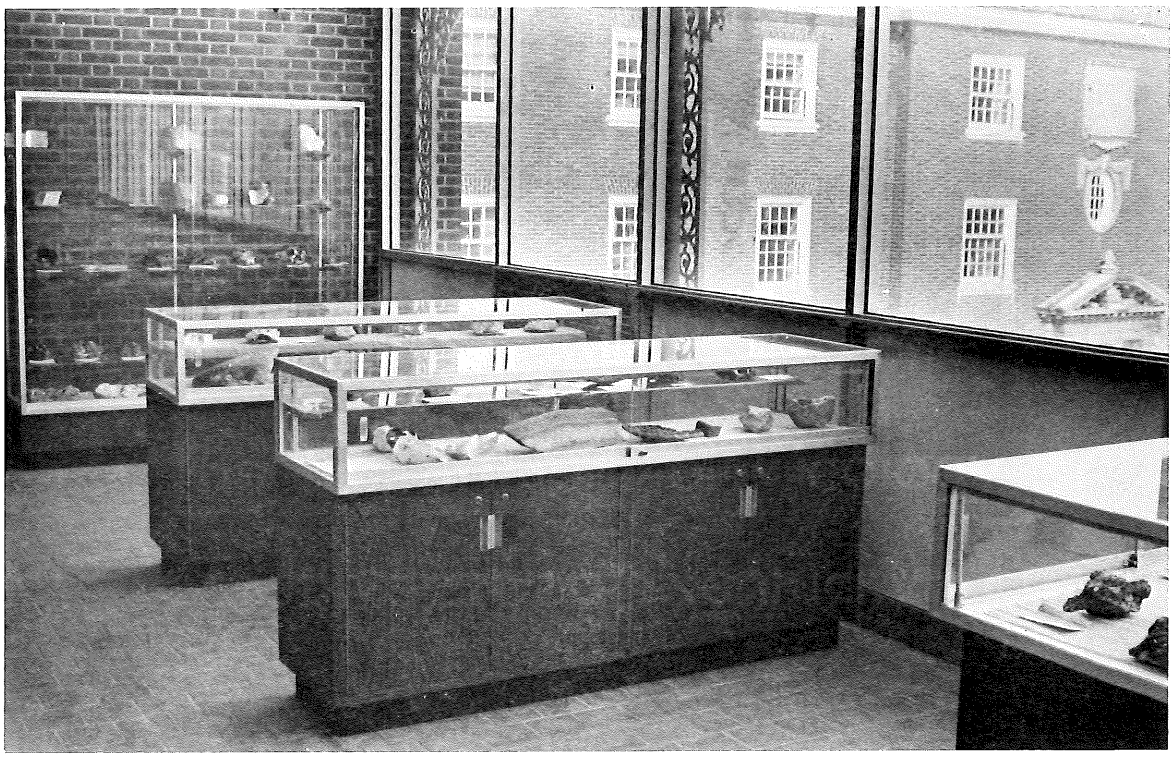
The Department of Geology
University of Kentucky

The Round Up
(1979)



Dear Alumni,

It is a real pleasure to extend the greetings and best wishes of the departmental faculty, students and support personnel to you with this issue of the Round Up.

I can report the department to be healthy, busy and continuing its love affair with the earth - a condition, we wish for all of you.

Cordially,

W.H. Dennen

Chairman

Cover Photo

Perhaps you remember the photo of the rear of Bowman Hall appearing on the cover a few years back. It pointed out the fact that the second floor porch had possibilities of being converted into a small museum. James Hudnall most generously came forth with the funds to implement the project. There have been a number of delays in completing enclosure of the space, wiring necessary for lighting cases, repair of the roof overhead and the like. We are pleased to report that displays are now being put into place. The photo shows one area which will be devoted to rock and mineral specimens. A second and similar area will be taken up by paleontological materials.

Staff Changes

Numerous changes in staff have occurred (or soon will) since the appearance of the 1978 Roundup.

The opening in the faculty resulting from Vin Nelson's retirement has been filled but at the time of this wirting the new member has not arrived on the scene. He is Dr. Nicholas Rast. Dr. Rast will be the first person to hold the chair of the Hudnall Professor of Geology. This position has been provided for through a donation to the University by James S. Hudnall of Tyler, Texas, a distinguished alumnus.

