ALUMNI NEWSLETTER

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Department of

Geology and Planetary Science

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Thanks to Rochelle, Candy, Kathleen and Jodi
for putting this newsletter together.

On the cover: A collection of articles and photos published about Dr. Cassidy when he received the Barringer Medal. 'Scientific Impact' paragraph and photo in the upper right hand corner courtesy of the University of Pittsburgh *Research review*, Spring 1996. Lower photo published in the *University Times*, December 7, 1995. Title 'Pitt geologist's fields of dreams feel from sky' appeared in the *Greensburg Tribune* Express, Sunday, Jan. 7, 1996.

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strong component of scientific knowledge, in addition to an understanding of the relevant societal issues. The Bachelor of Arts in Environmental Studies will equip students with an understanding of earth systems and the environment, including the role of geologic processes on human activity, and the impact of humans on the biosphere, atmosphere, hydrosphere, and global climate. The program is designed to provide a comprehensive, interdisciplinary background in the scientific, economic, political and social aspects of human interaction with the environment through a suitable selection of courses from the natural and social sciences.

The Environmental Studies degree will provide a strong, balanced background for students who seek careers in fields such as resource development and management, environmental policy and regulation, land use planning, public policy, and education. Students who successfully complete the program may work for local, state or federal government organizations, consulting firms, or with companies that are affected by environmental issues or regulations. Students may also pursue postgraduate study in fields such as business, law, medicine, public policy, education, international relations, urban and regional planning, and environmental management.

The Environmental Studies Program is a combination of three basic components. Background and core courses provide the necessary background for later advanced study, as well as a basic understanding of environmental processes, issues and technology. Electives in the natural or social sciences with a choice of focus in either then allow the student to explore environmental issues with greater depth and breadth. Capstone courses provide the student an opportunity to use her/his accumulated knowledge in field studies and in an interdisciplinary course taught jointly by natural and social science faculty.

Fund Raising

Concurrent with construction of the new geochemistry laboratories, fund-raising efforts to acquire monies for acquisition of the complementary analytical equipment are also continuing. Proposals for funds to acquire a thermal ionization mass spectrometer (TIMS) have been written and submitted. Hopefully through other fund raising activities we may develop the capacity to buy an inductively-coupled plasma spectrometer (ICP). These instruments will provide the foundation upon which research in environmental and other types of geochemistry will build. The ICP instrument will allow quantitative analysis of most elements in geologic, biologic, hydrologic and atmospheric materials, whereas the TIMS instrument provides a means of measuring isotopic ratios of selected elements in these materials. These ratios are used as tracers for physical and chemical process, "fingerprints" for sources feeding natural systems and as geologic chronometers. The formation of soil and changes in climate are two current research topics.

In spite of the ambitious departmental plans for fund-raising in support of major equipment acquisition, we recognize the need to augment support for students. After two years of awards it is clear that the Norman K. Flint Field Geology Fund and the Henry Leighton Memorial Scholarship Fund are linchpins in our support program for meritorious students. Furthermore our assessment of the graduate program clearly indicates the need to provide more fellowships in support of graduate students. Fellowships enable the department to attract and compete for highly qualified students. Please consider support of these fund-raising goals.

The Record

For the academic year 1995-96, 41 courses were conducted by 12 tenure-stream faculty, of which the average faculty load was 3 courses. A total of 2,321 students were enrolled in these courses for 7,091 credit hours. A breakdown per term for courses is: **fall term (96-1)** - 13 faculty taught 21 courses for an enrollment of 1,030 students totaling 3,152 credit hours; **spring term (96-2)** - 10 faculty taught 18 courses for an enrollment of 1,113 students totaling 3,405 credit hours, and **summer term (95-3)** - 3 non-tenure-stream faculty taught 3 courses for an enrollment of 178 students totaling 534 credit hours. In addition to the lecture courses 61 additional courses which involved independent study, directed study and MS and PhD adivising were conducted.

37 research proposals with requests for $3,775,343 were submitted between May 1994 through December 31, 1995. Of those 37 submitted, 4 were awarded for $136,040 and 11 are pending for $1,328,665.

Undergraduate enrollment currently is 32 students (Juniors and Seniors); 25 graduate students, of which 20 are full-time and 5 are part-time, are also enrolled.

With best wishes, very cordially yours,

Tom Anderson

Tom Anderson

THOMAS H. ANDERSON *[taco@vms.cis.pitt.edu]*

Wednesday, December 27, 1995. Global warming, bah humbug! Two weeks of snow have made for a delightful "White Christmas" in southwestern Pennsylvania.

Last January was spent studying the strange but wonderful rock outcrops south of Bisbee, Arizona in northeastern Sonora, Mexico. These unpretentious exposures record a mind boggling history of faulting, uplifts and consequent gravity-driven deformation of Cretaceous strata. On the last day of the field season we revisited a range named San Jose, (this mountain served as a key location point during Coronado's exploration) about which we had little knowledge. The exposures on the west side of the range are very different from those on the east side where we had previously been, and in light of our recent past studies, we anticipate a rich harvest of information about late Jurassic faults and movements along the faults. We believe that these faults are subsidiary structures to the very large Mojave-Sonora Megashear more than one hundred kilometers to the southwest. We are seeking to determine the geographic extent and effects of faulting associated with this great strike-slip fault. We believe that deep basins formed where splays of the megashear stepped left to form pull-apart basins. These basins are literally holes torn in the earth's crust. Pretty neatsy stuff, (if, of course one enjoys this kind of violence.).

Later in Spring I visited Pasadena, California for the occasion of Lee Silver's retirement bash. It was an elegant affair with good friends, good eats and some good science thrown in.

This Fall I taught structure and advanced structure, the combination of which is always challenging because it requires working weekdays as well as several weekends. Although taxing, it's fun because I learn so much from the field projects conducted by the students. Interspersed with weekend course-related projects were the annual structure/igneous and metamorphic trip to Harpers Ferry and Baltimore as well as two research conferences. I was an invitee to the Penrose Conference in Mesozoic Evolution of the U.S. Cordilleran in Central and Southern California held in Tehachapi, California. It turned out to be one of the best conferences that I have attended because of the intense interest and extensive participation by all participants. In early November I attended the Geological Society of America national meeting in New Orleans where I presented ideas about the aforementioned "pull-apart basins" and also took advantage of a short-course on modelling extensional structures.

Other time was spent developing departmental plans and participating on several University committees. The committee work will decrease in a year, and I am looking forward to the opportunity to spend more time writing. I am getting behind!

Garrett completed an eclectic curriculum (I hope) at Princeton. After starting in astrophysics and then switching to Chinese he graduated with a degree in ecology and evolution. He seems to like plants and has mentioned his interests in Chinese herbal medicines as well as in the process by which Panda bears switched to an all bamboo leaf diet. (I gather the latter is approached principally by studying that which comes out of Panda bears!). In any case, he is spending the year in Wuhan, China smoothing the rough spots in his Chinese language skills

ANDERSON continued

while teaching English at a university. I am about as sure of his future directions as I am of his recent curriculum!?

Sara changed public relations firms in Boston and seems to be getting the knack but longs to employ her training in things international. It is unclear as to how this desire will be manifest but by next year I will bet that she will have big changes in her life.

Tanna is definitely getting used to not having kids afoot. She has been spending time writing and conducting significant household reorganizing.

Best regards to all!

KATHI K. BERATAN *[kathib@vms.cis.pitt.edu]*

The big news this year is that Bob Anderson successfully defended his dissertation, and will be leaving(!) in mid-January for a fantastic Post-Doc position at the Jet Propulsion Laboratory. He will be working with Matt Golumbek, looking at fracture patterns on Mars. His dissertation work on using visible/near-infrared data to map Quaternary geomorphic surfaces in the Whipple Mountains, eastern Mojave Desert was quite successful, and he and I plan to collaborate on a major follow-up project next year.

Although I am continuing my field work in southern California, I am getting more and more involved in remote sensing projects. My primary projects at the moment are studying extension-related potassium metasomatism in the Mojave Desert. Papers are in the works for both of those projects. We have acquired lots more data (storage space is becoming a problem), and several additional projects are in their beginning stages.

This year's field season went well. Cody (my 4-legged field assistant) and I toured around the eastern Mojave Desert and in the Lake Mead area looking at Miocene rock avalanche deposits, and we collected samples in the Whipples as part of the metasomatism project. I also attended an excellent SEPM conference on Alluvial Fans. It was fun to see how little we really know about these systems. (Unfortunately, this will probably be Cody's last trip to the desert. It's too hard on both of us.)

My GSA volume on sedimentology and stratigraphy applied to delineation of structural patterns in extensional terranes (GSA Special Paper 303) is finally almost out. It's been quite an ordeal, but I'm happy with the final results. Looks for it soon in a library near you! Other papers are in press at the moment, including one on the sedimentology of the Confidence Hills, southern Death Valley area, and another on structural control of rock avalanche deposits in extensional basins.

Life is never boring.

MICHAEL BIKERMAN *[bikerman@vms.cis.pitt.edu]*

1995/1996 has been a good year. Spring Break was a chance to visit our son in Panama, and to do a bit of geology at the gold mine where he is the supervising mining engineer. It is a well run operation. In July we had a nephew's wedding in Oregon at Timberline Lodge on Mt. Hood. In preparation that morning, the groom, his older brother and one of his friends climbed Mt. Hood and skied back down, in time for the afternoon ceremony. Hopefully, that strenuous preparation will lead to a long and happy marriage! After that we spent two days exploring the temperate rainforest and beach of the Olympic National Park. As is usually the case, the park encompasses some incredibly beautiful scenery, and dedicated employees and volunteers. I hope the push for government contraction does no harm to the already limited Park Service.

Teaching took up the bulk of my time again. In Spring 1995 I taught Geology 0800 (80 to the old timers), shared Historical Geology with Bud Rollins as before, and had a small, but excellent, class in Ore Deposits - which went for the first time in many years. Summer started with Field Methods - this time immortalized in a Post Gazette feature photograph - and later had me teach a small group in the Geology of National Parks (Geol 0802) in one of the short terms, for CGS. Fall semester reprised Geol 0802, this time for 220 people, along with Physical Geology and Freshman Studies. A Mt. Lebanon H.S.-based Geol 7800, for CGS, completed the teaching.

As far as research went, the past year saw some changes in the old argon mass spectrometer system after a disastrous power failure. The pumping system is being rebuilt to make it more apt to withstand future such trauma. Work continues on the kimberlite dikes of Pennsylvania, and Saskatchewan dating. This year I had much appreciated help in mineral separation, from undergraduate students Susan Kulp, one of our majors, and freshman Mike Martin.

My invitation to any and all of you to come visit is again renewed.

