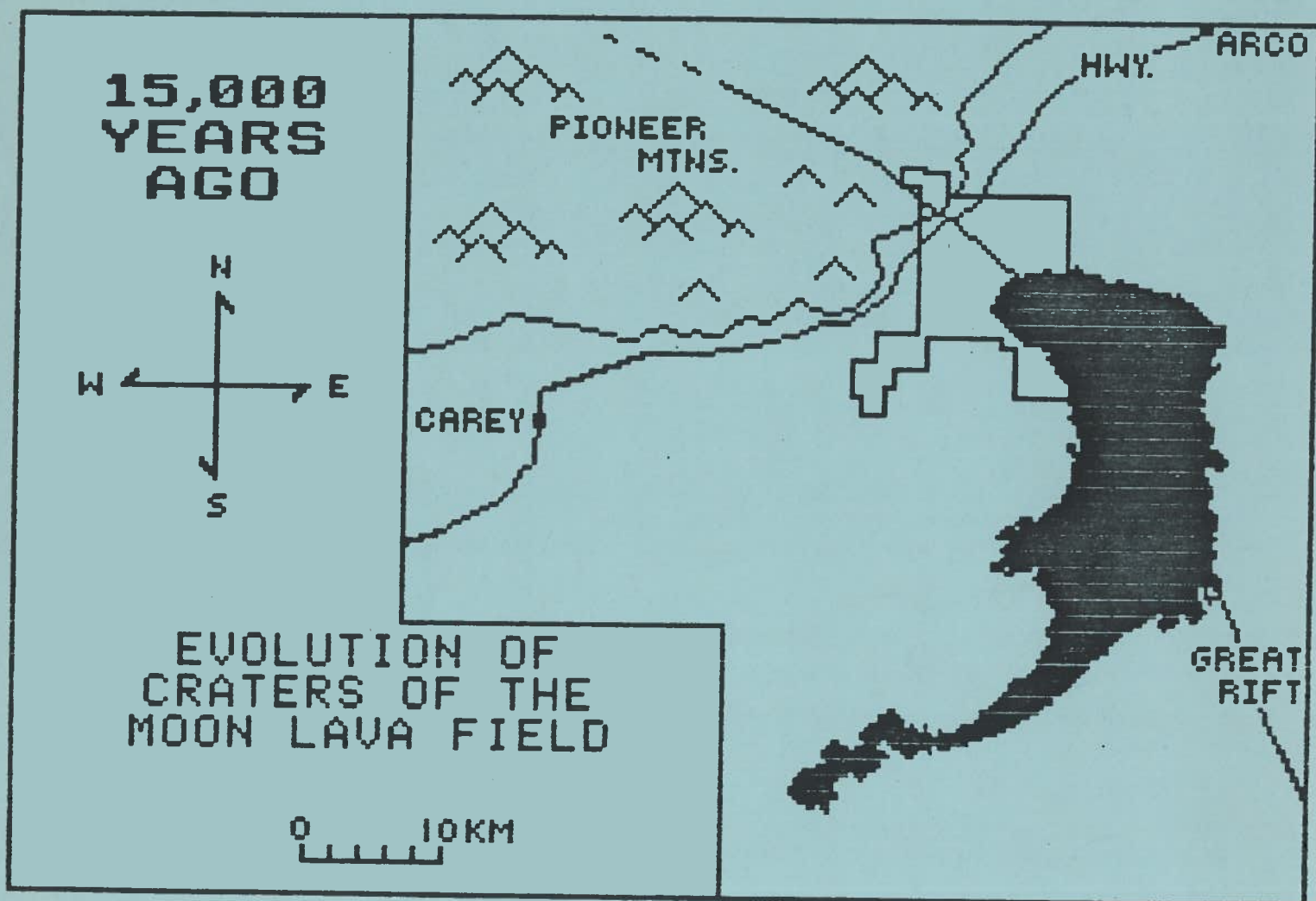


GVSC GEONEWSLETTER



VOLUME 8 - FALL, 1984

CONTENTS

Dedication	1
Editor's Greetings	2
Chairman's Message	3
Faculty News: present and past	5
Alumni News	13
NAGT Summer Field Course Scholarship Summary	25
Summer '84 Field Camps	27
Donations to the Department	28
Scholarships	28
Geology Majors, Fall, 1984	29
Christmas Party 1983	31
Geology Club News	32
Glacial Field Trip, Winter 1984	33
Spring Field Trip, 1984	34
Geology Endowment/Development Fund	35

About the Cover...

GVSC junior geology major, Ross Wagner, wrote a program this past summer which shows an animation of the evolution of the Craters of the Moon lava field from 15,000 years ago to the present. The front cover shows one end of the program while the back cover shows the other. Basing it on work Dick Lefebvre has been carrying out in Idaho for the past 10 years, Ross, with the aid of Dick Fedder, Supervisor of the Micro-computer Lab, used a software program for the Apple computer called PIXIT and incorporated it into a larger program of his own design. The program was taken to the Craters of the Moon National Monument Headquarters this past summer and subsequently sent by them to the National Park Service's Audiovisual Center at Harpers Ferry, West Virginia for consideration in a Monument Museum renovation. To date, the NPS at Harpers Ferry has expressed an interest and the program may be used in a film to be produced for the new museum.

DEDICATION

Last year's Newsletter described the Miller Mineral Collection, a unique gift to the GVSC Department of Geology. Mr. and Mrs. Paul Miller of Big Star Lake, MI spent a lifetime collecting minerals from all over the world, and especially the Upper Peninsula of Michigan. They focused on the natural beauty of the specimens collected, and put together a show of colors that is both striking and instructive. The collection includes many samples from geologic localities no longer accessible to collectors, and Michigan's copper and iron regions are well represented.

Thanks again to the Millers, the collection will not be confined to the dusty, teaching bins of the Lane cabinets. Students, college community, and public can now enjoy the permanent display of the collection in three new, well-lighted cabinets provided by the Millers. The inaugural display of the collection currently has the larger specimens filling the cabinets in the lobby of Zumberge Library. Sometime in early 1985, those specimens will return to Loutit Hall to rejoin the remainder of the collection on display there.

On October 26th a reception was held in the board room of the GVSC administrative offices to officially recognize Mr. and Mrs. Miller, and accept the gift. We echo the sentiment expressed by President Arend Lubbers at that reception. The faculty and students are indebted to all of those who support higher education. A small department like ours is greatly strengthened by such private generosity. We now have for study, teaching, and enjoyment, a resource which we could never acquire through purchase --- a resource that will never be used up.

So it is that we dedicate this year's Newsletter as a thank you to the Millers, not only for the fine collection, but for the opportunity to make their acquaintance, to share in their adventure of discovering the beauty of the earth, and to share in the mutual appreciation that mineral collectors and geologists have for such beauty. We invite alumni and friends to stop by the department and participate in this feast for the eyes!

Editor's Greetings

Newsletter Number Eight has been slower than usual in the production stage, reflecting what has seemed like a busier than usual Fall Semester. The pace seems to have picked up, if that's possible, in part because we are moving into another year of self-evaluation and planning, in part because of a larger group of seniors approaching graduation, in part because of the flurry of college activity as a major curriculum revision is considered and the institution begins its Silver Anniversary, and in part because the faculty and students continue a high level of activity in and out of the classroom. The seed of an up-beat attitude is about to sprout.

Judging from the alumni responses it appears a positive turn-around is beginning to occur in the profession. The job market has picked up a little; opportunities for graduate work abound; and there's a bit more room in summer field camps than a year or two ago. A positive professional attitude shines through the responses, whether persons are employed in geology, other fields, or are in holding patterns. We appreciate your continued interest in the department and your fellow alums.

When you read the alumni news you'll be struck by the number of marriages, births, and adoptions of the past year. It's a reminder to those of us at GVSC that we have a maturing alumni family extending across the U.S., growing socially as well as professionally. We welcome new spouses and new arrivals! The time isn't far away when we may see the first sons and daughters of geolumni arriving on the GVSC campus as students.

Once again, thanks go to all the respondents, contributors, proofreaders, the volunteers who collated, stapled, labeled, and helped launch Volume 8. Special thanks go to Bette for doing the usual quick and accurate typing, and helping to oversee assembly and mailing. We hope you enjoy this year's edition.

William J. Neal
Newsletter Editor

Reminder: Your Christmas Party reservation form is enclosed with the Newsletter. We hope you'll take the time to send it in. See you at Christmas.

Perspectives of a Not-So-New Chairman

From my current vantage point, the midst of my second year as department chair, it seems personally much more difficult to clearly assess the department's status than it was just one year ago. As I began the chairmanship, I set several specific goals. Reviewing the list of departmental goals and accomplishments that I wrote for last fall's Geonewsletter, it is very clear that many specific accomplishments have indeed been achieved during the past year. I'll review those accomplishments later; however, thoughts about more intangible issues, such as the overall "health" cohesiveness, enthusiasm and significance of "departmental life" seem more dominate in my mind at this time than either specific achievements or individual challenges.

Perhaps my "departmental" perspectives at this point simply reflect my own rather intense, mid-life reassessment of the significance of one's professional and personal efforts. In any case, I have no doubt that your individual cards, notes, letters and personal visits provide the singularly most valuable contribution toward sustaining our personal and departmental sense of purpose, achievement and significance. You, as an individual person, and as a present or former GVSC geology student, are the heart of the purpose of this department. Let us hear from you! It is from you, and your successes and your failures, that we gain our real departmental (and personal) perspectives.

Now, turning rather abruptly from the "philosophical" to the "concrete", I'll list some of the year's events, acquisitions and improvements that I believe are most significant.

