Dear Alumni,

The Department of Geology at Indiana University is healthy and dynamic. This past year, 1976-77, we had 150 undergraduate majors and 75 graduate students. We have 23 faculty members, three of whom are shared with other departments; Dr. John Hayes with Chemistry, Dr. David Dilcher with Plant Sciences, and Dr. Robert Blakely with the Indiana Geologic Survey. Professors William Thornbury and Wayne Lowell are emeritus and both are active and healthy. Professor Lowell is so active that he has been on crutches for two months this winter because of a skiing accident.

This year we have passed the 1000 mark in the number of geology alumni from the department. These alumni are spread geographically throughout the world. You can be proud of the I.U. Geology Department because of its teaching and research excellence. The field station in Montana continues to be rated as one of the finest in the country and Professor Mead and his staff continually strive to make this field program even better. The department at Bloomington has six active NSF projects, five HEW fellowships on Energy and Mineral Resources, three industrial fellowships, three industrially funded research projects, and six projects funded through the Water Resources Research Center. We need additional fellowship support for our graduate students, so any aid that you as alumni can give by having your company place a graduate fellowship at IU would be deeply appreciated.

Our continuing problem is maintaining the excellence of the department on very tight budgets that have not kept pace with inflation over the past six years. Donations from alumni and friends are desperately needed to help fund departmental activities that cannot be supported with the regular budgets, such as student and faculty travel for research projects, fieldwork, and presentation of research results at national meetings. Your contributions, however large or small, are always needed and most welcome. We have fallen off badly in the past two years in alumni contributions. Professor emeritus Robert R. Shrock, a graduate of the department has written a letter on the philosophy of giving, which is included in this newsletter. Also, at his suggestion, we are establishing a 5-50 club, which is described in a later section of the newsletter.

This newsletter is fairly comprehensive, and includes an almost complete alumni directory as we can prepare from our records. Our plan is to provide such a newsletter every five years and a small flyer covering newsworthy items every year. We welcome letters, advice, criticisms, address changes, status changes, and contributions. We are proud of Indiana University and we welcome visits from you whenever you can get back to your university.

Sincerely,

Haydn Murray
DEPARTMENT OF GEOLOGY

FACULTY

Blakely, Robert F.
Dilcher, David L.
Dodd, J. Robert
Hattin, Donald E.
Hayes, John M.
Hendrix, Thomas E.
Klein, Cornelis
Krothe, Noel C.
Lane, N. Gary
Mead, Judson
Meinschein, Warren G.
Merino, Enrique
Murray, Haydn H.
Patton, John B.
Ripley, Edward M.
Rudman, Albert J.
Ruhe, Robert V.
Shaver, Robert H.
Suttner, Lee J.
Towell, David G.
Vitaliano, Charles J.
Wintsch, Robert P.

Retired

Lowell, Wayne R.
Thombsry, William D.

STAFF

Basu, Abhijit
Brown, Thea
Collier, Maynard
Couch, Becky
Denson, Kenneth
Doughitt, Sandy
Freeman, Ellen L.
Hartgraves, Jeanette
Hazen, Dwight
Horowitz, Alan S.
Iverson, Mary E.
Lucas, Betty (Water Resources Research Center)
Marinade, Kathy
Miller, Charles S.
Smith, Barry
Tolen, James R.
Weaver, Derrel

Retired

White, Alfred

U.S.G.S.

Vitaliano, Dorothy
RESEARCH ASSISTANTS
1975-76

Ausich, William ..................................... Survey
Bennett, Nathan ..................................... Murray
Botter, David ........................................ Hattin
Brubaker, Kenneth ................................... Ruhe
Brinton, Karen (deceased) ............................ Ruhe
Canfield, Christopher ................................. Hattin
Cody, Clyde ........................................... Murray
Duigon, Mark ................................ .......... Ruhe
Duncan, Julie ................................ .......... Ruhe
Friberg, LaVerne ....................................... Klein
Knapp, Ralph ................................ .......... Mead
Kwon, Byung Doo ..................................... Rudman
Lesher, Carl Michael .................................... Klein
Mack, Gregory .......................................... Meinschein
Olson, Carolyn .......................................... Ruhe
Plymate, Thomas ....................................... Murray
Risser, Dennis .......................................... Ruhe
Terris, Linda .......................................... Murray
Thompson, Glenn ....................................... Hayes
Zeller, Thomas .......................................... Mead

1976-77

Basick, James .......................................... Ruhe
Botter, David .......................................... Hattin
Bromley, Bruce ......................................... Meinschein
Cody, Clyde ................................ .......... Murray
Duigon, Mark ................................ .......... Ruhe
Graham, Michael ........................................ Ruhe
Holm, Melody ........................................ Meinschein
Hudson, Michael ....................................... Klein
Kwon, Byung Doo ..................................... Rudman
Moreau, Peter ......................................... Murray
Olson, Carolyn .......................................... Ruhe
Pickering, Ann ......................................... Murray
Risser, Dennis .......................................... Ruhe
Souders, Mark .......................................... Ruhe

FELLOWSHIPS
1975-76

Dixon, Joseph .......................................... HEW (Health, Education, and Welfare Mining and Mineral Fellowships)
Duncan, Mack ......................................... 4th Year Graduate School Fellowship
Hohn, Michael ......................................... 4th Year Graduate School Fellowship
Kammer, Thomas ....................................... Graduate School Fellowship
Orlich, Michael ......................................... HEW
Rimstidt, Daniel ....................................... HEW
Waters, Johnny ........................................ Texaco Fellowship

1976-77

Bauman, Jeanette ....................................... HEW
Belak, Ronald ........................................ Hant Oil Award
Dahl, Peter ........................................ Texaco Fellowship
Dixon, Joseph ........................................ HEW
Glover, William ....................................... Hunt Oil Award
Mack, Gregory ......................................... Graduate Student Fellowship
Meschede, Louis ....................................... HEW
Orlich, Michael ....................................... HEW
Rimstidt, Daniel ....................................... HEW
Tendall, Bruce ................................ ....... HEW
Tenns, Linda ........................................ Georgia Kaolin Co.
Walker, Steven ........................................ HEW
Wright, Bruce ................................ ......... HEW

STUDENT AWARDS
1975-76

Campbell, Andrew .................................... Deiss Award and Upperclassman Award
Inouye, Elizabeth .................................... Upperclassman Award
Glover, William ....................................... Faculty Scholarship Award
Lake, Ellen ........................................ Outstanding Associate Instructor
Orlich, Michael ....................................... HEW
Rimstidt, Daniel ....................................... HEW
Tendall, Bruce ................................ ....... Deiss Award and Faculty Scholarship Award
Waterman, Arthur .................................... Cumings-Malott Award
Webb, Myron ................................ ........ Outstanding Associate Instructor

1976-77

Bomber, Brenda ....................................... Upperclassman Award
Campbell, Andrew ................................... Faculty Scholarship Award
James, Calvin ................................ .......... Outstanding Associate Instructor
Inouye, Elizabeth ..................................... Alumni Association Award
Roberts, Connie ....................................... Outstanding Associate Instructor
FACULTY ACTIVITIES

FROM LAKE MONROE TO MARS—
IU GEOLOGISTS PLAY A ROLE

Geologists at Indiana University belong to an age when scientists in all disciplines are struggling to improve man's understanding of his most immediate environment, even as they reach beyond earth for knowledge of an alien world. The faculty here are involved in research at both ends of that spectrum.

On the home front, Warren Menzies and Robert Ruhe are conducting a study with Arne K. Bergh of the School of Public and Environmental Affairs, of the organic pollutant content in Bloomington's storm-water runoff. Besides providing valuable environmental information on a community with residential, commercial, university, agricultural, and industrial sectors, the data base of water quality and quantity now being collected can be used to test the validity of a number of theoretical hydrologic models scientists have developed.

Ruhe has also completed a study of circulation and sedimentation in Lake Monroe Reservoir, southeast of Bloomington. Both a recreational lake and Bloomington's water supply, the reservoir has been the focus of research by university scientists from several departments.

Various of the faculty are involved in research related to another focus of current interest—energy needs. Professor Murray has been conducting research on techniques for magnetically separating iron sulfide from coal that have obvious practical implications. Professors Droste and Vi-talians have conducted a study for ERDA of the potential for nuclear waste burial in deeply buried shales in the Illinois basin.

"Otherworldly" research has involved faculty members Meinschein, through lunar studies, and John Hayes, who with Dr. Milos Novotny of the Chemistry Department, acted as consultant for problems which arose during the construction and testing of the Viking equipment designed to analyze the Martian atmosphere and to search for organic molecules in the Martian soil. The Bloomington scientists advised some quite radical changes—toe radical for the contractors involved—and wound up constructing and testing part of the instrument, a gas chromatograph-mass spectrometer, in their IU laboratories. Fortunately, the resulting systems performed flawlessly on Mars. The atmospheric analyses showed conclusively that argon, which Russian workers had suggested might make up nearly 50 per cent of the atmosphere, was present at the level of only one to two per cent, a value consistent with plausible outgassing histories. Rare gas and nitrogen isotopic analyses combined to suggest that the Martian atmosphere had once been considerably denser, a circumstance fully consistent with the abundant evidence for fluvial erosion on the surface. The organic analyses were clearly negative, placing an upper limit of one part per one hundred million by mass on organic matter in the soil. While this result has no direct bearing on the possible present or past existence of life on Mars, it does provide strong indirect evidence against biological activity as near the area sampled.

Back on earth, our own planet's geologic past, is, with its rich variety, the subject of the bulk of departmental research, and continues little by little to reveal its fascinating story to IU geologists. The following pages represent a survey of the major activities of the faculty over the past few years.

Haydn H. Murray, Chairman

In recognition of his diverse talents in the field of industrial minerals, Professor Haydn H. Murray was presented with the 1976 Hal Williams Hardinge Award at the AIME meeting in Las Vegas, Nevada. The citation on the plaque reads, "For outstanding contributions in the mineral industry as research scientist, educator, author, lecturer, and business executive, particularly in the field of clay technology.” At the fall meeting of the Society of Mining Engineers, Professor Murray was made a “Distinguished Member,” an honor restricted to one percent of the membership.

As chairman of the UNESCO Working Committee on Kaolin Genesis and Age, Professor Murray has attended and presented papers at the symposia sponsored by the committee in Dresden, East Germany; Sydney, Australia; and Tokyo, Japan. He has chaired the Earth Science Committee of the Petroleum Research Fund Advisory Board and is a member of the Policy Committee. The Petroleum Research Fund is administered by the American Chemical Society.

