The Executive Committee of the Association of Professional Geological Scientists met on April 8, 1978 in the Belden Room of the Sheraton Century Hotel, Oklahoma City, Oklahoma.

A budget comparison for the first quarter of 1978 was presented. The comparison indicated that expenditures for the first quarter have been well within those anticipated for the period. It was noted that 291 Members had not paid their 1978 dues by the deadline of March 31, and, as is required by the Bylaws, were notified of their automatic suspension from membership. It was further noted that the incidence of dues delinquency is normal for the first quarter, and that many of the suspended members will automatically reinstate by paying their dues upon receipt of the suspension notices.

It was noted that no expenditure had been made in the first quarter for the publication of a Membership Directory. It was explained that typing of the format for the Directory was being delayed until all the information supplied by members could be entered into the new "information processor". It is anticipated that this input will be completed near the end of May, at which time camera ready copy for the Directory can be printed from the processor. (Subsequent to this meeting, it was determined that input into the processor would not be complete until late June, and that the printing, collating and binding of the Directory would not be complete until late August or early September. It was decided that a $6,000 expenditure for a 1978 Directory at that late date would be a waste of funds. Publication of the next Association Directory will be in January 1979. In the interim, Headquarters can and will supply any member with a list of names and addresses of other members in small, specific geographic areas.)

The Executive Committee accepted an invitation from the Lafayette Chapter of the Louisiana Section to host the 1979 Annual Meeting in Lafayette.

The Advisory Board had recommended that the Executive Committee consider the merits of participating in the Radio Spot Ads Program of AGI. It was the consensus that President Murray charge the Public Affairs Committee to prepare a script for this program.

The Cooperative Evaluation Committee reported that an evaluation visit to the Department of Geology at Eastern Washington University is planned for November. The Department at Bowling Green University has expressed an interest in a visit. At the request of Richard Wimar, Chairman of the Committee, President Murray has authorized the addition of at least two members to the Committee.

Peter Lessing, Chairman of the Environmental Geology Committee, has charged his Committee to revise the brochure "Earth Resources as Foundations for Environmental Planning". Lessing plans close cooperation between his Committee and the Legislative & Regulatory Committee with the possibility of a joint conference on Legislation, Law and the Geological Scientist.

With regard to considerations falling under the purview of the Legislative & Regulatory Committee, the SEC has been holding public hearings relative to new rules that will require oil companies to go to "full cost accounting" methods of reporting their exploration income and loss. It was noted that the Financial Accounting Standards Board supports the "successful efforts" method of accounting because it presents a more complete picture of the success or failure of exploration activities. It was suggested that the "full cost accounting" method would likely present a false view of exploratory success to the investing public. The Executive Committee approved the presentation of APGS testimony in this regard if the SEC will accept such testimony at this late date.

James Dunn, Chairman of the Resource Policy Committee reported that his Committee is working on an APGS policy statement for all natural resources. Brunton was appointed liaison to the committee.

President-elect Rue presented copies of a proposed questionnaire to be mailed to the membership relative to recommendations made by the Committee on Plans and Programs for the Future. There were a number of suggestions for changes in the questionnaire, and Rue was requested to redraft and forward the questionnaire to Headquarters for mailing to the membership.

Fred Stead, Chairman of the Policy Board, noted that he has contacted all members of the Board requesting comments on the recommendations of the 1977 Policy Board. He noted that "while it is desirable to implement and coordinate a program between the organizations represented on the Board -- it is also recognized that it may be difficult or impossible to develop". It is obvious that each of the four organizations (SENG, AEG, AAPG, APGS) have their own goals and constraints. Stead will continue to explore the possibility for closer cooperation.

The Wyoming Section requested a discussion of government regulations relative to requirements for archeological and paleontological investigations of proposed work sites on public lands before the work can be started. This matter was discussed at the meeting of the Advisory Board earlier in the day. It was noted that there are too few qualified archeologists and paleontologists available to complete all the invest-
igations within a reasonable time. The Section has suggested that APGS might inquire into the possibility of having geologists declared qualified to make the required investigations. Charles Mankin reported that the Bureau of Land Management does accept paleontological investigations by geologists. The Oklahoma Geological Survey is involved in a paleontological investigation of Indian lands at the present time. It was suggested that Brunton contact Keith Rigby, geologist with the BLM in Albuquerque, regarding the future acceptance of paleontological investigations by geologists. Larry Woodfork noted that the West Virginia Geological Survey has had some experience with regard to archeological investigations, and suggested that APGS not become involved in attempts to have geologists accepted for archeological work.

Mining legislation has also been discussed at the Advisory Board meeting, and it was reported that Congress is now considering legislation similar to the Coal Strip Mining Law to cover the mining of all other mineral commodities. He suggested that APGS contact the Board on Mineral & Energy Resources of the National Academy of Sciences for an update on this legislative activity, and request that APGS be kept informed of developments.

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APGS WASHINGTON REPORT
(The following report is submitted by the APGS Washington Counsel, James U. Hamersley, and covers the period since the last edition of the newsletter).

The major issue affecting APGS in May was the Senate consideration of the dam safety bill. APGS and the Association of Engineering Geologists (AEG) presented testimony and submitted language for the final draft of the bill in order to assure the role of geology in the inspections. Although this was noted in the Congressional Record, and the concept of professional composition of inspection was supported, it was apparently felt that the States should not have Federal government dictate the makeup of dam safety review boards. As Senator James McClure (R-Idaho) noted:

Since the reporting of this bill, two points have been brought to my attention. One involves whether trained geologists should be involved in the safety review of dams. It is my expectation that the expertise of geologists, as well as that of engineers and hydrologists, should be utilized in reviewing dams. Ultimately, however, the makeup of dam safety rests with the State.