DAVID K. BREZINSKI

I have spent most of the last year with two main geological pursuits. First, I spent most of the fall of 94 mapping in the Cambro-Ordovician limestone around Frederick, Maryland. One of the quadrangles (Buckeystown) is being co-authored with Scott Southworth of the USGS and is in the review process at the National Center. Concurrently, I have been studying the lithostratigraphy and biostratigraphy of the Middle Cambrian Elbrook Formation of Maryland, Pennsylvania, and West Virginia. This paper is to be published in a commemorative volume celebrating the 100th anniversary of the Maryland Geological Survey in 1996. I am co-editing this volume, to which Tom Anderson and Patti Campbell have also submitted a contribution dealing with the western Blue Ridge of Maryland.

BREZINSKI continued

In November of 1994 I made a three week trip to Reno, Nevada to do some photography, and stopped in the Confusion Range of western Utah to collect some Middle Cambrian trilobites from the Wheeler Shale.

In April I had the pleasure of meeting Pitt Geology alumnus Robert Jansto (B.S., 1982) who now works for Technology and Management Services, Inc. of Gaithersburg, Maryland. Bob and his company submitted a proposal to the state to study western Maryland coals.

In early July I was able to tag along on a collecting trip run by the Section of Invertebrate Paleontology of Carnegie Museum. The trip was to collect Lower Mississippian invertebrates of southwestern Montana, and was led by Albert Kollar of Carnegie Museum.

Plans for the next 6 month deal largely with the editing and preparation of a final copy of the 100th anniversary volume and preparation of a field trip guidebook for a June 1996 North American Paleontological Convention, which is being held in Washington, D.C.

ROSEMARY C. CAPO *[rcapo@vms.cis.pitt.edu]*

It's been a very busy and productive year. David Crown and I team taught Groundwater Geology last spring. This year, with the help of graduate student Chuck Whipkey and a Curriculum Development Grant of $5000 from the College of Arts and Sciences, we've added a laboratory section to the class. Students can now put all those equations to work, making physical measurements on their new Darcy flow tubes, and later they'll do a slug test on a nearby well. Along with a pH meter, water level meter, and other assorted equipment, we've also bought groundwater modeling software, so some lab exercises will include computer assignments. We'll use the rest of the grant to upgrade materials for the Physical Geology laboratory. I'm also team teaching Environmental Geology with Jack Donahue and Bud Rollins. Last fall I taught Environmental Geochemistry for the first time. On the research front, later this year I'll be going out to my field area in Hawaii with Master's student Greg Ayres. We'll do field work and soil sampling with our collaborator Oliver Chadwick, a soil scientist at the University of California at Santa Barbara. Greg is sorting out the behavior of rare earth elements in weathering profiles along a climate gradient that includes desert and rain forest sites. PhD student Chuck Whipkey is learning the intricacies of radiogenic isotope geochemistry, and will do dissertation research on the application of radiogenic isotopes as an ecosystem tracer. We're exploring research opportunities at the Pymatuning Laboratory of Ecology. The geochemistry labs are nearing completion -- casework is in, our polypropylene hoods arrived in one piece, and it's looking great. Brian Stewart and I plan to have equipment to put in the instrument room by next year.

JOHN L. CARTER

I finally submitted my manuscript, nearly 800 pages, for the *Treatise on Invertebrate Paleontology*. Nice to have that off my back. My collaboration with Vladislav Poletaev of the Institute of Geological Sciences in Kiev continues. We have a large manuscript nearly finished on the Atokan (Lower Moscovian) brachiopods of northern Ellesmere Island. We hope to start on a similar age fauna from southeastern Alaska (Prince of Wales Island and vicinity, Alexander Terrane) if I can manage to get Vlad back over here before he and his family starve to death. Things are not good in Kiev.

WILLIAM A. CASSIDY *[ansmet@vms.cis.pitt.edu]*

In reflecting on events in 1995, only one memory stands out: as announced at the beginning of T.A.'s section, I was awarded the Barringer Medal of the Meteoritical Society for outstanding research on meteorite craters. While it's true that I have visited a large proportion of the world's recent meteorite impact craters, I can't really claim to have accomplished anything noteworthy at any of them, except one. I spent 8 or 9 field seasons at the Campo del Cielo craters in Argentine, discovering craters, mapping the crater field, making magnetic surveys over most of them and excavating two altogether, and in the other was a single 33.4 ton mass ... it was fun finding it, but once found, what can you do with it? Go figure. Actually, when someone later managed to weigh it, the data were very useful: experimental studies have shown how to calculate the kinetic energy of formation of an impact crater - the term is $1/2\ mv^2$ - and this can be converted to the kinetic energy of the meteorite at impact, and if you know the mass (33.4 tons, for example) you can calculate the velocity of impact. If structural studies of the crater then give you the azimuth and angle of impact, you are well started on calculating its path through the atmosphere and, hopefully, learning some of the parameters of its extraterrestrial orbit. I was crazy enough to attempt this, with a lot of help from a colleague who did lots of complicated calculations, so I could make a case for believing they gave me the medal for being crazy! Is there a lesson here for young scientists? Who knows? What I would say is, I had a lot of fun doing this research, and if you are a young scientist I would suggest you engage in the kind of research that you consider to be the most fun.

You may not amass riches but, with Frank Sinatra, you can sing, "I did it my way!"

DAVID A. CROWN *[dcrown@vms.cis.pitt.edu]*

It's hard to believe that 1995 is over and 1996 here. This past year marked my first full year teaching, including Groundwater Geology in the spring with Rosemary Capo and The Planets in the summer. Currently, I am team-teaching Geomorphology with Jack Donahue, combining his interests in soils, fluvial processes, caves, and climate change with my interests in volcanism, mass movements, and the evolution of planetary surfaces. I have also initiated a graduate seminar course entitled Geology of Mars in which a group of students and I are reviewing our current understanding of the geologic processes that have acted to shape the Martian surface. We were fortunate to have had guest lectures from Dr. Jeffrey Plescia of NASA Headquarters on the tectonic landforms and history of Mars and from Pitt Alum Dr. Ralph Harvey of Case Western Reserve University on recent analyses of Martian meteorites. The upcoming year will include the addition of a laboratory to Groundwater Geology to expose the students to some of the more practical applications of this growing field and the creation of a new course entitled Geologic and Environmental Hazards, which will be team-taught with Rosemary Capo.

The past year has been a busy one within our department. I have been involved as part of the new Undergraduate Curriculum Committee in efforts to review and modernize the requirements for the Bachelor of Science degrees in Geology and Environmental Geology. Also underway is an assessment of the various components of our graduate program and a desire to incorporate an environmental perspective into our departmental activities and courses. Recently I have initiated an effort to catalogue our large departmental map collection.

My NASA supported research activities continue as well and are focused in two main areas: geologic mapping and analyses of volcanic processes. Currently, I am involved in producing geologic maps of quadrangles on Mars and Venus as part of the U.S. Geological Survey's Miscellaneous Investigations Map Series. On Mars, the focus is understanding the nature and timing of the volcanic, tectonic, and fluvial processes that have modified the ancient cratered highlands. On Venus, the emphasis is on defining regional stratigraphic relationships and on understanding the volcanic evolution of plains regions. In a related effort, field investigations of volcanic domes in eastern California in combination with airborne radar data provide ground truth for interpretations of the emplacement dynamics of Venusian lava domes. Analyses of the relationships between the morphologic properties of Hawaiian lava flows and eruption and emplacement conditions also continue; the long term objective of this research is to be able to constrain the volcanic histories of other planetary surfaces using physical models for the cooling and flow behavior of lavas. In April, I collected a second season of field data on the 1969-1974 Mauna Ulu pahoehoe flows; graduate student Matthew Peitersen and I continue to analyze the a'a flows emplacement in the 1980's from Puu Oo, a cinder cone on the east rift zone of Kilauea volcano. Analyses of the morphologic properties of lave flows associated with several Martian volcanoes are in progress. We also welcome new graduate student Scott Mest from West Chester University in eastern Pennsylvania.

CROWN continued

In addition to field work, 1995 was full of travel to meetings and conferences. I gave presentations at the Lunar and Planetary Science Conference at Johnson Space Center in March and at the Planetary Geological Mappers Meeting at the Astrogeology Branch of the U.S.G.S. in Flagstaff, Arizona in July. My participation on the Planetary Cartography and Geologic Mapping Working Group and the Lunar and Planetary Geoscience Review Panel for NASA's Planetary Geology and Geophysics Program have made me a frequent visitor to both Houston and Flagstaff in the past few years.

The upcoming year should be an exciting one for planetary science with the return of data from the Galileo mission to Jupiter and the planned launches of Mars Pathfinder and Mars Global Surveyor. The scientific community is eagerly anticipating data returned from these missions and the opportunities for advancing our understanding of the geologic histories of other planetary surfaces.

MARY DAWSON *[dawsonm@clp2.clpgh.org]*

Research is continuing on Middle Eocene vertebrate faunas from China, Middle Eocene through Oligocene faunas of western Montana, and Eocene and Miocene vertebrates of the High Arctic, the last being of considerable biogeographic and climatic significance.

The Annual Meeting of the Society of Vertebrate Paleontology was held in Pittsburgh on November 1-4 at the Sheraton Station Square.

JACK DONAHUE *[jdonahue@vms.cis.pitt.edu]*

In 1995 I returned to some old research interests and was able to upgrade them significantly. Brian Peer, one of my graduate students and I took a new look at data from Meadowcroft Rockshelter and, using computer graphics, reconstructed colluvial slope development below the shelter from about 20,000 BP to present. We were also able to make estimates concerning evolution of the cliff line above the shelter. The result were presented in a symposium at the 1995 SE GSA in Knoxville. Tom Shaub, a biblical archaeologist at Indiana University of Pennsylvania, Brian and I also got together looking at Early Bronze archaeological site distribution in the Jordanian Dead Sea Valley. Several Israeli geologists have made new estimates of past Dead Sea levels using data from salt caves in Mt. Sedom and have suggested a 100 m higher stand during Early Bronze times. This higher stand which we mapped using computer graphics, places the paleoshoreline adjacent to the Early Bronze sites and does a neat job of explaining a number of features which I was unable to account for in the field. The results of this work were presented at an international meeting in Torino, Italy and at the annual GSA meeting in New Orleans.

BRUCE W. HAPKE *[hapke@vms.cis.pitt.edu]*

For the past several years I have been heavily involved in a proposal to NASA for an unmanned spacecraft, called Hermes, to orbit Mercury. The team making the proposal was led by Pitt graduate Bob Nelson, who is a planetary scientist at the Jet Propulsion Laboratory. The mission was proposed as part of NASA's new Discovery program. Unfortunately, Hermes was not selected for funding this year, as we had hoped. The planetary science community was disappointed in the missions chosen because the primary selection criterion used by NASA was low cost, rather than quality of science. However, we intend to keep pushing NASA for a Mercury mission.

