

INDIANA UNIVERSITY
DEPARTMENT OF GEOLOGY



NEWS LETTER No. 12

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Department of Geology

Indiana University

News Letter No. 12

Ralph E. Esarey, Editor

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C. J. Vitaliano
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Bloomington, Indiana
January 1965

John B. Patton
Chairman

NEWS FROM THE CHAIRMAN

The increasing number of faculty members, course offerings, and students in the Department of Geology has required some re-allocation of responsibilities.

A Committee for Graduate Studies, composed of Professors William D. Thornbury (Chairman), Carl W. Beck and Robert H. Shaver, is responsible for the graduate curriculum, advising all graduate students until their Research Committee is appointed, processing all applications for admission to Graduate School, and making all stipend awards. Professor Perry's role of departmental Teacher Certification Adviser makes him a member ex officio of the Committee.

The Committee for Undergraduate Studies, composed of Professors Thomas E. Hendrix (Chairman), Allen F. Agnew, and John B. Droste, is responsible for undergraduate course offerings, advising all undergraduate students, and the numerous other duties required to see that all geology undergraduates qualify for a baccalaureate degree. As departmental Honor's Adviser, Professor Judson Mead serves as a member ex officio of this committee, as does Professor Perry in his role of Teacher Certification Adviser.

In the past few months, we have been visited by Jack Riddell, Mike Cowen, Jim Noel, Ernesto Sirvas, Allen Perry, George Erickson, Seymour Greenberg, and Granville Foley. Several from our alumni group attended the dedication ceremonies for our new building, including Jim Reeves, Elmer Lucas, Wilbur Winters, Tom Hiestand, Addison King, Art Fritz, Ralph Stouder, Robert Shrock, Mark Reshkin, Phyllis Scudder Marsh, Preston McGrain, and Dick Harvey.

Since our move into the new Geology Building early in 1962, we have been able to purchase much new equipment for both graduate and undergraduate teaching, through grants from the National Science Foundation. Such items as a Norelco goniometer and recorder, a spectrophotometer, furnaces, a magnetometer, analog computer, gravity meter, laboratory furniture, fume hoods, acid bath assembly, and many other items have enabled us to improve and expand our course offerings and research opportunities.

The National Science Foundation has made a sizeable institutional grant to Indiana University for major equipment purchases, and from this grant an electron probe and accessory equipment for the geochemistry laboratory has been ordered and installed. Carbon-14 equipment, for use by the Departments of Anthropology, Geology, and Zoology, and the Indiana Geological Survey, has also been approved for purchase from this grant. It, too, will be installed in the Geology Building. An instrumental analyst, Ron Newlin joins our group to operate the C14 equipment and work with other aspects of the analytical program.

A new faculty member, Dr. David G. Towell, joined our ranks in September as Assistant Professor of Geochemistry. Doctor Towell received his Ph.D. degree from Massachusetts Institute of Technology in 1963, and has held a Postdoctoral Fellowship for the past year at California Institute of Technology. Doctor Towell's main interests within the field of geochemistry are distribution of rare-earth elements and Sr-Rb geochronology.

The Department now has a Curator of Paleontology. Dr. Alan S. Horowitz joined our staff on June 1 and is busily engaged in organizing and cataloging all of our paleontologic collections. He will arrange to fill any gaps in our present holdings, and carry on research on the paleontology of Indiana. Al received the Ph.D. degree here in 1957, and returned to the Department from a position with The Marathon Oil Company at Littleton, Colorado.

Another new member of our Departmental staff is James D. Tolen, a draftsman. Jim came here from the Chicago office of Humble Oil Company. His employment marks an increase in University support for our combined Survey-Department drafting facility.

A new geochemistry technician, Al White, joined our staff in the Fall in a position shared by the Department and the Survey.

Our department is expanding in other ways also. We now have placed our first full-time faculty member on the Gary Regional Campus. In September Dr. Mark Reshkin (I.U., 1963) initiated a geology course on the Northwest Campus, and also offers one course on the South Bend Regional Campus. During the summer Mark worked for the Indiana Geological Survey on field investigations for the Regional Geologic Map of northwestern Indiana. Additional offerings are contemplated for both locations, although the prospects for South Bend are indeterminate for 1965-66 because Mark's time will be fully occupied at Gary.

Beginning with the second semester of the 1964-65 academic year, Jack Sunderman (Ph.D. Ind. Univ. 1963) will resign from his position as Geologist in Industrial Minerals Section of the Geological Survey and accept appointment as Assistant Professor of Geology at the Fort Wayne Regional Campus, where he will offer a beginning course in Geology and expand the offerings in future semesters. In the first year, at least, Jack will also commute twice weekly from Fort Wayne to the Kokomo Regional Campus, where he will offer G100 Geology and Man.

We are now in our fifth year of offering geology at the Indianapolis Regional Campus, where the beginning course is taught by Gerald Johnson. In the Fall of 1963-64 Professor Esarey offered the introductory course at the Vincennes Educational Center.

These various geology offerings denote a significant trend toward broader programs at the regional campuses and may foreshadow a situation in which more undergraduate work is completed at the regional campuses than in Bloomington, as various civic groups are urging four-year degree programs at the branch campuses.

For the 1963-64 academic year I have served as a member of the President's Science Advisory Committee and on the School Science Advisory Committee, which reviews the activities of our School Science Coordinators.

The Board of Trustees has approved a sabbatical leave for me for the second semester 1964-65. During this time I will investigate building limestones in the United States and from some of the famous localities in Great Britain and western Europe.

Dr. Charles E. Wier, Head of the Coal Section of the Indiana Geological Survey, taught at the Field Station in Montana last summer, and Harold C. Hutchison was Acting Head of the Section.

During the past 15 months my activities related to our organizations have included trips to Pittsburgh, Pennsylvania, on National Science Foundation business; to Washington, D.C., (twice) as a member of the American Society for Testing Materials committee writing specifications for building limestone; to Indianapolis where I moderated a panel discussion on mineral aggregates at the annual meeting of the Indiana Mineral Aggregates Association; to

Norman, Oklahoma, as Secretary-Treasurer of the Association of American State Geologists (I am now Vice-President); to Toronto, Canada, where I gave a talk in the Careers Panel at the American Association of Petroleum Geologists annual meeting; to Santa Fe, Billings, and Biloxi as a member of the Research Committee of the Interstate Oil Compact Commission; to GSA in New York City, where I participated, as Vice-Chairman and Secretary, in the meeting of the American Commission on Stratigraphic Nomenclature, and to Miami for GSA and ACSN.

The Indiana Geological Survey program for supporting Research Fellowships in the Department of Geology will have outstanding recipients during the 1964-65 academic year. An award has been made to Mr. Dan Tudor, on leave from the California Research Corporation, to do geophysical research on the basement complex in Indiana and other studies leading to the Ph.D. degree. Dan, many of you will recall, obtained his master's degree from Indiana in 1958 and has worked in Midland, Texas, and elsewhere since that time.

