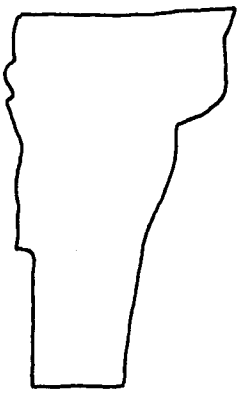
THE

GREEN MOUNTAIN GEOLOGIST



QUARTERLY NEWSLETTER OF THE VERMONT GEOLOGICAL SOCIETY

SPRING 1 9 7 4 Volume I Number 1

A WORD FROM THE PRESIDENT

The Vermont Geological Society was born last month, because 28 geologists from throughout the State contributed time and ideas to an undertaking they felt to be worthwhile. The objectives of the Society - education, research, service and communications, will benefit the profession of geology in Vermont not only by stimulating communications between geologist in our field, but also by raising public awareness of the profession. I am sure that most Vermonters and people in general have little knowledge of what a geologist does, or can do for them, or their community. Hopefully the Society will provide this information through a variety of media.

I was most surprised to learn that the membership section of the Steering Committee accumulated 110 names of people recommended for the mailing list of our charter meeting. Apparently geologists are not as few and far between in Vermont as we think they are. Communication between these people is a prime objective of the Society. Not only who they are, but what they are doing is important. Similar studies often cover the same ground concurrently for lack of this information. I would hope that the Society will soon ask the membership to submit - not only a short statement of his or her interests, but also a bibliography of their work in Vermont geology. This information, published as part of the newsletter, should foster an exchange of ideas between members with similar interests throughout the State, whether the interests be metamorphic petrology or panning for gold.

The Vermont Geological Society has much to do in order to become the viable organization we want it to be. It will take time, and a contribution of ideas, response and work by its members to make the Society an asset to the geologists of Vermont. We will no doubt have growing pains. But I am sure the ultimate objectives of the Society will make them bearable.

Arthur L. Hodgson

President

COMING EVENTS

SPRING MEETING AT U.V.M. - APRIL 27.

The first spring meeting of the Vermont Geological Society will be held in Burlington on Saturday, April 27, 1974. Registration for the meeting will commence at 9:30 a.m. in the Perkins Geology Building on the campus of the University of Vermont. Beginning at 10 a.m., student-authored papers on various geologic topics will be presented. Members of the Society will receive titles and abstracts before the meeting. All persons with interests in Vermont geology are invited to attend.

CALL FOR STUDENT PAPERS

Students are invited to submit papers for presentation at the spring meeting of the Vermont Geological Society. The meeting will be held at the University of Vermont on Saturday, April 27. The papers may deal with any aspect of the geosciences, and need not be restricted to studies within Vermont. Individual presentations will be limited to approximately 25 minutes. Complete, double-spaced drafts of the papers must be submitted no later than April 13. Papers may be submitted to either Dr. Brewster Baldwin at Middlebury College, or Dr. Dallas Rhodes at the University of Vermont.

HARRISON SCHMITT HERE APRIL 6TH.

Dr. Harrison H. "Jack" Schmitt, geologist and crew member of the Apollo 17 mission to the moon will be the guest speaker at the Pavilion Auditorium in Montpelier on Saturday, April 6, at 7:30 P.M. His appearance is being sponsored by the Vermont Geological Society in cooperation with the Vermont Agency of Environmental Conservation. There will be no charge for this presentation and it is anticipated that Dr. Schmitt will talk about his lunar expedition and will field questions from the audience. Come and find out the differences between the N.E.I.G.C. and a N.A.S.A. field trip. Ask the probing question, "Where did the Lunar Rover find a gas station open on Sunday?"

MEMBERSHIP REPORT

Of 110 mailed announcements concerning the February formational meeting, more than half of those written eventually responded. That is quite a good showing, and we want to take this opportunity to thank all those persons who have submitted names so far. Again, we ask for a continued effort to think of individuals who might be interested in joining the Society - just submit names and addresses to Art Hodges, Box 628, Montpelier, Vermont 05602.

This will be the last mailing to the entire list of names on the original mailing list. If no response is received from those who have not done so to date, their names will be dropped from future correspondence.

REQUEST FOR COMMITTEE MEMBERS

Those of you who attended the charter meeting of the Vermont Geological Society on Saturday, February 23, know we were fortunate in that the attendance response was excellent. Now that we are a viable organization, we must forge ahead with active participation by as many members as possible to insure a long healthy existence.

To this end, we have established five committees to accomplish most of the groundwork for all future growth and activities coordination. To date, response to the President's call for committee members has been rather slow. For this reason we are urging members to submit their names for inclusion on the committee(s) which most interests them. The committees as they now stand are: Communications , Meetings, Membership, Nominations, and Professionalism.

Each committee will need a minimum of four members- if you want to assist the VGS, please respond to this plea. The deadline for submission of names is April 27, 1974. Please make every effort to respond favorably.

?? SUGGESTIONS FOR VGS NEWSLETTER??

This first issue of the VGS newsletter may not contain all our readership would like to see in future issues- we would be pleased to accept any suggestions and/or contributions you would care to send along. Hopefully, we will have acommunications committee to put out the next and all subsequent issues and to them will go all materials received from you, our membership.

Please do not hesitate to send along any item which you feel will be of interest to other members of the Society. Also, if you feel so inclined, you may wish to go a step further and become a member of the newsletter (communications) committee.

The outline map of Vermont in our title block will eventually serve as more than a reminder of the stomping grounds for the Green Mountain Geologist. Future issuses of the newsletter will carry articles by the membership on the various aspects of the geology of Vermont. The geographic area covered by each technical article in the newsletter, unless statewide, will be indicated on the title block map. Hopefully this will be helpful in locating a particular article in a back issue. ALH

REPORT ON CHARTER MEETING

On Saturday, February 23, 1974 a total of twenty-eight geologists from throughout the State met at the Tavern Motor Inn in Montpelier. About 1:40 P.M. the proceedings commenced. Arthur L. Hodges, Jr. was selected moderator. Art explained both the purpose of the meeting that day and reviewed the purpose for forming the Vermont Geological Society.