1. The entire geology faculty gathered at our cabin on Hamlin Lake for a 1½ day, rather intense planning session. We prioritized our mutual opinions on specific departmental strengths, weaknesses, obstacles and opportunities in order to set goals and specific objectives for the future.
2. Systematic cataloging of all departmental collections and equipment, using an IBM PC, is being continued and expanded under the able leadership of Mary Simmerer.
3. Mr. and Mrs. Paul Miller contributed \$3000 for specimen display cases, to accompany the donation of their beautiful and valuable mineral collection.
4. Many of you responded most generously to our new Geology Endowment-Development Fund as well as to the Tremba Scholarship. (A separate report on each fund is given elsewhere in this newsletter.)
5. A new IBM PC, with most desired options and software, was purchased by the college, specifically for the Geology Department, and is now housed in room 104.
6. A number of physical facility improvements were made, including new room-darkening blinds for 118, new bulletin boards for the halls, new flooring and shelves in the field equipment room, etc.
7. A new MD-9A, Soiltest seismic recorder was purchased with special "extra" equipment money, supplied by the college.
8. An x-ray fluorescence unit was donated and installed in room 110 by Canon, of Muskegon, through the efforts of Chemistry alumni, Jack DeHorn.
9. Finally, the overall department budget has been increased significantly, with a particularly large increase (100%) in the equipment category.

More items could be listed, but I'll conclude with a "progress report" by repeating last year's list of "needed items", and crossing out the ones obtained during the last year. I believe the gain in equipment illustrated by the following list is the most significant one-year improvement we have made in several years.

Examples of GVSC Geology Equipment Needs

(original list from fall '84, with fall '85 acquisitions shown by asterisks)

<u>Cost</u>	
\$1760	* Memory Scout seismic refraction recorder to accompany recently purchased MD 9A seismograph
100	Geophone cable for seismograph
29	Strike plate for seismograph
196	Hammer for seismograph
176	Geophone adapter for seismograph
971	Geophone integrater for seismograph
389	Blaster for seismograph
316	Reverse profiler for seismograph
103	Geophone set for seismograph
90	Extension cable for seismograph
1000	* Microscope video camera parts and repair
1200	X-ray diffraction parts and maintenance services
3614	* IBM PC with graphics capability and necessary accessories
3500	Bausch and Lomb digitizer and plotter for IBM PC (on order)
3000	* Specimen display cases for approximately \$50,000 worth of donated mineral collections
400	* Four bulletin boards
725	Blu-Ray map reproduction printer
450	Oil staining dispersion objective for petrographic microscope
350	Five-drawer horizontal map case
12,000	Eight Olympus petrographic microscopes
110	Philadelphia stadia rod (surveying)
150	Portable light table (drafting)
75	Two hand levels
525	Five Brunton compasses
3300	Replacement specimens for missing or worn-out map, fossil and mineral teaching sets
9000	Three plane table and alidade sets
180	Two rock saw blades
2400	Two Leitz point-counting stages for petrographic microscopes
1500	Replacement vacuum pump for rock-prep equipment lab
450	Hemisphere for universal microscope stage
300	Map drafting equipment (pens, templates, etc.)
600	Rock crusher-grinder
250	Gerber scale (drafting)

Tom Hendrix

The 1983-84 academic year was a watershed for me - 25 years in the college teaching business - 19 at Indiana and now 6 at Grand Valley. Thanks largely to the curiosity and enthusiasm of each new crop of students, the profession I chose a quarter of a century ago is still challenging and exciting. Thanks also to the students and personal and professional support of Bill, Dick and Norm, Grand Valley is still the place I want to practice my profession.

In addition to the normal course load last year (physical, historical, field methods, structure and seminar) I served the college as the chairman of the College Curriculum Committee and was appointed the GVSC faculty representative to the Great Lakes Intercollegiate Athletic Conference. I also continued my work as Executive Secretary of the NAGT-USGS Cooperative Summer Field Training Program, ran the NAGT Summer Field Course Clearinghouse Service and directed the University of Oklahoma summer field course in geology at Canon City, Colorado. This didn't leave much time for leisure activities, but in late December and early January Nina and I managed to spend 17 fascinating days in Senegal, Africa visiting our son Mike who is a Peace Corps volunteer there. Included in this trip was an overnight stay in Mike's village - no electricity, no running water, no sanitary facilities, no store-bought food or clothes or anything else - but very friendly, giving people; three days in Dakar where I got Kunta Kinte's revenge, and two afternoons on a beautiful (and topless!) beach in the Casamance province at the southern edge of the country. Take away the humidity and most of the vegetation, convert all of the natives to the Moslem faith, make them speak an (to me) unintelligible dialect (Wolof) and you would be in the Alabama or Mississippi coastal plain - flat, sandy country underlain by eastward-dipping sediments of Early Tertiary age with some phosphate deposits and a promise of oil or gas but no salt domes. It is a poor country that doesn't stand much of a chance of improvement unless they can find large quantities of fresh surface or ground water to irrigate the land, or significant offshore oil and gas reserves as in Nigeria. Fortunately, it's a well governed country by African standards, (we were invited to give bribes only twice and then for very small amounts) but I came away not very optimistic about the chances of third world countries such as Senegal to "catch up".

This fall it has been back to the old routine. The "free" mornings or afternoons all have gotten taken up with meetings of one sort or another. You'd think supposedly intelligent people wouldn't have to talk so much and do so little would you.

Publications, 1984

1. with Chase, R.B., 1984, Road Guide to the Geology of South-Central Colorado, Rev. Ed., 156p. University of Oklahoma, Norman, OK.
2. NAGT and the U.S. Geological Survey cooperate for summer internships in geology for undergraduates, Abs.: Mich. Acad. Science, 1984, p. 29.

Dick Lefebvre

I've had two new teaching experiences since the last newsletter. During the summer Grand Valley hosted a two-week institute for 80 gifted Michigan high school students. The theme centered around the cultures of the Western Michigan area but not all the subtopics fitted that theme perfectly. For example, one group of students explored bioethics as their intensive topic. Topics ranged from ceramics and photography in the arts and from anthropology to ecology in the sciences. I had ten students in a microscopy intensive program. The students went to their intensive in the morning for 3-4 hours and spent the rest of the day in either general lectures and activities or recreation. The really eager ones showed up back in their intensive labs or studios doing more work on their projects. A few weekdays and the middle weekend were spent on all-day outings either on campus, the Grand River or Lake Michigan (P.J. Hoffmaster State Park). I taught my group the fundamentals of polarized light microscopy and they collected samples to identify from various places. One student even sampled the ceiling of Loutit and found that it contains about 20% asbestos. One afternoon we visited Butterworth Hospital to see how they use microscopes, including their transmission electron microscope. We spent one entire day (5:00 a.m. to 2:00 a.m.) at an international microscope convention (Inter-Micro 84) in Chicago. It was sponsored by the McCrone Institute which we were also able to visit. Dr. Walter McCrone let us use his suite in the McCormick Inn to have pizza while the \$40.00/person banquet was in progress. I enjoyed this experience immensely as, I think, the students did as well. Its also a great way to attract high quality students to our campus. Another one is planned for next summer and only awaits the funding. The theme may switch to the dunes along the lake, and I'm looking forward to it already.

The other teaching experience that has been different is my involvement in the Honors Program, Science Distribution course. Professor Don Hall and I are team-teaching this to mainly junior-senior honors students this fall. We call it "From the Little Mu to the Big U". After starting out with the movie "Powers of Ten", we have covered our world from micron-size particles (called the micrometer in S.I.U. terminology) to the universe. I covered from the microscope (a microbiologist was supposed to help us team teach it but couldn't) to satellites while Prof. Hall covered the principles of optics, electromagnetic radiation and astronomy. The students are concurrently working on written papers of related topics and will be giving these in oral presentation.

At the mild needling of some of our alumni, I decided to go to one of the industry-oriented conventions to see how the other half lives. I went to Toronto last March to the Prospectors and Developers Convention which has met at the Royal York Hotel for the last 40 or 50 years. Not one of the needlers was there but I had a great time, learned a lot, and did get my eyes opened. Toronto was bitterly cold during our spring break in March but you can literally live underground in that city. The rumors of free-flowing refreshments throughout the hotel ish troo. Although it is dominated by Canadian mining people, I would recommend this to anyone interested in hardrock mining.

About the same time last spring we were visited by Dave Rothery from The Open University in England. Dave and I had been communicating for a number of years because of a mutual interest in remote sensing. Dave presented several talks to the department on his work in Oman. There, he had mapped the Oman Ophiolite using Landsat imagery. His main reason for stopping by, however, was to collaborate on a project at the Craters of the Moon. We decided to meet at the Craters in August to take radiometer readings of the now mapped and radiocarbon-dated flows. Three weeks were spent doing this using a Milton radiometer Dave brought from England. I borrowed my son Jeff's small Sharp calculator and printer which I mounted in a briefcase with styrofoam. Jeff wrote a simple program to make some of the calculations for our radiometer readings. Thus, we were able to crunch the numbers on our way in from the field and have two hardcopy printouts, one for each of us. A paper presenting our results will probably be directed to Journal of Photogrammetric Engineering and Remote Sensing.

Now for news from the home front. Sandy has just quit her job as supervisor of personnel services and is looking for a similar position in a larger company that offers human resources opportunities to their employees. Lauryl has layed off from school this year and is holding down several part time jobs. Jeff and Curt are still pursuing engineering degrees at the U. of M. and M.S.U. respectively. Jeff interned at Steelcase last summer and Curt is in a coop program at I.B.M. Furry Fluffy Powder Puffy (not ruff as it was incorrectly reported last year) is going on 15 (about 95 years old by cat standards?) and is driving us all crazy. She's totally deaf but yowls like a male on the prowl --- at all hours!

Happy Holidays to All.

Publications

with Kuntz, M.A., Champion, D.H., and Spiker, E.C., 1982, The Great Rift and the Evolution of the Craters of the Moon Lava Field, Idaho, in Cenozoic Geology of Idaho, Bonnie Haen, W., and Breckenridge, R., eds., Bull. 26, Idaho Bureau of Mines and Geology.

Text for: Craters of the Moon National Monument, Idaho, 1983, 1:24,000 scale Topographic Map, National Park Series (Topographic), 43113-C4-PF-024, one sheet, both sides, rolled or folded.

Bill Neal

My activities for the past year centered around a one semester sabbatical leave combined with the summer months. The focus is still on the "Living with the Shore" book series. The volumes on North Carolina, South Carolina, Texas, New York, and Louisiana are now in print (available from Duke University Press, Durham, NC 27708 for \$11.50 per volume, postpaid, or through your local bookstore), and the Florida, Alabama-Mississippi, and California volumes are in production.