Dr. Rast was born at Teheran, Iran June 20, 1927 where his parents had settled after the Russian Revolution. He attended primary and secondary school in Teheran and the Technical Institute in Abadan, where he received a Diploma in Industrial Chemistry in 1947. In 1952 he was awarded a B.Sc. degree from the University College, London in Geology and Chemistry. In 1956 he received the Ph.D. degree from the Univeristy of Glasgow, Scotland. Dr. Rast has served as Lecturer, Senior Lecturer, and Reader in Geology at the University of Liverpool and became Professor and Chairman of the Department of Geology of the University of New Brunswick in 1971.

Dr. Rast's initial interests in geology were towards the chemistry of rocks but his Ph.D. studies in the Schichallion complex of the Central Highlands of Scotland modified his interests so that he became concerned with tectonics, structure and the controls on the nucleation and growth of metamorphic minerals. He received the Lyell Fund of the Geological Society of London in 1962 and the medal of the Geological Society of Liverpool in 1963 in recognition of his contributions to geology. Since arriving in Canada, Dr. Rast has been instrumental in organizing and enlarging studies in Appalachian Geology at the University of New Brunswick and has been author or co-author of an impressive number of publications dealing with this subject in the Atlantic Provinces of Canada in general and in New Brunswick in particular. We rather suspect his long interest in the Caledonian-Appalachian orogenic belt will lure him into a portion of that system in the southeastern U.S.

A new position has been created by the administration in order to provide for a specialist in coal geology. An active search is under way to fill this position.

Bill Brown reaches retirement age at the end of the fiscal year. Recruiting is under way to fill this opening. Perhaps some of you have seen the add in the February issue of Geotimes. A portion of the add gives an idea of the sort of person being sought after. It states that applicants should be interested in preparing students for work in the petroleum industry and have research interests in quantitative sedimentology, for example, in the fields of recent and/or ancient carbonates, stable isotope geochemistry or organic geochemistry.

Still another staff position up for grabs is that of geological technician. This opening came about by Jack Wills retirement on January 5 after thirteen years in the department.

Several changes have occurred in the administrative office of the department during the year. Linda Cronch has resigned and her place has been filled by Dorothy Snodgrass. Shirley Pile has shifted her allegiance to the Black Shale Project and has been replaced by Kathy Pass who moves up to the second floor from the geology library where she has been map cataloguer.

Major equipment acquisitions

The department has been able to acquire from various sources a number of items which can be catagorized as major equipment. Among these is a new atomic absorption spectrometer, a gamma ray spectrometer, a soft x-ray receiver for rock slabs, Leco carbon sulfur analyzer, color enhancement television equipment for remote sensing, and one new 12 passenger van for field operations.

Departmental Publications

Listed below are the publications which have been authored by faculty members and published within the past year.

Blackburn, William H. Petrologia y geochimica de las rocas igneas del area de Almont, Colorado. Geoscience.

Garnet zoning and polymetamorphism in the eclogitic rocks of Isla de Margarita, Venezuela. Canadian Mineralogist.

Trace element substitution in galena. Canadian Mineralogist.

Dennen, William H. Geology and geochemistry of bauxite deposits in the Lower Amazon Basin. Economic Geology.

Bedrock geology of the Cape Ann area, Massachusetts. U.S. Nuclear Regulatory Commission.

Ettensohn, Frank R. Clay-Mineral stratigraphy of Pre-Illinoian lake clays from the Cincinnati region. Journal of Geology.

Acrothoracic barnacle boring from the Chesterian of Eastern Kentucky and Alabama. Southeastern Geology.

Fisher, Irving S. Distribution of Mississippian geodes and geodal minerals in Kentucky. Economic Geology.

Roberts, Thomas G. The Archaediscidae of the Fraileys Facies (Mississippian) of Central Kentucky. Bulletin American Paleontology.

Street, Ronald L. A note on the horizontal to vertical Lg wave amplitude ratio in eastern United States. Earthquake Notes.

Thrailkill, John. Relative solubilities of limestone and dolomite. Mem. 12th Cong. International Association of Hydrogeologists.

There have also been a number of abstracts appearing in various publications and these follow.

Blackburn, William H. Geochemical characterization of the Paleozoic igneous rocks of eastern Massachusetts.

Genesis of Catoctin Volcanic rocks by a mantle-derived magma plume.

Dennen, William H. Brittle fracture on Cape Ann, Mass.

Ettensohn, Frank R. The Stratigraphy of Devonian-Mississippian Black Shales along the East-Central Kentucky outcrop belt.