Principle among the goals was the establishment of lines of communication among geologists in the State. In addition the need to encourage research, provide information to the public, hold meetings where papers could be given and business discussed was also outlined. Finally the need to promote correct and professional use of geologic data in affairs dealing with the public health, safety, and welfare was mentioned by Mr. Hodges.

Mr. Hodges also outlined the steps which had proceeded the present meeting, commencing with a number of informal discussion sessions in the fall, followed by the mailing of a preliminary set of bylaws to 14 geologists throughout the State. This was followed by many communications with these and other geologists. A meeting was held in Burlington following which a meeting was held at which three working committees - bylaws, membership, charter meeting - were established to provide the necessary imput for this meeting today. A list of 120 names and addresses of geologists was set up for the first formal mailing.

Mr. Hodges then called for committee reports. The membership committee headed by Monty Fischer reported on the initial mailing and the excellent response.

The obvious success of this meeting was taken as the report of the efforts of the meetings committee headed by David Butterfield.

Then the meeting moved on to the adoption of the constitution and bylaws when Mr. Hodges called on the bylaws committee. Chairman Fred Larson then turned the formal line by line reading over to committee member Jim Ashley. After careful modification and correction, the constitution and then the bylaws were adopted by voice vote with no decenters. The Vermont Geological Society had been formed. Principle areas of revision and discussion included: society purposes, membership, voting and nominating proceedures and other related items.

Election for officers and board of director of the Society then followed. Mr. Hodges was elected president. Dr. Dallas Rhodes became vice president followed by James Ashley as secretary, and John Malter as treasurer. Elected as a director for two terms was Dr. Brewster Baldwin. David Tarbox and Carolyn Merry became directors for one term each. All officers and directors will serve until the annual meeting in October, except Dr. Baldwin who will serve until the following October.

Next the Society directed the officers and board of directors to form a non-profit corporation.

As the final order of business for the day, the five committees recommended for establishment were approved. They were: Communications, Meetings, Membership, Nominations, and Professionalism. Because of the late hour, formal committee sign-ups were not taken, and everyone was asked to send a note to the temporary address of the Society (Box 628, Montpelier) indicating the committees on which they would like to serve.

The chartering meeting of the Vermont Geological Society adjourned about 5:30 P.M.

Those attending the chartering meeting included:

David Butterfield, Montpelier
Monty Fischer, Montpelier
Frederick Larson, Norwich Univ.
Arthur Hodges, Montpelier
James Ashley, W. Danville
Malcolm Heyburn, Barre
David Tarbox, Warren
Steve Handly, Castleton State College
Andy Raiford, Castleton State College
Stan Corneille, Randolph
Dallas Rhodes, U.V.M.
Barry Doolan, U.V.M.
Dave Stoner, U.V.M.
Charles Howe, U.V.M.
Arlen Bloodworth, Castleton State College
Jack Drake, U.V.M.
John Malter, Montpelier
Carolyn Merry, Lebanon
William Siok, Milton
Franklyn Paris, Charlotte
Brewster Baldwin, Middlebury College
Frank Lanza, Montpelier
Philip Wagner, Burlington
Charles Ratte, Brattleboro
Timothy Acomb, U.V.M.
Richard Gillespie, Essex Junction
Jamie Hall, Randolph
Eric Allinson, Montpelier

ENG. GEOLOGISTS DISCUSS REGISTRATION

The New England Section of the Association of Engineering Geologists held its March 7th meeting in Boston, Mass. The subject of the meeting was registration of geologists and its potential in the New England States. About 40 people attended, and two talks were presented.

The first talk was given by Robert Doyle of the Maine Geological Survey. Doyle reviewed the requirements for Certification as passed by the Maine Legislature in October 1973.

Bill Cutcliffe of Dunn Geoscience, N. Y. and the A.E.G. Legislative Committee then gave a talk explaining the development of the legislation presently before the New York State legislature, to register geologists in that state.

Maine certifies both geologists and soil scientists. The legislative act does not set any firm specifications for certification; rather, an applicant is reviewed by a board. He is given an oral examination and his experience is noted. In addition, and very importantly, the opinions of his peers are sought and weighted.

In Maine, a noncertified individual is still allowed to practice geology, provided the results of his work does not appear in the public record. For that, he must be certified.

Doyle explained that the purpose for the Maine bill is to gain respect for the profession and to assure the public that only qualified people become certified geologists. He further pointed out that it has been the geologists own fault that much of the work that should rightfully be theirs has fallen to the soil scientists and engineers. Geologists have remained too aloof and independent. The bill attempts to define the responsibilities of the geologist as distinguished from the soil scientist and engineer.

In his talk, Bill Cutcliffe explained that the proposed New York State bill calls for actual registration. It would exclude anyone from practicing geology in the state who is not registered. The New York bill would require an applicant to have a certain amount of formal education and/or practical experience and to pass an examination. (Jim Ashley has the full text of the proposed New York bill).

During the discussion that followed the talks, the major points raised were:

1) Is certification alone, as in Maine, sufficient control over the profession? Some felt that it was merely a "stamp of approval" and that what was needed was an actual registration law, like New York, whereby anyone not registered would not be allowed to practice geology professionally.

2) Should federal and state employees be allowed to practice geology without registration? From discussion of this subject came the felling that perhaps some soil scientists working for the U.S. Department of Agriculture were evaluating ground conditions beyond their sphere of expertise. The need for clarification and definition of the differing function of the soil scientists and geologists became clear. Similarly, there was almost unanimous agreement that distinquishment by law should be made between the fields of engineering and geology.