In addition to editing chores on these volumes, the past year has taken me to Boston College, Boston University, the Horn Point Lab of the University of Maryland, the University of Akron, and Madison, Wisconsin to work on the Massachusetts, Chesapeake Bay, Lake Erie, and Lake Michigan volumes. I keep picking up writing assignments faster than I can write, so my backlog of work continues to grow.

Sabbatical year had a Latin flavor this time. Last January I participated in an oceanographic cruise on the R.V. Cape Hatteras, studying shelf sediments off Puerto Rico. The trip included a one-day field excursion along the shore, across the mature Karst "haystack" hill region, and into the mountainous volcanic interior of the island — very beautiful, but the geology is obscured by rain forest. The trip concluded at a chicken fight (which is something completely different).

Late April and early May took me to the Algarve coast of Portugal in another cooperative project with Orrin Pilkey. We have begun a preliminary study of the barrier islands between Faro and Cacela as part of a larger study being conducted by the Portuguese Geological Survey. A bonus from this travel was a 3-day trip through the Carboniferous flysch of southern Portugal. My fascination for turbidites continues. All in all, my sabbatical experience was one that will strongly support my GVSC teaching efforts in Environmental Geology, Historical Geology, Sedimentology-Stratigraphy, and Oceanography. I even looked at a fossil or two!

On the home front, Mary and I are grandparents for a second time as Jean and Eric presented a grandson! Julie and Jim are expecting in March. In late June we took Heather to Belgium to live there for the summer while Mary and I continued on to England and Wales for two weeks vacation. I managed to include a little geology (Carboniferous limestones, Tr-New Red Sandstone, and type Kimmeridgian-Purbeckian, and K-chalk) without being too obvious about it. Mary continues working in the Alumni Relations Office — drop her a line when you have a change of address or a news item.

It's good to be back in the yoke of teaching, and we're looking toward a productive year. Our best to all of this newsletter's readers!

Publications

McCormick, Larry, Pilkey, O.H., Jr., Neal, W.J., and Pilkey, O.H., Sr., 1984, Living with Long Island's South Shore: Duke University Press, Durham, NC, 157p.

Canis, W.F., Neal, W.J., Pilkey, O.H., Sr., and Pilkey, O.H., Jr., 1985, Living with the Alabama-Mississippi Shore: Duke University Press, Durham, NC, 200p.

Doyle, L.J., Sharma, D.C., Hine, A.C., Pilkey, O.H., Jr., Neal, W.J., Pilkey, O.H., Sr., Martin, David, and Belknap, D.F., 1985, Living with the West Florida Shore: Duke University Press, Durham, NC, 180p.

Pilkey, O.H., Jr., Sharma, D.C., Wanless, H.R., Doyle, L.J., Pilkey, O.H., Sr., Neal, W.J., and Gruver, B.L., 1985, Living with the East Florida Shore: Duke University Press, Durham, NC, 200p.

Coedited:

Living with the Louisiana Shore, 1984

Living with the California Coast, 1985

Norm Ten Brink

Perhaps more net change occurred for me (and my family) from the fall of 1983 to the fall of 1984 than during any other single year out of the last ten-year period. However, few if any specific events stand out in my mind as particularly interesting reading for alumni and friends. The one major individual change is that for the first time, in the 15 years of our marriage, Shirley found me staying home for the entire 12 months -- no new projects, no summer field work, not even any meetings or conferences in distant cities. As my boys, Andy (ten) and Ryan (seven), would put it, that sounds BORE-ING!

The reclusive life style was largely self-imposed in order to "catch up" after seven years of over-commitment in a series of four Alaskan research projects, at least two of which were always concurrently in-progress. I'm still not "caught up", but all the final reports and maps are finally submitted, one paper is published, and two more articles have been accepted.

The "year-at-home" was not entirely my choice; two other non-voluntary restrictions quite dramatically changed my life style this year. First, a knee that had absorbed the abuse of too many tundra treks finally refused to function, and cartilage surgery put me on crutches for most of the month of May. Secondly, I discovered that chairing the department, for me at least, seems to preclude almost all other productive activity. Constant backlogs of paper-work, numerous meetings, phone calls and daily diversions by details are not compatible with planned personal or professional progress!

Despite the professional dissatisfactions and frustrations, which have indeed dominated my past year, I can nonetheless look back over the year and find a number of personal satisfactions. Primarily, I was able to spend much of the summer with my family at our Hamlin Lake cabin. Although it still is not "finished", the entire family worked together toward a common goal, and we enjoyed more hours working (and playing) together than we would have had in a "normal" three-year period. Also, very personally worthwhile is the achievement of a number of "departmental" objectives that were important to me individually. My comments on that issue are given elsewhere in the "Chairman's Message".

In net, it has been a year of rather dramatic changes, some of them unexpected, but mostly rewarding. I hope that you personally will find your own rewards in the coming year, and that you will share them with me (us) through visits, letters or even a quick postcard.

With best wishes for the holidays and the new year.

Norm Ten Brink

Jack Henderson

Jack writes "We had a symposium on the Meguma Zone at the Northeastern GSA in March which gave both Mariette and me a chance to see and talk with a few of our GVSC friends. I enjoyed a running tour of Brown University and vicinity of Providence with Jerry Naski who was one of my assistants in 1982. Ron Sheets (summer 1983 assistant) drove to Providence for the symposium from Columbus, Ohio. Mariette and I each presented oral reports at the meeting which are combined into a single joint manuscript on "Constraints on the Origin of Gold in the Meguma Zone, Nova Scotia". It will be published in a collection of symposium papers by the Geological Survey of Canada. I only spent six weeks in the field this summer; two weeks in Nova Scotia collecting data to demonstrate that the folds are due to flexural flow process with the cleavage being a shear strain gauge, and four weeks in Ontario mapping mylonitic rocks with Simon Hammer in order to bone up on my kinematic knowledge. This past weekend we hosted the Canadian Tectonic Group and had a great time with about 45 structural geologists from all over Canada.

The job market for geologists in Canada is still poor because our economy hasn't picked up like the states. How are the GVSC grads making out? Most must be going on for graduate degrees; that's surely the best way to get and hold a decent job here.

I didn't go to Reno this year. I do plan to attend the NEGSA in my hometown next March, and in April Mariette and I plan to attend the International Conference on Macro/Meso/Micro Structure in Utrecht (followed by at least three weeks of cycling in France). It looks like we will be back in the Arctic mapping a major shear zone along the south coast of Wager Bay (NE Hudson Bay), but I haven't gotten official sanction as of this writing.

Being home so much this summer gave us a chance to turn the back yard into a garden. We built five fifty-by-five feet raised beds in which we grew more vegetables than we ever thought possible! Our natural soil is much poorer than in Allendale so we had to add a lot of sand and peat to the original blue clay. In a few years we should have some very good soil.

I noticed in GSA abstracts that Craig Schriber is giving a paper in Reno; congratulations, Craig!

I guess I could write more but I'll leave some room for the rest of you.

We are booked for two weeks in Guadalajara in early December for a pure holiday."

Jack recently published "Description of a Virgation in the Foxe Fold Belt, Melville Peninsula, Canada", p. 251-261 in Precambrian Tectonics Illustrated.

Carolyn Rutland

"Chris is on sabbatical this year from Western Michigan University and we are presently living in southwestern Montana. It's wonderful out here! After Christmas we'll go to Texas A & M for 5 months and then probably spend the summer out here before returning to Michigan for fall '85. I am still working on my Ph.D. at MSU. The data I waited 15 months for arrived last week and I can finally predict that I'll finish in 12-15 months. Hooray!! Our son, Charlie, will be 2 in December; it's hard to believe. We think he's terrific. For us, the personal satisfaction of parenthood is worth all the attendant professional complexities."

Gary Jacobs

This past year has been one of adjustments for me. I have been adjusting to my new job at Oak Ridge National Laboratory, purchasing our first home, and becoming acclimated to the warm southern weather of east Tennessee.

Part of my efforts at Oak Ridge include evaluating the geochemistry being performed by the Department of Energy in its effort to create a deep geologic repository for high-level radioactive wastes. I am part of a team which provides input relative to geochemistry to the Nuclear Regulatory Commission so that they may make informed decisions concerning the acceptability of candidate sites for the repository (sites currently being considered for the first repository include: tuff - Nevada; basalt - Washington; salt - Utah, Texas, Louisiana, and Mississippi). DOE and NRC sorely need good geochemists at the masters and Ph.D. level - if anyone out there is interested let me know. Another area of activity for me involves the geochemistry of rock-water interactions. I have been using thermodynamic models to test hypotheses of possible controls on the chemistry of groundwaters from various areas and also laboratory experiments of rock-water systems at elevated temperatures. I hope to get more involved with some local groundwater systems and also to start some experiments directed toward unravelling some of the important mechanisms involved in the dissolution and precipitation of minerals in a flowing groundwater system.

Although my stay at GVSC was short-lived, I miss many things - but most sorely missed are the interactions between the faculty and students - the lifeblood of GVSC. It is an unique institution and its contribution to geology through the development of its students is just beginning to be realized. Good Luck and Best Regards!

Earth Science Section
Environmental Sciences Division
Oak Ridge National Laboratory
P.O. Box X
Oak Ridge, TN 37831

Dear Alumni:

As the years progress, my memories of Grand Valley's Geology Department, and what we shared become more enhanced and improve in quality. I can not remember anything negative about the experience now. Thank you all for your individual and combined contributions.

At the beginning of this year, I ventured into the realm of private industry for the first time in my career. Having experienced some salary difficulties and managerial disappointments at the New Mexico Engineering Research Institute, University of New Mexico, after 5 years of service, I joined S-CUBED, Albuquerque, a division of Maxwell Laboratories (main offices in San Diego, California). Fortunately, I was able to transfer my project work with me, the Enewetak geology/crater studies. For the year to date, I have been acting as a Defense Nuclear Agency funded senior advisor/observer to the USGS marine geophysical study of the craters and Enewetak Atoll. Their techniques included echo sounder bathymetry, side-scan sonar, single and multi-channel reflection, refraction and submersible/scuba divers investigations. They were in the Enewetak Atoll lagoon on-board a seismic vessel from June through September. The drilling is now scheduled to begin in February, 1985.