A Preliminary microscopic examination of Devonian and Lower Mississippian Black Shales in East-Central Kentucky.

MacQuown, William C. Paleo environmental aspects of Lower Mississippian Waulsortian-type mounds of the Fort Payne Formation in northern Tennessee.

Petroleum production from the basal Greenbrier Formation in the Hyden West Pool of Eastern Kentucky.

Moore, Bruce R. River sediment structures in the archeology of a power plant.

Equilibrium in river sediment transport, Kentucky River.

Thrailkill, John. Hydrologic summary report of session 2 in problems in Karst regions.

1978 Summer Field Camp

Since most of you have gone through the experience of the Colorado Field Camp we thought you might like to hear of the happenings of the past summer. Again Frank Ettensohn served as camp director and had Professor Ralph Langenheim from the Univeristy of Illinois to assist him. In addition two graduate students served as teaching assistants. A pair of cooks completed the staff. Twenty-seven students were enrolled in the course of which twenty-two came from our own department. The others came from schools in Minnesota, Colorado, Maine, Virginia, and North Carolina. Several camp students of years past dropped by for a visit. Among them Bill Champion, Byron Craycraft, Mary Fisher, Pete Whaley, and Richard Crawley.

The field program was altered considerably from past practice with the mapping broken down into seven directed exercises followed by a field-mapping final exam. However, there was enough recreational time to permit

the group to enter a float in the Crested Butte Fourth of July parade and to beat the Rocky Mountain Biological Laboratory in a volleyball tournament.

Geology Library Happenings

Vivian Hall has had no trouble in keeping busy with the operation of our exceptionally fine library. Among other things she is involved with two ($10,000 each) grants awarded by the U.S. Department of Energy. One of these is the preparation of a bibliography citing published and unpublished literature, world-wide in scope, on geological aspects of black (hydro-carbon bearing) shales. The second is a continuation of the Eastern Gas Shale Program Open File Repository for documents generated by the various Department of Energy - ESP contractors. Two copies of each document, report, map and well log are being catalogued and kept on file for on site use and interlibrary loan.

Vivian attended the annual meeting of the Geoscience Information Society held in conjunction with the G.S.A. meeting in Toronto in October where she read a paper dealing with Open File Repository. All this was going on while the library was providing service to 19,925 campus patrons (total library attendance for the year) and a large number of others through interlibrary loans.

Funded Research

Several members of the department are actively engaged in a number of funded research programs from various sources. These programs are a tremendous asset to the overall effectiveness of the department. Much of the cost of a successful graduate program is borne by this funding in that it provides research assistantships for graduate students, funds for major equipment items, opportunity for the faculty to engage in meaningful research, etc. Here are several ongoing projects.

1. Dennen & Blackburn. Geochemical characterization of the Devonian Black Shale in Kentucky. $240,000 project funded by U.S. Department of Energy.
2. Dennen's Bedrock geology and seismicity of Cape Ann, Massachusetts. Funded by U.S. Nuclear Regulatory Commission.
3. Ettensohn. Stratigraphic and paleonvironmental analysis of the Upper Devonian - Lower Mississippian Black Shales of Kentucky. $350,000 funding from U.S. Department of Energy.
4. Moore. $20,000 grant from U.S. Bureau of Mines for television equipment in order to develop a new course in remote sensing. This will

enable mapping of structural trends etc. by the use of routine air photography, satellite imagery and low altitude infrared photography using a new camera technique developed in the department.

5. Street. A micro-regionalization study of the seismic hazard in western and central Kentucky. $11,075 funded by Kentucky Department of Transportation.

6. Street. Seismic station funded by the University. This will consist of several stations but with the base station either at Bowman Hall or Spindletop Farm.

7. Thrailkill. Hydrogeology of the Inner Bluegrass Karst Region, Kentucky: Water Tracing Studies. Funded ($52,885) by U.S. Department of Interior, Office of Water Resources and Technology.

Student Activities

Enrollments continue to increase in both the undergraduate and graduate programs. Some idea of the current activity and scope of the graduate program is reflected in the listing of the M.S. degrees completed in 1978 with titles of theses and Ph.D. degrees awarded and the dissertation subjects.