As many of you know, I have been active for many years in developing mathematical models to describe the scattering of visible sunlight by planetary soils. During the past year I have been busy extending this model to also include radiation thermally emitted by regoliths. The new model should be useful for analyzing remote sensing data from the earth and other bodies of the solar system in both the visible and infrared part of the spectrum. A paper describing the new model has been accepted for publication in the Journal of Geophysical Research.

During the past several years I have been collaborating with Bob Nelson of JPL in the study of the so-called "opposition effect". This effect is the spike in the brightness of a particulate medium seen near zero phase angle, when the sun is directly over the shoulder of the observer. The opposition effect is a useful tool in remote sensing, and gives information about the porosity and particle size of the medium. The effect can be caused by two different processes, shadow-hiding (in which the objects making up the medium casts shadows that are visible at every angle except zero phase) and coherent backscattering (which is an interference phenomenon). It is important to know which process causes the spike, because this strongly affects the interpretation. This year, in addition to studying the effect in soils, my students and I measured it in vegetation and snow. We were able to show that in most vegetation the effect is caused by shadow-hiding, while in snow and frost it is caused by coherent backscatter.

Finally, I cannot resist sharing an episode that was highly annoying at the time, but is humorous in retrospect. I recently submitted a paper to a journal for publication. The paper contained conclusions based on new laboratory data I had recently taken, which were included. As usual, the editor sent the manuscript out for review. When the reviews came back, one of the referees strongly disagreed with the conclusions of the paper and recommended that the paper not be published on the grounds that the supporting laboratory data "were unpublished"! This was a classic case, if there ever was one, of "My mind is made up - don't bother me with facts." Fortunately, the editor also realized this and accepted the paper, which is now in press.

WILLIAM HARBERT *[harbert@vms.cis.pitt.edu]*

This year has been very busy. I was invited to the semi-annual Zonenshain plate tectonics meeting in Moscow Russia and am happy to have made two presentations. The first summarized the first-rate work of Mr. Xi Xu in his completed master's thesis entitled *Reconnaissance paleomagnetic investigation of some Paleozoic rocks from the Mongol-Okhotsk collision zone, Chita region, southcentral Russia.* The second talk presented a joint paleomagnetic study of northern Kamchatka which I'd completed with colleagues at the Institute of Geology in Moscow. The data came from northern Kamchatka and are the first from this region.

I am very happy to report that Alexander Heiphetz completed his PhD dissertation entitled *Paleomagnetism, tectonics, and oil geology of the Koryak region, northeastern Russia.* This is the best summary of the geology and tectonics of northern Kamchatka available. Sasha, Sveta, and their child are enjoying living and working hard in Pittsburgh.

The Paleomagnetic Laboratory continues to operate. We had a total loss of liquid helium due to a failure of a cold head component. However, I'm happy to report that everything is fixed and up and running. Another exciting thing was the replacement of our cryogenic refrigeration unit's high volume fan by graduate student Brian Peer and myself. This was something like a "Mission Impossible" episode because the unit can only properly be repaired by people with arms about 1 inch in diameter and four feet in length. Nevertheless Brian and I replaced the unit in about 4 minutes and had the cryocompressor working perfectly! We have had many visitors to our lab who made good use of it during the last year.

We have also started a minor in Geographic Information Systems, which consists of three classes which I am teaching. These are Arc/Info, Advanced Arc/Info and Arc/View. Best regards to all, please check our department WWW site if you're in the neighborhood (http://www.geology.pitt.edu), be sure to jump to our department and check things out. Please send an e-mail from the site and let us know how you're doing!

EDWARD G. LIDIAK *[egl@vms.cis.pitt.edu]*

Some of you may recall last year I reported in this newsletter that I had been very busy completing a number of manuscripts. These manuscripts were duly submitted to various journals or special publications and, as seems to be a matter of life these days, then subjected to rather thorough editorial reviews by editors and external reviewers. I am pleased to state that the manuscripts are now in various stages of publication. However, I must also report that as a result of the detailed review process, I spent a significant amount of time this year working on manuscript revisions in response to reviewers comments and evaluations. Well, the bottom line is that I do not think that I shall soon attempt to publish as many manuscripts in the same time frame. From my perspective, it is clearly more fun doing the research and preparing a manuscript for publication than it is in making revisions to reviewers comments.

I also spent a considerable amount of time this year editing (along with Dave Larue of Exxon) a proposed new Geological Society of America Special Paper on the "Tectonics and Geochemistry of the Northeastern Caribbean." I am a contributing author on three of the manuscripts that are to be included in the volume. This includes a newly compiled geologic map of Puerto Rico in sparkling color.

I continue to do my best in the departmental teaching mission. In the Spring Term of 1995 I taught the undergraduate optical and x-ray mineralogy course. In the Fall Term, I have just completed teaching three courses: an introduction to geology for beginning level students, an upper-level igneous and metamorphic petrology course, and an advanced graduate-level course in igneous petrology.

In the Spring, I attended the 12th International Conference on Basement Tectonics at Norman, Oklahoma. I presented a paper at the meeting on the Precambrian granitoids of the Arbuckle Mountains of southeastern Oklahoma. I was also a co-leader on a field trip to the Precambrian rocks of the Arbuckle. The meeting included a side-trip to the Llano uplift of central Texas. Although the meeting was relatively small with only about 50-60 in attendance, it was an excellent meeting that served as a good summation of recent work on the Precambrian of the southern and southwestern United States. The Norman meeting occurred just a week after the Oklahoma City bombing. What a shocker that was!

The month of July found me in Trinidad and Tobago attending the 14th Caribbean Geological Conference and presenting a review paper on the granitoid rocks of the Caribbean. It was rather hot and humid in Trinidad but enjoyable. My wife and I particularly liked Tobago (wonderful geology, beautiful scenery). I looked for but did not see Robinson Crusoe.

This Fall I attended the annual Geological Society of America meeting in New Orleans. My colleagues and I presented a poster session on the volcanic stratigraphy of Puerto Rico. I love going to New Orleans and visiting many of the great restaurants there. My wife and I had a great visit, particularly as we were not mugged a single time.

My best wishes to all of you.

WALTER PILANT *[wpilant@vms.cis.pitt.edu]*

Well, 1995 was a big year for me. After 32 years in the Department, I took early (just a bit) retirement and so in 1996 I can spend a lot of time with my "beloved" computers. My first work with computers was in 1953 -- this was with punched cards, wired boards, and an IBM 407 accounting machine. What a change in the last 40 years -- I figure computing is at least 10,000 times cheaper and faster than when I started. As I retire, I am setting up a small (auxiliary) lab for students to use some of my computers that are not quite ready for "doorstop" status yet. Access should provide some relief. It's rather interesting that I got into geophysics through computers and electronics (I had never had a course in geophysics and only one in geology) and that with retirement I'll be mostly working with them again.

I was not able to get into the field in '95 and probably will have to "rent" some graduate students to do some interesting follow-ups to my work in Maryland this year. I hope to finish up the map of South Mountain north of the Potomac River and get a good start on Blue Ridge in the same region. It is with Blue Ridge that a lot of field work needs to be done.

I'll miss teaching and working with Grad Students, although I'm still allowed to be on graduate committees. However, I'll not miss going to meetings with all their problems and angst! Nothing but research and writing computer software. It can't get better than this!

Lastly, I had quite a retirement party. Most of the faculty and many of the students were there. It was a nice send-off. Thanks to everyone involved for the gift of a CD carousel and accompanying CD's as well as some other gifts. They'll make spending long winter's evenings much more enjoyable.

HAROLD B. ROLLINS *[snail@vms.cis.pitt.edu]*

The highlight of 1995 was my involvement in the Honor's College course entitled Ecology of the Greater Yellowstone Ecosystem. I taught the geology portion of two sessions of this course, headquartered at the K bar Z Ranch near Cooke City, Montana - just a bit outside the northeast entrance to Yellowstone Park. The combination of some of the world's most spectacular geology and most spectacular wildlife was hard to beat! My course offerings were conducted entirely in the field - places like Beartooth Butte, White Mountain, Heart Mountain, Specimen Ridge, Mammoth Hot Springs, etc., etc. I "ran into" grizzlies, golden eagles, bighorn sheep, moose, elk, etc. Even had time for some fly-fishing in the Lamar Valley. The students were some of the finest undergraduates at Pitt, including three Chancellor's Scholars.

I was joined in Montana during the second session by my wife, Judy. Actually I drove to Salt Lake to pick her up at the airport and we toured around Nevada, Calif., Oregon, and Washington for a couple weeks prior to the second session. Our son, Steve, who is currently an aviculturist working with penguins at Sea World in Orlando, drove out to Montana to join us for a few days in mid-August, near the end of the second geology session.

ROLLINS continued

Other activities over the last year have included ongoing research on St. Catherines Island (mapping beach ridges), a trip to University of Maine in Orono to meet with climatologists and Dan Sandweiss, an archaeology colleague, and a trip to Minneapolis to present a paper at the annual SAA meeting, dealing with the origin of El Niño. In addition, several of us in the Department have spent a great deal of time over the last few months in ongoing efforts to establish an undergraduate major at Pitt in Environmental Studies. I currently have several graduate students who are involved in diverse research, including the geochemistry of slag, the monitoring of riverine ecosystem "health", the origin of beach ridge/dunes, the Permian mass extinction event, and the ecology of salt marsh foraminifera.

JACK SHARKEY *[ashark@vms.cis.pitt.edu]*

My research activities this year have involved several diverse applications of Mass Spectrometry. The surface of oxidized coal was studied by mass spectrometry as prolonged exposure to air produces changes in the combination properties of coal. A second investigation in collaboration with the Chemistry Department and the School of Medicine, involved a study of blood from baboons following liver transplants. It is known that anti-rejection drugs produce metabolytes that could be harmful. Mass Spectrometry was used to assist in identifying the metabolytes. Techniques to combine separation directly with Mass Spectrometry analysis were also developed.

Mass Spectrometry continues to be the analytical instrument of choice by EPA for the analysis of contaminants in water. Over 125 priority pollutants can be analyzed by Mass Spectrometry. This past year an informal internship arrangement was established with a local environmental laboratory that provides EPA type analyses. Five students have conducted Undergraduate Research in mass spectrometry under this arrangement. Two of the students now have positions with environmental laboratories and two have gone to graduate school.