Additional study areas I am beginning to enter include re-entry reporting for underground explosive tests and explosive-induced block motion.

Personally, life in the Tremba household is becoming increasingly hectic as more of the boys attain puberty. Our oldest, Christopher, just began attending the New Mexico Military Institute in Roswell, NM on a full athletic grant-in-aid for track. Earlier in the year he won the right to carry the Olympic torch on one of its Albuquerque segments. Todd, our high school senior, is still trying to find himself, presently in Albuquerque having tried in Milwaukee last year. Brett, our high school freshman is doing well on the violin. He made the Albuquerque Youth Symphony Orchestra on his first try as a ninth grader. Jason, our nine year old, is fast becoming an all around jock; soccer, swimming, and whoops, piano! Rose is holding her own health-wise, but she has improved in total beauty. Our greenhouse is ninety+ percent complete, only tiling and molding left to do.

As usual, I'm looking forward to some great fall mountain trout fishing in New Mexico. I hope to go fishing several times before the December frosts chill the water too much.

Sincerely,



Ed Tremba

5905 Marble Ave. NE, Suite #3
Albuquerque, NM 87110

ALUMNI NEWS

Once again we're listing only those persons for whom we have news (direct, indirect, and rumors). We appreciate everyone who keeps us posted on address changes, marriages, births, promotions, demotions, etc. Thanks!

Lorraine Alcott - '81

Graduate student, University of Kansas

"Hi Everyone - I just read over last year's newsletter and noticed I had intended to graduate in August '84. Well, classloads and teaching slowed my thesis progress. I have turned in a rough draft, so barring any unforeseen difficulties I'll be done in December. I am all done with my classes so I am concentrating on rewriting my thesis. I now know why previous grad students called the editing months a never ending process. My plans after December are a bit hazy. I'm in the process of sending out resumes but unfortunately the job market isn't very good. If I don't have a job when I'm done, I plan on staying with friends in Ft. Worth, Texas and keep on job hunting. After December, please send any mail to my parents address: My folks can forward my mail until I have a job and a permanent address."

Lorraine is presenting a poster session at the November G.S.A. meeting.

David S. Anderson - '80

Field Engineer, Welex (a Halliburton Co.)

"I joined on with Welex as a field engineer trainee last November. After spending two chilling months in Lafayette I was transferred to Laurel, Mississippi (land of the stump jumpers). Since then I have been through an intense 10 week engineers school including 2 weeks of log analysis and a week of management training. I got a chance to get my hand in the political ring last fall as a campaign manager for a city judge. After a short deliberation after the election, I quickly determined that politics is not for me." P.S. If any of you get a chance to see the World's Fair in New Orleans, do it. It's quite spectacular.

Dave is going to try and make AAPG Annual Meeting March 24-27 in New Orleans, LA

Mark Arnold - '75

We keep up with Mark through Larry Austin.

Lawrence M. Austin, CPGS 5181 - '74

Geologist-Partner, Aqua-Tech Geotechnical Consultants, Inc.,

"Continuing as president of Aqua-Tech in their new office at the above address. The company continues to grow rapidly, as indicated by the move in headquarters. The workload is really picking up as the national and state economies return to (more or less) normal. The business is primarily involved in ground water studies related to water supply, wastewater and solid waste disposal, ground water contamination and cleanup studies, etc." Larry and his business associate, Herm, wish to extend a very sincere thanks to Norm, Dick, Bill and Tom for their help in the formative years of the business. Larry's wife, Mary, is continuing her steady progress toward a Master's Degree in Business Admin. Unfortunately, between her studies and the business, little time is left for favorite outdoor activities like fishing, diving, camping, hunting, skiing.... Not much else is new on the homefront except increased room thanks to the business move. "We did manage a Windjammer cruise with Rog Haskins and Sue Marcus last winter. Two weeks of partying! No phone! No mail! Definitely recommended if you really need to get away! For those of you visiting Grand Rapids in the future, (or stuck here in the present) stop by our office if you get a chance. It would be best to give us a call first, however, so that we will surely be there"

Larry will be attending the NWWA Ground Water Monitoring and Aquifer Restoration Mtg. in Columbus, OH the last week in May, 1985.

Timothy L. Baker - '77

Geologist, Dart Oil & Gas Corporation,

Mary Jean writes that "Tim just received a promotion to Superintendent of Drilling and Completion Operations. We've just moved out to the country and are expecting our second Korean child - a son - the end of October! (We're trying to keep up with the Mark Bishop's!!)"
Tim will attend the Society of Petroleum Engineers Meeting in Houston in November.

Tom Baldwin - '79

Petroleum Geophysicist, Amoco Production Company

"Whoa little doggies, howdy pardner, y'all! I think I'm slowly turnin into a Texan; as you can see, I'm picking up all those neet sayings. Please, somebody come rescue me and take me back to the land I love, Michigan! Seriously, everything is going along pretty good, I even found myself a real live Texas woman - you know, the kind that waits on you hand and foot." Tom asks in passing: "Whatever happened to Nancy Demorest?" and adds "I think I've calmed down a little".

Thomas M. Bee - '73

Geologist (mineral dealer) Topaz Mineral Exploration

Tom's life has taken a series of major changes beginning with his move to a new apartment in December of 1983, his engagement in February of 1984, and a lovely wedding to Kim Renee Henry on June 2, 1984 in Muskegon. Loyal and Millie Suntken came back for the wedding in which Loyal was best man. The honeymoon included a mineralogy field trip! Besides dealing in rare minerals, Tom has added old books (geology-mineralogy) and mining memorabilia to his saleable items.

The Geology Department thanks Tom for his continued help in processing the Miller Collection.

Ann Bijkerk-Kauffman - '80

Graduate Student, University of Arizona

"I'm just starting classes again after a summer in San Francisco working as a summer intern for Sohio. In the process I fell head-over-heels in love with San Francisco and the Sierra Nevada Mountains. If given the chance, I'll go back; no hesitations. I'll be taking my orals this fall - last hurdle before my dissertation. I'll let you know how it goes. I will also be doing field work and collecting samples this fall because this spring I plan to visit Brown University for a semester to take a class on microstructures and work on my own samples. By the way, I'm continuing to work in the Catalina-Rincon Metamorphic Core Complex where I did my Masters thesis. As far as personal news goes, Mark is still fixing computers and is still very excited about them. We just bought a Macintosh which is an awful lot of fun to play with." Ann has kept in touch with Al Werner and Jeff Doublestein, and will be attending the Reno GSA meeting.

The Geology Department thanks Ann for the copy of her Master's thesis.

Mark Bishop - '74

Sales Consultant, Hovinga Business Systems

"Two sons, Benjamin and Matthew are doing well. Jeanne is still on maternity leave from Jenison Public Schools and will probably not go back until the boys are both in school. For Hovinga Business Systems I cover northern Allegan and southern Ottawa counties, as sales consultant in office automation. Still dabbling in the oil and gas industry."

We see Mark on campus occasionally and always enjoy his visits.

Doug Bowden - '74

Project Geologist, Amelco Exploration, Inc.

"I'm still in charge of exploration activities around the Alligator Ridge Gold Mine. Sue and I are beginning to feel like natives around here - I'm not sure if that's good or bad. We have one child (Catie - 4 years in November) and a black lab (Moly). I expect to be a co-author for a paper on the vantage deposits (Alligator Ridge) that will be in the 1984 S.E.G. Guidebook this November. I expect to be at GSA in Reno and will be a "tour guide" for the Alligator Field Trip."

Eric Christrup '74

Junior High Science Teacher, Coopersville Public Schools

"Well, I'm back in junior high science at Coopersville! We are expecting our first child in mid-September. Still plugging away at spelunking and will soon be trying my hand at white-water rafting (I hope!)."

Rich Christenson - '84

Department of Geology, Western Michigan University, Kalamazoo, MI
Graduate Student, Western Michigan University

Some of us visited with Rich while attending a seminar at Western. He's into being busy!

Cousineau, Tim - '84

Field Geologist, Keck Consultants, Lansing, MI

Jeff Coleman - '81

Jeff is still working wells out of Houston as far as we know.

Mark DeKruyter - '82

2nd year graduate student and T.A. at the University of Wisconsin, Milwaukee

"After completing an interesting (good) year at grad school, I worked for a mineral exploration company in Minnesota and Wisconsin; they're looking for Kimberlite dikes (diamonds) of all things: Sorry - no names. I also thought I was going to be collecting thesis data this summer, but working six days a week in the field put a damper on those hopes. Do any of the gang at GVSC have any interesting topics they want pursued! Looking forward to my last year."

Nancy Demorest - '81

Nancy has gone to work for an engineering firm in the Boston area. (Message: Please return Dr. Peter Rosen's field hat!)

Jim Dexter - '77

Geologist, Bendix Field Engineering

"Got rehired with Bendix after trying to find work for over 11 months! Finally finished my Master's thesis after over 4 years of procrastination! Am working at geologic and radiometric characterization of uranium mill-tailing sites, and hydrologic and soil characterization of toxic waste sites. My wife and two boys are doing well; we enjoy camping but are becoming increasingly dismayed at the disintegration of our forests, even here in Colorado.

Talked with Dave Zeider and visited his family in Idaho Springs. After a slump in the oil industry, Dave has finally been getting more well-site work. Whatever happened to Jeff Spruit?

If passing through western Colorado on your way to Reno, feel free to stop by for a visit and a ---glass of water (phew; I almost wrote glass of beer...!)"

John Dombrowski - '73

"With acquisition of Getty Oil by Texaco, I've been given a new assignment. I'm now in charge of Texaco's Western Onshore Division's exploration activity in Nevada and western Utah as well as the LA, Antelope and Imperial basins of California. Currently being relocated to Bakersfield, California. John probably will be at GSA in Reno.

Jeff Doublestein - '79

Jeff stopped by the department recently and reported his big news --- he was wed last May. His wife, Karen, is an R.N.