In addition, Dr. Murray has been active as a member of the NAS committee for the study of non-bauxite sources of alumina, and chairs the Technical Association of the Pulp and Paper Industry Task Group on Future Trends Related to Industrial Minerals; the American Ceramic Society Mineral Resources Committee; and the Clay Minerals Society Budget and Finance Committee. He was appointed a member of the Board of Directors of the University of Illinois Alumni Association in 1975 for two years and was reappointed for another two year term in 1977.

The Murrays have built a new home four miles southeast of Bloomington, and in view of Professor Murray’s busy schedule his wife, Juanita did most of the supervising. They moved in July and were, as a consequence, among those midwesterners most aware of that month’s heat wave. The new address is 3790 Inverness Farm.

Robert Blakely

Robert Blakely continued to teach his weather courses through the fall of 1975. At that time the Geology Department decided to get out of the meteorology business and the bulk of the teaching load was taken
over by Dr. Jerry Davis of the Geography Department.

Professor Blakely enjoyed the visit of Dr. William M. Adams from the University of Hawaii who was here on an exchange professorship with Dr. Albert J. Rudman during the 1975-1976 academic year. Adams and Professors Mead and Blakely collaborated on the development of a tsunami seismic trigger during the year. This device, which is designed to give a warning of locally caused tsunami waves in the Hawaiian Islands, is already in place in many of the principle cities of our 50th state. Indiana University and the University of Hawaii are jointly applying for a patent for the device.

In the fall of 1976, Professor Blakely led a seminar on the programming and uses of a microprocessor. The Department has purchased an Alta mini-computer that is based on the Intel 8080 microprocessor, so that early information about earthquakes may be obtained and long term studies of microseisms can be made.

In the period since the last newsletter Blakely has been repeatedly solicited by the news media to discuss seismic events and research. He has given six newspaper interviews, five radio interviews, five talks, and has appeared on local television three times. In addition, he reported to the Evansville Building Council on the seismicity of that region and acted as advisor to the State Administration Building Council during their deliberations on a new building code. During this same period he has authored or co-authored seventeen scientific papers.

J. Robert Dodd

J.R. Dodd has continued research on the paleoecology of the Pliocene faunas of California, with two periods of field work in the area (fall of 1975 and early summer of 1976) and during his sabbatical (second semester of the 1975-76 academic year), when he spent some time in the field and at Texas A&M University. He also completed work on a project to determine the paleomagnetic stratigraphy of the Neogene section in the Humboldt Basin of northern California.

John Drost

Following the retirement of Wayne Lowell, John Drost inherited a second section of ion-major introductory geology, a course Professor Drost has taught since coming to Bloomington in 1957. Between 850 and 900 students enroll in the course each semester. From it and Lee Suttner's companion course come up to half the students that elect to major in geology every year.

Professor Drost is continuing to expand his long time interests in research of the Devonian and Silurian of Indiana and adjacent states. Recently he has begun looking at the Maquoketa Group (Ordovician) from the point of view of subsurface nuclear waste disposal, at the request of ERDA. The Illinois Basin is one of the areas the energy agency had been considering in their National Waste Terminal Storage Program.

Drost is just beginning a long term study of Trenton-Black River (Ordovician) rocks. In this effort he will have a chance to work with some volcanic ash beds which occur in this part of the section.

Donald E. Hattin

Donald Hattin has conducted research for several years on the genesis of widespread, time parallel carbonate marker beds. Funded by NSF, this project has involved field work in England, Wales, Arizona, Colorado, New Mexico, Wyoming and South Dakota. Professor Hattin has also undertaken taxonomic studies of Upper Cretaceous foraminifera and oysters, research on Holocene cementation of carbonate sediments in Florida, and on fecal pellets in Upper Cretaceous strata of Kansas and Saskatchewan over the past several years.

During this period he has held a position as Research Associate with the Kansas Geological Survey which sponsored field work on the Niobrara Chalk, and on the regional study of carbonate marker beds over four summers. Hattin has contributed to several symposia, leading a field trip and co-editing a guidebook with Lee Suttner in 1973 for the Great Lakes Section of the S.E.P.M. acting as co-convenor and session co-chairman for the T. G. Perry Memorial Bryozoan Symposium at the A.A.P.G.-S.E.P.M., 1974 annual meeting in San Antonio, Texas, and co-chairing the 1975 A.A.P.G.-S.E.P.M. meeting in Dallas and the 1976 and 1977 North Central Section GSA meetings in Kalamazoo, Michigan, and Carbondale, Illinois respectively.

In 1977 he also helped lead a five day field trip across the Western Interior basin in connection with the multinational North American Paleontological Convention II, and co-organized a day long symposium entitled "Cretaceous Biotas of the North Temperate Realm."

Professor Hattin received the Ensmus Haworth Distinguished Alumni Honors in Geology from the University of Kansas Department of Geology in 1976 and has been selected for inclusion in the next edition of "Who's Who in America." He has presented talks at five geological meetings, given two invited lectures (at the University of Southern Illinois and Fort Hays Kansas State College), and published eight papers since the last newsletter.

John Hayes

Research in John Hayes' group continues to focus on natural variations in stable isotope abundances. While work up to the present has been concerned exclusively with 18O/16O and 13C/12C ratios, instruments have been purchased and techniques are under development for investigation of 14N/15N and 10B/11B, and 10Be/9Be and 10Be/9Be variations in natural organic materials.

The group presently includes three postdoctoral fellows (from the U.S., Israel, and Italy), nine graduate students, and several full time and part time technicians. Recent graduates include Dr. D.J. DesMarais, now at NASA-Ames (where he is working in isotopic biogeochemistry) after a post-doctoral year in geology at UCLA; Dr. D.A. Schoeller, now an assistant professor working in stable isotope analysis at the University of Chicago; Dr. L.M. Ganes, just joining Proctor and Gamble (where he will be working in environmental chemistry) after a post-doctoral year in chemical engineering at M.I.T.; Dr. Glenn M. Thompson, now an assistant professor of hydrology at Arizona; and Mr. Wayne E. Lee, now affiliated with the Department of Fuel Sci-
ences at the University of Utah. Dr. Zri Sofer, presently a post-doctoral fellow in the group, will be joining Cities Service in Tulsa, Oklahoma.

John continues to be involved with planning for NASA's planetary exploration missions, through his contributions to the Viking Mission's scientific successes, and by serving on a variety of NASA's advisory and review panels.

Tom Hendrix
The period 1975-1977 found Tom Hendrix teaching introductory geology and undergraduate and graduate structural geology, directing six graduate theses (two Ph.D.'s and four A.M.'s), and conducting personal research on strain in the Meagher Limestone of Montana and on the Big Hole, Montana Laramide structure. Hendrix also did service work for the National Association of Geology Teachers (NAGT). As director of the NAGT Summer Field Course Scholarship Committee he raised $31,000 in contributions from industry, to enable 178 undergraduate and graduate geology students from schools all over the country to take a summer field course in geology.

Alan Horowitz (staff)
Alan Horowitz continues to work on Mississippian palentology and Paleozoic bryozoans. Dr. Horowitz has completed a comparative study of the fauna and floral diversity of Chesterian deposits in the Illinois basin and in Arkansas and Oklahoma. His findings are contained in a field book he prepared for the August North American Paleontology Convention in Lawrence, Kansas. Dr. Horowitz is still very much involved in the task he began several years ago, of redescribing all of the Paleozoic bryozoans first described by Scottish paleontologist H.A. Nicholson. The existence of Nicholson's types was unknown for 70 years after his death. Re-discovered in 1970, they were made available to IU professor T.G. Perry. After Professor Perry's death in 1972 the specimens went to Horowitz.

In 1975 Horowitz attended the International Carboniferous Congress and associated field trips in Moscow, and participated in the International Bryozoan Association in September of this year at Woods Hole, Mass.

Cornelis Klein
Cornelis Klein has continued his research on Precambrian iron-formations and related assemblages with the aid of several NSF grants. Many of his graduate students have completed, or are involved in, mineralogic and petrologic studies in the Precambrian of Montana, in the Lake Superior district, and in the Labrador Trough, Canada. The automated electron microprobe as well as the X-ray diffraction laboratories have been considerably upgraded in the last two years.

In November, 1975 Professor Klein was an invited lecturer for the Canadian Institute of Mining and Metallurgy and lectured on "Sedimentary Iron-Formation in the Labrador Trough." at the University of Windsor, Windsor; Laurentian University, Sudbury; and Lakehead University, Thunder Bay, all in Ontario, Canada. In August, 1976 Klein served as co-chairman of a section on Mineral Deposits, as part of the International Geologic Congress in Sydney, Australia. He presented a paper on iron-formation petrology at the same Congress.

As of January 1977 he has accepted an Associate Editorship for the American Mineralogist for four years. He has been awarded a Guggenheim Memorial Fellowship for the comparative study of iron-formations in North America and in Australia. He has also completed a major revision of the Manual of Mineralogy, 19th edition, as co-author with C. S. Hurlbut of Harvard University.

Gary Lane
Over the summers of 1975 and 1976 Gary Lane worked on an NSF funded project concerning the origin and early evolution of the anal sac in inadunate crinoids.

That project is now virtually completed and a new NSF grant started last summer for research of the nature and origin of pinnules in this same group of crinoids. In 1975 and 1976 Professor Lane has also supervised two IU High School Science Institute students, the first of whom did a project that resulted in a paper published in the Journal of Paleontology.

Lane is currently finishing up an elementary textbook in paleontology tentatively to be titled "Life of the Past." In addition to normal research and teaching, he has been on quite a few field trips in Alabama, Tennessee, Kentucky, Illinois, and Ohio, as well as Indiana.

Judson Mead
Professor Mead continues as director of the Field Station near Cardwell, Montana. He spends a good part of his time during the winter months selecting students and taking care of the many administrative details involved in running the excellent field station. He still teaches the undergraduate courses in geophysics, supervises graduate theses projects, and participates in the graduate seminars. He leaves Bloomington the last of May leading The Caravan from Bloomington to Cardwell, Montana. He stays in Montana until mid-August when he returns just in time to start the fall semester.

Professor Mead is involved in many cooperative research projects with Professors Rudman and Blakely.

Warren Meinschein
Warren Meinschein has been active in research, teaching and services both in the Geology Department, and as Associate Dean for Academic Affairs in the University's School of Public and Environmental Affairs (SPEA).

In addition to his NSF funded biogeochemical research, and NASA funded lunar research, Meinschein is joining John Patton and other Indiana Geological Survey scientists in a study funded by ERDA, of carbonaceous shales in Indiana as sources of energy and petrochemicals. A grant from the Office of Water Resources Research, Department of the Interior, was also awarded last year to
John Patton

The energy crunch, the growth of environmental awareness, and interest in historic preservation, sparked by the Bicentennial Year, have kept John Patton extremely busy since the last newsletter.