Other awards have been made to Mr. R. William Orr for a research program in paleontology under the direction of Dr. Carl Rexroad and Dr. Robert Shaver, and to Dr. David F. Branagan, faculty member from the University of Sydney (Australia), for post-doctoral research on the formation and petrologic composition of Coal V under the direction of Dr. Charles E. Wier, Head of the Survey's Coal Section. Mr. Orr, who holds a B.S. degree from the University of Illinois and an A.M. degree from the University of Texas, is working in the Geology Section on a stratigraphic study of the Devonian of northern Indiana, based on conodonts obtained primarily from cores.

Graduates in Geology or related sciences are eligible for the Geological Survey Research Fellowships which were established to support graduate research to further understanding of the geology and mineral resources of Indiana.

CHANGES IN CURRICULUM

By action of the faculty last spring, it was decided to increase the science and/or mathematics requirements for B.S. candidates in geology. Effective September 1965 B.S. candidates in geology will be required to complete advanced courses in chemistry physics, the biological sciences, or mathematics totaling six semester hours. This requirement was established to bring the undergraduate geology curriculum more in line with the demands of the profession and to force the geology student to explore a supporting science or mathematics in somewhat more depth than present rules require.

In addition, the Undergraduate Committee has compiled a pamphlet which sets down in a single document all the course, hour, grade, and policy requirements of A.B. and B.S. candidates in geology at Indiana University.

The B.S. curriculum in Geology at Indiana University now requires:

1. English Composition - 4 hours
2. Foreign language - 13 hours
3. Humanities (Social Science, Literature, Philosophy, and the arts) - 12 hours
4. Geology - 36 hours
5. Mathematics - through Integral calculus

6. Chemistry - two semesters
7. Physics - two semesters
8. Science or mathematics (300-400 level courses) - 6 hours

HYDROGEOLOGY

A new program in Hydrogeology was inaugurated by the Department of Geology beginning in September 1963. The program is the result of long-time interest by the Department and was triggered at that time by the increasing number of requests for training in this area.

Courses offered thus far include Principles of Hydrogeology, Ground Water, and a seminar and research in hydrogeology. Five N.D.E.A. fellowship holders in Hydrogeology constitute the core of those declared for the Ph.D. degree program in this field. Twenty-eight students were enrolled in the Principles course in the first semester, 1963-64, with backgrounds ranging from the terminal graduate year to sophomore standing, as this course carries both graduate and advanced undergraduate credit.

The rapidly increasing national requirements of water resources insures the employment of increasing numbers of hydrogeologists in teaching and other professional positions.

FACULTY ACTIVITIES

Professor Thomas E. Hendrix reports that his activities of the past year have centered on his duties as chairman of the newly created Committee for Undergraduate Studies, his involvement in teaching beginning geology, undergraduate and graduate courses in structural geology, and participation in the G429 program at the Field Station; research, oral presentation and preparation for publication of a paper on small scale structures in the Baraboo quartzite in Wisconsin (GSA Bulletin, Nov. 1964); selection as chairman of the Curriculum and Standards Committee of NAGT; and work on a 15-minute color film entitled "Minerals and Rocks" as Technical Consultant for Indiana University's Audio-Visual center.

His present plans include completion of two pieces of research - one on the Precambrian structural history of the eastern part of the Gogebic Iron Range, Michigan, and a fracture study in the Tobacco Root Mountains.

Charles E. Wier, Head of the Coal Section of the Geological Survey, first offered courses in coal geology in the Department four years ago. Since that time regular courses in coal have been part of the curriculum. Charlie took charge of the Journal Club for the present school year which, along with his regular duties, has covered him up, he says. After avoiding Montana during the years when he was a graduate student, Charlie finally succumbed to the lure of the West. He was on the teaching Staff at the Indiana University Geologic Field Station this summer, and he says that he liked it. He is continuing his work on the Pennsylvanian stratigraphy and coal resources in the Geological Survey. He has two new interests this year; he is President of the Indiana Mining and Technical Society, and President of the Bloomington Family and Camping Club.

Dr. Wayne R. Lowell spent the early part of the summer of 1963 doing evaluation work for the L. & N. Railroad. The final month of that summer and the summer of 1964 were utilized to complete some field mapping in southwestern Montana. Wayne and his son Sim (his field assistant) had a little excitement when their jeep ran off the road, but neither was seriously injured. A wedding took place in the family when son Brent married Miss Susan Hemenway of Elwood, Indiana, on June 14th. Both are majors in the Department and are taking courses in data processing and computer programming at Purdue this semester. Brent and Sue expect to finish requirements for B.S. degrees this Spring. Dr. Lowell has a leave of absence coming up the Spring semester. He hopes to complete some of his research and do a little traveling.

Professor Paul Potter taught Sedimentary Petrology and Advanced Sedimentation last year with a seminar thrown in. In the latter course the class measured 600 cross-beds in the Salem Limestone in the local quarry district. Along with F. J. Pettijohn of Johns Hopkins University, and R. Siever of Harvard, he participated in a Sandstone Symposium held at Banff, Canada. The symposium was sponsored by the University of Alberta and the Alberta Geological Society. Dr. Potter spent Easter vacation in Europe and visited some flysch deposits in the Apennine Peninsula. Similar deposits were studied last summer in Spain. Paul is on leave of absence this semester (Fall) and is working in France and in the oil fields of Algeria.

Professor Donald Hattin has completed manuscripts for the east-west Paleozoic cross section for A.A.P.G. and for the symposium on cyclic sedimentation sponsored by the Kansas Geological Society. He also completed his work on the Graneros Shale. His annual class trip in stratigraphy was made in the Front Range of Colorado, the Rio Grande Trough, and the Chama Basin areas of northeastern New Mexico. He has been elected treasurer of Sigma Xi. Craig Hatfield and Jerry Lineback have completed their doctoral dissertations under his direction. Larry Balthaser won Sigma Xi and A.A.F.G. research grants for work on the middle Chester formations of Indiana. Don Kissling also won an A.A.P.G. grant for work on the lower Chester formations. Messers. Kissling, Lineback, and Phil Malone have almost completed the mapping of corals and stromatoporoids exposed across 40,000 square feet of a single stratum of the Jeffersonville Limestone at the Falls of the Ohio. This summer Kissling and Lineback financed an expedition of their own to do underwater research on the Florida reefs around Big Pine Key. They brought back a very interesting and extensive collection of reef materials. Lineback presented the results of his doctoral thesis at the annual convention of the Geological Society of America in New York City in November 1963. Jim Howard is continuing work on the Waccamaw Formation in North and South Carolina, with support from an N.S.F. grant at Duke University.

Professor Charles Vitaliano was Secretary of the Faculty Council during 1963-64. He was a member of the staff at the Geologic Field Station during the past summer. Afterward he visited Hungary where he examined and collected specimens for the petrology collection from the Tertiary volcanic rocks. At the invitation of the Hungarian Geological Society he presented a lecture on the "Basin and Range Province."