Larry Fegel - '73

Although we've received no reply from Larry, we know he's out there because we see his name occasionally in Grand Rapids Press articles on the Blandford Nature Center.

John Freeland - '

Graduate student, Eastern Michigan University

"I'm currently in a Master's program at Eastern Michigan University, and am taking a lot of education courses to get certified to teach. Should be through next April." Under grafitti, John reports: "Yes, I'm working on a book. I plan to call it Household Geology. Topics to be covered include: 1) Carbonate Deposition in Electric Coffee Makers, 2) Paleontologic Studies of Holocene Basement Sediments, 3) Aeolian Pelagic Accumulation Beneath Large Pieces of Furniture, and many others!"

Mike Gallagher - '83

Department of Geology, Western Washington University
Graduate student

Yes friends, Michael Gallagher is loose in the Western U.S. After his sabbatical, strumming in local clubs, roofing, and manning the Allendale Pumping Station for Grand Rapids water supply, Gallagher is once again a student. We hear rumors that Mike and Pearl's trip west in the Volkswagon bus was plagued by mechanical difficulties, but ended in a safe arrival. Good luck in the Pacific Northwest!

Ron Green - '78

Hydrology Department, University of Arizona, Tucson, AZ 84721
Graduate student

"Still in Tucson, for at least one more (or less) year. Hopefully I will have put the finishing touches on my previously already famous refried beans recipe so that next year's grand opening of Tidwell's Taco John's franchise in Butte, Montana will be an assured success. Haven't been in Grand Rapids in several years but will try to stop by next time I'm in the area. Congratulations Bill, you are now batting .333 (2 out of 6) in sending the newsletter to me. Try to include alumni addresses in newsletter, in case we cross paths out here in the boonies."

Editor's note: Bill refuses to take the blame for U.S. mail; we are meeting your latter request!)

Ron is giving a paper at the International Congress of Int'l. Assoc. of Hydrologists in Tucson this year (Jan. '85) He may also go to AGU in San Francisco in Dec. '84.

Steve Grodecki - '75

Petroleum Geologist

"They say a man's life changes at 30, but I never realized the changes could all come in a two week span. In mid-August my boss announced his retirement to his three kids & I, so the four of us are on our own now, riding the booms & busts of the Oklahoma oilfield. Business has been real slow but now drilling is on the rise & companies are shopping around for prospects (of which we have plenty!) so we're very optimistic for the future of our new company.

A week after his announcement, our adoption agency called, and on August 24, Sandra and I picked up Melanie Kyleen Grodecki, a beautiful baby girl just 3 days old. I never dreamed life in Oklahoma could be so interesting!"
Congratulations to the Grodecki's!

Jack Hall - '77

Professor, Univ. of North Carolina-Wilmington

"I (re) joined the faculty at UNC-W this fall after a 3-year hiatus at Ohio State. The Ph.D. should be done early next year. Barb and I are once again enjoying the fun and sun at the beach. We will think of you in January. I am still working on Lower Paleozoic Conodont Biostratigraphy in the valley and ridge of the southern Appalachians, but have recently started research with Bill Cleary and others on Pleistocene(?) Barrier Islands along the N.C. Coast (I always thought this stuff was overburden!). Bill and Norm should be proud! Matt is now 16 mo. and running both of us ragged (we put him in surfing lessons this fall). Hope all is well at GVSC. Keep in touch."

Jack also notes "we are going to start an MS program in 2-3 years stressing marine, coastal and subsurface geology. Tell your students to keep us in mind."
Jack will be at the Southeastern GSA, Knoxville, TN, Spring '85.

Roger Haskins - '73

Geologist, Federal Government, Mineral Examiner, Bureau of Land Mgt.

"I am still plugging away at writing technical manuals and handbooks dealing with Federal mining land, mineral patents, appraisal of mineral properties, etc. In my spare time I am working on wooden ship models, sightseeing, and spending time outside, far removed from the office.

We will be moving up closer to Reston area in the near future to be in a better commuting location"

Roger will be at the GSA, Reno meeting and SME in Denver, Oct. 24-26.

Bill Hazard - '79

Distribution Manager, Butterworth Hospital

"The most exciting news in my life is the marriage I entered into in August to a lovely girl by the name of Kathi. We have recently purchased a home and are quite excited about that as well. Kathi has a fine job at a local manufacturing firm. She operates the computer system and offers accounting advice. I am employed at Butterworth Hospital as the Distribution Manager. I am responsible for all the vehicles, shipping/receiving, and the distribution and storage of all disposable supplies, of which there are about 2000. I employ a staff of 20; and am having a ball working in the health care industry.

Although I have never utilized my geology skills on a professional basis, I will never regret the superior education and fine counselling I received while attending GVSC."

Thanks for the kind words from Bill. We take pride in all of our graduates and hope that the geology background is as enriching as arts, humanities, and social science; and that a GVSC education provides the flexibility needed in today's world. We follow our nongeologist alumni with the same interest as those who go the route of the rocks.

Hewlett-Kampa, Julie - '77

We are pleased to see that Julie is a new Associate affiliate of the Ohio Section of the American Institute of Professional Geologists.

Sheryl Hoving - '77

Associate Geological Engineer, Shell Offshore, Inc.

"I'm still working for Shell Offshore, Inc. in New Orleans. Our division seems to be busier than most these days - it keeps me out of trouble. Outside of work, I've been canoeing in Mississippi quite often. I've built and/or finished some furniture. The guys at work persuaded me to be on a softball team. Those of you who remember my playing at GVSC will believe me when I say I'm a token female on the team! No broken fingers yet though. For temporary relief from Shell people and the petroleum industry, I've signed up to take a creative writing course at Tulane this fall."

"While walking to the Superdome after work one day I heard someone ask, "Sheryl?" It was Ginny Peterson (I hadn't seen her since 1980). Linda Martin had told me quite some time ago that Ginny was moving to N.O. We're all supposed to have lunch together soon. I've submitted a paper based on my thesis, and coauthored by my thesis advisor, Dr. W.C. Hood, to the 1984 National Symposium on Coal Mining Hydrology, Sedimentology, and Reclamation. The title of the paper is The Effect of Different Thicknesses of Limestone and Soil over Pyritic Material on Leachate Quality. Quite a tongue twister!"

Sheryl will be at the 1985 AAPG Convention in New Orleans.

Doug Hull - '77

Exploration Geologist, Phillips Oil Company

"I can't believe I've lived in Houston, Texas for over 4½ years. They're right, this city is built on greed! I don't regret coming here though, I sure have learned a lot. (I'm still single, but one never knows for how long. Yes, there is a prospective lady.) I visited with Loyal Suntken and his wife, Millie, in Midland (Sept. 3). I had not seen Loyal since Univ. Las Vegas field camp (summer 1976). I've also been talking to Tim Baker quite a bit lately. I called Doug Sartoris in Corpus Christi about two months ago, but haven't seen him yet. Met with Sheryl Hoving last December."

Bruce Jones - '84

Graduate Student, Wright State University

Bruce is pursuing work in geophydrology as a graduate fellow. The word is that he likes Wright State. Do good Bruce --- you're following such legends as Tom Baldwin and Kevin Wiley!

Greg Kimball - '78

Project Hydrogeologist, S.D. Dept. Water & Natural Resources

"My project work is proceeding, to determine if there are impacts to ground water and lake systems from agricultural practices. We are trying to follow hydrologic budgets, nitrogen budgets and track phosphorus and pesticides on nine working farm fields and one historically unfarmed site with expectations of interpolating results to the entire 100,000 acre project area."

"New baby expected February will be added to our family of me, Laurie, and Cory (2 yrs.)."

"While at a meeting in Raleigh, N.C. I met a guy working on a project in Illinois whose daughter is going to Grand Valley. I had to assure him there wasn't too much partying at GV (tongue in cheek!)"

Monica Lack - '79

Geologist for the DNR

"I decided to merge with another division in the DNR by marrying an assistant forester, Gerry Grieve, last October. Now the big question is when will we start raising our own little bureaucrats! I made my feminist statement in the northwoods by keeping my original and only last name. I felt it was time the people in Gaylord were introduced to the Women's Movement. My last publication was my wedding announcement. I did have a very nice visit with Ann Bijkerk-Kauffman (summer 1983) and Ann admitted to receiving a "B" in graduate school!"

Marlene Leistico - '79

Area Geologist, Geological Survey Div., Michigan Dept. of Natural Resources

"Daughter Ann is a junior at Michigan State University. Son Kurt, a high school junior, spent the month of July in Europe as a cornetist with the Blue Lake Fine Arts Camp International Exchange Program. My article "National Historic Landmark Protected" was published in the May, 1984 Natural Resources Register. The subject of my article was the plugging of an old leaking oil well located near the Norton Indian Mounds."

Nancy Mackiewicz - '80

Hazardous Waste Investigator, State of Illinois

"The big news is that I finally got a job, and happily, one I really wanted. Being a Hazardous Waste Investigator is something I never imagined I would be back at GV, but I started getting interested in the problem after I finished my M.S. It just so happened the newly formed task force was lacking a geologist. So far it has been interesting and enlightening (not to mention political)."

Nancy also reports that "Ross Powell is doing well and busy as ever. He's been starting to organize 4 or 6 trips and symposiums for AAPG, INQUA, IAS and GSA at Ottawa, around here, and of course Glacier Bay for next year to 1987. Don't ask me which one is where when - I get them all confused. He says "hello" Hope to see you all at Xmas!"

Susan M. Marcus -

Geologist, Bureau of Land Management

"I'm planning to participate in the Bureau of Land Management/U.S. Geological Survey exchange program. I'd go to GS in Reston for 2 years to help coordinate their mineral surveys in wilderness study areas. I'd have my own microcomputer so I'll have to learn more about the lil beastie.

Rog and I had a great time on a Caribbean Windjammer Spring '84 with Larry and Mary Austin. Did I tell you about TPing a 3-masted sailing ship? Some kids never grow up - I hope! We plan to have dinner with Jim Dexter next week. We hear he's back with Bendix."