The energy shortages have caused many groups to request talks on the subject; Professor Patton has been directly involved with several groups interested in the problem, including the Indiana Academy of Science and the Lieutenant Governor's Science Advisory Committee. Nuclear power stations proposed for various sites in the midsection of the country have resulted in a New Madrid Study Group, of which Professor Patton is a member.

Areas suitable for minerals production and agriculture continue to shrink, due to urban sprawl. Patton has addressed the problem in many talks, and has given expert witness testimony in official hearings. He has also served as the Governor's representative on the Agricultural Land Use Committee, and in his membership in both the Indiana University Heritage Committee and the Indiana University American Revolution Bicentennial Committee. In the latter committee he served as chairman of the Subcommittee on Historic Preservation with an assignment to inventory and document buildings of historic significance in the development of Indiana University throughout the state. Patton also served as advisor for a large restoration project on Christ Church Cathedral on the Circle in Indianapolis.

Other activities have included completion of the final year of an appointment as Associate Dean in the Office of Research and Advanced Studies, chairmanship of the Indiana University Biomedical Research Support Grant Committee, 1975 presidency of the Indiana Academy of Science, service as representative of the Association of American State Geologists on the American Commission on Stratigraphic Nomenclature, and activities as contributing editor of stone and masonry terms in the "Dictionary of Architecture and Construction" published by McGraw-Hill. Two schools, Hunter College and Bowling Green (Ohio) State University asked Professor Patton to visit to evaluate their geology programs.

Albert Rudman

Albert J. Rudman spent the spring semester of 1973 on sabbatical at the University of Hawaii in Honolulu. For the 1975-76 academic year, he entered into an exchange professorship with Dr. William M. Adams of the University of Hawaii at Manoa and the Hawaii Institute of Geophysics, and in 1976 was promoted to full professor.

Last summer Professor Rudman again voyaged to Hawaii. After reporting to the Hawaii Institute of Geophysics he flew to Guam to catch a geophysical survey ship which made several traverses on its way to Japan. During the one week voyage, Professor Rudman was responsible for the acquisition of magnetic data. After flying back from Japan, he spent the rest of the summer analyzing that data.

Professor Rudman is proud of his series "Geophysical Computer Programs" published as occasional papers of the Indiana Geological Survey. Four such publications now exist and cover the areas of potential fields, synthetic seismograms, correlation, and calculation of earth tide gravity values.

Robert Ruhe

As head of IU's Water Resources Research Center, Robert Ruhe has been engaged in a number of research projects, all of which promise to expand our baseline knowledge of environmental processes. Among those are studies of chlorofluorocarbons in ground water, of the hydrologic circulation and sedimentation of the Monroe Reservoir, southeast of Bloomington; of organic pollutants in urban hydrology, and of the effects of heated discharge on the White River at Petersburg, Indiana.

Although much of his research is centered in Indiana, Professor Ruhe has participated in projects and symposia in Texas (at Texas A & M University, on climatic variation), Hawaii (as an IU delegate in the 1976 annual meeting of the Universities Council on Water Resources), and South America, where he supervised a soil geomorphology reconnaissance in the Darien Project area in Colombia.

In 1976 Ruhe was active in a National Research Council Committee on radioactive waste management, as a member of the panel on land burial. This year he presented a lecture series at Iowa State University, and a seminar at Oregon State University, on the committee's work and findings.

Robert Shaver

Robert Shaver continues to offer biennial graduate seminars in invertebrate paleontology, in which projects have resulted in publications and oral papers under the authorship "Indiana University Paleontology Seminar."

Professor Shaver also is participating in a joint Geologic Survey and IU Department of Geology study of Silurian reefs of northern Indiana.

Since the last newsletter he has attended eight geologic meetings and presented nine oral papers and talks on Silurian stratigraphy, including two SEPM presidential addresses (in March at the Binghamton, New York Eastern SEPM Section meeting, and in June at the keynote session of the Aapg-SEPM convention in Washington, D.C.), and addresses to the Rocky Mountain Sections of the Aapg-SEPM and the Pacific Sections of the Aapg-
SEPM-SEG joint sessions in Bakersfield, California, both last April. Bob has also produced seven publications and guided five graduate theses during 1975 and 1976. He has served as President-Elect and as President of the National Society of Economic Paleontologists and Mineralogists.

Lee Suttner

Lee Suttner presented two papers at the IX International Association of Sedimentologists Congress in Nice, France, and an invited paper at the Paleoclimate Symposium at the New Orleans AAPG-SEPM meeting last year. Recent publications in the Journal of Sedimentary Petrology and the Journal of Sedimentology reflect aspects of his continuing research into the provenance of sands and sandstones. Professor Suttner used a portion of his sabbatical leave to continue paleoclimatic study of the Fountain and Cutler Formations in Colorado.

At the end of last year, he completed a term as Vice President of the Great Lakes Section of the SEPM. Besides his normal teaching duties, Lee has held special research seminars with graduate students in sedimentary petrology. A recent publication in the Journal of Sedimentary Petrology on quartz types as indicators of sandstone provenance, and a presentation at the North Central GSA meeting in Kalamazoo on the paleoclimatic significance of feldspar alteration resulted from such seminars.

David Towell

David Towell continues service as a member of the Budgetary Affairs Committee of the Bloomington Faculty Council. He is also chairman of the Subcommittee Concerning Priorities for Capital Requests.

Professor Towell teaches each summer at the Montana Field Station and plays an important role in the continuing success of that program.

Charles Vitaliano

Charles Vitaliano is still busy enlarging the Petrology Collections. The latest acquisitions include representative collections of volcanic rocks from the Grand Canyon, Hawaii, the Valley of Ten Thousand Smokes, and the Antrim Plateau Volcanics of Northwestern Australia. Completion of research in the Snake River Plains, Idaho, has resulted in three major publications coauthored with W. P. Leeman of Oregon, Martin Prinz of the American Museum of Natural History, and A. Basu, a former student at Indiana University and now Curator of Mineralogy and Petrology.

Continuing joint research with Mrs. Vitaliano on the Bronze Age eruption of the Volcano Santorini and its "effect" on the demise of the Minoan Civilization has resulted in a second publication. In 1975 the Vitalianos accepted an invitation from the British School of Archaeology to sample a stratigraphically controlled excavation at Philakopi, on the Island of Melos, for traces of the ash from the eruption. The positive results of the search will have considerable bearing on fixing the time of the eruption and on determining whether or not the eruption had a major influence on the history of the Minoan civilization.

In other research, Professor Vitaliano is applying the finishing touches to the geologic map of the Archean metamorphic rocks in the core of the Tobacco Root Mountains. The International Geologic Congress gave the Vitalianos an opportunity to renew old acquaintances and to make new friends in Australia.

New Faculty

Noel Krothe

An alumnus of IU, Assistant Professor Noel Krothe is one of three new faculty members added to the Geology Department last year. Professor Krothe graduated from Bloomsburg State College in Pennsylvania in 1961, and from the M.A.T. program in Earth Science here in 1969. He earned his M.S. and Ph.D. degrees at Pennsylvania State University, receiving the doctorate in 1976. Both his thesis and dissertation focused on water quality and chemistry in carbonate terrains.

At the 1976 Denver GSA meeting, Krothe presented a paper titled "The anomalous occurrence of sodium bicarbonate water in carbonate terrains." A paper of the same title and a second on the water chemistry beneath a flood plain in a carbonate terrain are ready to be submitted for publication.

Last summer he performed an isotopic study of infiltrating floodplain waters with a summer faculty fellowship. He has also received a Grant-in-Aid for faculty research to study carbonate saturation of kars streams in southern Indiana, and presented a paper to the 1977 Seattle G.S.A. on that topic.

Krothe was invited to attend an August Penrose Conference sponsored by the G.S.A. on geostatistical concepts and stochastic methods in hydrology. He teaches undergraduate and graduate courses in hydrology.

Enrique Merino

Enrique Merino, also new to the Geology Department faculty last year, received his geologic education on opposite sides of the globe. In 1967 he graduated from Ingeniero de Minas, School of Mines, in Madrid, Spain, and in 1973 earned his Ph.D. degree from the University of California at Berkeley with a dissertation on the diagenetic mineralogy and water chemistry of Tertiary sands from the San Joaquin Valley of California. While in Spain, he also worked for American Overseas Petroleum, Ltd. from 1965 to 1967.

Assistant Professor Merino was a visiting professor at the University of Western Ontario in London, Canada, in 1973 and 1974. He worked from September, 1975 until his move to IU, as a research associate on the calorimetry of clays at Case Western Reserve University in Cleveland. His interests include experimental and observational research of the chemical interaction between aqueous solutions and minerals in diagenetic and metamorphic environments. He is embarking on NSF and Petroleum Research Fund-supported studies of the calorimetry of layer silicates, and also plans to do research on the Carboniferous petrology of Rhode Island with Assistant Professor Wintsch. Possible work on Precambrian rocks of the Keweenaw Peninsula, Michigan, is anticipated as well.

Enrique taught graduate courses in diagenesis and chemical sedimentology last year.
A SURVEY OF SELECTED FACULTY PUBLICATIONS
1974-1977

Edward Ripley

Edward Ripley, the third faculty member new to IU in 1976 is, at 27, the depar-
tment's youngest faculty member.

Assistant Professor Ripley graduated with honors from Illinois State Univer-
sity's B.S. program in Geology in 1971. He moved north to the University of Min-
nesota for his Master's degree, which he completed in 1973 with a study of the
copper-nickel mineralization in Archean, layered mafic-ultramafic sills of north-
central Minnesota.

Ed entered Pennsylvania State's Ph. D. program and earned that degree in 1976.
His dissertation research took him to South America where he studied stratified copper
deposits at the Raul Mine, Peru.

His research interests include the study of metal-ore deposits utilizing min-
eralogic, fluid inclusion and stable isotopic techniques, and geochemical explo-
loration for metal deposits.

He teaches undergraduate courses in economic geology and graduate courses in
copper deposits and economic geology. During the first 1977 summer session he also taught
"Field Methods, a course the department
had not offered for several years, which introduces students to work with the
alidade, plane table and brunton compass.

Robert Wintsch

A fourth faculty member addition since
the last newsletter. Bob Wintsch, is be-
ginning his third year with the department.
Assistant Professor Wintsch received his undergraduate geology degree from Beloit
College in Wisconsin in 1969, and his Ph.D. from Brown University in 1975.