Name	Title	Director
Bondurant, William S.	A Trace Element Study of Sphalerite in the Central Kentucky Mineral District	I.S. Fisher
Huang, Scott Lin	The Influence of the Dispersion Method on Peak Intensity of Kaolinite, Montmorillinite and Illite Clay Standards	I.S. Fisher
Lieber, Robert B.	Paleoenvironmental Aspects of Lower Mississippian Waulsortian-type mounds of the Fort Payne Formation in Northern Tennessee	W.C. MacQuown
McCann, Michael R.	Hydrogeology of northeast Woodford County, Kentucky	J. Thrailkill
Miller, Michael L.	A petrographic study of the Upper Devonian-Lower Mississippian Black Shales of eastern Kentucky	F.R. Ettensohn

Nicholson, F.R.	Sedimentology of the Clinch Sandstone northeastern Tennessee and southwestern Virginia	W.R. Brown
Ping, Russell G.	Stratigraphic and structural relationships of the Stoney Fork member of the Breathitt Formation in southeastern Kentucky	W.C. MacQuown
Swager, Dennis R.	Stratigraphy of the Upper Devonian-Lower Mississippian shale sequence in the eastern Kentucky outcrop belt	F.R. Ettensohn

Ph.D. Degrees
(completed 1978)

Name	Dissertation	Director
Davis, Philip A.	Trace Element Model Studies of late-Precambrian - early Paleozoic Greenstones of Virginia, Maryland and Pennsylvania (1977)	W.H. Blackburn
Bland, Alan E.	Trace element geochemistry of volcanic sequences of Maryland, Virginia, and North Carolina and its bearing on the tectonic evolution of the Central Appalachians	W.H. Blackburn
Robl, Thomas L.	Factors controlling the geochemistry of vadose and stream waters in a carbonate terrain	J. Thrailkill
Griswold, Thomas B.	A study of the effects of a mafic dike on a granite, Front Georgeville, Antigonsh County, Nova Scotia	W.H. Blackburn

In the undergraduate program we have had a large increase in enrollment. Currently there are about 90 students who have declared themselves as geology majors. This represents a gain of around 20 over the previous year. Several of these majors have already earned a bachelors degree but in a field where they have discovered good job opportunities are extremely few. Along with

the increases in total number of majors there has also been a significant improvement in the quality of students electing to major in geology. At the end of the fall semester 38% of them had a grade point standing of 3.0 (B) or higher. Some of this may be due to grade inflation but the geology department seems to be holding to its standards and there is no indication that the chemistry, physics, or math departments have become more kindly in regards to grades. Of our majors nearly 20% are girls so look for more females applying for employment in the science.

Departmental Seminars

Lois Campbell has been in charge of our Seminar Program this year. Thus far the attendance has been excellent. This series is sponsored by the department and Sigma Gamma Epsilon with some financial assistance from the Graduate school. Coffee and cookies are served preceding the presentation by the speaker for the day. Refreshments are made possible by the McFarlan Fund money. You might believe the refreshemnts are responsible for the sucess of the operation but if you look at the excellent program Lois has arranged, you will see that this is not the case.

The graduate school provides a direct seminar grant that pays for the travel and hotel expenses of some of our out of town guests. However, these funds would not allow a schedule of eighteen seminars per year which is the number we try to have so that we must look for other resources. One of these is our alumni. From time to time you may find the names of your U.K. Colleagues on our list of speakers. We owe special thanks to these former students and/or their companies for bearing all the costs of their visits. We hope that some of you will take this as a hint. If you are going to be up Lexington way and have a talk to give, let us know. We would like to work you into the schedule. We will even take you to lunch.

Fall Semester Seminars

Dr. Francis T. Ting, Dept. of Geology & Geography, West Virginia University, Morgantown, W. Va.
"Depositional Environments of Peat and Coals"

Dr. Bruce Moore, Dept. of Geology, University of Kentucky
"Use of Low-Altitude Remote Sensing of Manganese Mineralization in Western Australia"

Dr. Davis Meyer, Dept. of Geology, University of Cincinnatti, Cincinnatti, Ohio
" The Ecology of Living Crinoids"

Dr. William C. MacQuown, Dept. of Geology, University of Kentucky
"Paleogeography of Ft. Payne Waulsortian-type Mounds in Tennessee"

Mr. Michael Birch, (with Phil Miles) Lexington, Kentucky
"Petroleum Production from the Basal Big Lime (Mississippian) in the Hyden West Pool of Eastern Kentucky"

Dr. Nicholas Crawford, Dept. of Geography & Geology, Western Kentucky University, Bowling Green, Kentucky
"Karst Hydrology along the Cumberland Plateau Escarpment in Tennessee"

Dr. David Stewart, Dept. of Geology, Miami University, Oxford, Ohio
"Geology for Environmental planing"