I am continuing my committee work with the Pittsburgh Analytical Conference as a member of the Program Committee. Three graduate students assisted as Student Aides at the 1995 Conference in New Orleans: Henry Prellwitz, Roman Kyshakevych and Greg Ayres.

BRIAN STEWART *[bstewart@vms.cis.pitt.edu]*

This has been a busy and exciting year for me; in September, I officially joined the tenure stream (as scheduled), and I began teaching my first course (Introduction to Geochemistry). In addition, construction on the chemistry and mass spectrometry labs kicked into high gear, much to the chagrin of the faculty who happened to be in the vicinity of the construction zone (especially Professor Crown, who was in his office when a workman accidentally drilled up through his floor). I have spent much of the latter part of 1995 dealing with architects, engineers, plumbers, electricians, and painters. The labs should be ready for Professor Capo and me in mid-January, and we eagerly anticipate doing our work here instead of at Caltech.

In the next year, I look forward to immersing myself in several research projects, including an isotope study of fluid flow associated with Fe-Mn mineralization (with Professor Anderson and graduate student Keith Stewart), continued work in soil-vegetation systems, and studies of coal paleoenvironments (with graduate student Steve Schatzel). Ed Lidiak and I also put in a proposal to carry out isotope studies of Caribbean granitoids, and I am collaborating with Professor Capo and colleagues from Biology and Environmental Engineering in a watershed-scale study at Pitt's Pymatuning Laboratory of Ecology. I look forward as well to continuing to teach graduate and undergraduate courses, which have given me enjoyable and valuable interaction with G&PS students.

ROBERT WITKOWSKI *[rewitk+@pitt.edu]*

The opportunity for me to join the University of Pittsburgh came in November, 1994 when I accepted an early retirement plan from the Westinghouse Science and Technology Center (WSTC). My professional career at Westinghouse was a long and profitable one but the excitement and challenge to step-off on my own was just too enticing to pass up! As with all new adventures, the building of a second career as an independent consultant is not without difficulty but the rewards are equally great. My wife Annie and I are thoroughly enjoying my new-found freedom.

I continue my research studies in the plasma growth and characterization of polycrystalline diamond working with long-time associate, Professor Sanford A. Asher in the Chemistry Department. We have a joint research agreement with WSTC that permits us to use a small 1.5 kW microwave excited plasma system that I built there; at the present time we are installing a continuous wave, intracavity frequency doubled Ultraviolet (UV) Laser Raman Spectrometer on-board the reactor. This will give us the capability to observe for the first time, deep within the ultraviolet region, the real-time growth chemistry of diamond from the plasma state.

WITKOWSKI continued

On August 1, 1995, I received the appointment of Adjunct Assistant Professor of Geology and Planetary Science. I'm very pleased to be associated with my "University-home" department and look forward to playing an important role in the development and establishment of new projects and programs. I continue to be interested in interplanetary dust particles (IDPs) and now, with the use of micro UV Raman spectroscopy techniques, hope to study and characterize the carbon and carbonaceous components of these very tiny extraterrestrial visitors.

I maintain my association with the Carnegie Museum of Natural History as a Research Associate in the Section of Minerals and can now enjoy representing our department as a speaker for the Westinghouse Science Honors Institute.

CURRENT FUNDED RESEARCH PROJECTS

Crown, David A., **Models for the Emplacement of Lava Flows: Styles of Effusive Volcanism on Mars** - National Aeronautics and Space Administration.

Crown, David A., **Geologic Mapping of Reull Vallis, Mars** - National Aeronautics and Space Administration.

Hapke, Bruce W., **Photometric Analysis of Spacecraft Images** - National Aeronautics and Space Administration.

THOMAS H. ANDERSON

Abstracts:

Campbell, P., and **Anderson, T.H.**, 1995, Deformational Processes and Partitioning of Strain in Microstructural Domains in Calc-Mylonite, Central Appalachians [abs.]: Geology Society of America Abstracts with Programs, v. 27, no. 2, p. 41.

JOHN L. CARTER

Articles:

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DAVID A. CROWN

Abstracts:

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Crown, D.A. and Baloga, S.M., 1995, Characteristics of pahoehoe flows and implications for the emplacement of compound lava flow fields [abs.]: Lunar and Planetary Science Conference XXVI, p. 297-298.

Crown, D.A., and Peitersen, M.N., 1995, Downflow morphologic variations in Hawaiian and Martian lava flows [abs.]: Lunar and Planetary Science Conference XXVI, p. 299-300.

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Stofan, E.R., **Crown, D.A.**, Anderson, S.W., and Plaut, J.J., year, Surface morphology of steepsided domes on Venus: Implications for emplacement history [abs.]: Lunar and Planetary Science Conference XXVI, v. 26, no. 3, p. 1363-1364.

JACK DONAHUE

Abstracts:

Donahue, J., 1995, Meadowcroft Rockshelter: A Quantitative Model for Cliffline and Colluvial Slope Development [abs.]: Geological Society of America Abstracts with Programs, v. 27, no. 2, p. 49.

DONAHUE continued

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MARY DAWSON

Articles:

Tong, Y.-s, and **Mary R. Dawson**, 1995, Early Eocene rodents (Mammalia) from Shandong Province, People's Republic of China: Annals of Carnegie Museum, v. 64, no. 1, p. 51-63.

BRUCE W. HAPKE

Articles:

McGuire, A., **Bruce Hapke**, 1994, An Experimental Study of Light Scattering by Large Irregular Particles: Icarus, v. 115, p. 134-155.

Abstracts:

Hapke, B., *et al.*, 1995, Studies of the Opposition Effect and Negative Polarization with the JPL Photopolarimeters [abs.]: Lunar and Planetary Science Conference XXVI, v. 26, no. 2, p. 549-550.

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WILLIAM HARBERT

Abstracts:

Harbert, William, Dril, Sergi, Kravchinsky, Vadim and Xi, Xu, 1995, Reconnaissance paleomagnetic investigation of some paleozoic rocks from the Mongol-Okhotsk collision zone, Chita region, southcentral Russia [abs.]: Fifth Plate Tectonics Conference, Moscow, Russia, p. 70-71.

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EDWARD G. LIDIAK

Articles:

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Abstracts:

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Jolly, W.T., **Lidiak, E.G.**, Dickin, A.P. and Wu, T.-w, 1995, Volcanism, tectonics, and stratigraphic correlations in Puerto Rico [abs.]: Geological Society of America Abstracts with Programs, v. 27, p. 228.

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HAROLD B. ROLLINS

Articles:

Jones, J.R., B. Cameron, and **H.B. Rollins**, 1995, Paleoenvironmental history of a Holocene freshwater deposit discovered along coastal northeastern Massachusetts: Northeastern Geology, v. 17, no. 1, p. 89-94.

Abstracts:

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Faculty Publications

ANDREW G. SHARKEY, JR.

Articles:

Arkady I., Gusev, Olivier J. Vasseur, Andrew Proctor, **Andrew G. Sharkey** and David M. Hercules, 1995, Imaging of Thin Layer Chromatograms Using Matrix Assisted Laser Desorption/Ionization Mass Spectrometry: Analytical Chemistry, p. 67.

BRIAN W. STEWART

Articles:

Stewart, B.W. and DePaolo, D.J., 1996, Isotopic studies of processes in mafic magma chambers: III. The Muskox intrusion, Northwest Territories, Canada, *in* Basu, A. and Hart, S., eds., Isotopic Studies of Crust-Mantle Evolution: Geophysical Monograph 95, American Geophysical Union, Washington, D.C., pp. 277-292.

Abstracts:

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ROBERT E. WITKOWSKI

Articles:

Bormett, R.W., Asher, S. A., **Witkowski, R.E.**, Partlow, W.D., Lizewski, R., and Pettit, F., 1995, UV Raman Spectroscopy characterizes chemical vapor deposition diamond film growth and oxidation: Journal of Applied Physics, v. 77, no. 11, p. 5916.

Articles:

Marshall, L.P., and Lidiak, E.G., 1996, Geochemistry of Keweenawan basalt in the subsurface of Nebraska: Precambrian Research, v. 76, p. 47-65.

McGuire, A., Bruce Hapke, 1994, An Experimental Study of Light Scattering by Large Irregular Particles: Icarus, v. 115, p. 134-155.

Abstracts:

Campbell, P., and Anderson, T.H., 1995, Deformational Processes and Partitioning of Strain in Microstructural Domains in Calc-Mylonite, Central Appalachians [abs.]: Geology Society of America Abstracts with Programs, v. 27, no. 2, p. 41.

Crown, D.A., and **Peitersen, M.N.**, 1995, Downflow morphologic variations in Hawaiian and Martian lava flows [abs.]: Lunar and Planetary Science Conference XXVI, p. 299-300.

Crown, D.A., and **Stewart, K.H.**, 1995, Debris aprons in the eastern Hellas region of Mars [abs.]: Lunar and Planetary Science Conference XXVI, p. 301-302.

Harbert, William, Dril, Sergi, Kravchinsky, Vadim, and **Xi, Xu**, 1995, Reconnaissance paleomagnetic investigation of some paleozoic rocks from the Mongol-Okhotsk collision zone, Chita region, southcentral Russia [abs.]: Fifth Plate Tectonics Conference, Moscow, Russia, p. 70-71.

Peer, B.J., Donahue, J., and Schaub, R.T., 1995, Reconstructing Paleotopography and Dead Sea Level High Stands during Early Bronze Times Using Image Processing and GIS Techniques [abs.]: Geological Society of America Abstracts with Programs, v. 27, no. 6, p. 137.

Rollins, H.B., **G. Ayres**, and D. Sandweiss, 1995, Are inhabitants of cross-latitudinal coasts more frequently impacted by short-term climatic and resource pertubations? A model for decade- to millenia-scale fluctuations of climate, sea-level, and fishery resources [abs.]: Society of American Archaeology, p. 162.

Faculty Publications *(in press, in review or in preparation)*

Articles - in press:

Anderson, R., **Beratan, K.K.**, Zimmerman, P.A., Hercules, D.M., and McKeown, P.J., *(in press)*, Analysis of rock varnish from the Whipple Mountains, southeastern California, using Time-of-flight Secondary Ion Mass Spectrometry: Chemical Geology.

Beratan, K.K., ed., 1996, Reconstructing the history of Basin and Range extension using sedimentology and stratigraphy: GSA Special Paper 303 *(in press)*.

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Cassidy, W.A. and M.L. Renard, *(in press)*, Discovering Research Value in Small Meteorite Craters: Journal of Meteoritics.

Cassidy, W.A., and M.L. Renard, *(in press)*, The Barringer Medal paper: Discovering research value in the Campo del Cielo, Argentina meteorite craters: Meteoritics and Planetary Science.