At IU he is using university and NSF
funds to set up a high temperature, high
pressure experimental lab to study the proper-
acts of his doctoral research into reaction
mechanisms in metamorphic rocks and the
composition and role of fluids in metamorphism.

Bob is involved in several additional research projects. A paper on the structure,
stratigraphy and petrology of rocks he studied and collected during six weeks of
field work in Connecticut is nearly ready to submit for publication. A paper he wrote
last spring titled "A Chemical Approach to
Mica Preferred Orientation," has been ac-
cepted for publication in the GSA Bulletin.
At the GSA meeting in Seattle this fall, he
presented a poster talk on the problem of
oxidation of iron during high temperature shearing in metamorphic rocks. Bob has
also received support from the Petroleum
Research Fund to formalize a long standing
interest in the crystallinity of carbonaceous material as well as the petro-
logy of the Carboniferous rocks of Rhode
Island.

Bob teaches graduate courses in Phase
Equilibria and Metamorphic Petrology. He
has also held seminars in experimental pet-
rology and in the tectonics of New Eng-
lund, the latter to prepare three graduate
students for field work in southern New England. He designed and last May led a
12 day field course in northern Wisconsin
and northern Michigan, where students examined field aspects of sedimentary,
igneous and metamorphic petrology.

EMERITUS

Wayne Lowell

Wayne R. Lowell retired in 1976 after
26 years as teacher of Physical and Eco-
nomic Geology. From 1951 to 1963 Dr.
Lowell also directed the Geologic Field
Station in Montana. Since 1963 he has
Devoted all of his energies to the introd-
cutory course and his advanced courses in
economic geology on the Bloomington
campus. He is now actively engaged in
consulting on mining and potential mining
properties—a service he developed during
the latter part of his teaching career.

William P. Thornbury

Retired Professor Thornbury comes to the
office he shares with Professor Lowell
once or twice a week and still attends col-
Iquia that are of interest to him. He and
Mrs. Thornbury traveled to Yugoslavia in
1976 and last winter spent a couple of
weeks in California visiting at the home
of their son David who is a pilot for Western
Airlines.
The Indiana University summer field program is the largest and perhaps the most well known in the nation. It is also the first choice of the great majority of winners of the prestigious National Association of Geology Teachers scholarships to outstanding students for summer field courses.

With approximately one out of every three students applying from out of state accepted into the program, the Field Station continues to operate at capacity under the direction of Judson Mead. Lee Suttner has been the Associate Director since 1970, and W. Thomas Straw of Western Michigan University is Acting Associate Director during August. Both an eight credit (seven week) and a six credit (five week) version of GEO 111-112. Tom's course enrolls approximately 15 students, most of whom are honors-calibre incoming freshmen. With approximately one out of every three students applying from out of state accepted into the program, the Field Station continues to operate at capacity under the direction of Judson Mead. Lee Suttner has been the Associate Director since 1970, and W. Thomas Straw of Western Michigan University is Acting Associate Director during August. Both an eight credit (seven week) and a six credit (five week) version of GEO 111-112. Tom's course enrolls approximately 15 students, most of whom are honors-calibre incoming freshmen.

A second conference was held in July of 1974 by a group of former Indiana University students, for the purpose of developing a forum in which greater knowledge and understanding of Western Montana and Northern Rocky Mountain geology could be promoted. Organized originally by Richard I. Gibson, Robert W. Langston, and Marian Miller Langston, the membership of the Society now numbers nearly 100. One of its primary functions is the organization of field conferences. One such conference with headquarters in Bozeman was held in July 1976. At that conference reports on aspects of the geology of southwest Montana and northwest Wyoming were discussed. In addition, field trips were conducted to Ruby Range, Specimen Creek, the fossil forests of Yellowstone National Park, the Jefferson Canyon region, and to the Allister-Norris area. The conference closed on July 9 with a seminar at the Indiana University Geologic Field Station (I.U.G.F.S.) area, conducted by Professors Tom Straw and Lee Suttner, who explained the relationships of various problem areas to the field mapping program at the station. Following the seminar 48 conferees and the I.U.G.F.S. faculty enjoyed an open house and dinner in the I.U.G.F.S. lodge.

A second conference was held in July of this year in Butte, Montana. Present plans call for Missoula, Montana, as the site for the 1978 conference. Future meetings of the Society will be patterned after Geological Society regional meetings as much as possible. The officers of the Society for 1977 are Richard I. Gibson, President; Marvin R. Miller, Vice President; Robert W. Langston, Corresponding Secretary; and Marian Miller Langston, Recording Secretary-Treasurer.
This is an interesting and productive time for the Indiana Geological Survey. The level of service requests continues to rise sharply, indicating that more and more people are thinking about us; the legislature, if not lavish in its funding, has at least been more generous than usual, with the result that a new core storage library has been constructed; and some investigations of reefs, coal, black shale, and metallic minerals in Indiana give indications of leading to some interesting results.

When you visit the Survey on your next vacation trip through Bloomington, a good many familiar faces should be on hand to greet you. You can read a certain organizational stability into the fact that during the past year seven members of our staff—Gerry Carpenter, Andy Hreha, Harold Hutchinson, Martha Smith, Gerald Woodard, Joe Whaley, and Maurice Biggs—were recognized for completing 25 years with the Geological Survey. They joined Mary Beth Fox, Bill Moran, Bob Blakely, John Patton, Dick Leininger, and George Ringer, who had reached that milestone earlier. Henry Gray, Stan Kelter, Lou Miller, Dan Sullivan, and Bob Shaver have only a year to go before becoming “elder statesmen.”

Lest you gain the impression that the Survey staff is tottering on the brink of senility, I should hasten to add that several new young geologists have brought some fresh vitality and outlooks to the organization during the past few years. Many of our current programs combine the energy of this new group and the wisdom of Hank, Hutch, and others.

One project which involves nearly everyone on the Survey staff is an investigation of the New Albany black shale as a possible source of energy. The U.S. Energy Research and Development Administration has contracted with several state geological surveys and other agencies to do a comprehensive study of the shale and its counterparts in the East to see what hope it offers as a source of oil and gas. This is a project that has been in the back of our minds for 50 years or so, and two years before the ERDA effort was started we sought funding support from various federal agencies, without success. The ERDA contract, which provides nearly $100,000 for new geologic equipment, has rekindled interest in the shale. Dick Leininger, Don Carr, and Leroy Becker (who retired Dec. 31, 1977,) have been the prime movers on this project, but nine other geologists, geochemists and technicians will work with them.

Cold weather and national energy problems have stimulated our coal program as never before; each month seems to bring a new record of inquiries. In order to make easily accessible the accumulated coal records of many years, Walter Hasenmueller has been working on a state coal data system with John Hickman. In a few months we hope to be able to call up coal analyses, reserve figures, or even maps, with which to respond to numerous questions.

Because most of our coal data deals with fairly shallow deposits, Harold Hutchinson is attempting to extend that knowledge with a coring program to explore deep coals in the Illinois basin. The Survey drilling rig, now manned by John Helms and Marvin Iverson, has been coring south of Vincennes to depths of about 900 feet.

Fortunately, the Survey has a place to store the new core. (For the past few years the old core quonset has been filled.) The new state funded core library, completed around the first of the year, is located about three blocks northwest of the Geology building. It has 5,000 square feet of floor space, and will hold all of the core we presently have, plus that which we will acquire, at the present rate, over the next 20 years.

Nelson Shaffer is now working on a project that may surprise those of you away from Indiana—a study of sulfide mineralization in the state. Although the prospect of finding metallic minerals in Indiana had long been dismissed, Nelson’s efforts have turned up many samples of metalliferous minerals. So far none have been found in commercial quantities, but one mass of sphalerite weighing 66 pounds has been discovered.

A combined stratigraphic and economic study of reefs by Curt Ault, Bob Shaver, and others over the past year or so, is now reaching completion. Besides providing material for many debates, papers, and field trips, the combined coring and field work has developed an exciting regional picture of Silurian sedimentation for Illinois, Indiana, and Michigan, and has paved the way for some mineral exploration. The odds favor your having a chance to hear Bob or John Droste review some of the findings at a nearby meeting.
OUTSIDE SPEAKERS

Colloquia 1975-1976

Frank C. Appleyard, Director-Mining and Exploration U.S. Gypsum Co., Chicago III. . . DEVELOPMENT OF A MINERAL DEPOSIT ON PUBLIC LANDS—A CASE HISTORY (Sept. 29)

Dr. G. G. Beckman, Cunningham Laboratory, Commonwealth Scientific and Industrial Organization (CSIRO), Brisbane, Australia. . . PROBLEMS IN DEVELOPMENT OF SOILS AND PEDIMENTS ON THE DARLINGTON DOWNS, QUEENSLAND, AUSTRALIA (October 16)

Dr. Khoutrow Badiozamani, Manager of Planning, Analysis and Evaluation, Amex Coal Company, Indianapolis. . . HETEROGENEOUS NUCLEATION OF CARBONATE CEMENT AND DIAGNOSIS OF DIAGENETIC ENVIRONMENTS (Oct. 27)

Mr. John Allen, Research Agronomist, Division of Reclamation, Indiana Department of Natural Resources. . . GEOLOGIC PROBLEMS IN INDIANA RECLAMATION (Nov. 3rd)

Dr. Frank C. Whitmore, Department of Paleobiology, United States Natural History Museum. . . THE PALEONTOLOGY OF CRUSTACEANS (Nov. 10)

Dr. R. David Matthews, District Geologist, Minerals Department Dow Chemical Co., Midland, Michigan. . . EVAPORITE CYCLES IN THE DEVONIAN OF THE MICHIGAN BASIN (Nov. 17)

Dr. William J. Hinze, Department of Geosciences, Purdue University, Lafayette, Indiana. . . RECENT BASEMENT STUDIES OF THE MIDWEST AND THEIR GEOLOGIC IMPLICATIONS: THE PAST AS A KEY TO THE PRESENT (Dec. 1)

Patrick Wiram, Amex Coal Company. . . ACID WASTE DISPOSAL IN STRIP MINING (Feb. 2nd)

Dr. Cornelius S. Hurlbut, Jr., Harvard University. . . GEM MINERALS FROM AROUND THE WORLD (Feb. 19)

Dr. David L. Meyer, University of Cincinnati. . . ECOLOGICAL STRUCTURE OF MODERN TROPICAL CRINOID COMMUNITIES (Feb. 23)

Dr. John K. Pope, Miami University, Oxford, Ohio. . . THE HISTORY OF GEOLOGY IN SOUTHWESTERN OHIO (March 1)