(Congressional Record, June 9, 1978 page S8888)

Another major future development occurred in May. The office of Senator Jacob Javits (R-NY) informed APGS that they were preparing a bill which would promote and provide extensive geological education and formal geological input into the national governmental process. Early APGS support was requested, and after several meetings, APGS has assembled its forces. At this time, a draft has not been presented, and only the introduction of the bill can be expected during the final months of the 95th Congress. However, in the next session, it should provide major undertaking for both the Legislative Committee and the APGS Legislative Counsel.

In July, (as occurred in May), there will be a Legislative Committee meeting of APGS. As well, on July 20, there will be another Legislative luncheon held at Blackie's House of Beef, in Washington.

A. Gordon Everett, a consultant on resource and regulatory management, will be the guest speaker. With a broad perspective on government regulation gained from positions in government and private industry - including positions in the American Petroleum Institute, the U.S. Environmental Protection Agency, the Department of Interior, and major oil companies - Mr. Everett will speak on "Pre-Assessment of Regulatory Impact on Resource Questions".

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IMPROVING COMMUNICATIONS WITHIN AND BETWEEN SECTIONS
(Memorandum from Vice President Derek B. Tatlock to President Grover E. Murray, April 5, 1978)

One of the most important ways to strengthen our Association is to improve communications both within state sections and between all state sections.

First, let us consider communications within state sections. Communications can be improved by each section by accomplishing the following:
+ Appoint a conscientious editor -- one who is willing to prepare and distribute a newsletter no less than on a quarterly basis or, preferably, once every two months. A newsletter is one of the most important links among our members.
+ Consider dividing the larger state sections into regions. Pennsylvania, for example, has been divided into three regions, Western, Central and Eastern. This allows the membership to meet frequently.
+ Plan monthly or semimonthly meetings within the smaller sections or regions of the larger sections.
+ Publicize the dates and locations of meetings. It may be necessary to appoint a member to telephone members to remind them of these meetings.
+ Organize a "Communications Tree" so notice of special events or newsworthy items can be transmitted to the section members within hours. A "Communications Tree" is a list of member's names and telephone numbers. Each member is given five other members to call, etc. News spreads fast in this manner.

Communications may be improved between sections by the following means:
+ Exchange of newsletters among sections and/or joint publication of newsletters. Pennsylvania and West Virginia published a joint newsletter for two years which proved very successful.
+ Encourage joint meetings with neighboring sections.
+ Exchange schedules of events with other sections, i.e., luncheon and dinner meetings, executive committee meetings, social events, etc.
+ Publicize the date and location of each section annual meeting in "The Professional Geological Scientist".
+ Encourage executive committee members to attend the meetings of neighboring sections.

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BLACK DAMP IN COAL MINES
(The brief was prepared by Allen F. Agnew, CPGS 240 who is Senior Specialist for the Library of Congress Congressional Research Service. The follow-
ing is Issue Brief No. 1378224, dated April 5, 1978)

ISSUE DEFINITION

On April 4, 1978, five men died underground in a coal mine in Dickinson County, Virginia, apparently from black damp. A spokesman for the Clinchfield Coal Company, in whose McClure No. 2 mine the accident occurred near the town of Bucku, said that it happened when six miners, who were working 280 feet into the mine, drilled a hole from the face of the new mine into an abandoned coal mine that contained water and black damp. Three miners escaped and alerted the Mine Safety and Health Administration, but two rescuers who went in to aid the other three miners who were still underground were asphyxiated along with them.

BACKGROUND AND POLICY ANALYSIS

What is Black Damp? Before the days of adequate ventilation underground, black damp was a fairly common occurrence. Black damp, or choke damp, is a non-explosive mixture of carbon dioxide and nitrogen with little oxygen. It is one of several "damps" referred to by underground miners, and may be either lighter or heavier than air, depending on the proportion of its two constituents. (See Glossary of Geology Margaret Gray, Robert McAffee, Jr. and Carol L. Wolf, Editors, Washington, DC: AGI p. 77.) Other damps referred to are: "After Damp" -- the gas remaining in a coal mine after an explosion of fire damp or after a fire; includes carbon monoxide and carbon dioxide. "Fire Damp" -- an explosive coal-mine gas that consists of methane. "White Damp" -- a term for carbon monoxide in mines.

Degree of Risk. The degree of risk of an accident involving black damp is relatively low today, because most mines are provided with adequate ventilation. Thus, the risk is greater in old, abandoned mines. However, black damp is also a hazard in caves and in rock tunneling.

The accident in the Virginia coal mine on April 4, 1978, is classed as a major one because five lives were lost. Of the history of U.S. coal mining, only a few major mine disasters have been attributed possibly to black damp. They are as follows: April 27, 1887 - Tunnel Colliery, Ashland, PA -- 5 killed; October 1, 1887 - Butts Colliery, Ashland, PA -- 5 killed; October 23, 1891 - Richardson Colliery, Glen Carbon, PA -- 7 killed; May 6, 1913 - Taylor Mine, Beaver Dam, KY -- 5 killed. Source: Keenan, Charles M. "Historical Documentation of Major Coal Mine Disasters in the U.S. not Classified as Explosions of Gas or Dust" U.S. Bureau of Mines Bulletin 616, 1963, p. 86-90.

The incidence of bituminous coal mine accidents has decreased dramatically in the past 20-25 years, from 1000 lives lost per year to only 141 in 1976, and 91 in 1977. Similarly, the number of disabling but non-fatal injuries has decreased to 14,000 in 1976 and 11,000 in 1977. These numbers resulted in a frequency rate in 1977 of 0.34 fatalities per million man hours and 37.54 disabling injuries per million man hours; those frequency rates are slightly lower than in 1976. For bituminous coal underground mines, the fatality rate underground is slightly higher (0.40) than for all bituminous coal operations, but the rate for all disabling injuries (52.68) is substantially higher. These numbers were based on an average of 125,722 persons working underground.