Hapke, B., 1996, Radiative Transfer in Planetary Regoliths: Journal of Geophysical Research *(in press)*.

Hapke, B., D. DiMucci, R. Nelson and W. Smykthe, 1996, The Cause of the Hot Spot in Vegetation Canopies and Soils; Shadow-Hiding Versus Coherent Backscatter: Remote Sensing of the Environment *(in press)*.

Hapke, B., 1996, Are Planetary Regolith Particles Back Scattering? Response to a Paper by M. Mishchenko: Journal of Quantitative Spectrometry and Rad. Transfer *(in press)*.

Abstracts - in press:

Anderson, R.C., **Beratan, K.K.** and Blom, R.G., 1995, Identification of Quaternary geomorphic surfaces using LANDSAT Thematic Mapper data, Whipple Mountains, southeast California [abs.]: Mojave Desert Quaternary Research Symposium, San Bernardino County Museum, Redlands, CA *(in press)*.

Beratan, K.K., 1995, Tectonic controls on rock avalanche characteristics: examples from the Colorado River Extensional corridor, SE California - W Arizona [abs.]: SEPM International Research Conference on Alluvial Fans, Death Valley, CA *(in press)*.

Abstracts - in press (continued):

Beratan, K.K., Peer, B., Chapin, C.E., Dunbar, N.W. and Blom, R.G., 1996, A remote sensing approach to alteration mapping: AVIRIS data and extension-related potassium metasomatism, Socorro, New Mexico [abs.]: Eleventh Thematic Conference on Geologic Remote Sensing, Las Vegas, NV *(in press)*.

Donahue, J., Peer B., and R.T. Schaub, 1995, The Southeastern Dead Sea Plain: Changing Shorelines and Their Impact on Settlement Patterns of the Major Historical Periods of the Region [abs.]: History and Archaeology of Jordan, VI, Torino, Italy *(in press)*.

Donahue, Jack, 1995, Meadowcroft Rockshelter: A Quantitative Model for Cliff Line and Colluvial Slope Development [abs.]: Geological Society of America Abstracts with Programs *(in press)*.

Schatt, D. and **B. Hapke**, 1995, Exact Solutions for Coherent Scattering by Two Spheres: Implications for Light Scattering by Planetary Regoliths [abs.]: Division for Planetary Sciences of the American Astronomical Society *(in press)*.

Articles - in review:

Arkady, I., Gusev, David C. Muddiman, Andrew Proctor, **Andrew G. Sharkey**, David M. Hercules, Prasad N.V. Tata, Raman Venkataramanan, 1995, A Quantitative Study of Hepatic Metabolism of Tacrolimus (FK506) in Baboons Using Sims and Maldi Mass Spectrometry: Journal of the American Chemical Society *(in review)*.

Dawson, Mary R. and K. Christopher Beard, *(in review)*, New Late Paleocene Rodents (Mammalia) from Big Multi Quarry, Washakie Basin, Wyoming: Paleovertebrata.

Echelmeyer, K., **W. Cassidy** and J. Schutt, 1995, Radio echo-sounding thickness measurements of the Lewis Cliff Ice Tongue, Antarctica: Antarctic Journal of the United States *(in review)*.

Kim, Yeonhee, Nancy J. Jensen, **Andrew G. Sharkey**, and David M. Hercules, *(in review)*, Detection of Organic Compounds Using Laser and Secondary Ion Mass Spectrometry in Combination with Derivatization: Fuel.

Krylov, K., Alexander Heiphetz, **William Harbert**, V. Grigoriev, and P. Layer, 1995, Tectonics, Geochronology, Paleomagnetism and Geochemistry of the Kuyul region, northeastern Russia: Implications for development and evolution of the northwest Pacific basin: Tectonophysics *(in review)*.

Krylov, K., Heiphetz, Alexander, **Harbert, William**, Grigoriev, V., and Layer, P., 1995, Tectonics, Geochronology, Paleomagnetism and Geochemistry of the Kuyul region, northeastern Russia: Implications for development and evolution of the northwest Pacific basin, *(in review)*.

Sharkey, Andrew G., *(in review)*, The Development and Early Applications of Commercial Mass Spectrometers: Analytical Chemistry.

Faculty Publications *(in press, in review or in preparation)*

*Articles - **in review (continued):***

Stewart, B.W., Papanastassiou, D.A. and Wasserburg, G.J., *(in review)*, Sm-Nd systematics of a silicate inclusion in the Caddo IAB iron meteorite: Earth Planetary Science Letters.

Xu, Xi, **William Harbert**, S. Dril, and V. Kravchinsky, 1995, New Paleomagnetic Data from the Mongol-Okhotsk collision zone, Chita Region, south-central Russia: Implications for Paleozoic Paleogeography of the Mongol-Okhotsk Ocean: Tectonophysics *(in review)*.

*Maps - **in review:***

Crown, D.A., and Greeley, R., 1995, Geologic Map of MTM Quadrangles -30262 and -30267, Hadriaca Patera Region of Mars: United States Geological Survey *(in review)*.

Crown, D.A., and Greeley, R., 1995, Geologic Map of MTM Quadrangles -3062 and -30267, Hadriaca Patera Region of Mars: United States Geological Survey (*in review*)

Gregg, T.K.P., **Crown, D.A.**, and Greely, R., 1995, Geologic Map of MTM Quadrangle -20252, Tyrrhena Patera Region of Mars: United States Geological Survey (*in review*).

*Maps - **in preparation:***

Crown, D.A., Stofan, E.R., and Plaut, J.J., 1995, Geologic Map of the Guinevere Planitia Quadrangle of Venus: United States Geological Survey *(in preparation)*.

Student Publications *(in press, in review or in preparation)*

Articles - in press:

Anderson, R., Beratan, K.K., Zimmerman, P.A., Hercules, D.M., and McKeown, P.J., *(in press)*, Analysis of rock varnish from the Whipple Mountains, southeastern California, using Time-of-flight Secondary Ion Mass Spectrometry: Chemical Geology.

Hapke, B., **D. DiMucci**, R. Nelson and W. Smykthe, 1996, The Cause of the Hot Spot in Vegetation Canopies and Soils; Shadow-Hiding Versus Coherent Backscatter: Remote Sensing of the Environment *(in press)*.

Krylov, K., **Heiphetz, Alexander**, Harbert, William, Grigoriev, V., and Layer, P., 1995, Tectonics, Geochronology, Paleomagnetism and Geochemistry of the Kuyul region, northeastern Russia: Implications for development and evolution of the northwest Pacific basin: *(in review)*.

Xu, Xi, William Harbert, S. Dril, and V. Kravchinsky, 1995, New Paleomagnetic Data from the Mongol-Okhotsk collision zone, Chita Region, south-central Russia: Implications for Paleozoic Paleogeography of the Mongol-Okhotsk Ocean: Tectonophysics *(in review)*.

Abstracts - in press:

Anderson, R.C., Beratan, K.K. and Blom, R.G., 1995, Identification of Quaternary geomorphic surfaces using LANDSAT Thematic Mapper data, Whipple Mountains, southeast California [abs.]: Mojave Desert Quaternary Research Symposium, San Bernardino County Museum, Redlands, CA *(in press)*.

Beratan, K.K., **Peer, B.**, Chapin, C.E., Dunbar, N.W. and Blom, R.G., 1996, A remote sensing approach to alteration mapping: AVIRIS data and extension-related potassium metasomatism, Socorro, New Mexico [abs.]: Eleventh Thematic Conference on Geologic Remote Sensing, Las Vegas, NV *(in press)*.

Donahue, J., **Peer B.**, and R.T. Schaub, 1995, The Southeastern Dead Sea Plain: Changing Shorelines and Their Impact on Settlement Patterns of the Major Historical Periods of the Region [abs.]: History and Archaeology of Jordan, VI, Torino, Italy *(in press)*.

Schatt, D. and B. Hapke, 1995, Exact Solutions for Coherent Scattering by Two Spheres: Implications for Light Scattering by Planetary Regoliths [abs.]: Division for Planetary Sciences of the American Astronomical Society *(in press)*.

Articles - in review:

Krylov, K., **Alexander Heiphetz**, William Harbert, V. Grigoriev, and P. Layer, 1995, Tectonics, Geochronology, Paleomagnetism and Geochemistry of the Kuyul region, northeastern Russia: Implications for development and evolution of the northwest Pacific basin: Tectonophysics *(in review)*.

UNDERGRADUATE STUDENTS

1. ALLISON, Ryon V.♦
2. ANSTEY, Jonathan*
3. BALKOVEC, Robert♦
4. BISHOP, William P.*
5. BREITENBACH, Elizabeth*
6. DEAN, Douglas♦
7. DeRUBERTIS, Diana♦
8. DeSTEFANO, Christine*
9. FANDRAY, Ryan*
10. GANZER, Tamara*
11. HAMILTON, James*
12. KULP, Susan♦
13. KUNKEL, Gina♦
14. LAU, Alexander♦
15. LITTLE, David♦
16. MART, Ron*
17. McINTYRE, Michael♦
18. MYERS, Lenny P.*
19. MYERS, Todd C.♦
20. NIEBRZYDOWSKI, Thomas♦
21. PURCELL, Casey♦
22. ROSENFELD, Todd B.♦
23. SAVEL, Lori*
24. SESPICO, Matthew A.♦
25. SHERMAN, David♦
26. SHREINER, Lydia A.♦
27. SIEFFERT, Brian G.♦
28. STRALLY, Tammy*
29. TORBIC, Mark*
30. WILSON, Yvonne M.♦
31. WRIGHT, Thomas M.♦
32. ZAMPOGNA, Damian M.♦

***Environmental majors ♦Geology majors**

GRADUATE STUDENTS

1. AYRES, Gregory
2. DEMBOSKY JR., John A.
3. DeLILLO, Nicholas Joseph
4. DiMUCCI, Domenic C.
5. GRAHAM, Robert
6. HAKALA, Katherine K.
7. HALE, Amy Snyder
8. KENDRICK, Andrew W.*
9. KRADYNA, James
10. KYSHAKEVYCH, Roman G.
11. MARINE, J.T.
12. MEST, Scott
13. ORIENT, Jeffrey*
14. PEER, Brian
15. PEITERSEN, Matthew N.
16. POTTINGER, James E.
17. PRELLWITZ, Henry S.
18. SCHATT, Daniel Evan
19. SCHATZEL, Steven J.*
20. STEWART, Keith H.
21. VENN, Cynthia*
22. WEAVER, Ted
23. WHIPKEY, Charles E.
24. ZHANG, Qing
25. ZHENG, Jiang-yun*

*** part-time graduate student**

BACHELOR OF SCIENCE

Doerr, April Eve
Eboli Jr., Richard Vincent
Jankovic, Erik M.
Kennemuth, Tina Louise
Mastandrea, JoAnna Lynn
McConnell, Amy
Prosser, Edwin John
Salizzoni, Kara Lynn
Steinhart, William E., III
Vinson, Cassandra Noelle
Westrick, Thomas James

MASTER OF SCIENCE

Liberman, Svetlana

The Origin and Control of Iron-Manganese Ore Deposits Along the Western Flank of the Blue Ridge Northern Virginia

Thesis Advisor: Thomas H. Anderson
Graduated: April, 1995

DOCTOR OF PHILOSOPHY OF SCIENCE

Heiphetz, Alexander

Paleomagnetism and Tectonics of Northeastern Russia and Occurrence of Oil Deposits

Thesis Advisor: William Harbert
Graduated: April, 1995

Risek, Richard M.