Professor Robert Shaver reports that he has been busy shuffling papers and completing the things he should have completed last year. But listen to this -- he had charge of the Journal Club last year, which is a big job in itself, and was also chairman of the Dedication Committee. If you think this wasn't a big job, just try it once. Bob contributed heavily to the success of the affair and really "stole the show" as master of ceremonies. If you attended the dedication, I am certain you will agree with me.

Professor John Droste was on leave of absence from June 1963 until September 1964, working as program officer at the National Science Foundation. Now that he is back in the Department, he plans to continue work on sedimentary rocks with particular interest in clays, carbonates, and evaporites.

Professor Carl Beck, who teaches mineralogy, crystallography, and X-ray, reports the following activities: research on the pegmatites of Montana and research on kidney stones and dental compounds. The latter work is done in cooperation with the Medical and Dental Schools. Carl says he attended the following annual meetings and was on the program of the second and third named: International Dental Research, Urological Association of America, the Mineral Society of America, and the National Clay Society.

Dr. William Thornbury writes: "I haven't much to report of interest regarding any unusual activities during the past year. I have spent most of my spare time working on a book which is entitled Regional Geomorphology of the United States, the publication of which was just recently announced. During the past summer, I taught half-time here on the campus."

Your editor has been interested in the unconformity at or near the top of the Knox Formation or the Cambrian. This general zone produces oil in both Ohio and Kentucky and there seems to be no reason why it should not produce in Indiana. This is a fascinating problem, for which no one has come up with an answer. I have visited in Guatemala and in Bermuda since the last edition of this rag. Saw Spangler, Kaska, and a dozen geologists I knew while in Guatemala.

ACTIVITIES OF THE GEOLOGIC FIELD STATION

Four field seasons have passed since the last report in the 1961 News Letter, and the program at the Geologic Field Station has continued to grow. Approximately 220 students from more than 40 different universities have enrolled in the regular course, Geology G429, over the past four summers, and the applications for admission regularly exceed our capacity. Many changes have been made in the program including the introduction of a new guidebook for the trip and the use of two-way radios in the caravan vehicles for geologic discussion while on the road.

Montana State University continues to send its undergraduate geology majors to the Field Station for summer training, and during the past three summers the undergraduate geology majors from M.I.T. have joined the program. Both groups always include outstanding students.

A new course for nonmajors, Geology G200, was introduced in 1961. This course has been taught each summer during August following G429 and has had an enrollment of approximately 20 students.

The faculty at the Field Station during the last four summers has included Professors Agnew, Droste, Hendrix, Lowell, Mead, Patton, Potter, and Vitaliano from Indiana University, and Drs. Sunderman and Wier from the Indiana Geological Survey. Professors Beck, Shaver, and Thornbury have also contributed to the summer program. The visiting faculty members from other schools during the four summers include: Professors George Brown, Boston College; John Cleveland, Indiana State College; Raymond Gutschick, University of Notre Dame; David Hawley, Hamilton College; Fred Honkala and Robert Weidman,

Montana State University; William Pinson and Ely Mencher, M.I.T.; Mark Reshkin, Indiana University (Gary Center); and Benjamin Richard, Wittenburg College.

In addition to the senior faculty members, six graduate student teaching associates have played an important role in the teaching program during each summer.

Faculty and graduate student research activities have continued. Allen Colville, Lawrence Lebauer, George Leckie, and Mark Reshkin have all finished their Montana research, received their Ph.D. degrees, and are employed in academic and industrial fields.

David Hess, Forrest Root, and John Smith have completed the field aspects of petrologic studies at the Station under Professor Vitaliano's direction and should be receiving their Ph.D. degrees in the near future. Other graduate students who have completed their Montana research and expect to receive degrees in June 1965 include Ralph Stevenson in mineralogy under Professor Beck, Ben Richard in areal geology under Professor Lowell, and Bill Hanna and Walter Burfeind in geophysics under Professor Mead.

Robert Burger plans to continue his work on the Cherry Creek Formation under Professor Hendrix during the 1965 season, and Alan Jacobs will be extending his investigations of the Pleistocene in the Tobacco Root Mountains under Professor Thornbury.

A new program in hydrogeological research in the Field Station region has been planned by Professor Agnew, and Marvin Miller is planning to continue his Ph.D. research in this field this coming summer.

Many National Science Foundation supported training programs have formed an important part of the summer effort at the Field Station during the past four years. The second Summer Institute for College Teachers was run in 1961, and the Summer Institute for High School Teachers of Science was held in 1962 and 1963. Research participation programs for high school students and for honor undergraduate students were also part of the 1962 and 1963 program, and in 1962, 1963, and 1964 a College Teachers Research Participation Program involved four to six faculty members each summer from other schools.

Many friends of the Department of Geology visited the Field Station during the past several summers. Among the University and State officials were Governon Matthew E. Welsh; Willis Hickam, President of the Board of Trustees; John W. Ashton, Vice-President for Graduate Development; and John W. Snyder, Associate Dean of the College of Arts and Sciences.

Robert Coonrad, Dean of the College of Arts and Sciences, and Frank Abbott, Academic Vice-President of Montana State University, also visited the Field Station.

OUR NEWEST FACULTY MEMBER

Dr. David G. Towell joined the faculty in September as Assistant Professor of Geochemistry. He spent the previous year as a Postdoctoral Research Fellow in the Division of Geological Sciences at the California Institute of Technology.

Dr. Towell was born in Fillmore, New York, on May 30, 1937. Upon graduation from Fillmore High School in 1955, he entered the Pennsylvania State University as a Geology-Mineralogy major. At Penn State he was elected to Phi Beta Kappa, Phi Kappa Phi, and Sigma Gamma Epsilon (recipient of the Tarr Award), received four undergraduate scholarships and graduated with highest distinction in June 1959.

In September 1959, Dr. Towell enrolled at the Massachusetts Institute of Technology where he held three National Science Foundation Graduate Fellowships, the Standard Oil Company of California Fellowships, and a summer fellowship at the Woods Hole Oceanographic Institution. He received the Ph.D. degree in September 1963.

Dr. Towell has conducted research in the areas of rare-earth geochemistry, x-ray spectographic and neutron activation analysis of silicates, and while at Caltech he worked with Dr. G. J. Wasserburg in Sr-Rb geochronology.

He holds membership in the Geological Society of America, the Geochemical Society, the American Geophysical Union, and the Mineralogical Society of America.

Dr. Towell is married to the former Miss Lindsay Burlison of Castile, New York, and they have a son, Garrett Stevens Towell, born June 4, 1964.

With the addition of Dr. David Towell to our faculty, we anticipate an expansion of our offerings in geochemistry. It is hoped that before too long another man can be added in this field so as to make possible a fairly complete program in geochemistry.

Two new courses in structural geology have been added; a course in Tectonics, and one in Structural Analysis. Our students are now able to get training in structural geology beyond the undergraduate level.

The new program in hydrogeology has elicited interest from students in various schools. We are searching for another man to be added in this area who will teach work in fluid mechanics and related fields.