The degree of risk for a black damp accident is low compared with that for other types of coal mine accidents; in fact, black damp accidents are so uncommon that they are reported under the "miscellaneous" category. In 1977, two-thirds of the fatal accidents in U.S. coal mines were caused by roof falls (33%), haulage (17%) and machinery (17%), and none were caused by black damp. The number of disabling injuries (excluding fatalities), however, showed a different distribution, as follows: handling materials (30%), haulage (16%), machinery (14%), slip or fall of person (11%), roof falls (9%), and hand tools (7%). Only one injury out of 11,000 was assigned to "suffocation".

Summary. Black damp accidents in underground coal mines today are uncommon because of the incorporation of adequate ventilation in the mining process over the last century. Nevertheless, such hazards are present and accidents do occur rarely, not only in underground mining for coal and other minerals but also in tunneling and other forms of underground construction. The hazard is also present in many caves and in abandoned mine openings. Appropriate attention to safety factors is therefore warranted in all times at all of these situations.

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NORTHWEST MINING ASSOCIATION SPEAKS OUT

(The following is a statement appearing in the May 4 News Update, the news outlet for the Northwest Mining Association, Spokane, WA. It was written by Karl W. Mote, Executive Director of NMA.)

The Carter administration's regulatory agencies have knowingly withheld from the President data regarding mineral potential and the need for mineral exploration and production in this country, the Northwest Mining Association said Friday in Spokane during the President's visit.

"The problem lies in the lack of mineral industry expertise in the President's advisory groups," Karl W. Mote, Executive Director of the Association, said.

"The responsibility of informing the President regarding the mineral industries has historically been that of the Secretary of Interior, but this Administration has filled top levels of the Interior Department with persons totally without knowledge of the important mineral and fuels industries." The result of this inept Interior Department has been as chaotic for mineral production as it has been for other segments of industry and commerce. The Department's dedication to preservation of public lands and to non-use of resources has led to great concern by the productive sector of our nation," Mote said.

The Northwest Mining Association requested a brief interview with the President during his visit to Spokane to present what Mote called the drastic effect the administration's policies of massive land withdrawals have on mineral and fuel self-sufficiency and the balance of trade deficit - items the President has said he recognizes as major national problems.

"We are distressed that the few minutes the President allowed for the West won't allow our visit, and we continue to be seriously concerned about the advice and policy he receives from cabinet level aides," Mote said.

According to Mote, the Northwest Mining Association was to visit Vice President Mondale this spring, and had hoped to get Western mineral and energy concerns "past the Interior Department's filters" during that visit.

"When Mondale's spring trip to the West was changed to allow Carter to campaign for Congressman
Foley, we had hoped the Administration would still grant us an audience," he said.

Mote quoted the National Research Council, one of the most credible scientific groups in the nation, as a non-industry, unbiased organization whose March 1978 report "Impact of the Withdrawal of Alaskan Federal Lands" states the message the Northwest Mining Association would like to have given the Administration in their meeting. "One of the most basic and major problems facing the U.S. economy is that of mineral resource adequacy," he said.

The preface to the report states, in part, "At no time in the past has our mineral economy faced so many and adverse problems bearing on mineral production and commodity uses. Resolving or accomodating the divergent viewpoints of the producers, processors, and users of mineral materials, as well as the views of those indirectly affected by mineral production processes is a forefront problem in the United States today."

According to Mote, the study was supported by the U.S. Geological Survey and the U.S. Bureau of Mines, who historically have been the mineral experts to the Administration. "The remarkable part of their support is that these government agencies have had to go to such an independent body for credibility in order to have the facts of economic life receive proper attention," Mote said.

One of industry's primary concerns is the Administration's proposal to lock-up Alaska's resources into the prestigious Stanford Research Institute to study the effect of this proposal, Mote said. The SRI report concludes that, from only the seven potential orebodies analyzed out of the hundreds that will be locked up, "in the absence of extensive legislative or regulatory impediments to the development of mineral resources, a mining industry (in Alaska) could develop by the 1980's that would:

- Provide the nation with substantial quantities of non-fuel minerals, including gold, silver, copper, nickel, lead, zinc, molybdenum and asbestos, valued at between $900 million and $1 billion dollars annually (in 1977 dollars).
- Provide the nation with 20,000 to 40,000 additional jobs, representing about 0.5 percent of current unemployment.
- Reduce the nation's balance of payments deficit by between $700 million and $1 billion annually (in 1977 dollars).

"We in the West know that the future of our economy and national security lies in public land decisions such as the inept RARE II program, and the plan to lock up Alaska's resources by a hundred million acre boondoggle," Mote said. "The lack of Administrative support to produce clean Western coal, which is our only short-term supply of fuel, is another issue for which we would like to hear the President's explanation."

"It is a crime to the American people that tax dollars are being used by the millions to misinform the public and the Government on the critical issues of public land use, resource production and the economy. The Department of Agriculture in their RARE II program spent millions to determine what private attitude toward creating new non-use wilderness. When the answers did not support Agriculture's own desire for massive new wilderness, they disregarded the public input."

"To have sound data consistently disregarded because it does not satisfy a predisposed need of individuals in the Administration is deadly to our future as a nation. The Northwest Mining Association would like to see the present Administration use the advice of mineral experts such as the Stanford Research Institute and the National Research Council and industry representatives in the decision-making processes of government," Mote said.

HEADQUARTERS COMPUTER

The term computer is actually a misnomer for the IBM 6/440 unit recently installed at Headquarters. The unit is an information processor that prints out all input information in sequences chosen by the operator. It will merge letters with lists of names and addresses, and provide an addressed envelope with the letter. The newsletter you are reading was printed from camera-ready copy provided by the 6/440. You will note that both margins are fully justified. The old process for justifying the right hand margin required two drafts and a final copy be typewritten. The 6/440 justified the right margin of this newsletter automatically on the first printout.