Paleoenvironmental Reconstruction of the Harlem and Ames Coal Beds (Glenshaw Formation-Upper Pennsylvanian): Implications for the Missourian-Virgilian Stage Boundary

Thesis Advisor: Harold B. Rollins
Graduated: April, 1995

Campbell, Patricia

Deformational Processes and Strain Path Partitioning Along Ductile Detachments Within Cambrian Carbonate Strata of the Western Blue Ridge, Central Appalachians

Thesis Advisor: Thomas H. Anderson
Graduated: December, 1994

Robert C. Anderson

Spectral Mapping of Quaternary Geomorphic Surfaces in the Whipple and Piute Mountains of southeastern California using Visible and near Infrared Datasets

Thesis Advisor: Kathi K. Beratan
Graduated: December, 1995

AMERICAN MINERALOGIST UNDERGRADUATE AWARD

Eighteen MSA (Mineralogical Society of America) members have taken advantage of the Society's American Mineralogist Undergraduate (AMU) Award program to recognize outstanding students who have shown an interest and ability in the discipline of mineralogy. Each student was cited by his or her department for outstanding achievement in mineralogy-related courses.

The AMU Awards allow MSA to join with individual professors to formally recognize outstanding students. Each student is presented a certificate at an awards ceremony at his or her university or college. In addition, each recipient receives a complimentary student membership, including *American Mineralogist*, for 1995.

This year's outstanding undergraduate student is Lori Savel who was sponsored by Dr. Edward Lidiak.

THE NORMAN K. FLINT MEMORIAL FIELD GEOLOGY SCHOLARSHIP

1994-1995

MATTHEW SESPICO
DAMIAN ZAMPOGNA

Damian Zampogna and Matt Sespico were awarded the NKF Memorial Field Geology Scholarship. This year the department was pleased to be able to make two awards in support of undergraduate students attending field camp. Applications for this support were assessed on the basis of merit, need and a letter outlining achievements and plans for field work.

Damian attended the University of Buffalo for field camp for 4 weeks last summer and this summer will be returning to teaching there. He returned home to an internship at Penn Dot as a Geo-Technical engineer in the Department of Geo-Technical Engineering. He will be working this summer for an environmental firm doing groundwater analysis.

Matt also attended field course study in geologic mapping at SUNY, Buffalo. This was followed by employment with Ligonier Camp and Conference Center as a member of the wilderness staff where he facilitated adventure courses and lead caving expeditions. Upon graduating in April, 1996, Matt is looking for employment with the DEP or a local environmental company.

THE HENRY LEIGHTON MEMORIAL GRADUATE SCHOLARSHIP

1994-1995

ROBERT C. ANDERSON
NICHOLAS J. DeLILLO

The 1994-95 winners of the Henry Leighton Memorial Graduate Scholarship were Mr. Robert C. Anderson and Mr. Nicholas J. DeLillo.

Bob's current interest is in mapping quaternary surfaces surrounding the Whipple Mountains of Southern California using advanced remote sensing techniques. Additional research involves mapping tectonic features within and surrounding the Tharsis rise, Mars and Fortuna Tessera, Venus.

Nick's current interest is causative processes in The Permian Mass Extinction Event. His research interests are: Historical Geology and Evolution, with emphasis upon Mass extinction events in general, and the Permian Mass Extinction (250 million years ago) in particular. He also has an interest in Planetary Geology, Mineral Deposit ("Economic") Geology, Plate Tectonics, and Planetary Evolution.

Bob received his undergraduate and Master degree from Old Dominion University in Norfolk, VA. He is also a student member of GSA, AGU, DPS and has served as a representative for Graduate Student Organization from 1991-1994.

Nick received his undergraduate BSc. from Queens College in City University of New York and his MSc from Colorado School of Mines.

COMMONWEALTH OF PENNSYLVANIA DEPARTMENT OF ENVIRONMENTAL PROTECTION

Lori Savel has accepted an internship with the Department of Environmental Protection (DEP) for the summer of 1995.

DEP's internship program is very competitive and they received over 1,400 applications and hired approximately 340 students.

WILLIAM A. CASSIDY
AWARDED THE BARRINGER MEDAL

There have been numerous articles published about Dr. Cassidy this year. One was in the University of Pittsburgh Research Review, Spring 1996 and one in the Greensburg Tribune Express written by Mike Sajna. Following is a complete article, also by Mike Sajna, which appeared in the University Times.

PITT PROFESSOR HONORED FOR HIS CONTRIBUTIONS TO METEORITE STUDIES*

When Argentine geologist Juan Nagera first visited Campo del Cielo, "Field of the Sky," in northern Argentina in 1926, he concluded that the four shallow pits he explored in the region had been dug by ancient Indians. He also believed that the fragments of meteorites he uncovered in the pits had been placed there by the Indians.

It was not until seven years later, in 1933, that L.J. Spencer, keeper of minerals at the British Museum in London, read Nagera's paper on Campo del Cielo and ventured the opinion that the pits the Argentine geologist had located actually were meteorite craters. Spencer's interpretation of Nagera's work in turn led William Cassidy, a professor in Pitt's Department of Geology and Planetary Science, to conclude that there was a very high likelihood the pits in Campo del Cielo had been made by a meteorite.

And that is exactly what Cassidy, then a young researcher at Columbia University's Lamont Geological Observatory finally confirmed when he traveled to the first scientific expedition to investigate Nagera's craters.

Over the next 10 years, Cassidy, who joined the Pitt faculty in 1968, located 16 additional craters, for a total of at least 20, in the area. Based on the carbon dating of materials found at the site, he and his colleagues determined, too, that the crater field was formed when a meteorite of several hundred tons from the asteroid belt between Mars and Jupiter broke up and struck the Earth about 4,000 years ago.

Although Cassidy's work in Argentina ended in 1973, its significance to the field of meteorite studies recently became news again when the Meteoritical Society honored the Pitt professor with the Daniel Moreau Barringer Award.

Given in recognition of outstanding research on meteorite raters, the Barringer award is named for the mining engineer who first convincingly identified meteorite craters in Arizona in the early 1900s. Cassidy says it took so long for his work to be recognized by the Meteoritical Society because the Barringer award was created only five years ago and there is a big backlog of scientists whose work in the field deserves to be honored.

"It was kind of a surprise," he adds. "I didn't really think that there had been much notice taken of the Argentine work. But apparently somebody knew about it."

That is more than can be said for the craters themselves. Despite the fact that the local people were well aware of the existence of the pits when Cassidy first arrived in Campo del Cielo in 1963, like Nagera, they never imagined them as being made by meteorites.

"We were talking to the local people about meteorite craters and getting nowhere," Cassidy recalls. "Finally, we figured out the magic word. And it wasn't money. We asked if there were any pits in the area dug by the Indians. They knew about lots of them. They took us around to all of the ones we ended up finding."

Once the pits were located, Cassidy says, it was easy to identify them as meteorite craters because some had meteorite fragments scattered around them, while others had "tremendous magnetic anomalies that indicated big metallic masses buried at some depth."

Cassidy's research team eventually excavated two of the craters. One of them contained a pair of meteorite fragments that together weighed 5.3 tons. The other had "a real buster of a magnetic anomaly" that turned out to be a 34-ton meteorite fragment, the third largest ever found. The largest meteorite fragment discovered to date is one of 60 tons uncovered in Namibia in southwestern Africa.

According to Cassidy, it is highly unusual to find specimens of such size because most large meteorites are disrupted or destroyed when they enter the Earth's atmosphere and strike the ground. The ones that survive appear to have entered the atmosphere and struck Earth at a shallow or low angle like a rock skipping across a pond.

Even though the Barringer award honors Cassidy's work in Argentina, Cassidy himself believes "my possibly more important work has been with Antarctic meteorites."

Since 1976, when he was given his first research grant by the National Science Foundation, Cassidy's meteorite studies have focused on Antarctica. Working with Japanese researchers on that southern-most continent, he has helped to find more than 15,000 meteorite fragments produced by about 5,000 meteorites. He and his colleagues have more than doubled the number of meteorites known in the world.

"Antarctica is the best place in the world to find meteorites," Cassidy says. "Concentrations can build up because meteorites are in a kind of a deep freeze and they don't weather away over time. If you have a million years, you can accumulate a lot of meteorites just from random falls."

Cassidy and his colleagues locate meteorites in Antarctica by searching satellite photographs for patches of bare ice, "places where the wind is strong enough to keep the ice free of snow." Then they travel to those areas by snowmobile and search visually for meteorites.

Among the thousands of meteorite fragments that Cassidy and his Antarctic colleagues have unearthed are some of the first meteorites ever to have been identified as coming from the surface of the planet Mars.

According to Cassidy, most meteorites come from the asteroid belt between Mars and Jupiter, and are composed mainly of nickel and iron. Some meteorites, though, are igneous in origin, meaning they were formed from magma or molten rock. Several groups of igneous meteorites are believed to have come from Mars.

When Cassidy and his colleagues first advanced the idea that the igneous meteorites they were finding on Antarctica had come from Mars, some researchers claimed that was impossible. They said the amount of energy that would be needed to knock a piece of material off the surface of Mars into space and send it to Earth would be so great that the material would melt.

Cassidy and his colleagues believed that the igneous meteorites they were finding in Antarctica had come from Mars because their age of solidification was about 1.3 billion years ago. Other igneous meteorites solidified much earlier in the solar system's

history, he says, about 4.6 billion years ago.

"So what we found came from some place that had igneous activity as recently as 1.3 billion years ago," Cassidy says. "Since there are only a limited number of planets - the Earth is one, Mars is another, possibly Venus and Io, a satellite of Jupiter - that have had recent igneous activity, that limited the number of places igneous meteorites could have come from."