Sue will be at the GSA, Reno meeting. We think she's hosting the GVSC reunion at a Basque restaurant!

Jeff Martin - '75

Contract Geologist

"Presently an unemployed geologist working contract jobs with geological service companies. My wife went back to work as a medical secretary. My daughter just turned two years old. Wish me luck in finding another permanent job in geology."

Michael Matthews - '70

Environmental Engineer, Tennessee Valley Authority

"Still working with groundwater quality problems in the seven state TVA region and trying to get my wife, Susie Jo, through veterinary medicine at the Univ. of Tennessee. Just published "Groundwater Situation Assessment of the Tennessee Valley Region".

Ginny Peterson - '80

Geophysicist, Amoco Production Company

"Where do I start! This has been an amazing year for me. I received my MS, from U Mass (finally!) in May. I actually defended it and moved to New Orleans in January. The paperback publication just came out last week - I haven't seen it yet, but heard that it looks good. September 1st I got myself hitched to a great guy - Jonathan Burr - that I got to know at U Mass. He's been working down here for a couple of years as a geologist. Linda Martin already has me written off as an old married lady, so I hope to prove her wrong - at least about the "old" part. I also just started working as a geophysicist with Amoco in August - their first hire in almost a year and despite a hiring freeze.

Other than the big things - I've been keeping busy with lots of activities - trying to make the most of this hot humid city. I even managed to cultivate a garden (which is out of control). Life is pretty exciting these days. New Orleans isn't such a bad place to live (except in August). There's enough new things happening that I don't think I'll get bored for a while. Amoco seems like a good company and the job is really interesting. The way employment has been lately, I feel very lucky to be employed in a job that is challenging. I see a lot of Linda Martin and she and Sheryl Hoving and I have intended to get together one of these days, but haven't had the time. Hello to everyone there! I'll keep in touch."

David Rogers - '69

Consultant, Rogers & Associates

"Well, I finally did it. I opened my own business. I consult for special mapping and charting computer systems. Having a good time - Need some help?? I talked to Frank White. He finally got married. Loves his work in China Lake, CA."

Buck Sharpton - '79

Graduate Student

"Thankfully, my grad school days are coming to an end: thesis defense is scheduled for mid-October. I've been awarded a Visiting Fellowship with EMR - Earth Physics Branch in Ottawa - beginning in November - where I'll be involved with the Early Crustal Genesis Program as well as some digital analysis of terrain data such as gravity, topo, magnetics and the Sea MARC V side-scan sonar data. Sue and I now have two kidlets - Tom, 3½ and Emily, a spunky 1½. We hope to be in Grand Rapids sometime soon after my defense; is so, we'll be sure to stop by the department. At GSA-Reno, I'll be giving a presentation in pre-cambrian session and I'm planning on attending the pre-session field trip to Long Valley/Mono Craters. Hope to see some GVSC-ites there."

Jeff Spruit - '75

Geologist for Conoco, Inc.

"In March of 1983 my wife (Diane) and I had our first child (Aaron Jeffrey) and are now expecting our second this October. Last November I was promoted from Associate Geologist to Geologist and had recently been transferred to Houston this August. Here in Houston I'm interpreting seismic lines from offshore Texas looking for prospective leases for the next lease sale. Conoco is sure keeping my work interesting. In Lake Charles, Louisiana I worked mostly with well logs and now I work almost exclusively with seismic lines. Before leaving Lake Charles I had the opportunity to supervise two logging runs on a drillship Conoco had drilling in 2000' of water in the Gulf of Mexico. It was over 150 miles offshore and was the deepest water depth that Conoco had drilled in the Gulf. Who says that oil field geology in the Gulf of Mexico is boring?"

Richard Stolarz

Geologist, Sun Exploration and Production

"I am still working for Sun in Corpus Christi. Plan on getting married up in Michigan next June and making a visit to your area during the Christmas holidays. Be sure to let me know of the Christmas party. Look forward to seeing old friends at that time."

Rich attended the Gulf Coast Association of Geological Societies in Shreveport, LA October 24-26.

Loyal Suntken - '76

Elfex Geophysical, Inc.

"Doug Hull (Geologist for Phillips Oil Company) stopped by for a visit during Labor Day weekend with a local friend of his from Marathon Oil Company. Doug lives in Houston. It was a pleasant surprise. It had been about eight years since I saw him. He was homesick for Michigan. I have also been swapping letters with Guy Waggoner and Tom Bee."

Loyal is still in the electrical resistivity game as oil activity begins to pick up a little.

Craig Swanson

Hydrogeologist for Rockwell Hanford Operations

"Completed my thesis and defense in an even 2 school years. The pressure of graduate school is over and the challenge of establishing myself as a professional is in full swing. Where Gary Jacobs left off, I'm taking over - on BWIP (Basalt Waste Isolation Project). Three out of at least nine sites will be chosen as potential repositories for commercial high-level radioactive waste next year. I'll be in work for a few years if this site is one of the "chosen". The three will be finalized to two.

Again, I would encourage students to consider the hydrogeology field. The job market is growing steadily and challenges are plentiful. Oh yes, I met a GVSC student from the past by the name of Fran. She was (is?) working on a MS in geology at the U. of Idaho. John Freeland, where are you?"

Craig provided the department with a copy of his thesis entitled "Hydrology at the site of a Proposed Uranium Subgrade Disposal Pit in the Gas Hills Uranium Mining District Fremont County, Wyoming" Univ. of Idaho, May 84. Thanks

Gregg Swayze - '82

Graduate Student, Colorado School of Mines

"I finally got married to Jana Venohr, and we are bracing ourselves for another bout of grad school while I earn my Ph.D. We are searching south and west for the right school and overall liveable place. I still plan on teaching on the college level, and another 3 to 4 years will see me through.

My mistake!! Red Creek Orogen, Uinta Mnts., Utah is 1.8 Ga not 2.2 Ma. I'm wrapping this thesis up by December. My sole publication (though more pending): Swayze, G.A., and Holden, G.S., 1984, Metamorphic development of the Proterozoic Red Creek Orogen, Uinta Mountains, Northeastern Utah: GSA Abstract with Programs, vol. 16, no. 6."

Gregg will be at GSA, Reno giving a poster session.

Michael Swayze - '80

Word Processing Sales-Legal Market Specialist, Lanier Business Products

Mike's wife Carole writes "Mike never seems to get around to filling this out, so I thought I'd do it this year. Mike and I had a baby boy on June 6, 1984. We named him Christopher Michael. We are living west of Lansing and have been here since 1983. He is selling word processing equipment - primarily to law offices. We like this area, so we are looking for a home at present and plan to stay here."

Congratulations to the Swayze's on their new arrival!

Ron TenHarmsel - '79

Painter

"After being laid off by MAPCO, I decided to start my own oil business - applying it to houses! I am happy to say its going very well. I really don't miss the office drudgery, but I do miss geology, which I'm sure I will always like. My family is well and we like it here in Billings."

Douglas Thorpe - '74

Computer Applications Geologist

"In April 1984, after jumping from one depressed commodity to another (uranium, minerals, and oil shale) I have finally wound up in The Oil Patch. This new job involves computer mapping as before, but now I'm involved in programming and supporting applications on the IBM PC computer. September 6 at 4:39 p.m. our son, Brian Steven, was born; 6 lbs. 14 oz. and every one is in great shape." And, congratulations to the Thorpe's!

Robert J. Tondu - '73

Geologist

"The oil industry is still in a slump, however, I seem to be getting by. I have diversified out of the oil industry and am involved in investing in computer software development, pharmaceutical drug research, electrical cogeneration projects and even a little real estate. What a geologist has to do these days just to make a living.

Question? - Does anyone at GVSC know anything about peat deposits in Michigan or the availability of wellhead gas reserves in the lower half of the Lower Peninsula?"

We'll look for Joe at this spring's AAPG meeting !

Janet Tower Robinson - '83

Nursemaid-Housekeeper

"For most of the last year I have been taking care of my aunt and 92-year old grandmother, their house, and their six dogs. That has been my full-time job. My husband, Joby, recently joined the military and is currently away in training."

Dawn VanderZouwen - '81

Geophysicist, Arco Exploration

"Greetings fellow "geo-psychics". I have finally left college life behind and have joined the ranks of the employed oil explorationists. My thesis "Structure and Evolution of Southern Okinawa Trough" a region south of Japan has led to 2 separate geophysical cruises by the Japanese and French this fall and although I'm no longer directly involved I still receive brief progress reports. I will be located in Dallas for about a one year training period before being located at one of ARCO's main district offices."

Timothy Verseput - '78

Geologist, Arco Exploration

"For the last 4 $\frac{1}{2}$ years I have been working for ARCO Exploration Co. The last 3 years have been in oil exploration in offshore California. The industry is hot on this area and I believe it will continue for some time. However, our most important news is the birth of our daughter, Erin Rebecca. This is our first child and we are enjoying parenthood."

Congratulations to the Verseput's! We know it had to be a very important event to cause Tim to write back to the department!

Dan Verwoert - '70

Principal/Chief Geologist, ERM West

"New business is going great specializing in groundwater investigations and cleanup of hazardous wastes. Just completed "esf" training and recommend it to all of you. My wife and kids vacationed for several weeks in Michigan, now Heather wants to attend GVSC (She will attend Diablo Valley Jr. College this year). We are back in the horse business again. About 9 months ago someone gave us a 23 year old race horse; it died 6 weeks after we received it. Who said don't look a gift horse in the mouth? Now we have another quarter horse mare. Published an article in Chem. Engineering & presented a talk at the California Water Pollution Control Association."

Dan attended the National Groundwater Quality Symposium, Las Vegas in September and plans to be at GSA, Reno

Patty Videtich - '76

Geologist, Conoco, Inc.

"I am enjoying myself working on carbonate diagenesis and giving these Okie St. Louis fans around here a hard time about the Tiger's winning ways. (Okies haven't forgotten 1968 and hate Detroit.) Besides that, I continue to travel a lot and in the past year have seen carbonates on the land and under the sea in Egypt, Dubai, Indonesia, England (land only!) and the Caribbean." Patty will probably be at AAPG in New Orleans.