Other topics discussed included the need to work in conjunction with the engineers, soil scientists, and the academic community. Both speakers said they received little assistance from the AIPG, although Cutcliffe said the AIPG legislative counsel was helpful.

Bill Cutcliffe illustrated his talk with what he called the "Land Pie". Included in this "Land Pie" were: Registered Engineers, Registered Geologists, Registered Architects, Registered Surveyors, Registered Landscape Architects, and finally, Foresters, who are becoming registered.

Using his figure and including Registered Soil Scientists within it, the conclusion reached at the meeting seemed to be that all disciplines should have required registration, and that their functions should be clearly defined. Only in this way would the public's health and welfare in the physical world be protected.

It was also noted that anyone wishing to get in under the grandfather clause in Maine should write to: State Board of Certification for Geologists and Soil Scientists; State House; Augusta, Me. 04330. Letters requesting certification must be in prior to April 30, 1974.

Report by David Tarbox

TREASURER'S REPORT

At a time when inflation is on everyones mind, I feel compelled as your Treasurer to add my two cents on the subject. We need your dues, in order to inflate our very meager bank account. We currently have 16 very happy paid members.

In order to be considered a Charter Member, we must have your $ by the April meeting. Also if we don't have these dollars, we won't be able to afford our newsletter.

Remember, you probably won't be able to look an outcrop in the eye if you haven't paid your Vermont Geological Society Dues. Please make checks payable to the Vermont Geological Society, and send them c/o the Treasure, Box 628, Montpelier, Vermont 05602.

Dues

Members	$ 8.00
Associate Members	8.00
Student Members	4.00

Who says geologists aren't occasionally ahead of their time? Any geologist who has identified a mineral with the help of a ceramic plate was obviously streaking before it became fashionable!

Vermont Geological Society
P. O. Box 628
Montpelier, Vermont 05602

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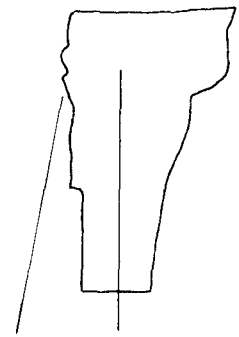

QUARTERLY NEWSLETTER OF THE VERMONT GEOLOGICAL SOCIETY

SUMMER 1974 Volume 1 Number 2

JEFFREY LIMOGE reports on *Lonchodomas chazyensis*

SUMMER FIELD TRIP - - - - TO STOWE - - - - AUGUST 24 - - C O M E !

Phil Wagner has agreed to lead a field trip to the Miller Brook Cirque on Saturday, August 24th. (Rain date August 25th). We will meet at the Lake Mansfield Trout Club at 10:00 A. M. Bring picnic lunches to carry up the hill. Please "car pool" where possible to help save our environment.

Please remember that we will be guests of the Lake Mansfield Trout Club. Do not leave anything behind except a "Thank You" to our hosts.

The summer meeting and a chicken barbeque will follow starting at 6 P. M. at Art Hodges' Poor Farm located on Minister Brook Road in Worcester, Vermont. (Those feeling energetic can take the hiking short-cut over Mount Hunger). The barbeque will be $ 2.00 per head and will include all the fixings and beer.

If you can come - please let us know at Box 304, Montpelier and we will send you maps and other information. The events are open to non-members too.

SPRING MEETING WELL ATTENDED

Nearly fifty people turned out in late April for the Vermont Geological Society's first regular meeting, held at the University of Vermont. Featured is this all day program was the presentation of 15 student authored papers by graduate and undergraduate students at both Middlebury College and the University of Vermont. Everyone was impressed by the reports.

Complete abstracts were prepared of all these papers and were printed up by the Society. If you did not receive a copy and would like one, please let us know. A limited supply remains.

COMING EVENTS

We regret the delay in getting this newletter out to you, but let us now note some of the up-coming events. The Annual Meeting of the Society - the first - will be coming up in October. We would like to know your thoughts about a time and place for this meeting and any thoughts you may have about items to be contained in the meeting. This will be the time to conduct the primary business of the Society for the new fiscal year - election of officers and establishment of full working committees.

Another issue of the Green Mountain Geologist will go to press and we need articles about the geology of this state. Also membership lists, a questionaire and other items will be in the mail to you shortly.

TREASURER' S REPORT

The Society presently has $216.89 on hand with which to finish this fiscal year which will include publication of two newsletters, and other information to the members, expenses for both the summer and annual meetings and printing of special items such as the Constitution and Bylaws. The following is a break-down of the current books:

INCOME			
Total membership	57		
Full and Associate members	52 @ $ 8.00	$ 416.00	
Student Members	5 @ $ 4.00	20.00	
		436.00	
Donation		5.00	
Total Income		441.00	
EXPENSES			
Formational Meeting			$ 33.25
Office supplies, postage, incorporation fee			62.25
Newsletters and membership certificates			82.29
Schmitt Meeting			44.32
Total Expenses			224.11
BALANCE		$216.89	

Please remember your 1974-75 dues are due by September 1st.

HARRISON SCHMITT TALK WELL ATTENDED

As one of its first acts as an organization, the Vermont Geological Society co-sponsored with the Agency of Environmental Conservation a talk by Dr. Harrison H. "Jack" Schmitt, geologist and crew member of the Apollo 17 mission to the moon. Even though many other events were occurring in the capital area, the State's Pavilion Auditorium was packed to overflowing. Reports on Dr. Schmitt's talk were carried in most of Vermont's daily and weekly newspapers in addition to an interview on WCAX television.

The Society hopes to sponsor similar events in the future in order to enlighten ourselves and the public as to the geology of our state and the world and universe and its place in our eco-system.