Mars was finally pinpointed as a source of Antarctica's igneous meteorites because when the meteorites Cassidy found entered the Earth's atmosphere, they partially melted and pockets of glass formed on some of them. When researchers melted and degassed the glass, they found that the ratio of elements and isotopes in them to be very similar to the Martian atmosphere.

Cassidy himself originally doubted that the meteorites he and his colleagues found in Antarctic came from Mars because "Earth seems like a very tiny target from Mars and you don't have mid-course corrections like we have with rockets."

He also wondered why he and his colleagues were finding meteorites that had been chipped off the surface of Mars, but not the much closer moon. No sooner had Cassidy asked that question, though, than the Antarctic researchers began to find meteorites that came from the moon.

"These are undoubtedly lunar samples," Cassidy says. "They have been examined by the same group of scientists worldwide who do research on lunar samples and they find no difference between these meteorites and lunar samples brought back by the astronauts." Igneous meteorites from Mars and the moon are probably the results of large impacts on those bodies. Cassidy believes they were the result of very low angle impacts that sent a jet of material toward the Earth.

"When a meteorite falls, it is not really sucked in by the Earth's gravity," he points out. "It is more of a chance collision between two orbital bodies in a solar system."

Such jets of asteroids or igneous material would seem to be the logical source for meteor showers, but Cassidy says that scientists who study meteorites tend to believe that meteor showers are related more to comets than to asteroids. The tails of comets contain large amounts of space debris such as gases, dust and ice. Meteor showers appear to be caused by the Earth crossing the orbit of a comet.

Most of the Antarctic meteorites uncovered by Cassidy and his colleagues are now in either NASA's Lyndon B. Johnson Space Center in Houston, Tex., or the National Institute of Polar Research in Japan. Cassidy is not sure if any have been released to museums, but says the ultimate destination of the American collection is the Smithsonian Institute in Washington, D.C.

"Eventually, they will be in a place where the public will be able to see them, he says.

**This article has been reprinted with the permission of Mike Sajna of the University Times.*

Seminars

1995 January

05 No Seminar

12 **Edward Lidiak**, Geology & Planetary Science, University of Pittsburgh, *Rare Earth Elements in the Geological Sciences.*

19 **Richard Danchik**, Environmental Health, Alcoa, *Industrial Hygiene Chemistry - Challenges in Today's Workplace Environment.*

26 **Michael Bikerman & Henry Prellwitz**, Geology & Planetary Science, University of Pittsburgh, *New Phlogopite K-Ar Dates and Isotopic Study of the Masontown, PA Kimberlite Dike.*

1995 February

02 **Steve Hovan**, Department of Geoscience, Indiana University of Pennsylvania, *Deep Sea Eolian Deposits: Long term Records of Continental Aridity and Atmospheric Circulation Intensity.*

09 **Rose Capo & Brian Stewart**, Geology & Planetary Science, University of Pittsburgh, *A Practical Tour for Potential Users of Thermal Ionization and Inductively Coupled Plasma Mass Spectrometers (TIMS and ICP-MS).*

16 **Patti Campbell**, Geology & Planetary Science, University of Pittsburgh, *The Formation of Recumbent Fold-Nappes and Ductile Detachments Within Cambrian Limestones of the Western Blue Ridge and Eastern Great Valley in Maryland.*

23 **Phillip Piccoli**, University of Maryland, *Fluids, Ore-Metals and Felsic Magmas.*

1995 March

02 **Robert Bullwinkel**, Schlumberger Wireline and Testing, *Schlumberger Wireline In Western Pennsylvania and in the Environment.*

09 Spring Break

16 **Richard Risek**, Geology & Planetary Science, University of Pittsburgh, *Paleoenvironmental Reconstruction of the Harlem and Ames Coal Beds - Glenshaw Formation - Upper Pennsylvanian - Implications for the Missourian Virgilian Stage Boundary.*

23 **Dave Linsley**, Carnegie Museum, *Sequence Stratigraphy: Examples from the Devonian and the Recent.*

30 **Pat Diamond**, United States Bureau of Mines, *The Occurrence and Production of Coalbed Methane.*

1995 April

06 **Svetlana Liberman**, Geology and Planetary Science, University of Pittsburgh, *The Origin and Control of Iron-Manganese Ore Deposits Along the Western Flank of The Blue Ridge, Northern Virginia.*

13 **Sandra Olsen**, Carnegie Museum of Natural History, *Pre-Historic Adaptations to the Kazakh Steppes.*

20 **Robert Jacobi**, University of Buffalo, *The Clarendon-Linden Fault System in Southwestern New York State: Exploring for Traces of an Ancient (1.1+BYBP) Suture That Has Episodically Reactivated.*

27 **Chris Kern**, Hafer Inc., *Closure of Underground Storage Tanks In Pennsylvania.*

1995 August

31 **Thomas Anderson**, Geology and Planetary Science, University of Pittsburgh, *Introduction to the Department of Geology and Planetary Science.*

1995 September

07 **Wendy Mann**, University Library System, University of Pittsburgh, *University library resources related to Geographical Information Systems.*

14 **Gene Engels**, Department of Physics, University of Pittsburgh, *Why should geologists care about the top quark?*

21 **William Schell**, Graduate School of Public Health, University of Pittsburgh, *Environmental Isotopes: An overview of the Global Ecosystem.*

28 **William Harbert**, Geology and Planetary Science, University of Pittsburgh, *Magnetic Stratigraphy and Evolution: Railroad Canyon, Idaho.*

1995 October

05 **Lori J. Gross**, Brown and Root Environmental, *Methods of Interpolation for Geological Characterization.*

12 **David Nale**, Aerial Data Reduction Associates, Inc., (ADR), *Building Geographical Information System Land Bases.*

19 **Edward Kunz**, Allegheny County Geographical Information Systems, *Allegheny County Geographical Information Systems.*

26 **Uzair Shamsi**, Chester Environmental, *Geographical information system applications in water and waste water management.*

Seminars

1995 November

02 **Jeff Orient**, Brown and Root Environmental, *Technical approach and other considerations for a site investigation/cleanup project in Pennsylvania.*

09 **Chris Chappelli**, Environmental Systems Research Institute, Inc., (ESRI), *Geographical Information Systems the Arc/Info way.* [SEMINAR CANCELLED]

16 **Rafael G. Quimpo**, Department of Civil and Environmental Engineering, University of Pittsburgh, *Use of Digital Elevation Models and Geographical Information Systems for hydrologic prediction.*

30 **Anna M. Tempero**, Pennsylvania Department of Environmental Protection, *The role of the Department of Environmental Protection in environmental cleanup of southwestern Pennsylvania*

GAZDIK, Arthur, P.E. (BS, 1983) is presently employed by Senate Engineering Company as a Project Engineer where his duties consist of Civil Engineering/Geologist/Hydrologist. He lives in Pittsburgh with his wife Deborah and children Kirk and Jack. Art is currently playing violin and mandolin for the folk rock band called "BBizy Backson". He has not yet quit his day job! His last words to us were to all come on out and support your local musicians.

KAKTINS, Teresa Smith (BS, 1978) is presently with Cambria County as a county geologist, Director of Mineral Assessment. She does anything you can imagine a geologist doing. She also has news of **Mike Sincak**, who was a memorable presence in the department, won the PA lottery to the tune of 8 (eight) million dollars about two years ago. He gave up his full time job as Cambria County geologist, creating a minor crisis in ongoing research on AMD (acid mine drainage) in the region (research that is in collaboration with various Pitt geology and biology faculty). Mike is now devoting all his time to his rapidly growing fossil/gemstone/specimen business and globe hopping to buy his own samples in the country of origin! His business is named "Treasures of the Earth" and is co-owned by his wife Barbara. They've got some rather exceptionally neat stuff and they are listed in the Johnstown telephone book.

FICKEL, Todd (BS, 1987) received a master's in hydrogeology by the University of Kentucky in 1990. Since then he has been working in various aspects of environmental consulting for several firms, sized from the very large (5000) to the extremely small (3). As with most aspects of geology, it is difficult to work in your own "backyard" although the work has given him a tour around the world. He found it difficult trying to maintain a home, let alone a farm, so in 1994 he joined the University of Kentucky's Water Resources Research Institute. Todd now spends his work days at UK and all his spare time (and money) trying to raise pumpkins, tomatoes, corn and sheep in rural Kentucky where he lives with his wife (Letitia) of 4 years. No sheep yet, just 3 dogs, 2 cats (more or less, depending on the weather and food supply) and an empty barn.

He would like to know if anyone has seen or heard from Rich Burtell?

ROGAN, Michelle (BS, 1985) has big news - geology wise - about the erupting of Mt. Ruapehu in the central North Island of New Zealand. Not a big eruption by world standards, no damage to property (although the ski field has been temporarily closed down) and no one was evacuated in the surrounding areas so far, but spectacular none the less.

They are just getting through a cold winter by Christchurch standards. They've done some skiing over the winter, lots of day hikes in the mountains, mountain biking in the thermal pool region (about one hour drive from here) and recently found a Miocene-age crab concretion on one of our many treks through the bush.

She is nearing the end of another University term. Michelle only did one law class this year because she is now working full time for the University of Canterbury, GEOGRAPHY department!

She asks all to keep in touch!

SIGMA GAMMA EPSILON

Sigma Gamma Epsilon had its first meeting of the academic year on November 9, 1995. At this meeting we were proud to induct two new members into the Beta Chapter, Susan Kulp and Tammy Strally. After the ceremony we discussed plans for the year and enjoyed pizza and pop.

Members of Beta Chapter are: John Dembosky, President, Jim Pottinger, Vice-President, Keith Stewart, Secretary/Treasurer, Greg Ayres, Katherine Hakala, Roman Kyshakevych, Henry Prellwitz, and our two new members. Our faculty advisor continues to be Dr. Harbert.

SGE is currently looking for locations for our Annual Departmental Banquet, aka "Geoprom." We are also looking to have a much needed fund raiser this year. One project in the works is a "strat column" type design t-shirt to sell, similar to the one done several years ago. This year we will include undergraduates who are working on research projects, as well as all the graduate students. The second project is a design contest for a more traditional Geology and Planetary Science Department t-shirt. The contest is open to anyone willing to submit a design. The author of the winning design will receive a free t-shirt as an award.

Financially, SGE contributed $300 towards the highly successful Bancroft, Ontario, Canada, mineral collecting trip run October 4-8, 1995. We also loaned Geology Club $150.

This year the Beta Chapter is looking forward to awarding the W.A. Tarr Award at the Annual Banquet. We are considering holding a fund-raiser so that we can get a plaque to place in the department to honor recipients.