Mr. Garland Dever, Jr., Kentucky Geological Survey, Lexington, Kentucky
"Features Indicating the Former Presence of Evaporites in the St. Louis Limestone of Eastern Kentucky"

Dr. Warren G. Meinscheim, School of Public and Environmental Affairs, Indiana University, Bloomington, Indiana
"Sterols as Ecological Indicators"

Spring Semester Seminars

Mr. Peter Price, Chevron Resources, Denver, Colorado
"Genesis of Mississippi-Valley type Lead-Zinc Deposits"

Dr. William H. Blackburn and Mr. Gerald Markowitz, Dept. of Geology, University of Kentucky
"Regional Geochemistry of the Devonian Black Shale in Kentucky"

Dr. Thomas G. Hildenbrand, United States Geological Survey, Denver, Colorado
"Magnetics and Gravity of the Mississippi Embayment"

Dr. Gunter Faure, Dept. of Geology and Mineralogy, Ohio State University, Columbus, Ohio
"Strontium Isotopes for Sedimentary Geology--The Black Sea"

Dr. Kenneth Walker, Dept. of Geology, University of Tennessee, Knoxville, Tennessee
"Oceanography of Paleozoic Basins"

Dr. Paul Fullager, Dept. of Geology, University of North Carolina, Chapel Hill, North Carolina
"A Cronology for the Southern Appalachians"

Dr. Alan Bland, Institute for Mining and Minerals Research, Lexington, Kentucky
"Geochemical and Tectonic Evolution of the Central Appalachians"

In addition to the weekly seminars the department again after a years lapse sponsored on February third the one day seminar entitled "New Concepts

in Sedimentology". An open house in the department with coffee and light refreshments preceded the morning session and a similar event followed the afternoon program. Bruce Moore was responsible for arranging the program. Following the format of previous years there were three speakers. Robert Erlich, University of South Carolina spoke on "Paleogeographic Significance of Grain Shape", John Ferm also from the University of South Carolina discussed "The Peat Island Model for Coal Deposits", George De Vries Cline from the University of Illinois spoke on "Tidal Circulation Model Epeiric and Mioclinal Shelf Seas".

This annual one day event has proven to be well received, drawing students and faculty from a number of surrounding institutions. We are still looking for an outside source of funds to continue this program. Don't you think your company's name should appear on this program as the sponsor?

Staff Potpourri

Our staff is quite a cosmopolitan group if travel abroad is any indication. Last summer Vivian Hall spent three weeks in England and Scotland. Lois Campbell was in Europe for three weeks (plus) during May and June. Much of her time was spent in Paris and the Loire Valley but she wound up in Sweden. Tom Roberts enjoyed three weeks in Ecuador conducting some business for the Partners of Americas and also in pleasure travel. Bruce Moore had a stint in Uruguay as a consultant to the Uruguay government in evaluation of black shale deposits. He also engaged in manganese exploration for Union Carbide in western Australia. Bill Brown traveled to Scandinavia for what he described as two fun weeks but this of course included looking at some geology. Bill Blackburn found his way to Dublin, Eire as an appointed coordinator for the U.S. Volcanic Studies on the Appalachian - Caledonian Orogen Project (Project 27 of the International Geological Correlation Program). John Thrailkill roamed Spain, Greece, and France for three weeks in late May and early June and then took off again in January for two weeks to Puerto Rico, the Virgin Islands and West Indies. Bill MacQuown attended the Circum-Pacific Energy Congress in Honolulu and included some recreation on the islands.

Bill MacQuown had no trouble keeping occupied during the past year. Among his activities he presented a paper dealing with Ft. Payne petroleum production in east Tennessee at the Annual meeting of the Tennessee Oil and Gas Association in May. In October he was co-author (with Mike Birch) of a paper given at the Eastern Section AAPG in Cleveland. This paper dealt with Mississippian Big Lime production in Leslie County, Kentucky. He

co-authored another paper (with R. Lieber) presented at the Southeastern G.S.A. meeting in Nashville. In February of this year MacQuown was one of the invited speakers at a two day symposium sponsored by the Kentucky Geological Survey to mark the completion of the Kentucky - U.S.G.S. Areal Geology Mapping Project.