All members of the Association are now listed in the memory of the 6/440, with the following information: first name, middle name or initial, last name, street or P. O. Box address, city, state, zip code, nickname, employer, office telephone, home telephone, mode of employment, certification number, date of birth, highest college degree, AGI Member Society memberships, and fields of major practice. We can print out all, or any portion of the membership, sequenced on any one of the above listed pieces of information. We can, and have, supplied some Sections with lists of their members, self-adhesive address labels and addressed envelopes. During our trial period, these items have been furnished by the Association at no cost to the Section. Hereafter, there will be a charge for this service in accordance with the following: Machine time will be charged at the rate of $5.50 per hour; address labels will cost $1 per machine time (the unit prints an average of 600 labels per hour); and addressed envelopes will cost 2.54 each plus machine time (the unit addresses envelopes an average of 350 per hour).

In lieu of printing a 1978 Membership Directory, as mentioned on page 1, if you as a member need the names and addresses of all the members in a specific geographic area, sequenced according to any of the data listed above, this office will be pleased to send you such a list. Unless requests for lists become excessive, there will be no charge.

As a special note, in addition to informing the headquarters office of any address change, we would appreciate also being informed of new employers and new telephone numbers to keep our records as current and complete as possible.

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LETTERS TO THE EDITOR

(The letter from G. A. Rabchevsky arrived too late to be included in the last newsletter).

March 29, 1978

Dear Dr. Prouty:

I will very much appreciate if the following note could be placed in the PGS news section:

"LandSat/Appalachians Data Sought"

As part of the NSF project entitled "Application of Plate Tectonics to the Location of New Mineral Targets in the Appalachians", a collection is being estab-
lished and a list compiled of the available/published Landsat geologic interpretations of the Appalachian orogen. Of special interest are the lineament/fracture maps (at all scales) and the analyses of the interpreted data in relation to stress fields and metallogeny. It will be very much appreciated if copies of reports, maps and other information be sent to: Dr. George A. Rabchevsky, The American University, Beethly Building, Washington, DC 20016.

I thank you for this courtesy.

Sincerely,
/s/ G. A. Rabchevsky
Principal Investigator

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Dear Chip:

I have been asked by a Congressional office to attempt to find out the degree to which geologic approval/review/check-off is required for certain land-use actions or permits, both by law and by regulation, at the several levels of government -- that is, federal, state, county and municipal.

I had heard that such input by geologists is required or mandated in Southern California and the Denver area for certain zoning and subdivision purposes and, of course, environmental impact statements under the federal NEPA require a section on geologic impacts.

I knew that this was going to be a tough one, but thought I might be able to get it through the various governmental gathering points -- National Governors Conference, National Legislative Conference, Council of State Governments, Council of State Planning Agencies, National Association of Counties, National Association of Municipalities -- but with no success, as this kind of information is just not gathered by them.

I have learned that in California several local governments require such geologic reports along active fault zones; that several counties require this under the general planning law for seismic safety and other geologic hazards; and that the Coastal Commission requires State permit approval for a 1,000 yard strip inland.

I learned that in Colorado such geologic signoff is required in unincorporated areas, and that Phelps County, Tennessee (Memphis area) has been looking into such problems through the Federal Disaster Assistance Administration.

Others suggested that I get in touch with professional societies -- the ASCE, AEG, and the American Society of Planning Officials. I am following through with all of these, plus the APGS. In addition, I plan to tackle the 50 State Geologists.

Thus, I'd appreciate it if you could publish this letter in the next newsletter, so that any of your readers who know of such laws or regulations at any level of government could send me some information on them. Photocopies with hand-written marginal notes are just as helpful as a full-blown report or letter -- and would take respondents a lot less time.

I'd like to pull this together by the end of the summer, so would appreciate receiving responses as soon as possible.

Sincerely,
/s/ Allen F. Agnew
Congressional Res. Serv. Library of Congress
Washington, DC 20250

(The following announcement is from John E. Wolfe who is Executive Secretary, State Board of Registration for Geologists and Geophysicists, State of California.)

NEWS RELEASE

Governor Brown has made the following appointments to the Geologist and Geophysicist Board:

Dr. James Slosson (CPGS) of Sherman Oaks, was appointed to the geophysicist position and replaces Dr. Charles F. Richter. Dr. Slosson is currently a consultant. Prior to this he was State Geologist and Chief of the California Division of Mines and Geology and a member of the Seismic Safety Commission.

Harold Bertholf of Sacramento, was appointed to the petroleum geologist position on the board. Mr. Bertholf is currently a consultant. Prior to this he was the State Oil and Gas Supervisor with the California Division of Oil and Gas.

At the present time, the board's membership consists of four public and three professional members, and the engineering geology position has been vacant since the death of Dr. Ian Campbell.

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STATE SECTION NEWS

Alabama

The Alabama Chapter recently held its first meeting of 1978 in Birmingham with Norman Bowne, the newly elected president presiding. The chapter's goal for 1978 is to stress registration of Geologists to the State Legislature. The chapter is also preparing a pictorial directory of all members with possible publication in late 1978. Newly elected officers are: Norman Bowne, President; Paul Moser, Vice President; Otis Clarke, Secretary-Treasurer; Reese Mallett, Screening Board Chairman, and Jesse Ellard, Editor.

California

At an Executive Committee meeting earlier in the year, it was decided to organize committees for the Section that would tie more directly with that of the national committee structure. In addition to the Executive Committee (which also serves as the Awards Committee), the committees are: Screening Board, Legislative and Regulatory, InterProfessional Liaison, Environmental Geology, Finance, Annual Meeting Arrangements, Nominating and Membership.

The Annual Meeting of the section will be on September 22-24, 1978 at the Riveria Hotel, Palm Springs. The program theme will be "Alternative Energy Sources". At the time of this writing, the plan for a field trip was to be either a September 23-24 trip covering tectonics of the Peninsular Ranges and Salton Trough with relation to geothermal resources or a September 23 tram trip to Mt. San Jacinto and the northern portion of the Salton Trough including one geothermal field. Inquiries can be directed to Program Chairman Bill Adent or Dave Hill, or to President Howard Anderson.