COLLOQUIUM AND JOURNAL CLUB

Our lecture program continues to be the outstanding feature of our extra-curricular activities. Many prominent scientists, several of whom were from foreign countries, were on the 1963-64 program. Also, the graduate students and faculty members have an opportunity to report upon their research work. Visiting speakers who spent three or more days with us and presented several lectures are shown first in the following list for 1963-64.

Dr. Walter Fahrig, from the Geological Survey of Canada, spoke on the "Structure and Fill of the Labrador Trough" and "The Activities and Organization of the Geological Survey of Canada."

Professor P. C. Sylvester-Bradley, from the University of Leicester, England.

Dr. M. King Hubbert from Stanford University and the USGS.

Dr. T. Neville George, of The University, Glasgow, Scotland, who was a visiting professor at Northwestern University at the time.

Dr. R. S. Taylor from The Australian National University.

Dr. C. W. Hibbard, Museum of Paleontology, University of Michigan.

Dr. Malcolm P. Weiss, Department of Geology, The Ohio State University.

Dr. Albert Rudman, Geophysics Section, Indiana Geological Survey.

Dr. Rainer Zangerl, Lecturer in Vertebrate Paleontology, The Chicago Museum of Natural History.

Dr. Lawrence Rooney, The Indiana Geological Survey.

Dr. Daniel F. Merriam, Kansas State Geological Survey.

Dr. Arthur J. Boucot, California Institute of Technology.

Dr. James M. Schopf, Coal Geology Laboratory, U.S.G.S., Columbus, Ohio.

Dr. David Hess, Department of Geology, Indiana University.

Professor T. G. Perry, Department of Geology, Indiana University.

Professor William Jenks, Department of Geology, University of Cincinnati.

Dr. Barbara Zakrzewska, Department of Geography, University of Wisconsin.

Mr. John Hanessian, Jr., American Universities Field Staff Lecturer.

Dr. Donald L. Graf, Geologist, Industrial Minerals Division, Illinois State Geological Survey.

Mr. J. L. Uretsky, Argonne National Laboratory.

Mr. Louis Dupree, American Universities Field Staff Lecturer.

Mr. W. A. Heiskanen, Director, Institute of Geodesy, Photogrammetry, and Cartography, The Ohio State University.

Mr. John M. Hunt, Department of Chemistry and Geology, Woods Hole Oceanographic Institute.

Mr. Craig B. Hatfield, Department of Geology, Indiana University.

Professor C. A. Chapman, Department of Geology, University of Illinois.

Speakers for the 1964-65 series, through December 1964, have included:

Mr. Jerry A. Lineback, Department of Geology, Indiana University, Underwater adventures in Florida.

Dr. James H. Kellar, Department of Anthropology, Indiana University, Salvage archeology of damsites and levees and pre-history in Indiana.

Dr. David F. Branagan, Department of Geology and Geophysics, The University of Sydney, Australia, History of Australian geology.

Dr. Sabri Ergan, Project Coordinator, Solid State Physics, U. S. Bureau of Mines, Pittsburgh, Pa., Structure and properties of carbons and coals.

Dr. L. L. Sloss, Department of Geology, Northwestern University, Major rock sequences.

Dr. David G. Towell, Department of Geology, Indiana University, Distribution of rare earths in some igneous rocks.

Dr. John M. Dennison, Department of Geology, University of Illinois, Devonian stratigraphy of the Central Appalachians.

Mr. Donald Kissling, Department of Geology, Indiana University, Paleocology of the rocks at the Falls of the Ohio.

Prof. Thomas D. Brock, Department of Bacteriology, Indiana University, Role of microorganisms in geologic processes.

Mr. James Howard, Department of Geology, Indiana University, Sedimentary structures in the Salem Limestone.

Mr. Jack Simon, Coal Section, Illinois Geological Survey, Application of geology to coal mining problems.

Dr. Dan E. Feray, Department of Geology, Texas Christian University, (A. A. P. G. Distinguished Lecturer), The role of tectonic and environmental factors in the origin and distribution of sediments.

SIGMA GAMMA EPSILON

The following report on Rho Chapter was submitted by President Don L. Kissling.

"The Society of Sigma Gamma Epsilon, founded in 1915, is the national honor society for Earth Sciences and elects its members from among undergraduate and graduate students who have achieved a certain level of scholarship and training. Currently we have 35 members in Rho Chapter. The activities of the Chapter include business, social, and scientific functions. Chapter business meetings, which are limited to active and associate members, are held twice each month. Initiations and initiation banquets are held twice each year. Rho Chapter sponsors the annual Geology Christmas Party, the Spring Picnic, and the Fall Stag Party, and invites the entire geological community to attend these functions. Talks by members, by guest speakers, or discussion concerning controversial geological topics, led by the members, are presented every Wednesday noon at the Sigma Gamma Epsilon Brown Bag Seminar. Rho Chapter also has accepted the responsibility for complete authorship of the articles to appear in the May 1965 issue of the Compass. A Chapter committee is currently considering the sponsoring of a geology field conference in the Spring of 1965. In addition, Rho lends support to several activities of the Department."

PRESENT ACADEMIC STAFF OF THE DEPARTMENT

Allen Francis Agnew, Professor of Geology
 Carl Wellington Beck, Professor of Mineralogy
 Robert Fraser Blakely, Lecturer, Meteorology
 John Brown Droste, Associate Professor of Geology
 Ralph Emerson Esarey, Associate Professor of Geology
 Donald Edward Hattin, Associate Professor of Geology
 Thomas Eugene Hendrix, Assistant Professor of Geology
 Wayne Russell Lowell, Professor of Geology
 Judson Mead, Professor of Geophysics
 John Barratt Patton, Chairman and Professor of Geology
 Thomas Gregory Perry, Professor of Geology
 Paul Edwin Potter, Associate Professor of Geology
 Lawrence Frederick Rooney, Lecturer, Economic Geology
 Robert Harold Shaver, Professor of Geology
 William David Thornbury, Professor of Geology
 David Garrett Towell, Assistant Professor of Geochemistry
 Charles Joseph Vitaliano, Professor of Geology
 Charles Eugene Wier, Lecturer, Coal Geology

IN MEMORIAM

Dr. Paris B. Stockdale died on March 18, 1962. From 1941 until he was retired in 1961 as Professor Emeritus, he held the position of Head of the Department of Geology and Geography at the University of Tennessee. Dr. Stockdale graduated from Indiana University in 1919, received the A.M. degree in 1921, and finished his Ph.D. degree in 1930. He made an outstanding record in the field of stratigraphic geology, doing most of his work in Indiana and the Eastern Interior region of the United States. Practically all of his life was spent in teaching and academic work. The details of his career are contained in a memorial by E. R. Cumings and H. J. Klepser in the Bulletin of the Geological Society of America for January 1964.

William Post Rawles died suddenly on July 16, 1963, in Helena, Montana. Bill graduated from Indiana in 1922 and received his Ph.D. degree from Wisconsin a few years later. He spent most of his life as a consulting geologist in the petroleum and mining industries. Bill did not marry and is survived by his twin sister and older brother. Bill was a local boy, attended the Bloomington schools, and was a lifelong friend of the editor. His personal library, which contained many valuable publications, was left to the Department, for which we are very grateful.