Guy Waggoner - '76

Graduate Student, Univ. Rhode Island

"I am still working on my thesis, which has been progressing very slowly, but at least seems to be popular. My working title is now "An Isotopic and Trace Element Geochemistry Study of Mantle Heterogeneity in the Norwegian, Greenland Sea", but this is only the working title. I have been working on several other projects and papers which should be coming out soon. I will probably be attending the spring 1985 AGU meeting."

Guy is co-author of "Neodymium isotopic evidence for Galapagos hotspot-spreading centre system evolution", Surendra P. Verma, J-G. Schilling and D.G. Waggoner, Nature, Vol. 306, pp. 654-657, 15 Dec. 1983.

Jim Walters - '70

Assoc. Prof. of Geology, University of Northern Iowa

"Seems like I just filled out a newsletter information sheet - what a fast year! I didn't make it up to Alaska this summer but instead taught a UNI field geology course in Colorado (Crested Butte area). Bonnie and the kids came along with the group and we stayed in our fold-down camper trailer - sure beats our old tent. It was a good group of students, and we had a great time. Afterwards we vacationed, visited with friends, and I attended the AMQUA meetings in Boulder" Jim plans on attending the GSA North-Central Section meeting in Illinois this spring.

Alan Werner - '79

Graduate Student, Univ. of Colorado, Boulder

"As good fortune would have it, I'm back in school after working for Shell Oil-Houston for two years. Found myself on Spitzbergen this past summer trying to figure out when, in the past 10,000 years, the glaciers got bigger and when they were smaller! Student life is a good one but, as you all know, doesn't pay very well - some things never change! Best to you all."

Dick Williams - '73

BASF Wyandotte - Holland

"I work in the Plastics Lab at BASF. Have been to Europe 3 times in under 3 years (for fun and business), and am still active in Holland Community Theatre."

MEMORANDUM

cc: Dean Doug Kindschi
Provost G. Niemeyer

TO: Geology faculty
FROM: Bill Neal *Bill Neal*
SUBJ: Summary of GVSC geology majors record in the National Association of Geology Teachers Summer Field Course Scholarship Program awards

The following information was tabulated from the information circulated by Tom Hendrix, and provided by the national director of the NAGT program.

Period of Record: 1974-1984; eleven years

Number of Years that GVSC has had Awardees: Nine

Total Number of GVSC Awardees: 12

GVSC Rank out of 263 Schools with Awardees: 18th to 21st absolute/8th in number (see Table 1). Note that there are between 300 and 350 undergraduate geology programs in the U.S.A., and that some schools have not had awardees (e.g., Eastern Michigan and Hope).

GVSC Rank out of Michigan Schools: Third (see Table 2)

The above is a single datum, and I do not suggest that it reflects a quality equal to the departments of some of the great universities that appear on the list. It does suggest, as Tom noted, that:

- a. our students are competitive, and
- b. the faculty is paying attention to this important program in making sure that qualified majors apply.

Whatever the reason for our success, I thank the students who have participated in the program (including those who have applied, but not received awards), and the faculty for the important input they've had into this program.

In particular, we recognize Tom Hendrix's dedication to this program as well as the other scholarship programs he administers.

Table 1: Ranking of Schools by Number of Student Receiving N.A.G.T. Summer Scholarships, 1974-1984 (top 21 of 263 schools with awardees)

<u>School</u>	<u>Number of Awardees</u>
*Oklahoma State	25
*Texas	23
*Michigan State	23
*Bowling Green	23
*UCLA	20
*West Virginia	20
*Indiana University	19
Idaho	15
*Illinois	15
Wisconsin-Milwaukee	15
*Arizona	14
*Kansas	14
Michigan	14
Montana	14
Princeton	14
*Oklahoma	13
Virginia P.I. & S.U.	13
Carleton	12
*Ohio State	12
Purdue	12
GVSC	12

*Total includes direct grants from Cities Service Scholarships. GVSC would rank approximately sixth in "open" competition.

Table 2: Michigan Schools and Number of Students Receiving N.A.G.T. Summer Scholarships, 1974-1984 (note: includes only schools having awardees)

<u>School</u>	<u>Number of Awards</u>
*Michigan State	23
Michigan	14
GVSC	12
Wayne State	9
Albion	3
Central Michigan	3
Michigan Tech.	3
Western Michigan	3

*Total includes direct grants from Cities Service Scholarships.

'84 Summer Field Camps

Seven students from the department went to geology summer field camps last summer as follows:

1. Will Armstrong - Alaska. Will came back this fall all fired up about Alaska geology and with good things to say about the Alaska summer field camp. He is trying to catch on next summer as a T.A. in the course.
2. Judy Campbell - Ft. Lewis. Except for a roommate who occasionally (and against the rules) would bring her 2-year old child to spend the night in the dorm room, Judy was satisfied with the Ft. Lewis course. A little short on good structural problems though. Durango is a great little town she reports. How many bars did you say are in Durango, Judy?
3. Bruce Jones - Idaho State. Reports reaching us say Bruce was generally dissatisfied with the quality of the instructors and the help students received in the field. If we know Bruce, the Idaho State summer faculty heard about these shortcomings straight from the horse's mouth.
4. Steve Tebor - San Diego State University. Steve endured with good humor the ultimate survival course in the Baja Peninsula of Mexico, replete with scorpions, rattlesnakes under three feet of leaves in mountain gulches, dry hot weather and rugged terrain. The SDSU course is not one for the faint of heart, but if you are resourceful and confident in your own abilities, the SDSU course is challenging, particularly for igneous rocks.
5. John Tweddale - Indiana. John had a positive experience in the high-powered I.U. field course, although he refuses to divulge details of Saturday nights at the Borden Lounge in Whitehall.
6. Craig Vandenberg - Mesa College. Craig gave average grades to the Mesa College course. They could have provided more and better instruction - in the field, and the living accommodations were primitive and time-consuming, but Craig says he liked the west slope geology of Colorado.
7. Renee Varin - James Madison. Renee finished her degree with the field course and we haven't heard from her since. Give us a report Renee.

DONATIONS TO THE DEPARTMENT

This time it was one of our own alumni who contributed to the departmental holdings. Mark Bishop, '74, of Grandville donated an extensive collection of minerals, rocks, fossils and books this past summer. These have been incorporated into the various rock, mineral and fossil sets used in coursework, or in the case of the books, have been sent to Zumberge Library or added to the Geology Library in the Lucke Reading Room. Clearly, Mark must have remembered the materials such as the mineral collection donated in the early 1970's by Mr. Frank Goettman of Grand Haven, when he decided to give these fine materials to his alma mater. Thanks Mark, especially from all the future students.

SCHOLARSHIPS

Edward L. Tremba Geology Scholarship Endowment

The Tremba fund ended last year with a balance of \$6756.54. It now stands at \$8231.54 thanks to contributions from:

Tom Bee
John Dombrowski
Tom Hendrix
Muskegon County Rock & Mineral Association
Texaco

Last spring identical awards of \$300 were given to Bruce Jones, senior, and John Tweddale, junior, the 1983-84 winners of the Tremba Scholarship. Our goal for the Tremba Endowment is \$10,000. We are getting close - won't you help us to reach that goal next year.

Students in Geology Holding Scholarships, Fall, 1984

1. Tremba Scholarship - Bruce Jones, John Tweddale
2. GVSC Presidential Scholarship - Tim Gray, Pennie Ritter
3. Upper Level Merit Scholarship - Molly Holden
4. Geology Scholarship:

Will Armstrong	Leslie Ritter
Ken Bevis	John Tweddale
Steve Brillinger	Lori Vanderkam
Judy Campbell	Bob Versical
Marty Damon	
5. NAGT Summer Field Course Scholarship

Bruce Jones
John Tweddale
6. GVSC (Summer) Geology Scholarship

Will Armstrong
Judy Campbell
Bruce Jones
John Tweddale
7. Tulip City Gem and Mineral Society Scholarship

Bob Versical

The 8th Annual Holiday Party

If I don't sit right down and write something about these parties I might as well forget it. My recollections are foggy enough the day after and the passage of more time doesn't help. Therefore, any of you who attended last year's party and acted with any indiscretion, can rest easy. This year watch out, however, for I have a pretty good word processing package (PC-Write-\$10,00!) for my computer and I will use it shortly after the party. Here's a list of those who did attend:

Larry & Mary Austin
Tom . Bee & Kim Henry
Ann Bijkerk-Kauffman
Judy Campbell
Eric & Elaine Christrup
Jeff Coleman
Tim Cousineau
Kevin Crandall
Mark DeKruyter
Larry Flynn
Shirley & Simon Frances
Lori Hendrix
Greg & Laurie Kimball
Dick & Sandy Lefebvre
Joe Mark & Mary Golub
Steve McCollough
Jerry Naski
Bill, Mary & Julie Neal

Janet (Tower) & Joby Robinson
Craig & Diane Shoemaker
Norm Ten Brink
Ron Ten Harmsel
John Twaddale
Craig Vandenberg
Dean VanderMeulen
Ingrid Verhagen
Lisa Viger
Al Werner
Jeff Woollett

If you did not make it last year - why not come around this year if you're in the area. It looks like all four faculty will be there this year. Hope to see you.

Dick

GEOLOGY CLUB NEWS

by

Bob Versical

The '83-84 year was a very successful one. Led by President, Rob Versical, Vice-Presidents Suzy Viger (fall) and Bruce Jones (winter), and Secretary/Treasurer, Molly Holden. The club accomplished all of its set goals (except for the preparation and sales of Christmas agates) by raising funds, having fun, and sponsoring an impressive guest speaker series.

The Club's main goal, to help fund the spring field trip, was realized primarily by the revenues from the Club's "1st Annual" 50-50 raffle. Tom Hendrix also helped out by his generous donation of half the proceeds from the sale of his trusty, old Olds (mobile). We did not, however, help out as much as we would have liked, due to the Student Senate's re-nig on a promised \$350.00 from the Allocations Committee.