Colorado

The April luncheon meeting of the Section, held in the Denver Petroleum Club, featured a talk by Hamlet Barry, Water Study Coordinator with the Director's Office of the Colorado Department of Natural Resources. The talk on "Colorado Water Policy Study" took a look at the alternative uses and allocation of water in Colorado and the different consequences of
Inertia is defined in my dictionary as "... a disinclination to move or act."
As your Section President - by default - it has been very difficult for
me to gear up and overcome the inertial force that
has dogged me everyday since taking office. However, with
some gentle prodding by your past-president, A. J. Gaudin, we have set the wheels of another year
in motion.

First, of all, let me explain why I am writing this
column and not a gentleman named Jim Deurmyer, who
was duly elected president back in September. Around
the end of the year, Jim, who was with ARCO here in
Lafayette, had a job offer he couldn't refuse and moved
to Corpus Christi, Texas. Since I had just been
elected Vice President and had a few outside job
offers, I was persuaded to take over as President.
Frank Harrison, who is undoubtedly well-known to
most of you, agreed to step in as Vice President.
So we were in business again. Except for inertia.

In our first two executive committee meetings
we discussed, among other things, some projects
and goals for 1978 and beyond. Several of the most
important are:

1. Model Registration Bill - Work on a model
registration bill, designed as a palatable substitute
for any adversely constructed bill which might suddenly
be introduced in the legislature, was scheduled to be
the top project. Our idea was to work with the SINEES
organization, come up with something we could all live
with if need be, and then lock it in the file in the
hope that it would never be needed. (It should be
noted that the Louisiana Section is not currently in
favor of the registration of geologists but is only
interested in protecting our profession from further
unfair governmental regimentation, should it be
forced upon us.

However, before we got down to work, we met
with several representatives of the Lafayette SINEES
organization, did some further soul-searching among
ourselves, and finally decided to table our bill writing
efforts -- at least for the near future. What we will
do is continue our monitor registration efforts in other
states, collect and study the various proposals and
stay ready to act if Louisiana begins to move toward
registration.

2. Image - There appears to be a large image
gap locally (and perhaps everywhere) about APGS.
what it is and what it stands for. I'll be the first
one to admit that I knew very little about the organi-
ization when I became a member two years ago under
the reciprocity agreement. As I see it, we first need
to improve the APGS image within our own profession
by letting our fellow geologist know what APGS is all
about and what its members are trying to do, both on
the state and national level. We must counter such
comments as "you're nothing but a union" or "oh, you
guys are the ones who want to register all of us.
' The certification process needs to be explained and
justified as the logical substitute for registration.
Locally, we plan to prepare several articles for the
Lafayette Geological Society Bulletin and perhaps
give a short talk at one of the LGS meetings. If
we can put our case across successfully, it follows
that we will be able to increase our membership and
perhaps even revive interest in the New Orleans
and Shreveport chapters.

3. Annual Meeting (National) - It has been
decided to issue an invitation to the national associa-
tion to host its annual meeting in Lafayette in 1979.
Hosting a national meeting would be a lot of hard
work but would serve as a real plus in our efforts to make
APGS a going concern in Louisiana. Copies of the

Louisiana
(The following is taken from "The President's
Corner" of the April newsletter of the Louisiana Sec-
tion, written by Peter G. Gray)
correspondence to date are reproduced elsewhere in this newsletter.

4. **Annual Meeting (Louisiana Section)** - The annual meeting of our section will be held again in Lafayette, probably about the same time as last year's. We will be coming up with a theme and a tentative slate of speakers in the near future. If any of you have any ideas along this line I would appreciate hearing from you. (As a matter of fact, any thoughts or suggestions you have regarding anything we are doing or not doing would be greatly appreciated. The only way this organization can be made really viable is for every single member to participate. Finally, APGS needs volunteers to serve with the National Legislative and Regulatory Committee. Anyone wishing to serve can let me know.

**Michigan**

According to Robert Minning, President, the Michigan Section of APGS is growing steadily. Plans are underway for our general membership meeting in October to be held jointly with the Michigan Basin Geological Society. Our Legislative Affairs Committee has been requested by State Senator Richard Allen to review his "State Land Resource Planning Act." We will certainly honor his request and look forward to greater involvement.

**West Virginia**

The West Virginia Section of APGS and the AEG co-hosted the spring meeting and field trip in May. Robert Bates, Ohio State University was the speaker. Peter Lessing, West Virginia Geological Survey led the field trip to examine the landslide at McMechen, WV; mine drainage problems at Martins Ferry, OH; and to examine construction along the new I-470 south of Wheeling, WV.

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**PROFESSIONAL PARAGRAPHS**

Robert D. Gunn, independent from Wichita Falls, TX will assume office as the new President of AAPG in July, 1978.

Thomas D. Barber, exploration manager for Michel T. Halbouty, will be the new Vice President of AAPG in July, 1978.

John J. Amoroso, independent geologist from Houston, TX will take over as Secretary of AAPG in July, 1978.

John D. Haun, Professor of Geology at the Colorado School of Mines, is the President-elect of AAPG for the current term.

G. L. "Jack" Richards will open an exploration office for Bright & Company, independent oil operator, in San Antonio, TX beginning June 1. Richards was formerly Senior Vice President, Exploration-Production Division, Coastal States Gas Corporation in Houston.

J. Wayne Woolsey announces the formation of Woolsey Oil Company with offices located at 300 W. Douglas, Wichita, KS.

Robert H. Fickies has left his position of Geotechnical Group Manager of Dunn Geoscience Corporation to accept a position with the New York State Geological Survey's Energy and Environmental Geology Section in Albany, NY. His role will be as advisor on Energy Affairs. Mr. Fickies has also been recently appointed to serve on the Panel of Arbitrators of the American Arbitration Association as an expert on engineering geology related to underground construction.