NOMINATING COMMITTEE FORMED

The Executive Committee of the Society has selected Chuck Ratte' to head a nominations committee to develop a slate of officers and standing committee chairmen for the coming year. This committee will be reporting

its recommendations to the summer meeting of the Society to be held in a few weeks.

Recommendations would be greatly appreciated by the Nominating Committee and can be directed to Dr. Charles Ratte', 25 New England Drive, Brattleboro, Vermont 05301.

STATE AUTHORIZATION FOR GEOLOGISTS TO EVALUATE SOILS FOR ONE LOT SUBDIVISIONS

Our president, Art Hodges, has been in contact with Benson Sargent, Environmental Control Engineer (Technical Review Section, Division of Environmental Engineering of the Agency of Environmental Conservation), and has learned that qualified individuals, including geologists, can receive authorization to conduct soil evaluations for one lot subdivisions.

Based upon education and experience, any geologist may be authorized to perform percolation tests, soil excavations and other soil tests in connection with one lot subdivision applications. Any interested individual who desires more detailed information can receive it and an application for authorization by writing to Benson Sargent, State Office Building, Montpelier, Vermont 05602.

SECOND ISSUE OF GREEN MOUNTAIN GEOLOGIST

Well, another summer is just about over, and we've finally managed to get out our second issue of the Vermont Geological Society's newsletter in spite of the busy schedule we've all been involved in this summer.

The Communications Committee would simply remind all members of the VGS that this publication is a means of conveyance for all members for bits of news and articles of geologic interest. In order to insure a worthwhile newsletter, we would like to solicite material from our membership for future editions.

We welcome abstracts of theses, research, or other work. Also, articles of local geologic interest or any material you feel will be of interest to the membership. Any submissions need not necessarily be original work, providing proper credits are given.

The general requirements for the submission of articles are that they be typed (preferably elite type), single spaced, wide margins and a maximum of two typewritten pages (excluding diagrams and charts). All material should be submitted as camera-ready copy to the Communications Committee, % William J. Siok, Vermont Geologic Society, Box 8, Montpelier, Vermont 05602.

Please make every effort to assist us in producing an informative, interesting and useful publication. Thank you.

VERMONT GEOLOGICAL SURVEY

Mapping in the Geological Survey's statewide environmental geologic mapping project is being carried on in southern Vermont during the 1974 summer field season. The field parties are active in eight quadrangle areas north of the Massachusetts border.

Mapping priority in the project is given to areas of greatest population density. In this connection, quadrangle areas in the Capital District and in northwestern and west-central Vermont have been issued, and the manuscripts of two reports on northern and northwestern Vermont are in press.

An appreciable amount of data used in the preparation of these reports was furnished by the Department of Water Resources and the Geological Division of the Department of Highways.

C. G. Doll
State Geologist

Ed. Note: These publications may be obtained at the Vermont State Library in Montpelier, Vermont. A complete list of publications and prices is available also.

JEFF LIMOGE SUBMITS FIRST PAPER

Jeffrey Limoge, a June graduate of the University of Vermont has submitted the first paper for publication in the Green Mountain Geologist. His paper starts on the next page. The staff delayed publication slightly in order to permit its inclusion.

CAN YOU SERVE ON A STANDING COMMITTEE ? ? ?

As the Vermont Geological Society prepares to move into its second year it is very important that we fully staff all of the standing committees. If you would like to participate and help make a stronger Society,please let Art Hodges know (V.G.S., Box 304, Montpelier). The present committees are: Membership, Communications, Professionalism and Meetings.

ERRATICS

This column, devoted to the lighter (?) side of geology, takes its first plunge with an offering by J. Rock. The gauntlet is thrown!

IN THE BEGINNING

Geology, whats that?
The engineers all sneer
What good is earth science
That's our job to make clear
So we've formed our new alliance
And we'll make an impact yes
Otherwise, why be a member o the V.G.S.

J. Rock

GROWTH AND VARIATION OF THE TRINUCLEID TRILOBITE *Lonchodomas chazyensis*

Jeffrey L. Limoge 1974 Honors Research Project University of Vermont

ABSTRACT

Meraspid and holaspid growth stages have been determined for the Middle Ordovician trilobite *Lonchodomas chazyensis* Lengths and widths of 191 cephala and 111 pygidia were plotted logarithmically to define instar groupings. Seven instars have been defined by quantitative measurements. The growth increments increase geometrically, however the rate of increase is not constant. One thoracic segment is added at each molt through the last (5th) instar of the merapid stage. An undetermined number of molts occurred throughout the holaspid stage.

INTRODUCTION

The few studies that have been done on the ontogeny of trilobites have been mainly concerned with the changes in morphology. This study is primarily one on the quantitative aspects of trilogite development. The aspects of growth and instar development of the trilobite *Lonchodomas chazyensis* are the primary concerns of this report.

Frederick C. Shaw in 1968 published a memoir on the Early Middle Ordovician Chazy Trilobites of New York. In preparing for this, he collected 38 different genera of trilobites from the Day Point, Crown Point and Valcour Formations of Valcour Island in Lake Champlain. The results of acid etching techniques found these trilobites to be in excellent silicified condition. Hunt (1967) studied the quantitative aspects of growth and development of several Ordovician trilobites. It was therefore hoped that quantitative growth studies could be done on some of the silicified trilobites from Valcour Island.

THE LITHOLOGY AND REASONS FOR SILICEOUS PRESERVATION

On Valcour Island, the 3 formations of the Chazy Stage are present. These are the lower Day Point, the middle Crown Point and the upper Valcour Formations. The trilobite *Lonchodomas chazyensis*, studied here, came from rocks of the upper Day Point formation - the Fleury Member, where occurrence of this trilobite was fairly common. The lithology of the Fleury Member at the collecting site is a series of thick-bedded, alternating calcarenites and silty limestones. Here the collecting site is approximately 81 feet above the bottom of the Day Point Formation. The DP-81 designation of the fossils in this report corresponds to the PB-81 designation for the collecting site in Shaw's report.