Dr. Arthur L. Boettcher, Pennsylvania State University. . . ROLE OF AMPHIBOLES IN THE GENESIS OF ANDESITES (March 27)


Dr. Charles F. Kahle, Bowling Green University, Ohio. . . AN EVALUATION OF EVIDENCE FOR KARST AND TIDAL FLAT ENVIRONMENTS AS RECORDED IN THE SILURIAN ROCKS IN NORTHWESTERN OHIO (April 5)

Dr. Kenneth Stanley, Ohio State University, Columbus, Ohio. . . SANDSTONE PETROFACIES AND DEPOSITIONAL HISTORY OF THE HIGH PLAINS SEQUENCE, WYOMING AND NEBRASKA (April 12)

Theodore Lettze, Northern Illinois University. . . DIFFUSION AND REACTION MODELS OF SMALL OCEANIC BASINS (April 13)

Dr. Joseph M. Prospero, School of Marine and Atmospheric Science, University of Miami, Florida. . . IMPACT OF SAHARAN AEROSOLS ON THE ATMOSPHERE AND THE OCEANS OF THE NORTHERN EQUATORIAL ATLANTIC (April 14)

Mr. James Jontz, Indiana House of Representatives. . . BIG PINE RESERVOIR: GEOLOGIC VALUES AND THE POLITICAL PROCESS (April 19)

Dr. Raymond L. Christopher, U.S. Geologic Survey, Reston, Virginia. . . USE OF REGRESSION IN CHARACTERIZING THE CONTROL OF LITHOLOGY ON SPORO-POLLEN FREQUENCIES (April 26)

William Graustein, Yale University. . . THE EFFECT OF FOREST VEGETATION ON REAL AND IMAGINED CHEMICAL WEATHERING (April 27)

Wyman Harrison, Argonne National Laboratory. . . THE BEACHES OF ATLANTIS (April 28)

1976-1977

Hans U. Schmincke, Bochum University, Germany. . . THE GEOLOGY OF GRAND CANARIA, THE CANARY ISLANDS (Sept. 29)

Dr. Russ Peppers, Illinois Geological Survey. . . PRINCIPLES OF PALYNOLOGY AND SOME APPLICATIONS (Oct. 4)

Dr. Leo Hickey, Smithsonian Institute. . . EARLY ANGIOSPERM FOSSIL HISTORY (Oct. 18)

Dr. Herbert Frey, Astronomy Program, University of Maryland. . . COMPARATIVE PLANETARY CRUSTAL EVOLUTION (Nov. 1)

Dr. Charles Wier, Amex Coal Company. . . PERMIAN COALS IN THE SOUTHERN HEMISPHERE (Nov. 15)

Dr. Jim Fisher, Department of Geology, Michigan State University. . . ORDOVICIAN AND SILURIAN OF THE MICHIGAN BASIN (Jan. 31)

Dr. David Scofield, Miami University, Oxford, Ohio. . . GEOLOGY OF BRAZIL (Feb. 7)

Sharon Mosher, Department of Geology, University of Illinois, Urbana, Illinois. . . PRESSURE SOLUTIONS AS DEFORMATION MECHANISMS IN RHODE ISLAND CONGLOMERATES (Feb. 11)
Dr. Jack Barnes, ISU-Evansville... ENERGY—ITS ENVIRONMENTAL IMPACT ON THE TRI-STATE AREA (Feb. 21)

Dr. George White, University of Illinois... EARLY GEOLOGY IN THE OHIO AND WABASH VALLEYS (Match 14)

Harold Gluskoter, Illinois Geological Survey... MINERAL MATTER AND TRACE ELEMENTS IN COAL (April 4)

Tanya Atwater, Massachusetts Institute of Technology... THE CREATION OF OCEANIC CRUST: STUDIES FROM SHIPS AND SUBMARINES (April 4)

Jack Harrison, U.S. Geological Survey, Denver... WESTERN U.S. CONTINENTAL MARGIN—A STABLE PLATFORM DOMINATED BY VERTICAL TECTONICS IN THE LATE PRECAMBRIAN (April 18)

Dr. Pat Dominico, University of Illinois... GEOLOGIC MODELS IN MASS AND ENERGY TRANSPORT (April 25)

Aapg Distinguished Lecturers 1975-1976

Dr. Peter A. Scholle, APPLICATION OF CHALK-DIAGENETIC STUDIES TO PETROLEUM RECOVERY PROBLEMS (Nov. 6)

Dr. Daniel Bash, INTEGRATED DISCIPLINES IN PETROLEUM EXPLORATION (March 11)

1976-1977

John M. Browning, AULOCOGENS AND MEGASHEARS: NATURAL HABITAT FOR OIL AND MINERAL DEPOSITS (Oct. 13)

Robert Schmalz, EVAPORITES, SULFIDES AND PETROLEUM (Jan. 14)

James H. Clement, GEOLOGIC HISTORY—KEY TO ACCUMULATION AT CEDAR CREEK (Jan. 25)

Sankey Blanton, GEOLOGY OF BERING SHELF (March 4)

HISTORY OF THE GEOLOGY DEPARTMENT

By John B. Patton

CHRONOLOGY

Instruction in geology was offered at Indiana University as part of courses in natural philosophy for some 10 years before a course specifically named geology appeared for the first time in the 1853-1854 University Catalog. The faculty during those early years, and indeed until the mid-1880's, did not include persons trained as specialists in geology, but Richard Owen, M.D., who became Professor of Natural Science and Chemistry in 1867, and was Professor of Natural Science from 1874 to 1879, would surely have been considered a professional geologist.

In April 1885 the Board of Trustees created a Chair of Botany and Geology, and a Department of Geology was established for the 1885-1886 academic year with the appointment of John Casper Brunner as Professor of Geology, Instructor in Botany, and Curator of the Museum. Three courses were listed, and a geology laboratory and museum were set up upstairs on the second floor of newly completed Owen Hall, the first building established on the new campus in Dunn's Woods following a fire on July 12, 1883, at the original Second Street and College Avenue campus. The first graduate of record was Edward M. Kindle, who received the A.B. degree in 1893, by which time Associate Professor Vernon F. Marsters was in charge of the department. Kindle was appointed Instructor for the year 1893-1894, and for the first time the department had a two-man faculty. John F. Newsom joined the faculty as Instructor in 1894-1895, replacing Kindle. A third faculty member, Edgar R. Cumings, was added as Instructor in Paleontology for the 1897-1898 year, beginning the longest service record in the departmental faculty. Doctor Cumings became head of the department in 1905 and retired as Emeritus Professor in 1944.

The first Master of Arts degree was awarded in 1899 to James Arza Price. The name of the department was changed to Geology and Geography in 1900, and the word geography was dropped from the title in 1904. J. W. Beede became Instructor in 1901-1902. In 1902 the department moved from Owen Hall to the fourth and fifth floors of the new Science (now Lindley) Hall. The department's first doctoral degree was awarded in 1913 to J.J. Galloway, who was then appointed Instructor in 1913-1914. The number of faculty reached four in 1916-1917 when W. N. Logan and C. A. Malott were appointed as Associate Professor and Instructor, respectively (J. J. Galloway had left to join Columbia University at the end of 1915-1916). Geography was still taught within the Department of Geology, and a faculty addition in geography took place in 1919 with the appointment of S. S. Visher as Assistant Professor, but the teaching staff in geology did not increase (to five) until 1921-1922, when John R. Reeves and William N. Tucker were appointed as Instructor and Assistant Professor respectively. The number of faculty rose to six in 1923-1924 when Arch R. Addington became Instructor.

Ralph E. Esarey joined the faculty as Instructor for 1924-1925, beginning a period of service that extended until his retirement in 1966. In 1928-1929 William D. Thornbury was appointed Instructor in geography, initiating a tenure that extended through 1969-1970. He has been Professor Emeritus since that time. Professors Esarey and Thornbury (and Doctor Cumings earlier) have given more years of service than any other departmental faculty members.

In 1931 the departmental name was again changed to Department of Geology...
and Geography. J. J. Galloway returned as Professor for the 1932-1933 academic year, after 15 years of service at Columbia University. During the summer of 1937, Owen Hall, which had for some years been utilized by the School of Medicine, was renovated for the Geology Department which thus returned to its original home, now occupying the entire structure. By 1936-1937, with the retirement of W. N. Logan, the teaching staff in geology had declined again to four, and it remained at this level through 1944-1945. Following Doctor Cumings’ retirement from the chairmanship in 1941, C. A. Malott served as Acting Chairman through the 1944-1945 academic year. Charles F. Deiss was then selected as the new Chairman and State Geologist. Under Doctor Deiss’ administration, a conscious change in the department’s breadth of coverage and size of faculty began (see Figure 1). At the end of the 1945-1946 academic year, a separate Department of Geography was created, and Doctor Thornbury remained with geology. Eugene Callaghan was added as Professor in the same year, increasing the faculty to six. From that time forward, faculty growth was notable (see Figure 1). By the 1949-1950 academic year the faculty numbered 9; in the 1954-1955 academic year, 11; in 1959-1960 again 11; in 1964-1965, 16; in 1969-1970, 20; in 1974-1975, 22 (including two joint appointments with other departments); and the faculty during the 1976-1977 academic year was 23 (also including two joint appointments). By the latter 1950’s, the academic geology program had expanded to occupy parts of Wylie Hall, Kirkwood Hall, Maxwell Hall, and miscellaneous temporary structures. Planning began in 1955 for a new geology building. Construction was started in 1959, and the department moved in an eight-day period between semesters in January 1962. A joint department-survey dedication was held in April 1964 when the attached geological survey building was completed. Intensive field training at a remote site was initiated in 1947, when the department utilized the Yellowstone-Big Horn field camp at Red Lodge, Montana, and in 1949 the university completed phase I construction of the Indiana University Geologic field station in the Tobacco Root Mountains and offered the first session of a program that has grown into the leasing operation of its type in the United States.