John Thrailkill appears to have acquired enough advising and committee work to sandwich between his teaching and research duties to keep him from wondering what to do with his spare time. He is chairman for the joint Southeastern - North Central GSA meeting to be held in Lexington in April 1984. He is a member of the Scientific Program Committee for the Eighth International Congress of Speleology to be held in Bowling Green, Kentucky in July of 1981. He plans to attend and give an invited paper (co-authored with Tom Robl) at a symposium on Geochemistry of Aquifers and Groundwater at the International Geologic Congress in 1980 in Paris. John is also a member of the executive committee set up to conduct a symposium on Surface Mining Hydrology, Sediment Control and Reclamation to be held in Lexington in December of this year. He is a member of the Groundwater Advisory Committee and the Groundwater Standards Committee for the Kentucky Department for Natural Resources and Environmental Protection and also a member of the Groundwater Technical Advisory Committee for the Mammoth Cave Area 201 Facilities Plan Environmental Impact Statement.

Lois Campbell reports that she is working on a correspondence course for Physical Geology, organizing the department seminars and trying to decide what to teach in a course called Landforms. She says it comes out different each semester that she teaches it.

Bill Brown tells us that he is continuing his work in the Virginia Piedmont. He and Bill Blackburn have had a number of students involved in Appalachian studies. Presently Brown is developing a new plate tectonics model for the Central Appalachians basing this upon his field work and geochemical characterizations of metabasalts as to tectonic environment by Al Bland and Phil Davis in their Ph.D. dissertations. Bill spent ten days last spring accompanied by one of his graduate students (Jim Rankin) in Newfoundland where they attended Hank Williams Trans-island trip examining ophiolites, pillow lavas, sheeted dikes, melanges, etc.

From the Fisher household we have the following report. This year will complete thirty years for Fisher at the university. Presently he is working on inclusions in the Elliot County kimberlites. These studies are pointing

to the conclusion that there is a widespread alkalic suite of "granitic" rocks in the basement which have ilmenite as an abundant material. The Fishers are planning to visit their daughter Beth in England at the end of the spring semester. Beth is married and her husband is a post-doc in crystal chemistry at Cambridge University. Beth has her masters degree in library science and is working as a library assistant at Cambridge. Ginny Fisher drives a school bus for the Fayette County system and has her hands full trying to stop four letter words, tobacco chewing, pot smoking, and the like on the bus. Larry Fisher is located in Maine where he and his wife enjoy cross-country skiing. Chuck is a sophomore enrolled at U.K. in the College of Engineering but plans to wind up in law school.

Bill Blackburn is continuing research on the geochemistry of the Devonian Black Shale and writing up for publication, work on the chemistry of volcanics in the Appalachians with tectonic implications. He continues as director of Graduate studies in the department. Now here is a twist from his geological activities. Bill is commissioner of the Lexington Youth Soccer Association.

Vin Nelson who has written this and all of the Round Ups failed to include himself, but he went off and left Bud Fisher to edit, so..... Vin and Phyllis are not only going to see some of you at AAPG, but are leaving at the end of May to travel in Sweden. While in Sweden they will be visiting former geology librarians Dolly Krautheim Jeansson and Birgitta Molin.

AAPG Meeting 1978

Bill MacQuown and Vin Nelson showed up in Oklahoma City last spring for the AAPG annual meeting and had the pleasure of seeing a number of alums at the all alumni cocktail party. Most of the group continued the evening with a big dinner bust. These are the people we recall having seen at the meeting. If we have left someone from the list, we apologize and hope you will write and give us hell. Here they are and we will omit wives for the brevity if they were not geology majors graduates. Les Berry, Clem Bruce, Dick Byrne, Jack Carrington, Charles Cunard, Louie Ford, Russ Ford, Charlie Holbrook, Bill Jackson, Emily Jackson, Steve Jennings, Jim Kearby, Bill King, J.O. Lewis, Bill Macke, M.C. Noger, Bernard Pierson, Lou Ponsetto, Ed Ray, Gene Rubards, Mel Smith, Sam Stith, Ron Taylor, George Velotta and Jane Collier Welch. Both MacQuown and Nelson plan to be in Houston this

April and look forward to seeing an even larger group of alums.

McFarlan Fund

We want to thank a number of you who have generously contributed to the McFarlan Fund so that it continues to enhance the program of the department by providing funding for a number of activities for which it is impossible to obtain money from the budgeted funds of the university. Among other things, the cost of student transportation for the 1978 annual fall field trip to Missouri came from this source. If this is the year you think perhaps you would like to make some sort of contribution why not do it right now. It is easy. Simply send your check to the university and designate your gift for the McFarlan Fund.