James W. Furlow who has been associated with Dames and Moore since 1972 has been promoted to the position of Senior Geologist in the firm's Phoenix, AZ office. Currently he is managing a study for the U.S.G.S. to evaluate the coal reserves in the San Juan Basin of northwest New Mexico.

Bernard J. Guarnera also associated with Dames and Moore, has been named an associate in the firm's Denver office. Since joining Dames & Moore in 1976, he has conducted a number of evaluations of uranium, coal, and lignite properties throughout the U.S.

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**IN MEMORIUM**

Kirtley F. Mather of Albuquerque, NM died May 7, after a short illness. He was a visiting professor of geology at the University of New Mexico. He was born in Chicago, IL and had celebrated his 90th birthday on February 13 of this year. He was graduated from Denison University in 1909, and received his Ph.D. in geology from the University of Chicago in 1915. He also received honorary doctoral degrees from Denison, Bates, Colby, Union, Beloit, and Curry Colleges. He taught geology at the University of Arkansas, Queens University in Kingston, Ontario and Denison University before joining the geology faculty at Harvard in 1924 where he taught for 30 years. In 1923 he was President of the Ohio Academy of Science; in 1951 he was the President of the American Association for the Advancement of Science; and from 1957 to 1961 he was President of the American Academy of Arts and Sciences. He received many honors and medals and was the author of several books, the most recent of which was *The Earth Beneath Us*. Mather was also listed in the Who's Who in America. Contributions in Mather's memory may be made to The Experiment in International Living (Brattleboro, VT 05301); American Friends Service Committee, (160 N. 15th St., Philadelphia, PA 19102); or American Geological Institute (5205 Leesburg Pike, Falls Church, VA 22041).

Sherman A. Wengerd
May 8, 1978

William B. Gazdik, 61, an official of the U. S. C. S. Conservation Division, Washington, DC was killed May 7 in a helicopter that went down in the Atlantic Ocean off the New Jersey coast.

Gazdik was one of five men aboard a Petroleum Helicopters, Inc. (PHI) helicopter that had left Atlantic City, NJ headed for a drilling rig located about 70 miles off the New Jersey Coast. The three others survived the crash.

Gazdik was born in Pittsburgh, PA. He received his B.S. degree in engineering geology from the University of Pittsburgh in 1952. Gazdik's professional affiliations include AIME and APGS. Sympathy may be expressed in the form of memorials to the National Hemophilia Society, Washington Area Chapter, 1346 Connecticut Avenue NW, Washington, DC 20006.

Information Service USGS
May 8, 1978
MEETINGS AND CONFERENCES

MODERN CARBONATES

The seminar is being offered under the Department of Educational Activities, AAPG, P. O. Box 979, Tulsa, Oklahoma 74101. The seminar will cover recent carbonate environments, diageneis and Miocene equivalents, St. Croix, U.S. Virgin Islands. Held on July 31-August 7, 1978, the program will be led by Robert F. Dill, West Indies Laboratory of Fairleigh Dickinson University and others from the Smithsonian Institution, USGS and Louisiana State University. For details check with AAPG Headquarters, Tulsa.

MODERN DELTAS

The Modern Deltas seminar is also a field seminar under the AAPG Department of Educational Activities. It will start at LSU in Baton Rouge and end in New Orleans, August 14-18, 1978. The seminar will be led by James M. Coleman and Harry Roberts of the Coastal Studies Institute, LSU, and will cover in detail the major features of the delta environment. For details, contact the AAPG Headquarters.

MINERAL PROPERTY MANAGEMENT

This course is mostly for in-house presentation to companies and agencies at times arranged by the company. However, the course is offered periodically in Boise, Idaho and individuals can attend there. For information and a detailed brochure of course content, contact Dr. Terry S. Maley, P.O. Box 1186, Boise, Idaho 83701. There are 20 hours of instruction that can be offered over a three-to-six-day period, days and evenings. The course is intended to be a practical introduction to mineral law and to legal problems facing the mineral industry today; and to the industry with an up-to-date review of state and federal regulatory requirements concerning mineral property acquisition, exploration, mining and reclamation.

ENERGY MINERALS DIVISION MEETING

The EMD of the AAPG will have a technical session at the AAPG/SEPM Convention in Houston, April 1-4, 1979. The EMD plans to sponsor nine sessions with four on uranium, three on coal, and one each on geothermal and oil shale/tar sands; also poster sessions are planned.

PETROLEUM EXPLORATION COURSE

The course covers the full range of "Open Hole" logging devices and interpretation techniques. The course is instructed by Donald J. Timko, a Past President of the Society of Professional Well Log Analysts, and presently President of Timko, Lindahl & Schweikhardt, Inc. of Houston. The course is to be offered September 25-29 at Houston Marriott, Houston; and November 13-17 at the Calgary Inn, Calgary. For more information and details, contact International Human Resources Development Corporation (IHRC), 8 Arlington Street, Boston, MA 02116-6175-536-0202 REMOTE SENSING IN MINERAL AND HYDROCARBON EXPLORATION

The course is designed for the practicing geologist, geophysicist or geochimist and covers the fundamentals of remote sensing, and through examples, its application to exploration and general geological mapping. Existing and planned earth resource satellites will be discussed. The course is offered by Dr. Robert K. Vincent, President of GeoSpectra Corp. and David C. Merritt, a principal in the consulting firm of Donohue, Anstey and Merritt of Boston. The course will be offered October 16-20 in Calgary at the Calgary Inn, and November 13-17 in Houston at the Houston Marriott. For more information, contact IHRC at the address listed above.

PRACTICAL GEOPHYSICS FOR THE EXPLORATION GEOLOGIST

The Northwest Mining Association preconvention short course is scheduled November 27-29 at the Davenport Hotel in Spokane, Washington. The course has been developed by R. "Dutch" Van Blaricom, Supervisory geophysicist for the exploration office of Cominco American Incorporated. It will present the practical application of six basic geophysical methods to mineral industry problems.

