SAME GEOLOGICAL HORIZON.

BY C. D. WALCOTT.

[Read before the Albany Institute, March 18, 1879.]

THE UTICA SLATE.

Mohawk slate, Black slate and shale, Frankfort slate, Graptolitic slate, Lorraine shales (in part) of the New York Geological Reports.

In part Professor Eaton's *Transition argillite, Wacke slate and Glazed slate*. No. 3 and the *Matinal Black slate* of the Pennsylvania Survey.

The name Utica slate was adopted by the New York geologists in their final reports for the black bituminous slates succeeding the Trenton limestone in the Mohawk and Black River valleys—Prof. E. Emmons retaining the term Lorraine shales for the upper portion beneath the shaly sandstones of the Hudson River group, or Lorraine sandstones as he termed them. The term Hudson River group, with the Utica slate for a subdivision embracing the lower slaty portion, was, however, generally received into geological nomenclature.

At the typical locality in the vicinity of Utica the formation has a thickness of over 600 feet, the upper part passing into the lighter colored, more silicious slate, beneath the Oneida conglomerate; this change of color and addition of silicious material, with the presence of a few thin sandy layers, alone representing the arenaceous shales and sandstones of the Hudson River group in its extension east and west from this point. The Utica slate would otherwise be a continuous formation from the Trenton limestone to the base of the conglomerate.

At Rome, fifteen miles west, the shaly sandstones increase in
Trans. x.] 1

thickness, and contain characteristic fossils of the Hudson River formation above the Utica slate, namely: *Ambonychia radiata*, *Modiolopsis modiolaris*, *Cyrtolites ornatus*, etc. The extensive development of this portion of the group in the valleys of the Black, Salmon and Hudson rivers, and its almost entire absence near Utica, is undoubtedly owing to some local cause which affected the distribution of the coarser sediments.

The Utica slate formation was traced by the New York geologists down the Mohawk valley from Oneida county through Herkimer, Montgomery, Schenectady and Saratoga counties to the shores of the Hudson. At Baker's Falls, Saratoga county, it is seen in contact with, and resting upon, the Trenton limestone. It here contains graptolites characteristic of the formation in Central New York and also the typical fossil of this horizon, *Triarthrus Becki*. Trilobitic remains are very rare in localities where graptolites abound in the undisturbed slates in Oneida county. This is particularly noticeable in the graptolitic slates of the Hudson River valley, where the graptolitic fauna flourished to the almost entire exclusion of other forms common to the slates elsewhere.

Prof. Wm. W. Mather¹ gives the following localities in the Hudson river valley below Baker's Falls, where the Utica slate is to be observed with its characteristic graptolites: at Waterford, Cohoes, Norman's kill below Albany, at Hudson, and also one and one-half miles below on the same side of the river; in the black slate of the Shawangunk mountain, one and one-half miles east of Ellenville, Orange county; also at Blue Rock in Marlborough on the bank of the Hudson several miles below Poughkeepsie.² Owing to the disturbed condition of the strata the graptolites afford the means of determining the geological horizon, where, without their being present, it would be exceedingly difficult if not impossible to do so.

Prof. R. P. Whitfield, in a letter³ written to Dr. C. A. White, gives a very full description of the occurrence of the graptolites at Norman's kill and the evidence they afforded of the equivalency of the graptolitic slates and the Utica slate.

Prof. Mather included a greater range of rocks in the Hudson River group, on the east side of the Hudson, than is now recognized as belonging to it. The evidence, however, that he adduced in 1843

¹ *Geol. of N. Y. Surv. First Geolog. Dist.*, pp. 393-395. 1843.

² It is interesting to note in this connection that Mr. T. Nelson Dale, Jr., has recently discovered typical Hudson River group fossils in this same vicinity. *Amer. Journ. Sci. Arts*, xvii, p. 57. 1879.

³ *Wheeler Exped. West of the 100th Meridian*, iv, Pt. I, Pal., p. 19. 1875.

of its presence, with its lower division the Utica slate, in the valley of the Hudson, was very complete, and, judging from the writings of his associates on the geological survey and contemporary writers, accepted as conclusive. Of the controversy which arose at the time of the *making* up of the Quebec group, regarding the age of these rocks along the Hudson and the retaining of the term Hudson River group in geological nomenclature, a very complete review will be found in a paper recently published by Prof. James Hall.¹

Passing to the south-west along the line of the Appalachians, we find the Utica slate mentioned by Prof. H. D. Rogers, as occurring in the long valleys crossing the southern, central half of the state of Pennsylvania and into Virginia. In the Kittatinny and Kishicoquillas valleys it has a thickness of from 300 to 400 feet and carries graptolites, also *Triarthrus Becki*.

South-westward in Virginia the black slate passes into the drab colored shales of the Nashville group of Tennessee, reference to which will be made in reviewing the formations of the Utica slate horizon. The northern extension of the formation from Baker's Falls, Saratoga county, is seen in the numerous outcrops in the Champlain valley and down to the St. Lawrence river, where it expands and extends from Montreal to below Quebec. An outlier at Lake St. John, and the presence of the slate in the channel between the Mingan Islands and the Islands of Anticosti, gives the known extension to the north and north-east.² Of its presence at Anticosti Sir William Logan says :³

"Loose fragments of black, strongly bituminous graptolitic shales, in every way resembling those of the Utica formation, and of some of the interstratified beds of the Hudson River, are met with on the beach on the north side of Anticosti."

Graptolites abound at Lake St. John and *Triarthrus Becki* also occurs. West of Montreal numerous outliers of the Utica slate are found in the Ottawa basin. *Asaphus Canadensis*, which occurs so abundantly at Collingwood on Georgian Bay, is found near the city of Ottawa associated with *Triarthrus Becki* and other characteristic fossils of the Utica slate formation.

¹ *Proceed. Amer. Assoc. Adv. Sci.* 1877.

² Professor C. H. Hitchcock, in the *Science News* of March 15, 1879, states that Professor B. K. Emerson of Amherst College, has in his possession specimens of *Triarthrus Becki* *Climacograptus bicornis*, etc., from the Arctic regions brought by Captain Hall; thus proving the presence of the Utica slate horizon to the north of any previous known exposure.

³ *Geology of Canada*, p. 221. 1863.