THE NATIONAL COUNCIL OF THE SOCIETY OF SIGMA GAMMA EPSILON

REGULATIONS OF THE W. A. TARR AWARD

1. Any student in the Earth Sciences at the school in which an active chapter of the Society is located is eligible to receive the Award whether a member of the Society of Sigma Gamma Epsilon or not.
2. The recipient of the Award must have majored as an undergraduate in some phase of the Earth Sciences (e.g., Geology, Metallurgy, Mining, Petroleum Engineering, Geological Engineering, Ceramics, Geophysics, Hydrology, Oceanography).
3. Scholarship is the essential basis of the award, but personality, leadership, contribution to the school, ability to get along with people are worthy of consideration.
4. The Award preferably should be granted to a graduating senior. (It is not contemplated that the Award will be made more than once to the same person).
5. Completion of one of more courses such as field work subsequent to the date of normal graduation may not cause an individual to be ineligible..
6. The selection of the student to receive the Award shall be made by a committee consisting of members of the Active Chapter and Three faculty members -- two of whom shall be members of the Society. The Faculty Advisor, in conjunction with the chapter, shall set up the method of selecting the Award Committee.
7. The Award will consist of a suitably engraved certificate, signed by the National President of the Society and by the Faculty Advisor of the respective chapter.

Geology Club

The Geology Club elected new officers for three new year. As follows:

President:	Damian Zampogna
Vice-President:	Ron Mart
Business Manager:	Lydia Shreiner
Secretary:	David Sherman
Student Relations Coordinator:	Susan Kulp

This year the Geology Club has high expectations for its upcoming functions. The club is planning several trips to such places as Bancroft, Canada, caving at Laurel Caverns, and several camping trips. Two IBM and one Mac may be available as a result of the initiative of the Geology Club. Additionally, a project of the club involves support of computers made available by Professor Emeritus Pilant which are to be for priority use by undergraduate geology students. We look forward to getting on the Net! The club is also planning a party for those seniors in the club who are graduating. A cook-out at Schenley Park is one of our objectives as well.

If you have any questions, contact Damian Zampogna at 687-2567 or send a note to the Department of Geology and Planetary Science.

Banquet News

The Annual Pitt Geology and Planetary Science Department Spring Banquet, also known as "Geoprom", was held at Paski's Restaurant and Lounge on Friday, March 29, 1996.

Christmas Party

This past year, the Christmas party was combined with a retirement party for Dr. Walter Pilant. It was held at his house on December 9th in the evening and most of the Pilant children were able to be in town to enjoy the party with their father. Carol Pilant had planned a guest appearance which surprised Walter. His face said it all when a bagpiper, wearing a kilt, walked in from subdegree temperatures into his living room playing the bagpipe full tilt!.

Many thanks to the Pilants for hosting a wonderful double-duty party.

Geology Picnic

This past year, the faculty decided to try a bold new experiment and picnic indoors! The 'picnic' went very well - with pizza hot off the barbecue - but there was difficulty finding a place to set up the volleyball net and find enough space for a softball diamond. Still, the turn-out was very nice and the museum area outside of the classroom 203 Thaw Hall was full of students and faculty enjoying the repast.

Pitt Students Need Your Advice—
Please Help Us!

The Department of Geology and Planetary Science is in the process of creating a *Point of First Contact Program* for G&PS students that will help smooth the transition from college to career in today's difficult job market. We want to give our students the best start on their careers we can - ***and we need the help of our alumni.***

The goal of the **P**oint of **F**irst **C**ontact **P**rogram is to build an extensive database of alumni who are willing to talk to G&PS students about companies and agencies in which they work. The database will only be accessible in the G&PS main office to our students, where they will be able to research the current job market and pursue possible summer internships.

We are asking you to agree to:

- accept a prearranged telephone call from a student, either at work or home
- explain the structure of your place of employment
- provide the name of an individual in your company to whom the student might address a cover letter and resume
- if possible, suggest a 'next step' that the student might follow

We need as many alumni as possible to join this program to make it viable. We are seeking both established and recent graduates in all disciplines. Recent graduates are especially valuable because they have just gone through the process and are able to communicate their job search experience with current students, and well-established alumni have the advantage of experiences and wider personal networks. Please show your support for the Department of Geology and Planetary Science by joining this program.

——— *Point of First Contact Program* ———

I would like to join the program and will talk to undergraduates in:
_____geology _____environmental geology _____environmental studies

Name: _____
Job Title: _____
Company: _____
Company location: _____
(city/state)
Company does work in the following fields: _____
Company looks for people with skills in the following field(s): _____
Is company interested in summer interns? YES/NO: _____
If yes, what background should the students have? _____
Students may telephone me at: _____ [work] _____ [home]
FAX: _____ E-mail address: _____

Special requirements to be followed by student (*e.g.* times to call, fax first, etc.):

Comments:

RETURN TO: Thomas H. Anderson, Chair, G&PS, 321 EH, U. of Pgh, Pgh, PA 15260

Syria Mosque Paperweights

This is your chance to obtain a unique souvenir of the recently demolished Syria Mosque. Complimentary paperweights prepared from interior stonework are available with a donation* to the Major Equipment Fund at the University of Pittsburgh. Each piece is cut and polished, and a metal plaque engraved with "Syria Mosque, 1916-1991" is centered on the top of the paperweight. The bottom of each paperweight has felt pads to prevent damage to desk tops.

Rock Type & Appropriate Size	Available for a donation of:	Choice
Limestone (contains fossils)		
2"x4"x1	$ 15.00	_____
3"x5"x2"	20.00	_____
Serpentine (green with white veins)		
1.5"x3"x0.75"	15.00	_____
3"x3"x0.75"	20.00	_____
Pink Granite Slabs (polished top, rough edges)		
sizes vary, max. size 5"x7"	2.00 (per sq in)	
Size desired _____		_____

LIMITED QUANTITIES AVAILABLE (ESPECIALLY OF SERPENTINE).

ORDER EARLY TO ASSURE SATISFACTION. Indicate a second & third choice in case the supply of your first choice has been depleted.

Checks for donations* should be made out to the **University of Pittsburgh**, *with the Department of Geology & Planetary Science Major Equipment Fund noted in the memo blank of the check*. Remember that your company may also have matching funds available.

NOTE: *Custom orders (bookends, larger blocks, etc.) may be ordered at a negotiated price. Contact Henry Prellwitz at (412) 624-9320.*

To place your order, indicate your choice by number in the blanks above and fill out your name, address & phone on the opposite side of this form. If you order a granite slab, be sure to indicate the approximate size desired in the blank above. Enclose this form with your check.

*tax deductible

Special Department Funds

_____ **Norman K. Flint Memorial Field Geology Fund**
In appreciation and recognition of devoted and inspiring teaching in the field and in the classroom, his students, friends, and colleagues have established in his honor the Norman K. Flint Memorial Field Geology Fund.

_____ **Frances Dilworth Lidiak Memorial Fund**
Money generated from this account is used for departmental seminars to which outstanding scientists will be invited to present public lectures on topics in the geological and planetary sciences.

_____ **Alvin J. Cohen Memorial Fund**
The family of Dr. Cohen has suggested that donations in memory of Dr. Cohen be made to the Department of Geology and Planetary Science for support of students conducting basic research in fields close to Alvin's interests.

_____ **Henry Leighton Memorial Fund**
The scholarship is established in response to a contribution from Professor Leighton's daughter, Helen Leighton Cannon. Mrs. Cannon requests that a permanent graduate scholarship fund be established and that the scholarship be awarded on the basis of merit and need.

_____ **Major Equipment Fund**
Bill and Bev Cassidy have provided the initial monies in an effort to augment and enhance departmental instrumentation. The initial amount, matched by Bev's employer, Westinghouse Corporation, was then matched by the FAS Dean Office.

_____ **Departmental Field Vehicle Fund**

_____ **Victor A. Schmidt Memorial Classroom Fund**
In memory of Vic Schmidt and in commemoration of his love of teaching, family, friends and colleagues have begun the memorial classroom fund.

_____ **Unrestricted Departmental Gifts Fund**

_____ **Other (please specify)** _____

NAME: _____

ADDRESS: _____

AMOUNT OF DONATION: $_____

List of Contributors

We are very grateful to the below mentioned contributors to these funds. Your generosity is greatly appreciated.

If there are any questions, or concerns, please contact either Candy Weller at (412) 624-8784 or Thomas Anderson at (412) 624-8783. We try very hard not to miss a single donor, but we aren't perfect. If we goof, please let us know. Thanks.

Unrestricted Gifts
Anderson, Thomas H.
Angerman, Thomas W.
Bikerman, Michael
Bond, Michael T.
Brown, Joseph
Cain, Bruce A.
Carter, John & Ruth
Cercone, David & Cynthia
Doney, Hugh H.
Frazier, Samuel & Barbara
Garrow-Splittberger, M.
Groff, Donald W.
Hapke, Bruce W.
Hoque, Mominul
Kaktins, Teresa L.
Kuntz, Timothy
Lidiak, Edward G.
Martin, James A.
Murin, Timothy M.
Myers, Phyllis Burger
Napiecek, Gerald L.
Nolan, Kenneth M.
O'Neil, Caron E.
Pinkoski Jr., Ronald J.
Rava, Barry J.
Robison, Mary Schlichte
Shaak, Graig D.
Sharkey, Jr., Andrew G.
Smith, Eric A.
Witkowski, Robert E.
Yu, Jianxin

Norman K. Flint Memorial Field Geology Fund
Angerman, Thomas W.
Flint, Jonathan
Flint, Margaret F.
Kaktins, Teresa L.
King, Sally Flint
Sarg, J. Frederick

Frances D. Lidiak Memorial Fund
Cain, Bruce A.
Kaktins, Teresa L.
Lidiak, Edward G.

Henry Leighton Memorial Scholarship Fund
Cannon, Helen Leighton
Groff, Donald and Mary

Victor A. Schmidt Memorial Classroom Fund
Lidiak, Edward G.
Luce, Robert J.
Schmidt, Bertha M.
Schmidt, Inge F.

Alumni Response Form

Please complete this form so that we can include your news in the "Alumni News" section next year.

NAME_____DEGREE_____YEAR_____

ADDRESS_____

SPOUSE'S NAME_____

NAMES AND AGES OF CHILDREN_____

COMPANY WITH WHICH YOU ARE AFFILIATED:_____

YOUR POSITION, TITLE, ETC._____

YOUR DUTIES_____

OTHER ITEMS OF POTENTIAL INTEREST TO CLASSMATES: write on overleaf

INFORMATION ON OTHER DEPARTMENTAL GRADS? write on overleaf

Please return to:
Mrs. Rochelle Chesterpal
Department of Geology and Planetary Science
321 Engineering Hall
University of Pittsburgh
Pittsburgh, Pennsylvania 15260-3332