The course is divided into two major parts, the first of which will briefly explain the theory of each geophysical method, but concentrate on application of the method to include case histories and model results. The second part of the course will be a comprehensive study of the particular geophysical techniques to use for each class or type of metallic and nonmetallic deposit.

The six basic methods to be covered in the course include (1) induced polarization and resistivity, (2) gravity, (3) magnetics, (4) seismic, (5) radio- metrics, and (6) electromagnetics.

Authorities to present each unit include Philip G. Hall, and William H. Pelton, Phoenix Geophysics Ltd.; Dona A. Hansen, ScienTerra Inc.; Douglas J. Gulan, Exploration Data Consultants, Inc.; Sheldon Breiner, Geometrics, Inc.; Douglas B. Crice, Geometrics, Nimbus Division; Jan Klein and Jules Lajole, Cominco Ltd. A text will be provided for the course, and will be published as a formal volume for sale to the public after the course.

Complete information regarding course content and advance registration requirements are available from the Northwest Mining Association, West 1020 Riverside Ave., Spokane, WA 99201 - (509)-624-1158. THE GREAT NORTHWEST - RESOURCES FOR THE FUTURE

John Hite, regional geologist for Homestake Mining Company, has been named chairman of the Northwest Mining Association 84th Annual Convention scheduled for November 30, December 1 & 2 at the Davenport Hotel in Spokane according to NWMA President Russell C. Babcock (CPGS).

The convention theme, "The Great Northwest - Resources for Tomorrow!", was chosen to express the importance of the Northwest's natural resources to the Nation's critical mineral and fuel shortages.

Sessions planned for the convention will concentrate on the known and potential mineral and energy resources in the Northwest as well as their discovery, extraction and use. A record number of speakers from industry and government will be featured. Sessions are scheduled to cover the environment, women in the minerals industry, mining law legislation, Alaska D-2 lands legislation, metallurgy, mining health and safety, open industry briefings by the US Bureau of Mines, energy (coal, oil, gas, hydroelectric and uranium), nonmetals, regional geology, new deposits, regional developments and the metals market.

Babcock said that a short course on practical geophysics for the exploration geologist will be held prior to the convention on November 27, 28 and 29, 1978 in the Davenport Hotel (see above).

Further details and registration materials for the convention will be available in late August from Karl W. Mote, Executive Director, Northwest Mining Association, W. 1020 Riverside Ave., Spokane, WA 99201.
STEAM FROM HOT DRY ROCKS
(The following is reprinted from The Atom, Dec.
1977 and concerns research by the Los Alamos
Scientific Laboratory (LASL) of the University of Califor-
nia written by Barb Mulkin)

Late next summer, LASL's Fenton Hill geothermal
drilling site may be partially self-powered with electricity produced by heat from the nation's first man-made
gerothermal reservoir. If that happens, and researchers are confident that it will, another first will be logged
in a long list of accomplishments marked by determination and consummate skill.

Plans are to divert some of the superheated water from the geothermal reservoir, which became a closed-loop
system in September 1977, to generate electricity to feed back into the commercial power system operated in
the area by Jenee Electric Cooperative.

Greg Nunz, alternate project manager of the Laborator y's Hot Dry Rock Geothermal Energy Program says, "Essentially, what we hope to do is to produce about 60 kilowatts of electricity - not totally sufficient for our needs at a site, but enough to take the pressure off a substantial fraction of marginal capacity and significantly reduce our utility bill.

It is presently planned to test at least 2 generating systems at the site - one, a closed organic Rankin (binary cycle) system, and the other a helical screw expander generator that was originally developed for use with natural hydrothermal systems. These portable units will be tested consecutively while the planned series of closed-loop experiments scheduled for the reservoir itself is conducted during the next 12 to 14 months.

If geoscience researchers are forging ahead in a state of euphoria it is not surprising, for the success of the LASL geothermal program has been accomplished against seemingly overwhelming odds. In 1970, during a study of a new drilling technique potentially useful for penetrating very hot rock, the LASL concept of extracting heat from large, dry geothermal reservoirs by duplicating the natural process in hydrothermal systems was formulated. LASL's idea basically involves drilling 2 holes into hot rock, connecting them at depth through a very large crack produced by hydraulic fracturing, and then circulating pressurized water through this connected system to recover heat from the rock. It is predicated on tapping the enormous reservoir of energy in hot rock beneath the earth's crust by creating an environmentally acceptable extraction system.

The concept seems deceptively simple, and, in fact, the Laboratory's prototype reservoir is working. But, to leave it at that is to overlook a series of major technical achievements.

Since 1970, LASL scientists have successfully drilled into 200°C granite at a depth of 3 kilometers, and directionally drilled at this depth; produced fractures with radii as large as 150 meters in crystalline rock; established connections between 2 bore holes; recovered up to 95 percent of the water injected into the system; developed instrumentation for a variety of downhole experiments capable of operating for long periods at high temperature and high pressures; developed fracture and borehole mapping techniques and equipment; demonstrated the reliability of geothermal power production system model basing the total capital investment for a power plant on the costs of production, reinjection wells and major equipment.

In addition, in June this year, after 20 hours of pumping, researchers induced a flow of superheated water that flashed to steam at the surface before being diverted to a holding pond. Late in September they successfully connected the reservoir to a pair of 10 megawatt thermal heat exchangers, which are now extracting heat from the water before it is reinjected into the well.

Things are going well for the geothermal energy proponents, who have sometimes viewed themselves as stepchildren in the family of alternate energy resources. Related programs are flourishing, drawing on LASL's painstakingly acquired geothermal expertise.