Dan Kralis, Jr., died on April 29, 1962, at the home of his father in Michigan City, Indiana. He received his A.B. degree in Geology in 1941 and did some work toward his Master's degree. Dan made an outstanding record as a consulting geologist and we are sorry, indeed, that his career was terminated so abruptly. His wife and three children reside in Colorado Springs, Colorado. The write-up in the A.A.P.G. for January 1963 will give you details of his career.

We received news that Marvin Warner, '58, accidentally shot himself while cleaning a gun. No details were available. Our last record shows he was living in Las Cruces, New Mexico.

ITEMS FROM THE SURVEY

After occupying space in several widely scattered buildings on the University campus during the past 18 years, the Survey and the Department of Geology are finally housed under one roof. On April 26, 1964, both organizations dedicated their new building on East 10th Street. The Survey occupies a wing which parallels Walnut Grove Avenue at the east end of the Geology Building. This arrangement affords many advantages to both organizations. Better and larger facilities have improved working conditions, have made sharing the library and certain heavy equipment more practical, and have made it easier to work on joint research projects.

For the benefit of the geology alumni who do not already know, the correct mailing address for the Geological Survey is 611 North Walnut Grove Avenue, Indiana University, Bloomington.

The Geological Survey's professional staff now includes 25 Indiana University alumni. They are Maurice Biggs, Bob Blakely, Gerald Carpenter, Tom Dawson, Jack Harrison, Alan Horowitz, Andy Hreha, Harold Hutchison, Stan Keller, Ron Klusman, Howard Lee, Dick Leininger, John Patton, Dick Powell, Dee Rarick, Larry Rooney, Al Rudman, Howard Smith, Dan Sullivan, Jack Sunderman, Bill Wayne, Joe Whaley, and Charlie Wier. Jerre Johnson has a 1-year appointment to work on a special project in the Geology Section.

Charles Wier has part-time teaching duties in the Department of Geology during the present (Fall) semester, and Bob Blakely and Lawrence Rooney have or are scheduled for part-time teaching. Al Rudman and Bob Blakely teach in Earth Science Institutes. Gerald Johnson teaches the introductory course offered at the Indianapolis Regional Campus, as Jack Sunderman did last year.

INTERVIEWERS

Students who have completed the Ph.D. degree or the Master's Degree in any field of geology or geophysics are very much in demand. Here is a list of the companies and organizations that interviewed graduates during the years 1962-63 and 1963-64 and thus far in 1964-65:

Pan American Petroleum Corporation
 Texaco, Inc.
 Chevron Oil Company
 Shell Oil Company
 California Oil Company
 Humble Oil and Refining Company
 U.S.G.S. Water Resources
 Standard Oil Company of Texas
 Mobil Oil Company
 Sinclair Oil and Gas Company
 The California Company
 Mobil International Oil Company
 Gulf Oil Company
 Standard Oil Company of California
 Gulf Research and Development Company
 Aeronautical Chart and Information Service
 Phillips Petroleum Company
 Jersey Production Research Company

CONVENTIONS AND MEETINGS

A. A. P. G. Meeting in San Francisco, March 1962

We had an impromptu luncheon at the Whitcomb Hotel but there were several alumni at the meetings who didn't get there for one reason or another. The list of those in attendance is as follows:

T. C. Heistand	Frank Kottowski
Ronald Perkins	George Bechner
H. H. Bradfield	Ralph Esarey
Glen Bartle	Mrs. Esarey
Ned Smith	Jim Mahorney
Helen Beikman	Wayne Lowell
Dale Kline	W. A. Thomas
Harold Kaska	John Droste
Maurice Biggs	Andrew Hreha

A. A. P. G. Meeting at Houston, March 1963

One of our distinguished alumni was general chairman of the meeting and did a remarkably good job. We should congratulate W. A. (Bill) Thomas of the Marathon Company on the success of his program.

A. A. P. G. Rocky Mountain Sectional Meeting, April 1963

Phil Lane, B. D. Kline, Tom and Mrs. Heistand, Wayne Lowell, Ralph Esarey, Larry LeBauer, Ray Robbins, Karl Frielinghausen, Robert Taxter, and a few others attended the A.A.P.G. Rocky Mountain Sectional meeting at Casper in April 1963.

A. A. P. G. Meeting in Toronto, May 1964

No formal or planned function for those in attendance from Indiana was planned. However, some 14 or 15 Indiana people were there. Several of us crashed the meetings of other universities and enjoyed making new acquaintances. I thought the banquet and entertainment afterward was exceptionally good.

G. S. A. Meeting

The G. S. A. Meeting held in New York City November 17 to 20, 1963, broke all attendance records for Indiana faculty, alumni (and alumna), and students. At the Indiana cocktail party the following list was made up. The list may not be complete, so let me know if your name was omitted.

Jean Lowry	John Huddle
Mike Mound	Dave Frey
Dick Harvey	Mr. and Mrs. Al Schneider
Phil Malone	George Brunton
Bob Nicoll	Mr. and Mrs. Dick Leininger

Don Graf
 Art Palmer
 Al Horowitz
 Mr. and Mrs. John Cleveland
 John Utgaard
 Fred Honkala
 Bob Votaw
 Barb Krumsieg
 Mr. and Mrs. Craig Hatfield
 Jack Sunderman
 J. R. Dodd
 Allen Agnew
 John Chute
 Charley Wier
 Sam Friedman
 Mr. and Mrs. T. E. Hendrix
 T. G. Perry
 John Droste
 C. J. Vitaliano
 Ben Richard
 Jerry Lineback
 J. B. Patton
 Al Jacobs
 Al Ludman
 Phyllis Marsh

Martin Prinz
 Mr. and Mrs. Dick McCammon
 Dan Merriam
 Ron DeRudder
 Dick Erd
 Jack Harrison
 William Elberty
 Dave Hawley
 Seymour Greenburg
 Ned Smith
 Mr. and Mrs. Mark Reshkin
 Bill Wayne
 Mr. and Mrs. Bob Shaver
 Haydn Murray
 Orville Bandy
 Jud Mead
 Maurice Biggs
 Mr. and Mrs. Gordon Pirie
 Joe Rodriguez
 Carolina Kierstead
 Bill and Mrs. Thornbury
 Bill Pinson
 Mr. and Mrs. Don Hattin
 Don Carr
 Owen Marsh

Alumni, former students, faculty, and friends of the Department of Geology met for a social hour in the Charlemagne Room of the Hotel Deauville on November 19, 1964, in connection with the Geological Society of America meeting at Miami Beach. Those in attendance (we may have missed a few) were:

Maurice Biggs
 Jack Harrison
 Joe Rodriguez
 Kennard B. Bork
 Robert S. Nicoll
 Alan M. Jacobs
 David Hawley
 Ben Richard
 John Bubb
 Orville Bandy
 Caroline H. Kierstead
 Ralph E. Hunter
 Jim Noel
 John W. Buddle
 R. Gordon Pirie
 David Towell
 Ned M. Smith
 J. Barbara Krumsieg
 Jerry Lineback
 Ronald D. Perkins
 Richard L. Bowen
 Robert R. Shrock
 Gary Lane
 Lawrence Rooney

Paul Dean Proctor
 Martin Prinz
 Richard G. Ray
 Felix Chayes
 George B. Maxey
 Frank E. Kottowski
 J. Robert Dodd
 G. K. Guennel
 Carl W. Beck
 Alan Colville
 Charles Vitaliano
 Mr. and Mrs. Owen Marsh
 Mr. and Mrs. Allen Agnew
 Mr. and Mrs. Mark W. Pangborn, Jr.
 Mr. and Mrs. Roger J. Cuffey
 Mr. and Mrs. Charles Wier
 Mr. and Mrs. Jim Stanley
 Mr. and Mrs. Robert H. Rose
 Mr. and Mrs. Donald Hattin
 Mr. and Mrs. Tom Perry
 Mr. and Mrs. W. D. Thornbury
 John B. Patton
 George Erickson

GRANTS AND AWARDS

Distinguished Alumni Service Award

At the Commencement Exercises this spring, Indiana University presented to Marion M. Fidler the Distinguished Alumni Service Award. You may remember that Marion was elected President of the Mountain Fuel Supply Company in August 1962. We are justly proud of Marion and his accomplishments as he brings honor to the Department and to the University.

Standard Oil Company of Texas Fellowship

The Standard of Texas Fellowship is awarded to an outstanding student in geology or geophysics on the basis of scholarship, achievement, extra-curricular activities and citizenship. Eric D. Mustonen won the award for the year of 1962-63, Donald N. Peterson for the school year 1963-64, and Austin C. Smith for 1964-65.

Shell Fellowship in Geophysics

The Shell Fellowship in Geophysics was established to encourage graduate study by promising students. This fellowship was awarded in 1962-63 and 1963-64 to Walter J. Burfeind. Howard Renick, Jr., is Shell Fellow for 1964-65.

The Geology Faculty Award

A Brunton Compass or other award of comparable value is given each year to the senior with the highest academic record. Stanley K. Hamilton was the recipient in 1962, and David A. Balogh and Robert Cornell won awards in 1964. No award was made in 1963.

The E. R. Cumings Award

Mr. Frank C. Greene, '09, of Kansas City, established an award in honor of Dr. Cumings. It is presented to the student of geology who makes the most significant and original contribution to the geology of Indiana. Ronald D. Perkins was the first recipient of this award, in 1962, for his dissertation "Petrology of the Jeffersonville Limestone (Middle Devonian) of Southeastern Indiana." In 1963, Jerry A. Lineback won the award with a paper on the "Age of the Rockford Cephalopod Fauna of Southern Indiana." This year Craig B. Hatfield received the award for his Ph.D. thesis on the "Stratigraphy and Paleontology of the Saluda Formation in Indiana, Ohio, and Kentucky."

Summer Scholarships

Summer Scholarships at the Indiana University Geologic Field Station were awarded during each of the recent summers. We are indebted to the Indiana University Foundation and to the several oil companies whose grants have made these awards possible. The scholarships were awarded to deserving students who had outstanding scholastic records and needed partial support to attend the Field Station. Recipients for 1962 were: Leavitt C. Arnold, Carol Coke, Donald E. Hall, Anne Holmes, Richard O. Linden, Ann Moss, Sara Stewart, and Thomas Wellman. Recipients in 1963 included: Tanya Atwater, Donald G. Eckerty, Peter K. Eklund, Thomas W. Henry, William C. Herring, Peter R. Hoover, Allan J. Jelacic, Kathleen F. Ridge, James T. Sprinkle, and Milton A. Wiltse. Recipients in 1964 were: David R. Balogh, Linda A. Flueckinger, Marilyn Ann Heald, Michael A. Lane, Janice S. Lumnitz, Michael C. Moore, Elsa C. Raab, Raymond M. Rene, and George W. Schurr.

Grants were also made to graduate students Sheila Wagner, Otto Sardi, Asoki Chatterjie, and Vijay V. Satoskar for subsistence while doing graduate work at the Station.

Charles F. Deiss Award

Since the Charles F. Deiss Memorial Fund was established, tuition scholarships for enrollees in G-429 Field Geology in the Rocky Mountains have been awarded to students from Indiana University and Montana State University. David R. Balogh from Indiana University and Walter R. Vennum from Montana State received the awards in 1964.

Cumings-Malott Fund

The Fund established in 1960 to honor Professors Edgar R. Cumings and Clyde A. Malott was strengthened substantially in November 1960 by a generous contribution from the Sun Oil Company, with which Professor Malott had close relations as a valued consultant in the late 1930's and early 1940's. Hubert Latimer (A.B. 1938), now Division Manager for Sun Oil Company at Evansville, and a former student of both Professor Cumings and Professor Malott, was the Company's emissary who made the presentation to William S. Armstrong, Executive Director of the Indiana University Foundation.

During the 1963-64 academic year, a considerable part of the income from the Cumings-Malott Fund was awarded to Robert Nicoll, a graduate student in the Department of Geology, to support fieldwork for research utilizing conodonts to establish correlations of the Menard Limestone of Indiana, Kentucky, and Illinois.

The Department awarded two undergraduate scholarships in earth science for the 1964-65 academic year. Entering freshmen interested in geological and other earth science training are eligible, and recipients are chosen on the basis of high school records and recommendations. This year's scholarships are held by Michael Retherford of Brookville, Indiana, and James Phillips of Nappanee, Indiana.

ALUMNI NEWS

Clay Warren sent in two letters, one dated January 1, 1956, and the other dated September 11, 1964. He was proving to me that he actually did start a letter 8 years ago, and insists he has had good intentions all the time. He lives in Houston and has a son graduating from high school next spring and a daughter 12 years old.

Glenn Bartle mailed in his Christmas Greeting letter for 1964 which included a short skit on his plans for the next year or so. As you know, he retired as President of Harpur College and was appointed a full-time consultant for the Agency for International Development, which is part of the State Department. Glenn will be traveling abroad most of the time visiting the American Sponsored Schools, and reporting back to the State Department occasionally. His wife, Wanda, will accompany him.

Helmo M. Rand is located at Escola de Geologia, Recife, Pe., Brazil. In a recent letter to Dr. Patton he sends greetings from Brazil. "As for myself," he says, "I'm doing fine and hoping for better; I'm also hoping that someone will send me news or newsletters about I.U. and especially about the Geology Department." Helmo, we will fulfill your request.

Mr. M. A. Newnum, '25, has retired after 39 years of teaching science. He completed his Master's Degree at Illinois in the field of education but still likes geology. He takes field trips along the Vermilion River near Pontiac where he lives. During a recent visit to the campus he claims he was lost, couldn't find the older part of the campus, and everything looked strange and new. Now that Mr. Newnum has more time and leisure, we hope he will visit with us and we will give him a tour of our new building as well as the campus.