Silicification is restricted to certain taxa, among them are the trilobites, ostracods, bryozoa and some of the crinoids. Whittington and Evitt (1954) stated that this type of silicification is the result of direct replacement of the trilobite exoskeletal material. Shaw (1968) noted that the Chazy material from Valcour Island exhibits an identical mode of preservation. Unknowns about this type of preservation are as follows; (1) the time that silicification occurred, (2) the conditions under which silicification took place and (3) the reason as to why silicification is restricted to certain taxa in certain localities.

LABORATORY PROCEDURES

The rock samples ranged from those about 1½ feet long to a slab approximately 3½ feet long. The laboratory procedure consisted of removing the silicified specimens from the limestone matrix by acid etching

techniques. Measurements of the lengths and widths of the cephala and pygidia were done on a movable micrometer stage. Disarticulated parts were very common while whole specimens were rare.

Measurements of the length and width of the cephala were taken from the underside. The cephalic length measurement for *Lonchodomas chazyensis* was taken from the inside of the posterior margin of the doublure to the anterior margin. The width of the cephalon was defined as the maximum distance between the fixed cheeks. The length of the pygidium was measured from the anterior inside margin of the doublure to the posterior portion of the axial lobe. The width of the pygidium was defined as its maximum width.

INSTAR RECOGNITION

According to Palmer (1958) most non-olenellid and non-agnostid trilobites seem to have 3 distinct periods of development. The first is the Protaspid stage when a single shield is covering the dorsal side of the larvae. The Meraspid stage occurs when the dorsal covering of the immature trilobite is composed of a cephalon, transitory pygidium and a number of free thoracic segments from none to one less than the adult number. The third period of development is the Holaspid stage where the dorsal covering of the trilobite is made up of a cephalon, pygidium and the full adult number of free thoracic segments

An instar is defined as the individual that exists between successive moltings. In order to study the growth and development of *Lonchodomas chazyensis*, it was important to be able to define the instars. Instars cannot be recognized from morphological differences as morphological changes do not occur between all instars.

If the growth between successive instars is great enough between molts, and the variability of instars is low, then measurements of individuals of the same instar will form groupings on a logarithmic scatter diagram. For the trilobite *Lonchodomas chazyensis*, 7 and possibly 8 instars have been defined. A number of whole, enrolled specimens of Degrees 0,1,2,3, and 4 were recovered which allowed comparison of whole specimens with disarticulated parts in order to determine to which degree the disarticulated parts belong.

The Meraspid stage is divided into numbered degrees with the number of the degree corresponding to the total number of free thoracic segments present each instar. The adult *Lonchodomas chazyensis*, has 5 free thoracic segments. Counting from Degree 0, as shown in the lower left hand corner of figure 1a, to Degree 4, the fifth group encompasses the whole Meraspid stage of this trilobite. The next grouping and all larger instars belong to the Holaspid stage. These specimens all come from a number of small slabs. The instar groupings of the cephala from specimens of the slab, (figure 1b), begin to converge as the trilobite approached the adult form. The instars of the late Meraspid stage and early Holaspid stage were not as well defined as those of DP-81-A (figure 1a). As shown in the scatter diagram for the pygidia of DP-81-A (figure 2a), the pygidial groupings converge. The sudden vertical jump of the instar groupings, as seen in the lower left corner, are due to the increase in length relative to width of the pygidia. Hunt (1965), observed a similar trend in the trinucleid trilobite *Cryptolithus tessalatus*. The scatter diagram for the pygidia from the slab (figure 2b) also exhibits the initial jump from the first and second instar groupings to the rest of the linear instar groups.