Bill Laughlin, G-6 associate group leader, head of a program dedicated to assessing the geothermal energy potential of half a dozen sites around the nation, working with the U. S. G. S. and with several universities. Much of the work will include identifying or planning the extension of natural hot dry rock geothermal areas, using technology developed at LASL.

Areas to be surveyed include the Snake River Plains in Idaho west of Yellowstone Park; Mount Hood in Oregon; the Cuyahoga Fort, Utah; and the Coso Hot Springs, California area near China Lake.

In what Laughlin and Jim Maxwell, G-6 describe as a "broad-brush" approach within the confines of time and money, studies are continuing, with Virginia Polytechnic Institute, on assessment of geothermal potential involving "hot spots" - areas where thick blankets of sediments have trapped heat produced by concentrations of uranium or thorium in granitic rock, primarily in the eastern United States.

Other research will include the feasibility of using hot water in Hot Springs, Arkansas for direct space heating of buildings. The headquarters of the National Park Service near that city uses this method of heating. A study to assess the hydrothermal potential of the huge Modoc aquifer in the North Central plains states, coordinated with a hydrological study by the U. S. G. S. is also underway. Results of this study are given to Johns Hopkins University personnel, who are planning the development of these resources.

Closer to home, G-6 staffers will act as managers and advisors to New Mexico and Arizona agencies in assessing the potential low temperature (90°C) hydrothermal systems that can be developed near populated areas in both states.

LASL will also manage a program charged with developing in collaboration with industry, new techniques for geothermal reservoir characterization and geophysical logging in deeper, hotter holes than those on Fenton Hill and in types of rock other than granite.

Jim Hill G-4, Fenton Hill test site manager, and Bert Dennis, G-4 group leader, feel LASL has already functioned, out of necessity, as an ad hoc laboratory for such a program.

They agree that the Los Alamos geothermal program, which started on a shoe string, has become adept at repairing, adapting and fabricating necessary equipment, because much of the technology and the equipment needed as the program expanded simply did not exist.

Although the LASL concept is based on modified oil and gas field drilling and hydrofracturing techniques, Hill and Dennis point out that the unique requirements of the hot, dry rock extraction method led to constant improvisation.

Oil and gas exploration rarely penetrates deeper than the earth's sedimentary layer, which is easier to drill and not nearly so hot as the underlying basement rock. Hard rock and extreme heat were the major constraints for the Fenton Hill researchers.

In addition, oil and gas reservoir crack systems need not be accurately mapped, but defining the
dimensions and orientation of the LASL reservoir was critical, if it was to be tapped by the second bore hole for optimum water flow. Reliable logging and mapping instrumentation that would function at extremely high temperatures and pressures was not available.

Most of the vertical drilling at Fenton Hill was accomplished with conventional rotary bits powered from the surface. To achieve directional drilling, researchers switched to a Dyna-Drill system, which is powered downhole - a first for industry in hot granite. Fiscal '78 and '79 funding includes money for development, with a commercial contractor, of equipment capable of drilling to even greater depths at higher temperatures.

Jim Albright and Bob Potter, G-3 headed a team that devised the necessary mapping techniques for the Fenton Hill system. Several methods were tried, with the most successful proving to be an acoustic system that provided a "sound picture" of the underground system by measuring compression and shear waves, generated by small high-temperature detonators in one hole, as they were received by geophones in the second hole. Instrumentation was developed by Billy Todd and Jack Archuleta, G-4.

A second G-4 team headed by Bob Herndon, designed the instrumentation for the closed-loop system that became operative in September. Equipment for the loop was fabricated by a group headed by G-4's Everett Horton.

Before the loop was closed, photographers had a field day, recording for posterity a fine display of live steam from the nation's first man-made geothermal reservoir. Even the most cynical seemed ready to concede that geothermal energy is a practical alternative energy resource, deserving even to be classed as an "inexhaustible" resource.

Of this, Al Blair, alternate G Division head says: "It is estimated that there are 13 million quads of thermal energy in dry rock at a temperature above 150°C at a depth of 10 kilometers or less beneath the continental United States.

A quad equals a million billion Btus of energy; U. S. energy consumption is 70 to 80 quads per year. Experts estimate that just 2 percent of those recoverable 13 million quads of energy would supply all of the nontransportation needs of the nation for 1,300 years, based on today's consumption rates.

But Blair is quick to add that much needs to be done in the geothermal energy field.

In the next 12 months, the Fenton Hill system will be evaluated to answer questions relating to reservoir life, water loss, and the interaction of the circulating fluid with the hot rock. Operation of the small 10 megawatt thermal heat exchangers should identify many of the problems expected to surface in geothermal systems, allowing researchers to solve them before larger systems are designed.

The evaluation will overlap resumption of drilling during fiscal year '79. Blair says that although LASL would like to drill 2 holes and create a second reservoir while operating the first, most likely one of the existing holes will be deepened to about 4 kilometers in granite at 250°C and another hole will be drilled nearby to intersect a planned new crack system in the deeper core.

The resulting reservoir should have a capacity equivalent to 5 to 10 megawatts electric - sufficient for the needs of a city of 10,000. Blair points out that although LASL is not in the commercial electric generating business, the Laboratory does plan to conduct a larger power generation experiment at the Fenton Hill site in conjunction with the local utility.

Another aspect of power generation in which LASL may become involved concerns heat for the Laboratory's main technical area.

A committee is studying the feasibility of using LASL geothermal technology to supply heat for TA-3 possibly using the existing steam supply grid and tapping one or more geothermal wells to be constructed at the site. Although no funds have been formally appropriated for this project, researchers do not discount the possibility of "going geothermal in this particular area."

If Los Alamos, the Atomic City, should one day be heated and lit by geothermal energy it may strike some as ironic. But perhaps the one truism to emerge from the endless debate over this country's energy future is that no one source, inexhaustible or otherwise, can provide a total, or easy answer to our escalating crisis. Energy is where you find it and for LASL's geothermal believers the future looks good, looking down.