Harris and Harris, of Casper, Wyoming, announce a new location for their lapidary and rock company. They advertise everything for the rockhound, and I believe they have it. A visit to see their collection is worthwhile, as Doc. Lowell and I can attest. We attended the Rocky Mountain meeting of the AAPG last year at Casper.

Ray Robbins, who recently "went independent," Karl Frielinghausen, who also is an independent geologist, and Barbara Brooks, who is teaching in the Casper school system, still reside in Casper. I am certain there are other alumni in Wonderful Wyoming, but I don't have any news from them.

Mr. and Mrs. Dave Von Tress and two small daughters visited the campus to see Dave's father and mother and, incidentally, the Department. He is with Texaco at Corpus Christi, Texas.

Tom Hirschmann is working for Acres International Limited in Guatemala. Recently the Hirschmanns announced the arrival of their first child, a son, named after Papa. Tom hopes to set up a Geological Survey or similar department in Guatemala sometime in the future.

Ray Hunt, '25, has now retired after spending a lifetime in the exploration for oil with the Cities Service Company. Ray lives in Midland, Texas, which is a long way from Indiana, but we hope he can visit us occasionally. Ray grew up in Bloomington and took two degrees from Indiana University. He was a classmate of the writer in both high school and college. We hope he enjoys many years of leisure and good living.

We hear from Victor Barua, '50, occasionally. He resides in Tacna, Peru, and is doing quite well. We enjoy the Christmas cards from Victor and Lucy and their 7 or 8 children.

Gordon Pirie received his Ph.D. degree in September 1963 and is now teaching in the Department of Geology, University of Wisconsin.

John Utgaard, '63, is working in the Smithsonian Institution and resides in Arlington, Virginia. He married Susie Baker of Bloomington while a grad student here, and they now have two children.

Maurice McClain attended Summer School at Indiana University and will receive a degree in English, preparatory to teaching at the college level.

Michael Mound is still with the California Research Corporation in the La Habra Laboratory, La Habra, California.

James R. Carter lives in Greenbelt, Maryland, and is working with the U.S.G.S. in Washington. He visited with us in May 1963.

I was sorry to miss Paul Wagner when he was on campus. He is still with the Standard of Texas at Roswell.

Alan Perry spent a couple of days with us while on vacation from his job with the Highway Department and the Geological Survey in Puerto Rico. He left some of his publications for the library.

Bob and Carol Laney sent us an announcement card of the arrival of Janette Alison in October 1961. We missed this notice in the proper edition, so it is included now.

Mike Cowan left Humble and is operating as an independent petroleum geologist. He has had phenomenal success in Michigan and started off in Morrow County, Ohio, with a good producer. Mike lives in Albion, Michigan.

Lola and Courtney Waddell were on the campus this summer taking graduate work. As I remember from our conversations, Courtney will be teaching at Black Hawk College at Moline, Illinois. He is organizing a department in Earth Science.

Jim Noel is now working in the research center of the Pure Oil Company at Crystal Lake, Illinois.

B. Dale Kline was on the program at the Rocky Mountain Sectional Meeting of the A.A.P.G. held in Casper, April 23, 1963.

Bob Dodd accepted a position at Western Reserve, where the Department of Geology is expanding quite rapidly. An eight-man department is being projected for the very near future with graduate work being offered in most fields of geology.

George Whitlatch, '32, is now Senior Research Scientist in the Industrial Development Division of the Georgia Institute of Technology located in Atlanta.

Dick Fitch is working with Mobil Oil Company in Wichita Falls, Texas. His new address is 1225 Bandera Boulevard.

Sheila Wagner Ploger sent in a new interpretation of an inorganic theory for the origin of oil which she found in "Frontiers of Astronomy." Sheila has changed her name since she left school last Spring and now resides in Denver.

Dick Bowen, '51, has completed three years of teaching under the auspices of the U. S. Agency for International Development as visiting professor at the Escola de Geologia, Universidade do Rio Grande do Sul, in Porto Alegre, Brazil. As of this fall he joined the staff at the University of Southern Mississippi.

Bert L. Renzetti, '57, has opened a mining consultant office in Santiago, Chile. He expects lean years for a while, but has bright hopes for the future. He extends an invitation to our alumni to visit him anytime.

Dr. Abdullah Sayyab, '54, writes that he has been made a board member and director of the Iraq National Oil Company with offices in Bagdad. He anticipates a bright future for the Company and the country of Iraq in the oil business. Mr. Al Saaibani, who finished his Master's Degree here last Spring, has been offered a job with the Company. Abdullah will attend the International Geological Congress at New Delhi in December and hopes to see some of our faculty there. He sends greetings to all members of the faculty and Survey and his many friends here.

Walt Spangler has moved again. His address is Walton on the Thames, Surrey, England, where he has charge of exploration for Esso. Working in the North Sea, maybe? Walt has a son 3 years old and a grandson 11 months. He says that he and Chaplin are proud of their children.

Jim Batchelor is Assistant Professor of Geology and Physical Sciences at McNeese State College, Lake Charles, Louisiana. He visited with us this summer although he really came to spend some time with his older brother who is professor of Economics here.

Professor E. L. Lucas, '24, from the University of Oklahoma, attended the dedication and inspected the new building. Through the years we have seen little of him, even though he is a native son. He spends his summers teaching at Penn. State University when he isn't mixed up in the oil business.

Don Hyer spent a couple of years on the Vice President's staff of Texaco in New York and has now moved to Midland, where he is Division Geologist. The whole family (four children) like the land of the high sky better than the canyons of New York City.

Bob Reeves, '19, has retired from Cities Service and lives in Boca Raton, Florida. He would enjoy a visit from any of the alumni.

Tjian Liong Gan is a member of the staff at Bandung Institute of Technology, where he is teaching sedimentary petrography and mineralogy and working on the Geological Survey. When you get to Bandung (Indonesia) be sure to visit with him.

Ralph Stevenson departed Bloomington in September to join the Gulf Research Corporation in Pittsburgh, Pennsylvania.

Jerry A. Lineback began duties with the Areal Geology and Stratigraphy Section of the Illinois State Geological Survey in November.

Forrest Root has accepted a position with the Standard Oil Company of Texas beginning in June 1965, when he will receive the Ph.D. degree.

John L. Smith will join the Standard Oil Company of California at the end of the Spring semester, at which time he will have completed his work for the doctorate.

Michael Mound, now with California Research Corporation, and his wife Ann, visited us December 22, 1964. Mike was combining a company assignment in the Midwest and East with a vacation stop at Ann's home in Greensburg.

Ron DeRudder has moved from his work with Texaco Research at Bellaire, Texas, to a faculty position at Virginia Polytechnic Institute.

Ralph Hunter is a near neighbor since he joined the Illinois State Geological Survey at Urbana.

William F. Hanna is an Assistant Professor at Stanford University. He will receive the doctorate at Indiana in June.