### DEGREES GRANTED

The departmental program began in 1885 with the Bachelor of Arts as the authorized degree, but the number of graduates was small until the late 1940's. Records are lacking for a four-year period following 1893, when Edward M. Kindle received the first degree awarded in geology. From 1902 through 1905, and in 1910 and 1918, no bachelor’s degrees in geology were awarded. Nine degrees were granted in both 1925 and 1926, and eleven in 1928. The depression years of the early 1930's resulted in low enrollments but the average number of degrees granted rose modestly through the late 1930's. World War II again resulted in low enrollments, and few degrees were awarded between 1943 and 1948. Then the enrollment budget was reflected by larger graduating classes in 1949, 1950, and 1951. Initiation of the Bachelor of Science program in the late 1940's cut into the A.B. degree program during the 1950's. A larger total number of B.S. degrees has been awarded (105 A.B. degrees, 115 B.S. degrees) for the period 1979 through 1977. In 1975 the B.S. degrees numbered 19, the largest number since 1958, when a record 23 were granted. The largest total bachelor’s-degree productivity was in 1950, when the number was 45 (see Figure 2). Between zero and six Master of Arts degrees (the first awarded in 1899) were granted per year until 1949. Since then, between six and 21 of those graduate degrees have been awarded each year. Our present yearly average is about 15 A.M. degrees (see Figure 2). The Master of Arts for Teachers degree (in earth science), first awarded in 1956, had few recipients until 1966. When a series of institutes supported by the National Science Foundation produced bumper crops of M.A.T. recipients for all years except two through 1973. The department was one of the most active in the nation in training earth science teachers through that interval. The Doctor of Philosophy degree, first awarded in 1913, resulted in no more than two doctorates per year (and none in most years) until 1952. Beginning in the mid-fifties a slow and erratic growth has taken place in the number of Ph.D. degrees awarded annually; although the number of students in the doctoral program has expanded fairly steadily. The department now grants an average of about seven Ph.D.'s per year (see Figure 2). Tables 1 through 5 list, to the extent that records of the Registrar's Office and the Department permit, in chronological order, recipients of all degrees awarded by the department to date. We solicit corrections and additions from the readers of the NEWSLETTER.
Figure 1—Growth in the Geology Department Faculty 1890-1977

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<tr>
<th>Faculty in Geology</th>
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<td>Rev. Robert Milligan</td>
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<td>Rev. Robert Iliff</td>
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<td>C. A. MaJott</td>
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<td>A. R. Addington</td>
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<td>Ralph E. Esarey</td>
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<td>Carl A. Iamey</td>
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<td>Charles F. Deiss</td>
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<td>Warren G. Meinschein</td>
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<td>Jasminko Karanjac</td>
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<td>Cornelis Klein, Jr.</td>
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<td>Stanley H. Davis</td>
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<td>Enrique Merino</td>
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<td>Edvard Ripley</td>
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[Note: The table lists faculty members from 1890 to 1977, with some names and positions possibly reflecting changes in roles or appointments.]
Figure 2—Degrees Granted 1890-1977
A.B. DEGREES

1933     Edward M. Knolle
1938     Lee Fret Bennett
Charles G. Daily
1899     Emma Lebetta Wilson
1901     James Frazier Wilson
1904     Charles William Shannon
1947     Albert Warrick Thompson
1948     George Edgar Barton
Frank Cook Groene
1909     William Motor Tucker
Carl Vincent Barker
Jesse James Galloway
John Arnott Smith
1911     Harry Bauer Johnston
1912     Hilbert Ellis Brown
Charley Harold Osvold
Earl Wayne Vickerly
1913     Henry Mathusalem Dubois
Paul Hunt
Thomas Franklin Jackson
Fred Daniel Lewis
Mrs. Eula David McElwan
Clude Armist Makon
1914     Horace Noble Corrill
1915     Thomas Darrell Foster
Barton J. Malett
1916     Frank Emerson Allen
1917     Colonel Churce Beale
Ira Otto Brown
Jose W. George
1919     Birckmy Wayne Hatter
Paris Buell Stockdale
1920     Luther S. Ferguson
Glen A. Lee
1921     Glenn Gardner Buckle
Marshall Allen Harrell
Otto H. Hughes
John Irwin Moore, Jr.
John Robert Reeves
1922     Archie Rombaugh Addington
Ralph Emerson Evans
Thomas C. Hemond
Elmer L. Lucas
William Pen Rawles
William John Hill
Raymond Samuel Hunt
Robert Lewis Kolt
Estelle Brown Owen
Pearl Stout
William Avery Thomas
1924     Paul Gerhard Butlett
Florence Mae Elter
Olena Ferne Pick
Albert Peter Swanson
1925     Ronald Lewis Bates
Robert Alexander Hall
Pauline Leonora Barker
Albert Thomas Hacket
Joseph Conrad Holm
Harlan DeBows Logan
Marshall Adkins Newman
Robert Rakes Shriver
William David Thermopylae
1926     Dewey Carter
Floyd Childs
Leroy Isaac Dansere
Mrs. Mabel Linn Hummel
Heman Lewis Martin
Arthur Everett Moore
Ralph Eugene Slocum
Arthur Franklin Stilley
Lester Harold Wace
1927     Gladys Helen Brumback
Walter E. Burnham
Jessie Scolfield Koemanz
Ralph Blackwood McCintock
Lithurn Harold Seamon
Felis Georgia Spencer
1928     Mary Carolyn Hinch
John Newton Mitchell
John Evans Ogtan
Horace E. Rankin
Herman Henry Reek
John Kerr Rose
Victor John Simi
Paul Freund Simpson
Mrs. Iris Marie Gilman Stanger
Gladys Thrasher Tarkington
George Isaac Wiliamson
1929     Louis Danielson Allen
Emmett Jordan Downing
Rice Dubbub
Charles Lewis Starr
Ruth Elizabeth Tweedy
McKinley Edward Wooten
1930     Mabel Jane Denrock
George Richard Freil
Martin Milton Nading, Jr.
1931     Mrs. Ruth Darrel Hays
Mimam Frances Myers
Raymond C. Mullen
Mrs. Josephine Starr Pond
1932     Robert Elery Bayes
Daphne Loyd Burns
Robert B. Grayman
Ron Eugene Raker
Ronald R. Rogers
1933     Noel Ritchie Balyce
Claudia Miller Harky
Richard Henry Schwerens
Briset Byron Smith
1934     Marion D. Fiddor
Herbert Glenn Hudick
Robert John Marshall
John Richard Perry
1935     Charles Noble Beard
Charles Wesley Bickling
George Forrest Dyke
Mark White Pangborn, Jr.
Kenneth Armstrong Payne
Benjamin Franklin Rogers
William Philip Von Olmcki
1936     Melvin D. Maick
Norbert A. Parker
James Elmo Reeves
Donald Frederick Thompson
1937     John Rudolf Harris
George Stancy
Fred Hubert Latimer
Charles Gracy Spencer
Elmer Louis Wegner
1938     Tom Dawson
Margaret Claire Kamzik
Lester Lloyd Logue
James Cole McClellan
Lotus Merle McLemore
Claude Leslie Tisdale
Courtney Waddell
1939     Helis B. Fender
Herbert James Mottal
Ruth Moulton
Frederick Paul Schawm
Walter Levy Smith
Walter Blue Spangle
1940     George Douglas Clarke
John Eugene Comb
Preciar McGar
Jay Val Schilling
John Edward Uff
1941     Robert Glazlo Renk
Helen Mary Rogers
Everett Elmer Woden
1942     Charles C. Bajda
Thomas Sweeney Bryce
Ruth E. Kiper
Dan Krais
Robert Ray Myers
Robert Stwart
Frank Lloyd Williams
1943     Henry Berry
John Carlisle Bolenbacher II
1944     Barbara E. Brooks
Harvey Fierstein
Robert Byron Harris
1945     Dona Frances Beharman
William Palmer Jenkins
Thomas P. Mooney
George Otto Winston
1946     James Woodrow Bachelier
1947     Thomas Ed Green
1948     John William Hagay
Frank Edward Kowbiski
Harrt Martha McLean
1949     Robert A. Bebeamann
Maurice E. Bally
Karl Fireballer
William Francis Jett
James R. MacDonal
1950     Homer R. Brown, Jr.
John R. Balick
Jose Castilla-Markes Cascalatine
John Evin Street
Horal Lelo Drea
Robert W. Fitch
Dallas N. Fruaftt, Jr.
Jacob Phillip Hamilton
Thomas Malcolm Hendrickson
Gerard Joseph Hennepay
Harold Walter Hertz
Dick Spase Hovton
Andrew John Hecht
John Herbert Hughes
Donald Eugene Hyer
Phillip J. Laws
Edward D. McKay, Jr.
Earle Scrinieri Newcomer
John Samuel Osborne
Ned Myron Salm
Robert Elton Clay Warren
Kenneth Mollie Waters, Jr.
Wendy Edward Williams
1952     Nick Baxo
Barnett Robert Broadbent
Wayne Miley Bundy
Duane Frederick Chickett
Charles Robert Connaughton
Martin Conolly Corle
Thomas Cook
Williams Henry Crites
Walker Jose Dammer, Jr.
John Anthony Dome
Clarence L. Dutton
Harold Clyde Fielder
John Lowell Flanigan
Warren C. Reisemayor
Robert Louis Hyre
Frederick Jackson, Jr.
Woe Lee-Hing
Richard Harold Johnson
Beryl Dale Klone
Edward Ernest Kroner
John Maurice Malker
James K. Nichaus
Victor E. Olsen
Willa Lee Pennington
Rosland Robinson
Robert Lee Sma
Harold Sorgedri
James T. Stanley
James T. Strange
Robert Bernard Saeftt
Henry O. Thomas
Robert Charles Voss
Ralph H. Wados
1955     Raymond Leon Batton
Thomas George Belford
Wayne Albert Erickson
William Hamilton Flandar
James Richard Harris
Harold Christy Batson
Robert David Jorklin
Thomas David Jones
Joseph Ray Long
Eugene John Lennart
Grady Atteny Lohn
Donald Richard Newsom
Rayon Jackson Pickering
George Paschou
1957     Helen Marie Beckman
Herman C. Eagles
Harrt Ann Gray
Done Lee Green
Robert L. Jones
Jack Lewis Nelson
John Thomas Riddett
Alan Jack Rommel
Michael Ross Jordan
Robert Anton Rudman
Robert Eugene Parsons
Robert Richard Rutledge
Robert Wayne Lankston
James C. Cristman
Robert Lee Davison
Michael Ross Jordan
Kenneth Earl Crooke
Robert Leslie Proudfoot
Dale Aller Schott
Robert Robert Votaw
1963
Judy Gall Clark
Stanley Kelly Hamilton
James Backwell Morier, Jr.
Donald Edward Hall
Joseph R. Kramer, Jr.
Richard L. McClain
Robert Charles Moore
Robert S. Nicoll
Michael C. Petre
Howard Rentz, Jr.
Larry D. Woodfork
1965
David R. Raleigh
Robert H. Beuchting
Gary W. Usages
Charles K. Dvoracek
Donald G. Fishley
William C. Herring
Michael C. Moore
Raymond M. Rose
Robert D. Tippie
1966
Muhammad Ahmad Ahmad
Larry Dean Bennett
Carl Eath Campbell
John H. Ravenstof
1967
Harry John Allen
William Frederick Althoff
Stephen Webster Rose
1968
Edwin Thomas Alkin
Charles Emil Beck
Terry Fischer
Kenneth Irish Reiss
Michael R. Thomas
David Michael Weisberg
Wallace Walter Wigley
1969
Douglas Reid Baumgard
Michael Miller Hamilton
Patrick W. Kennedy
Douglas J. Knob
Marian Thelma Laskin
Robert Wayne Laskin
Norman M. Lewis, Jr.
Michael McDowell
Terry Allen Miller
Mary Ann Turner
Greg Allen Vase
Stephen Charles Warner
1970
Michael C. Carpenter
Jane Carl
David Alexander Darko
David Michael Finton
Stephen W. Henderson
Koryna Felicia McLaw
John R. Mitchell
Peter B. Pencourk
George Bruce Reef
Michael Jay Stears
David Edward Thompson
James O. Wood
1971
John Bassett
Stephan Edward Eickenberry
Richard Ingman Gibson
Jon Edward Green
Thomas M. Hare
Frederick R. Keer
Steven W. Kuchler
John Richard Lane
Thomas L. Perley
Jeffrey H.Randall
Scott W. Rogers
George Ronald Sullivan
Theodore Allen Weitzel
Joseph G. Wells
1972
Jako Alamos
Shayla Wayne Anderson
Richard L. Aber II
Sigrid L. Bolonder
Walter Ryan Burnin
Val W. Chadora
Robert Hugh Leigh II
Theodore Pernoff
Humberto Rodriquesowski
Robert Serrrett
Gregory Tipple
Robert B. Voie
1973
James LeRoy Adams
Alfred B. Agnew
David Barry Bickmore
John T. Hansu
Donna Kay Kream
Dwight D. Schaefer
Gary Lee Secelk
Larry Wayne Stidham
Donald J. White
Philip L. Zika
1974
Michael C. Andres
Robert W. Bauer
Raymond Ruth Buckner
David O. Chase
Sussone S. Cunningham
Lawrence Goldenberg
Jay Andrew Holman
Carl Michael Lebke
Daniel Lee McGrew
Marc E. Nelson
Keith Alan Schuler
William D. Shuler
Laura L. Turner
1975
Jon Robert Waterick
1976
David Burke
Lok Sing Cheng
Michael Eugene Clark
Mary Diane Corbett
Robert Lewis Crichtov
Holly Catherine Deetz
Thomas G. Fentz
James Francis Goss
Bruce A. Hagan
Jeffrey Robert McClean
Jeffrey Michael McDermott
Patrick McDevitt
Peter Maro
James Fuschs Murray
Thomas Alan Avis
Mark Exente Ravi
Jerome M. Sickenery
John Walter Sokop
Melanie Faye Tokins
1977
Black
Behar Campisi Tabrint
William Glover III
Thomas Lynn Gaffrir
Michael W. Hall
Cynthia Denise Lowncare
James O. Maxwell, Jr.
David Oliver
Thomas George Pymus
William Otto Pelly, Jr.
Gerald Duane Robbins, Jr.
William A. Ratan
Bruce Tendall
Maxwell Joseph Tilden
Mark C. Tenness
Kurt William Vakal
William Lyle Wilson
Bruce Allen Wright
1978
James Thomas Buxic
Andrew Robert Campbell
Gary Benjamin Cates
John Eric Edkins
David Michael Falls
David W. Grom
Stephen Jay Hay
David F. Kluwert
Jeffrey Charlie Line
Stephen H. Lineer
Gary Wayne Nelson
William R. Roy
Donald Bruce Slatman
Louis Edward Schultz
Robert David Woock
21
M.A.T. DEGREES