GROWTH ASPECTS

Dyar's Law, according to Palmer (1957), states, "That the linear

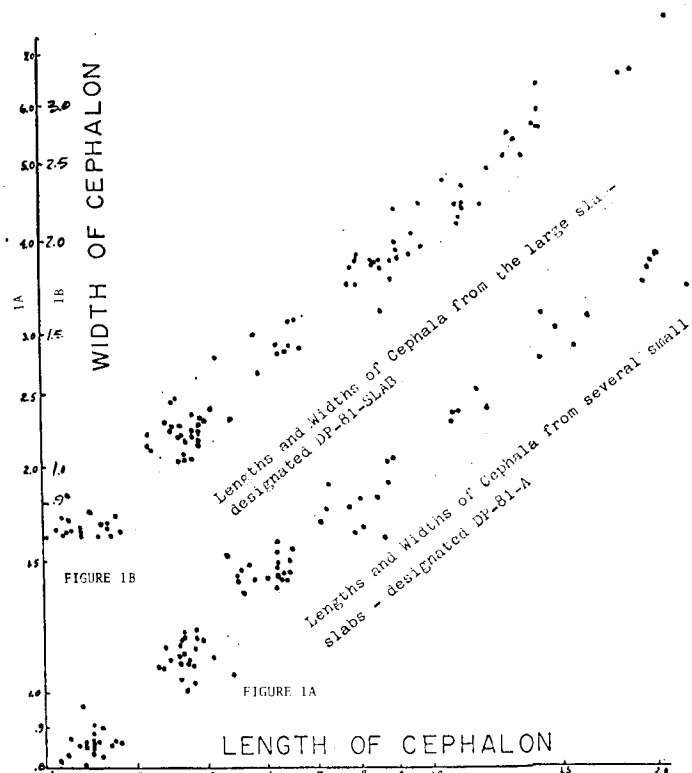

FIGURE 1B

FIGURE 1A

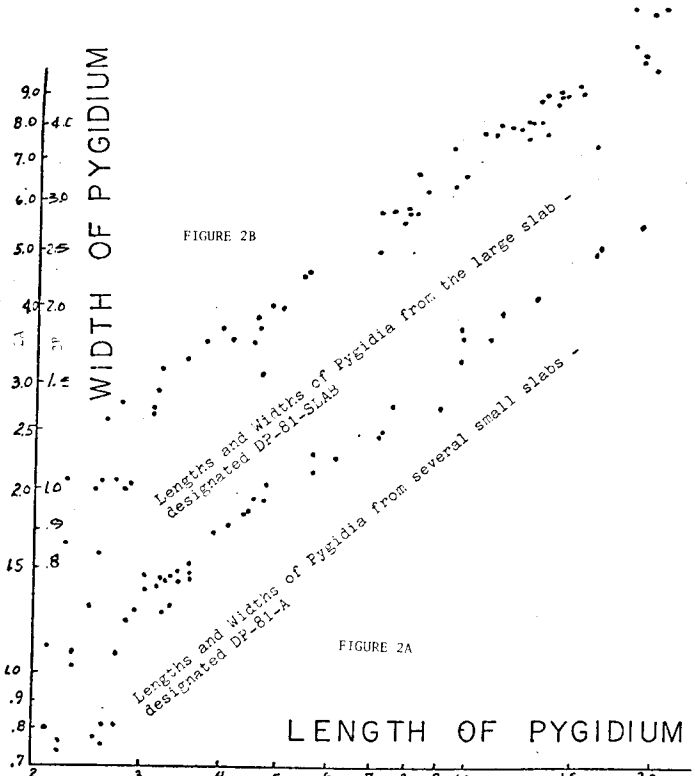

FIGURE 2B

FIGURE 2A

dimensions of successive arthropod instars increase at a constant geometric rate." This law is not valid for all arthropods. Based upon Dyar's Law, the average geometric growth increment should be cube root of 2.00 or approximately 1.28. Hunt (1967) showed that the trilobite *Trinodus elspethi*, very nearly did conform to Dyar's Law in that growth increments ranged from 1.21 to 1.25. *Lonchodomas chazyensis*, as shown here however, only roughly approximates Dyar's Law as the growth increment for this trilobite ranges from 1.27 to 1.45. The average increment of 1.34 is somewhat higher than that predicted for Dyar's Law.

INSTAR DEVELOPMENT

Five instars have been identified within the Meraspid stage of *Lonchodomas chazyensis*. A free thoracic segment was added at each molt. Use figure 1a for the next part of the discussion. The first grouping, found in the lower left hand corner, is the grouping for a Degree 0 *Lonchodomas chazyensis*. No free thoracic segments were added at this molt. The general shape of the cephalon does not change from Degree 0 through the second instar of the Holaspid stage. The pygidium of Degree 0 is a single shield. In the next four groups on the scatter diagram, a free thoracic segment is added at each molt. Degree 1, the second group from the left, has a pygidium that is composed of fused segments instead of a single shield. From this instar and all larger, the pygidium changes very little morphologically.

CONCLUSION

In conclusion, this study has demonstrated that the trilobite *lonchodomas chazyensis*, has 5 instars in its Meraspid stage. A single free thoracic segment was added after Degree 0 at each instar throughout this stage. Growth was shown to be not at a constant geometric rate, demonstrating that this trilogite only roughly approximates, but did not rigidly conform to Dyar's Law.

REFERENCES

Hunt, A. S., 1965, Trilobite Growth, Variation and Instar Development: Doctoral Thesis, Harvard University, 233 pages.

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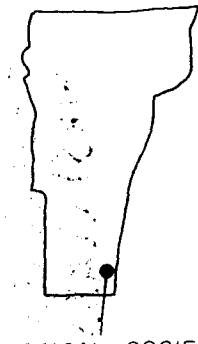
THE

GREEN MOUNTAIN GEOLOGIST



QUARTERLY NEWSLETTER OF THE VERMONT GEOLOGICAL SOCIETY

FALL 1974 *Volume 1 Number 3*

FIRST ANNUAL MEETING SET FOR BRATTLEBORO ON OCTOBER 26TH.

Host for the first annual meeting of the Vermont Geological Society will be Windham College at Putney, Vermont. In addition to the dinner and annual meeting starting at 7:00 P.M., two field trips have also been planned. One will study the Stratigraphy and Structure of the Guilford Dome, while the other will focus on Natural Resources Mapping and Land Planning. Both will start at 10:00 A.M.

For further information contact Dr. Charles A. Rattè, Department of Geology, Windham College, Putney, Vermont 05346. Registration requested by October 18th. Please note: There will be NO registration FEE for members, and the non-member registration fee will be $1.00 instead of $2.00.

NOMINATING COMMITTEE REPORT

The nominating committee (Charles Rattè, chairman; Malcolm Heyburn and Monty Fischer, members) made the following report at the summer meeting of persons selected to serve in the following capacities for the year October 1974 to October 1975.

OFFICERS

President: ..... Dallas Rhodes, U. V. M.
Vice President: ..... John Malter, W. R.
Secretary: ..... Carolyn Merry, CRRL
Treasurer: ..... Charles Fox, Vt. Highway Dept.

STANDING COMMITTEES

Communications Chairman: ..... James Ashley, W.R.
Membership Chairman: ..... Jack Drake, U. V. M.
Meetings Chairman: ..... Andy Raiford, Castleton
Professionalism Chairman: ..... Franklyn Paris, W.R.

FOR BOARD OF DIRECTORS

(vote for one for 2 yr. term)

David Tarbox	private consultant (by Nominations Committee)
Charles A. Rattè	Windham College (nomited at summer meeting)

MEMBERSHIP DIRECTORY

The following have been approved by the Executive Committee of the Vermont Geological Society as of September 5, 1974 in one of the three membership catagories.