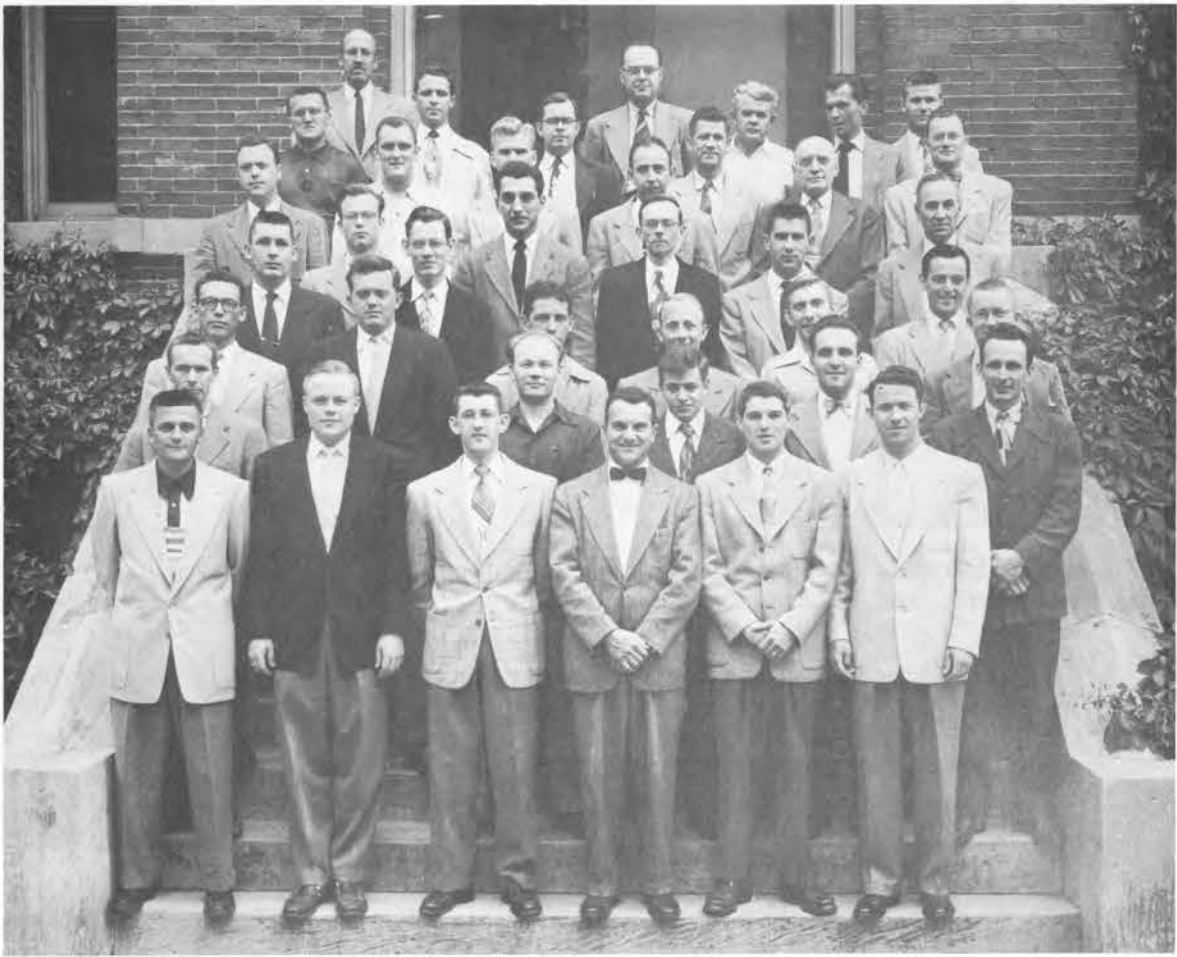
George Leckie, after receiving the Ph.D. degree, joined the staff of the Indiana University Aerospace Research Applications Center on a temporary basis while Ritva (his wife) is completing work for her doctorate in German. In February the Leckies (including fairly new Little George) will embark for Scotland.

Space and time prevent many write-ups that I would like to include. Letters were received from the following alumni, which are herewith acknowledged and I hope you will keep them coming.

Ronald Walton	Richard Beckner	Ferol Fish
George Winston	Dave Mathews	Jack Pickering
Janet Wert Crampton	Bill Dixon	Don Cameron
Paul Wagner	Sheldon Axenfeld	Kenny Vance
Don Devening	Jack Jacks	Howard Clark
Dan Wilson	Dan Hall	Martin Nading
James Carter	Harold Sorgenfrei	Jack Nelson
Richard Hinton	Tom Straw	Dean Clark
Don Hyer	Roger Batten	Bob Saenger
Harry Kugler	John Ramsey	Mrs. Stephen Hunter
	Phyllis Scudder Marsh	

This skit was sent in by one of our well wishers, Agnes M. Smith, whose husband is editor of the local paper at Robinson, Illinois. It seemed interesting enough to pass along.

"The first Englishman to notice an Americanism sneered at it aloofly, thus setting a fashion that many of his countrymen have been following ever since. He was one Francis Moore, a ruffian who came out to Georgia with Oglethorpe in 1735, and the word that upset him was bluff, in the sense of 'a cliff or headland with a broad precipitous face.' He did not deign to argue against it; he simply dismissed it as 'barbarous,' apparently assuming that all Englishmen of decent instincts would agree with him. For nearly a century they seem to have done so, and bluff lingered sadly below the salt. When it was printed at all in Great Britain it was set off by sanitary quotation marks, or accompanied by other hints of deprecation, as rubberneck, hot spot, and nerts are accompanied today. But then, in 1830, the eminent Sir Charles Lyell used it shamelessly in the first volume of his monumental "Principles of Geology," and from that day to this it has been a perfectly respectable if somewhat unfamiliar word in England, with a place in every dictionary." --From "The American Language," by H. L. Mencken



Can you furnish the date and names?



Indiana Geological Survey, Old Hill, Clay County, Ind.
Bartle - Fleehart - Reeves - Esarey - Harrell - Ferguson - Malott - Addington
Note the only transportation to the left of the tents.



Indiana Geological Survey, Worthington, Ind., 1927.
Whitlatch, Kasserman, and Rankin at the shovels.



Handsome, isn't he?
San Jacinto River, May 1941



Results of the above digging - Baker-Lowe Mound.



Can you top this? The Jack Nelson
family at Christmas time, 1963,
Corpus Christi.



Fender and Uhl on S. G. E. field trip,
Blue Ridge, Va., 1938.



"Elmer" 1928.
Check with O. U. at Norman, Okla.
Bill Rawles is in the background.

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 William Cordell
 Eugene H. Core - Humble Oil and Refining Company - Grand Rapids, Mich.
 Horace Noble Corvell - 3477 Far Hills Avenue - Dayton 29, Ohio
 Michael T. Cowen - Albion, Mich.
 Janet (Wert) Crampton - AFRRRI - National Naval Medical Center - Bethesda, Md.
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 James Barton Dailey - Dept. of Geology - Indiana University - Bloomington, Ind.
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