1956
Donald Aung Ba
Byrce F. Shuckton

1962
Joe L. Willman

1964
William Richard Shirk

1965
Donald Lynn Brobst
Keith Alan Gish

1966
Ronald E. Armstrong

1968
Arnold

1974
James D. Butorak

1975
Douglas Sheid

1976
Larry Ganz

1977
Howard Belfrage

A.M. DEGREES

1904
Alber B. Reagan

1909
Frank Cook Greene

1919
Ray Myron Bonsall

1921
Prentiss D. Moore

1924
Glenn A. Lee

1926
William Avery Thomas

1927
Richard W. Schwert

1928
William Odhs Allen, Jr.

1932
Harry Warren Wood

1934
Albert B. Reagan

1937
Mary Noble Coryell

1940
Frank Cook Greene

1944
Emerson Sylvester

1945
Dexter Anson Lucas

1948
Gregory von Hembrock

1951
Dorothy M. Brown

1952
Louis Naughton

1954
Harry L. Harlan

1956
Harry R. Worthington

1958
Eugene T. Skillings

1960
Kenneth J. Marks

1962
Wayne D. Buehler

1963
Sydney Young

1964
Joseph F. Kimerer

1965
Sister Agnes Gelasco

1966
Mary E. Roberson

1968
James H. Reeser

1970
Louis A. Nugent

1971
George R. Grover
The Alumni Council of the Indiana University Geology Department acts as liaison between you, our alumni, and the department. It keeps the department informed as to the ideas of our graduates and the needs of the industries in which they work.

The Council nominally meets twice a year, during GSA in the fall and at AAPG in the spring. Members accept three-year appointments from our department chairman, Haydn H. Murray, an ex-officio member of the Council. Bob Blakely is secretary and Arthur Lotz of the I.U. Alumni Office is also an ex-officio member.

The chairman of the Council is Dr. Daniel S. Tudor whose address is: Chevron Oil Field Research Co., P.O. Box 446, LaHabra, California 90631.

Please communicate with him, Haydn Murray or Bob Blakely on matters that you would like the Council, the department, or your alma mater to consider.

Other members of the Council are:

To June 1979
George D. Brown (Ph.D. 1963) Boston College Chestnut Hill, Mass. 02167

Frank Pruett (B.S. 1957, A.M. 1959) 144 Cragmont Walnut Creek, Calif. 94596

Stanley Hamilton (B.S. 1963) 22 South Erie Aurora, Minn. 55705

Nancy R. Darnell (A.M. 1975) 941 St. Paul Denver, Colorado 80206

Richard I. Gibson (B.S. 1971) 6370 Windswept #68 Houston, Texas 77027

To June 1980
Arthur F. Fritz (A.B. 1956) Art Fritz Oil Company Box 185 Fort Branch, Indiana 47533

John Patton (Ph.D 1954) Dept. of Geology Indiana University Bloomington, Ind. 47401

Wayne E. Fowler (A.M. 1953; Ph.D. 1955) 1101 Pere Marquette Bldg. New Orleans, La. 70112

Death has claimed 12 of our members since the last newsletter. They are:

Glen G. Barte (A.B. 1921, A.M. 1923, Ph.D. 1932) - September 14, 1977
Lewis Childs (A.M. 1940) - August 27, 1976
Ronald D. DeRudder (B.S. 1958, A.M. 1960, Ph.D. 1962) - June 24, 1975
Ralph E. Esarey (A.B. 1922, A.M. 1923) - October 21, 1975
Bert H. Fell (A.B. 1954) - October 17, 1977
Frank C. Greene (A.B. 1968, A.M. 1909) - March 1, 1975
John W. Huddle (Ph.D. 1934) - November 22, 1975
Joseph E. Keyser (A.B. 1946) - April 22, 1975
Glen A. Lee (A.M. 1924) - July 12, 1974
Burton J. Malott (A.B. 1915, A.M. 1923) - October 7, 1974
Horace E. Rankin (A.B. 1928) - September 12, 1975
IN MEMORIAM

Ralph Esarey

Ralph Emerson Esarey, faculty member in geology from 1925 until he took early retirement and received emeritus status in 1966, died October 21, 1975, at Summerville, South Carolina. With his passing a high proportion of the geology alumni of four decades have lost their most personal contact with Indiana University, and faculty colleagues throughout the University mourn the loss and treasure the memory of a valued friend.

Born at Cannelton, Indiana, on April 25, 1901, to Logan Esarey and Laura Pearson Esarey, Ralph was a fourth-generation Hoosier whose great-grandfather crossed from Kentucky into Indiana at Tobinsport, in Perry County. Ralph's parents moved to Bloomington in 1911; Logan Esarey later joined the history faculty at Indiana University, a role in which he was to become the most noted authority of his time on the history of Indiana.

Ralph graduated from Bloomington High School in 1918 and was a member, in both 1917 and 1918, of the basketball teams that played in the State Finals, where in his senior year he was recipient of the prestigious Gimbel Award to the player who displayed the best attitude and sportsmanship. Ralph's interest in athletics was life-long; following his college training he became athletic director for Bloomington High School, and at Indiana University he served for a period as tennis coach, along with his faculty position in geology, and was for many years a member of the University Athletic Committee.

In 1922 Ralph received the A.B. degree with a geology major at Indiana University and was elected to Phi Beta Kappa. In 1923 he received the A.M. degree, and later he did graduate work in geology at the University of Chicago.

In 1925 Ralph was appointed Instructor in the then Department of Geology and Geography, and through the years and the academic ranks he continued to serve Indiana University, except for several leaves of absence, until his retirement. In the course of those years he taught a wide variety of subjects—general geology, mineralogy, structural geology, sedimentation, and stratigraphy—but his principal field of interest was applied geology, meaning the mineral resources and their development, and along this line he taught economic geology and offered, for the latter 20 years of his active teaching, the Department's program in various aspects of petroleum geology.

Rho chapter of Sigma Gamma Epsilon, a national honorary geological fraternity, was established at Indiana University in 1926, and Ralph Esarey was a charter member. For many years he was faculty adviser to the group, and in the national organization he was Vice President of the Eastern Province for six years, co-editor of the organization's publication THE COMPASS for two years, Grand Historian for two years, and President of the National Council for two years in 1958-1960.

Ralph was a Mason, a member of Kiwanis, and a participant in numerous public service activities, including the Indiana State Planning Commission, the City Planning Commission of Bloomington, and the Bloomington Board of Zoning Appeals. In professional organizations he was a charter member of the Indiana-Kentucky Geological Society, a long-term member of the American Association of Petroleum Geologists, and Governor Schricker's appointee to both the Engineering Committee and the Secondary Recovery Committee of the Interstate Oil Compact Commission.

In 1936 Ralph became State Geologist of Indiana and Director of the Indiana Geological Survey and served in this role until 1945. He was an Honorary Member of the Association of American State Geologists.