MEMBERS:

Anderson, Vernon H.	R.F.D.	Thetford Center, Vt.	05075
Ashley, James W.	R.F.D.	W. Danville, Vermont	05873
Bailey, Donald	67 Delmont Ave.	Barre, Vermont	05641
Baldwin, Brewster	Science Center - Geology		
	Middlebury College	Middlebury, Vermont	05753
Barton, Thelma	23 Parkhurst Street	Lebanon, N. H.	03766
Burcke, David P.	201 Perkins		
	University of Vt.	Burlington, Vermont	05401
Butterfield, David	P.O. Box 765	Montpelier, Vermont	05602
Corneille, Jr., Stanley E.	4 Terrace St.	Randolph, Vermont	05060
Creasy, John	Department of Geology		
	Middlebury College	Middlebury, Vermont	05753
Cutcliffe, William E.	3 Tamarack Lane	Elnora, New York	12065
Detenbeck, Jeanne C.	R.F.D. 1 Box 210	Shelburne, Vermont	05482
Drake, John C.	Department of Geology		
	University of Vt.	Burlington, Vermont	05401
Ebbett, Ballard	R.F.D. 1	Lyndonville, Vermont	05851
Ebbett, Sandria	R.F.D. 1	Lyndonville, Vermont	05851
Finks, Robert M.	Department of Earth and Environmental Sciences		
	Queens College	Flushing, New York	11367
Fischer, Richard Montgomery	25 Liberty St.	Montpelier, Vermont	05602
Fox, James Charles	6 Eastern Ave.,Box 64,	Barre, Vermont	05641
Gillespie, Richard	8 Prospect Street	Essex Jct., Vermont	05452
Hall, James Greevey	R.D. 2	Randolph, Vermont	05060
Heyburn, Malcolm	Barre View St. RD 2	Barre, Vermont	05641
Hodges, Arthur L., Jr.	Minister Brook Road	Worcester, Vermont	05682
Howe, Charles C.	357 Waterman Building		
	University of Vt.	Burlington, Vermont	05401
Kolar, Brian W.	R.F.D. 2	Lebanon, Conn.	06249
Lanza, Frank J.	38 Terrace Street	Montpelier, Vermont	05602
Larsen, Frederick D.	Norwich University	Northfield, Vermont	05663
Malter, John	23 Hubbard Street	Montpelier, Vermont	05602
Merry, Carolyn J.	190 Hanover Street	Lebanon, N. H.	03766
Ogden, Duncan G.	Vermont Talc, Inc.		
	Box 117	Chester, Vermont	05143
Paris, Franklyn D.	Mutton Hill	Charlotte, Vermont	05445
Pieratti, Denise	Department of Geology		
	University of Vt.	Burlington, Vermont	05401
Ratté, Charles A.	25 New England Dr.	Brattleboro, Vermont	05301
Rhodes, Dallas D.	300 Perkins Hall		
	University of Vt.	Burlington, Vermont	05401
Rouleau, Kathleen	101 West Street	Essex Jct., Vermont	05452
Siok, William J.		Middlesex, Vermont	
Skehan S.J., Rev. James W.	Weston Observatory	Weston, Mass.	02193
Stanley, Rolfe	Dept. Geology		
	University of Vt.	Burlington, Vermont	05401
Tarbox, David L.	P.O. Box 435	Bristol, Vermont	05443
Wagner, Philip	48 Henderson Terrace	Burlington, Vermont	05401

ASSOCIATE MEMBERS:

Manning, Winona		Williamstown, Vermont 05679
Nye, J. Richard	Route 4	Montpelier, Vermont 05602

STUDENT MEMBERS:

Acomb, Timothy James	Apt. C. 61 Elmwood Avenue	Burlington, Vermont 05401
McHone, James Gregory	#470 Northwood Apts.	Burlington, Vermont 05401
Thompson, Peter	8 Court Street	Montpelier, Vermont 05602

NOTICE: In addition to the above membership list, a number of persons have sent in dues checks, but have not returned the membership application for action by the Executive Committee. In a few case we failed to get the forms out to some persons. Therefore, a copy of the membership form is being enclosed with this issue of the Green Mountain Geologist. If you have already filed your form, pass this one on to a fellow geologist. Only the outline information requested on the form is needed. No addendum need be attached.

TREASURER TAKEN AT HIS WORD

In the recent dues notice from the treasurer of the Society, John Malter, a request was made for each member to "$END YOUR CHECK, MONEY ORDER OR EQUIVALENT AMOUNT OF PRECIOU$ GEM$" in payment of this year's dues. One member did forward several gems. John is now having them evaluated, and has decided he would really rather have payments in just check or money order.

If we did not get the notice to you, or you overlooked it, DUES FOR THE 1975 FISCAL YEAR ARE NOW DUE!! $8.00 for members and associates and $4.00 for student members. Please send to:

John Malter, Treasurer
Vermont Geological Society
Box 304
Montpelier, Vermont 05602

GREEN MOUNTAIN GEOLOGIST ? ? ?

This is the third issue of the Vermont Geological Society's newsletter to be published under the name GREEN MOUNTAIN GEOLOGIST. The communications committee of the Society would like to know both what you would like to see in the Society's newsletter and whether you like the present name or would like a different name. It is the committees hope to put out a quarterly newsletter of 12 to 16 pages including papers on Vermont Geology and information and maps on field sites of interest. These could range from the location of three tills to panning sites for GOLD!! We would like your opinions and articles. Please write.

SUMMER MEETING AND FIELD TRIP REPORT

Ten members and guests joined trip leader Philip Wagner on a field trip into Miller Brook Cirque. Phil reports everyone had a good time. Following the field trip, many members gathered at Art Hodges for a picnic and short meeting. Up to twenty persons could be counted around the beer keg at one time.

The offering of Chuck Ratté and Windham College to host the first annual meeting of the Society was accepted, as was the report of the nominating committee (see their report under the annual meeting announcement).