The guest speaker series was a great success. We managed, with big help from the faculty, to lure in speakers from Ailendale to Buckinghamshire, England; our own Bill Neal to Dr. David Rothery of the Open University. The Wednesday afternoon series' attendance, as well as enthusiasm, was high. The only drawback was the one cancellation that occurred; that of Alum Mike Werkema's scheduled talk on "Balanced Cross Sections...". Although he did have a good excuse, we certainly hope that he may be able to give us that talk this year unless, of course, his wife is expecting again!

Fun, well we had lots of that. A number of parties at the "Quarry" (majors Bob Versical, Will Armstrong, Mike Moore, Pat Bernathy and Bruce Jones's Rich St. Apt.) provided those needed breaks from academia. As noted in an article in the past St. Patrick's Day issue of the Lanthorn "...Geology majors give the best and longest parties around..."

Despite the loss of "The Trophy" in an overtime defeat at the hands of those *@!? Biology majors on the basketball court, the '83-84 year was definitely one to remember.

The elected officials for the '84-85 year are as follows: President Molly Holden, Vice President Bob Versical, Secretary/Treasurer Blaine Campbell, and Student Reps. Steve Tebor and Mike Moore.

The year got under way with the traditional fall picnic; once again our thanks to Tom and Nina Hendrix for providing the site. The grillmaster, Norm, served up hot dogs and hamburgers; a couple of pots of "geo-chili" and a keg of beer seemed to satisfy the group, and as usual the volleyball net was seldom left unattended.

Another, hopefully even more profitable, raffle is in the works for this year as well as a possible spring trip. Talk of a trip to Appalachia has taken place, with Bill Neal to do the stratigraphy and a possible correspondence with Bruce Panuska of Duke University to take care of some of the structure. The trip is very much in the air, but we hope we can pull it off.

Once again, we are looking forward to having an exciting, challenging and rewarding Geology Club year.

The Glacier Group of Grand Valley

-Winter 1984-

by John Tweddale

Professor Norm Ten Brink just couldn't find the means this year to take his Glacial Geology (GEO 420) students to Alaska or Baffin Island for an ideal illustration of glaciers in action, so he compromised and introduced us to a "recently" glaciated area - southern Michigan - where a weekend (April 14, 15) Conference of the National Association of Geology Teachers (NAGT) East Central Section was being held at Albion College. The students from Grand Valley who attended were:

Pat Bernethy	Tom Rollo
Bob Brooks	Mark Roslaniec
Blaine Campbell	Pam Snyder
Rich Christensen	Dave Tuck
Bruce Jones	John Tweddale
Todd Minnich	Craig VandenBerge
Mike Moore	Renee Varin
Leslie Ritter	Bob Versical

Although the excitement and majesty of actively-flowing ice was absent, there was still much to learn about previous glaciation in our own "backyard".

We arrived at the campus Saturday morning, registered and received general information at the Norris Center, sipped some coffee, then walked to Palenske Hall where an informal demonstration of geology programs for microcomputers was taking place. Later that afternoon, a symposium entitled "Regional Geology of the Michigan, Ohio and Indiana Area - An Overview and Update" was offered. Lawrence Taylor (Professor/Chairman of Geology, Albion College; Vice-President, NAGT East Central Section) gave an introduction and "welcome". E. William Cambray (Michigan State University) spoke on the Precambrian, W. Thomas Straw (Western Michigan University) detailed the Paleozoic, and Donald F. Eschman (University of Michigan) introduced the topic for the remainder of the conference - the Pleistocene.

By Saturday evening, we were all tired of sitting and found various ways to entertain ourselves on Albion's attractive campus. Many people took a tour of the large Geology Department in Palenske Hall, which had particularly impressive rock, mineral and fossil collections. Most of the professors were present at the Bellemont Manor banquet, where H. Robert Burger, III (Smith College) spoke on "Games, Graphics and Geology". Some Grand Valley students visited with friends or relatives on campus while some took a tour of the town (including "Frat Row"). We lodged at the Carriage House of Bellemont Manor, which had very nice rooms, a pool table and a television. (We couldn't help but reminisce about those freezing nights at McCormick's Creek State Park in southern Indiana. Being in upper level courses does have its advantages!)

Sunday morning and afternoon, about sixty students and faculty participated in a field trip with the title "Deglaciation of South-central Michigan as Interpreted from Ice Disintegration Features and Meltwater Systems of Calhoun and Jackson Counties", organized by Larry Taylor. The trip focused on glacio-fluvial processes and their field evidence, in addition to a general discussion of Wisconsin age ice lobes and moraines. We saw various gravels, lodgement tills, melt-out tills, glacial erratics (including a 25-ton granite boulder) and sedimentary structures along with classic ice-disintegration features like kames, kettles, and eskers. The Blue Ridge Esker, our final stop, also had paleontologic significance. Samples of the fossiliferous Marshall sandstone were collected.

The field trip and seminar at Albion was valuable because it supported and illustrated some of our lecture topics, and provided us with a rare chance to "rub shoulders" with local educators and other students.

Spring Field Trip to the Ozark Ouachita Area

On Monday, May 7, 11 students and Tom Hendrix piled into a GVSC van and a station wagon along with about two tons of gear and set out for Indiana and the first leg of a twelve day trip to southern Indiana and Illinois, the Ozark region of Missouri and Arkansas, and the Ouachita area of Oklahoma and Arkansas. We left armed with road maps, quadrangle maps, regional geological maps and a 256-page "bible" prepared by the students and containing papers of the major areas, geology road logs and few snappy cartoons.

The first day passed without incident until we tried to drive up an abandoned road in a coal strip mine at Dugger, Indiana and ran the van into a ditch. A half-hour of rock hauling later the van was extracted from the ditch with some imaginative driving, and while the students collected *Pcopteris* (plant fossils) on the spoils piles Tom repaired the exhaust system of the van. We broke out the camping gear for the first time that night at Shakamak State Park and discovered that everybody had a sleeping bag and a tent. We also discovered that early May is a good time to camp in state parks in the mid-south. The showers are on but the toll gates are not tended, especially if you arrive after 6 p.m. and leave before 8 a.m.

From Indiana we headed southwest through southern Illinois and a brief look at the fluorospar district to Dixon Springs State Park where Todd Minnick treated about half of the group to "Ohio Chili". The hacksack craze continued with a damp sack which was still drying out after its dunking in the Ohio River from an errant Bob Versical kick.

By noon the next day we were cavorting on the Precambrian core of the St. Francois Mountains of SE Missouri. The day included a climb up Pilot Knob to see the old iron formation quarry on the north face, granites on Elephant Rock and metarhyolites in between. That night we stopped at Johnson Shut-Ins State Park. Ingrid Verhagen and Sheryl Hoving - it was warm there this time! In fact it was sunny and warm every day of the trip after the first day.

Day two in the St. Francois uplift was spent visiting the classical Precambrian-Late Cambrian unconformity at the Tamm Sauk Power Plant, driving to the Tamm Sauk water storage site (where we had to haul Pat Bernethy away from a group of high school girls) and collecting rhyolites along Mo. 72. We had planned to go into a lead-zinc mine at Viburnum but a miner's strike the week before wiped out that trip.

Friday, May 11th saw us on the road again southward to the Big Spring area and then west to Table Rock Reservoir. The students got a taste of Branson, Mo. that night. Free morning the next day to do laundry and relax. Then it was on to Arkansas and the Boston Mountains. We camped in the heart of the Boston Mountains at Devil's Den State Park south of Fayetteville, Arkansas where we were treated to a picnic supper by Bob and Marion Lankston, two former students of Tom at Indiana. Bob is a geophysics prof. at U. Arkansas and Marion runs a geophysics consulting service.

The troop accepted the invitation from the UA coeds at the picnic to go into Fayetteville that night for the U.A. graduation party - a several-blocks-long-bash that lasted late into the night and put most of the GVSC out of commission until about noon the next day. About that time we were beginning our first traverse of the Ouachita area in Oklahoma.

Several days and many, many structure stops later we emerged from the Ouachitas at Little Rock, Arkansas and headed home, with a muddy stop for plant fossils at Puryear, Tennessee and a late night ride through Indiana to home. It was a tired but satisfied group that pulled into Loutit Hall at 2:50 a.m., May 19th. Much of the food space had been replaced by rocks and dirty laundry.

THE GEOLOGY ENDOWMENT/DEVELOPMENT FUND

A Status Report by Norm Ten Brink

The newly initiated Geology Endowment/Development Fund has been very generously supported by several alumni and faculty. Your responses to the challenge I gave last year were most encouraging, bringing the current total of the trust to \$3877.

Our goal is to establish a \$10,000 endowment, with only the interest to be used for specific departmental needs. With \$3877 having been donated to the first year, we just may be able to reach that \$10,000 goal in less than the five-year period set as our objective.

I strongly urge you to support this fund in any way you can because it will allow us to attain badly needed equipment and improvements that cannot be purchased through our basic budget. Thank you, most sincerely, for the support you've already demonstrated, and I hope you will help us reach that \$10,000 goal as soon as possible!

The individuals who have already contributed to the Geology Endowment/Development Fund are listed below. How about adding your name to the "Honor Roll" for the sake of the students who will benefit from the GVSC Geology program as you already have benefited?

Larry and Mary Austin
Herman and Charlene DeLano
John Dombrowski
Larry Flynn
John Freeland
Bruce Geldersma
Tom and Nine Hendrix
Dick and Sandy Lefebvre
Bill and Mary Neal
Suzanne Pearce
Norm and Shirley Ten Brink
Patty Videtich
Jim and Bonnie Walters
Conoco
Texaco

9th ANNUAL GEOLOGY
CHRISTMAS PARTY

For Alumni, Students and other Friends

7 p.m. Wednesday, December 26, 1984

Le Petit Chateau (the old "Little Mexico")
48th Avenue, 0.3 mi. So. of M-45

Tear off & Return by Monday, December 17, 1984

NAME

GUEST'S NAME

Drink Preference

Beer

Pop

Spiked
Punch

Cost: \$10.00 per person
(includes beverages & buffet)

Amount enclosed \$ _____

Make checks payable to: GVSC Geology Club

- - - HOPE TO SEE YOU THERE - - -

If you use this sheet, fold & staple check inside
with GVSC address out