As a staff member for several companies, and as a consultant to numerous others, he is credited with being responsible for the discovery of several oil fields in Indiana and Kentucky, and for a considerable period in the 1950's he was the most active professional geologist engaged in the location of underground reservoirs for storage of natural gas in Indiana. Many of his students participated in these studies and have become successful practitioners in the arts of oil and gas discovery and development.

All of us who knew Ralph Esarey will remember him as a person who loved to do geologic work and see the results, in addition to teaching others how to do it.

Professor John B. Patton
Professor Emeritus William D. Thornbury

Karen Brunson

Karen was a fine person and a strong and dedicated student, and is greatly missed by the many friends she had among the faculty and other students in the department.
PHILOSOPHY OF GIVING
by Robert Schrock

The Indiana University Department of Geology has been changed in many ways throughout the years that it has graduated more than 850 geologists and geophysicists. Many of the alumni would not recognize the department if they visited, but they would perceive the level of excellence which continues to produce earth scientists sought after by industry, academia, and government. Change is an integral part of maintaining excellence and has been supported by the State, the University, the department, industry and alumni. The teaching and research programs need continued support from all of us.

Support comes in many ways. We can all be proud of the building facility and other programs which require large amounts of money for maintenance. We can also be proud of the research and student support derived from the relatively small, yet very important, funds generated by donations from organizations, individuals and alumni. These funds support research and teaching activities which extend the learning process beyond the classroom and laboratory to the field for collecting samples, observing geology, making field measurements, attending symposia, and many other functions. Most of us can recall instances where support of this type aided our efforts to learn while at the university.

For those of us who badly needed financial help when we were students, and got it, through the department; for many of us who were fortunate enough to be taken on expense paid field trips, or who received many other kinds of help, the following question seems appropriate—shouldn't I now contribute as generously as I can to the Department's special or general funds so that some Indiana University student who needs help as I did, can get it?

An important responsibility of alumni, who consider their training a major reason for their current success, is the continued support of the department. Some look back, count the monetary support received while in school, feel the weight of that responsibility, plan repayment in kind, and donate what they can to funds of their choice. Others are trying to repay the support they received in total, adjusting for inflation. Perspective on giving is often clarified by asking the question, "Where would I be today had I not been supported at critical times while in school?"

The philosophy of giving is simply the repayment of past support to perpetuate the institutions from which the support was derived. Remember, donations, no matter the amount, will help to maintain the excellence of which we all are proud.

The 5-50 Club
The Geology Alumni Council recently approved the establishment of a 5 to 50 Club Fund, to which alumni and their friends will be invited to make annual contributions from $5 to $50 (or more if they wish), thereby getting their names included in an annual membership list. Contributions would be credited to any fund which the donor wishes or if no designation is made, to a special 5-50 endowment fund. The income from this fund would be used to advance geology at Indiana University at the discretion of the department chairman and the faculty.

I would like to become a member of the 5-50 club and pledge an annual contribution of:

□ $5.00
□ $________
□ $50.00

in support of □ the 5-50 Endowment Fund
□ (other fund)

__________________________
Name

__________________________
Address
As it has been a long time since we published an alumni directory, we would appreciate your sending confirmation or correction of the information shown for you. We should like to have both residence and business addresses.

<table>
<thead>
<tr>
<th>HOME</th>
<th>BUSINESS</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Also, we would appreciate help in locating the few "lost souls" for whom no address is shown.
Mr. Gary Van Middlesworth 205 North 11th Street Richmond, Indiana 47374
Mr. David M. Varma 355 Lawrence St. Bldg. 10, Apt. 2 Reading Pennsylvania
Mr. William P. Von Otowski 4108 Arpente Street Regina, Saskatchewan Canada
Mr. David E. Vot Tress 11303 Ash Creek Drive Houston, Texas 77083
Mr. Robert C. Voss 10820 Mississippi Blvd. Coon Rapids, MN 55433
Mr. Robert B. Vosun 8050 Hickory Gary, Indiana 46227
Mr. Robert B. Vos O. El largo Blvd. Indianapolis, Indiana 46227
Dr. Courtney Waddell 2201 2nd Avenue East Moline, Illinois 61244
Urs Samuel Wade 1530 Sheffield Road Springfield, Ohio 45504
Mr. George R. Wagner 2309 N. Trail Sarasota, Florida 33580
Mr. P. W. Wagner 3000 Delburn Bakersfield, CA 93304
Mr. Gregory P. Wahlman Dept of Geology Univ. of Cincinnati Cincinnati, Ohio 45221
Mr. James F. Wakeman 6227 Lymbar Houston, Texas 77035
John Waldrip 4987b South 72 East Avenue Tulsa, Oklahoma 74145
Mr. Harry A. Walker 3200 Dickinson Anchorage, Alaska 99506
Mr. Jerome P. Walker 1395 South Josephine Street Denver, Colorado 80204
Mr. Ronald J. Volz 8125 Pauley Pl. Potomac, MD 20854
Mr. Fred R. Vail 1401 Unionville Road Bloomington, Indiana 47401
Mr. Gary L. Vail 5985 Ash Street West Bend, Wisconsin 53095
Mr. Robert A. Wade 1530 Sheaff Road Springfield, Ohio 45504
Mr. George R. Vajak 2309 N. Trail Sarasota, Florida 33580
Mr. P. W. Vajak 3000 Delburn Bakersfield, CA 93304
Mr. Gregory P. Wahlman Dept of Geology Univ. of Cincinnati Cincinnati, Ohio 45221
Mr. Jack E. Warthen 11th Adam Park St. Augur-11
Arthur S. Waterman 7005 Walmsley Ave New Orleans, LA 70125
Mr. John R. Warren 2241 Laurel Lane Augusta, Georgia 30904
Dr. William J. Wayne 1980 C Street Lincoln, Nebraska 68502
Mr. Myron Webb 3376 Grove Parkway Columbus, Indiana 47201
Ms. O. H. Weber 189 South 47th Street Richmond, Indiana 47374
Mr. Ralph H. Wedow 510 1st Street LaPorte, Indiana 46350
Mr. E. W. Wegner 1949 Linneman Glenview, Illinois 60025
Dr. Robert M. Weidman 609 King Missoula, Montana 59801
Ms. Becky S. Weimer 1050 North Meddax Reno, Nevada 89502
Mr. David M. Weinberg Dept. of Geology Texas A And M Univ. College Station, TX 77843
Mr. Elliot S. Weinstein No Address May 1974
Mr. Theodore Wirtz R. R. 7 Valparaiso, Ind. 46383
Mr. Jack W. Wells 1427 Ventura Midland, Texas 79701
Mr. James H. Wells, Jr. 1011 Park Avenue Olesterton, Indiana 46304
Dr. Steven G. Wells Dept of Geology Univ. of New Mexico Albuquerque, NM 87131
Mr. Donald G. Wertz R. R. 3, Box 151 F Franklin, Ind. 46131
Mr. Jack W. Wells 1427 Ventura Midland, Texas 79701
Mr. James H. Wells, Jr. 701 Park Avenue Chesterton, Indiana 46925
Mr. Steven L. Widdicombe 8603 Fiesta Way Fort Wayne, Indiana 46805
Dr. Robert M. Weidman 609 King Missoula, Montana 59801
Ms. Joanne K. Welch No Address May 1974
Mr. Jack W. Wells 1427 Ventura Midland, Texas 79701
Mrs. Jack W. Wells No Address May 1974
Mr. James H. Wells, Jr. 701 Park Avenue Chesterton, Indiana 46925
Mr. Steven G. Wells Dept of Geology Univ. of New Mexico Albuquerque, NM 87131
Mr. Donald G. Wertz R. R. 3, Box 151 F Franklin, Ind. 46131
Mr. Jon R. Weterick 7328 Mill Run Drive Apt.A Fort Wayne, Indiana 46819
Mr. Joseph F. Whaley 717 East University Bloomington, Indiana 47401
Barbara D. Wharton 12228 C. Tall - The Atlas Oklahoma City Oklahoma 73132
Dr. Ronald J. Volz 8125 Pauley Pl. Potomac, MD 20854
Mr. Richard L. White 6200 SE Howard Ballaratville, OK 74003
Mr. E. W. White 5608 Bemford Pl. Oklahoma City, OK 73132
Mr. E. W. White 5608 Bemford Pl. Oklahoma City, OK 73132
Mr. E. W. White 5608 Bemford Pl. Oklahoma City, OK 73132
Mr. Charles E. Wier R. 13 Bloomington, Indiana 47401
Mr. Richard E. Wijay 481 Bishop Street B-2 Honolulu, Hawaii 96801
Mr. Douglass R. Wilke No Address May 1974
Mrs. Douglas R. Wilke No Address May 1974
Ms. D. T. Williams P.O. Box 129 Loopoo, Indiana 47358
Mr. Frank H. Williams 3545 Homestead Road No. 54 Santa Clara, Calif. 95051
Mr. Roy E. Williams Dept. of Geology Unv. of Idaho Moscow, Idaho 83845
Mr. Wesley E. Williams 22 Fourth Avenue South Naples, Florida 33960
Joe I. Williamson, M.D. R. R. 1 Gaston, Indiana 47342
Mr. Daniel A. Wilson 11006 Kenwick Houston, Texas 77083
Mr. James C. Wilson, Jr. 1407 Poplar Lawn Mount Clemens, IL 60068
Mr. Robert W. Wilson No. 2 University Woods New Albany, Indiana 47103
Mr. William E. Wilson Tulip Tree House No. 909 Bloomington, Indiana 47401
Dr. Milton A. Wilke, Jr. 1386 Devere Drive Cottage, Alaska 99701
Mr. Charles E. Wier R. 13 Bloomington, Indiana 47401
Mr. Wilbur B. Winters R. 14 - Box 458 Bristol, Indiana 46714
Mr. Gary Lee Wirt 8102 Wycom Drive House, Houston, Texas 77070
Mr. Donald E. Wirth 702700 Park Drive Billings, Mont. 59102
Mr. Michael A. Wiwakner Chevron Geophysical Div. Box 5887 Houston, TX 77006
Mrs. Emma Cook Wisherpoon R. R. 1, Box 122 E. Kaniapolis, N. C. 28081
Mr. Aichern Wibul 11th Queen Street Guadalupe, S. C. 29001
Mr. Robert D. Wood 702 Greenridge Lane Louisville, KY 40207
Mr. James O. Wood R. 1 - Box 219 Woburn, Ind. 47995
Mr. Larry D. Woodfork 652 Villa Place Morganstown, W. Va. 26505
Mr. Myron Woodfork 652 Villa Place Morganton, W. V. 26505
Mr. Bobby Joe Worthington 5800 Firestone Southgirt, California 90280