SPRING COURSES AT UNIVERSITY OF VERMONT ANNOUNCED

The following courses have been announced by the Geology Department of the University of Vermont to be offered during the spring term. Times and rooms have yet been established. Those interested in any of the listed courses should contact the Geology Department in Perkins Hall on the UVM campus.

Geology 166 Structural Geology (Stanley)
Geology 245 New England Geology (Stanley)
Geology 110 Extraterrestrial Geology (Drake)
Geology 156 Igneous and Metamorphic Petrology (Drake & Doolan)
Geology 145 Optical Mineralogy (Doolan)
Geology 42 Geological Oceanography (Doolan & Hunt)
Geology 278 Advanced Sedimentary Petrology (Hunt, Drake & Rhodes)
Geology 291 Advanced Seminar in Geomorphology (Rhodes)
Geology 277 Stratigraphy (Bucke)

PRICES OF SURVEY BULLETINS INCREASES

A revised listing of the Vermont Geological Survey bulletins available through the Vermont State Library, Montpelier, Vermont 05602 shows the price of the familiar yellow covered Survey bulletin has been marked up from $ 2.00 to $3.00. The price of most other publications of the Survey has also increased. For a revised list of publications and prices write the Vermont State Library.

GEOLOGISTS REGISTRATION GUIDE AVAILABLE

The American Institute of Professional Geologists has recently published a tentative guide on the registration of geologists. This guide deals with many aspects of the question of registration and includes headings on such areas as: Origins of Registration, A Model Law, Politics of Registration and Leader's Responsibility to the Profession.

Members wishing to review this guide may contact the Society, Box 304, Montpelier, Vermont 05602 or Dr. Philip Wagner, 48 Henderson Terrace, Burlington, Vermont 05401.

SURVEY OF EMPLOYMENT POSSIBILITIES FOR GEOLOGISTS IN VERMONT

During the Spring and Summer of 1974 I conducted an "employment possibility" survey of those industries within the state that would most likely employ geologically trained personnel. The response has been very good with 80% of those contacted responding. It is hoped that such a survey, published in the Vermont Geological Societies "Green Mountain Geologist" will be of some help to those seeking employment, or to those industries seeking employees, especially students of geology studying in the states' colleges and universities. Comments and suggestions which might improve future surveys would be greatfully accepted.

Charles A. Ratté, Ph.D.
Windham College
Putney, Vermont 05346

SURVEY OF EMPLOYMENT POSSIBILITIES FOR GEOLOGISTS IN VERMONT (JULY 1974)

INDUSTRY, BUSINESS, ETC. *	NAME AND ADDRESS OF PERSONNEL MGR.	SUMMER JOB POSSIBILITIES	PERMANENT JOB POSSIBILITIES	LEVEL OF EDUCATION OR TRAINING PREFERRED (FOR PERMANENT JOB)	IMMEDIATE NEEDS
David Tarbox, Consulting Geologist	David Tarbox P. O. Box 135 Warren, Vermont 05674	none-anticipate possible need for specific jobs in future	none, temp. help for a specific job a possibility	-	none
DuBois & King Eng., Inc.	Route 66 Randolph, Vermont 05060 Attn. Mr. Abel	yes	none	-	none
Dufresne-Henry Eng. Corp.	John MacLeod, V. Pres. Precision Park N. Springfield, Vermont 05130	yes, usually for surveying, engineering	none	-	none
GAF Corp. (Asbestos)	W. H. Hill, Personnel Mgr. P. O. Box 70 Hyde Park, Vermont 05655	on limited basis	none	-	none

*Colleges, Universities, and other schools not included in survey

SURVEY OF EMPLOYMENT POSSIBILITIES FOR GEOLOGISTS IN VERMONT (JULY 1974)

INDUSTRY, BUSINESS, ETC.*	NAME AND ADDRESS OF PERSONNEL MGR.	SUMMER JOB POSSIBILITIES	PERMANENT JOB POSSIBILITIES	LEVEL OF EDUCATION OR TRAINING PREFERRED (FOR PERMANENT JOB)	IMMEDIATE NEEDS
Rock of Ages (dimension stone granite)	Craig White V. Pres. Industrial Relations Box 482 Barre, Vermont 05641	yes, non-tech: prof. work, guides, etc.	none	-	none
So. Vt. Engineering	Addison Minot President 19 Harris Place Brattleboro, Vermont 05301	yes, jobs normally available	full-time geol. Spring of 1975	Master's degree	none
Vt. Highway Dept.	W. S. Daye Dept. of Highways Montpelier, Vermont 05602	yes, generally but none this Summer (1974)	none at present	Bachelor's degree or higher	none
Vt. Marble Co.	C. T. Erickson Main Street Proctor, Vermont 05765	sometimes	possibly, in future	Bachelor's degree w/exp. or Master's degree (mining geol.)	none

*Colleges, Universities, and other schools not included in survey

SURVEY OF EMPLOYMENT POSSIBILITIES FOR GEOLOGISTS IN VERMONT (JULY 1974)

INDUSTRY, BUSINESS, ETC.*	NAME AND ADDRESS OF PERSONNEL MGR.	SUMMER JOB POSSIBILITIES	PERMANENT JOB POSSIBILITIES	LEVEL OF EDUCATION OR TRAINING PREFERRED (FOR PERMANENT JOB)	IMMEDIATE NEEDS
Vt. Talc, Inc.	Duncan G. Ogden Gen. Mgr. Subsidiary of Vermont Marble Co. Chester, Vermont 05143	not yet	1975 or 1976	Technician, Bachelor's degree	none
Vt. Water Resources Dept.	Wm. Smith Agency of Environ. Conservation State Office Bldg. Montpelier, Vermont 05602	yes, through agency non-professional, non-technical	none at present	-	none

*Colleges, Universities, and other schools not included in survey