JANUARY/FEBRUARY 2003
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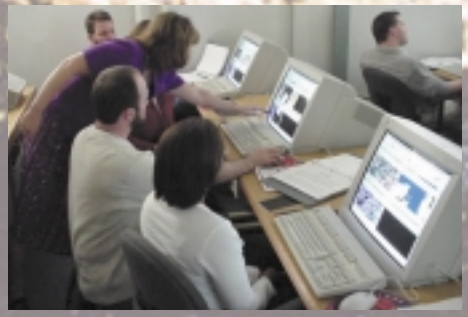
The Professional GEOLOGIST

STUDENT ISSUE 2003



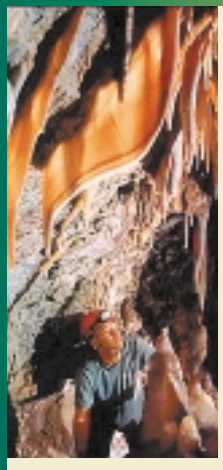
So You Want Me To Hire You
Producing What the Industry Wants
The Geologist: Past, Present, Future
So You Want to be a College Instructor
How to Give a Speech
My Pathway to Geology
Internship Program
Scholarships
Awards
And More....

A publication of
The American Institute of Professional Geologists

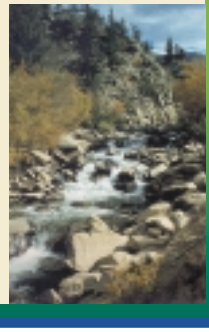
AIPG 40th ANNUAL MEETING

Glenwood Springs COLORADO

October 4-9, 2003



The AIPG Fortieth Anniversary Annual Meeting will be held in Glenwood Springs, Colorado. Glenwood Springs is a spectacular setting, situated on the west slope of the Rocky Mountains and on the upper reaches of the Colorado River. The AIPG meetings and functions (October 4 through 9) will be held in conjunction with a three-day (October 4-6) field trip to, and seminar about, the Piceance Basin. The Piceance Basin trip will be sponsored and led by the Rocky Mountain Association of Geologists (RMAG) in cooperation with AIPG.



The meeting headquarters will be the Ramada Inn in Glenwood Springs. While there, you will be able to avail yourself and family of any number of local and regional sights and activities.

Program details are being finalized. In the meanwhile, please set the time aside and join your AIPG and RMAG colleagues for what promises to be both a pleasant and an educational meeting with ample opportunity for much collegiality.

Glenwood Springs

Located just thirty miles from Eagle Airport, three hours from Denver, and an hour and a half from Grand Junction, Glenwood Springs is the perfect year-round destination. Whether you're looking for the tranquility of a spa, the thrill of skiing or snowboarding, a stimulating nature hike, an awe inspiring cave excursion, or a journey back into history—Glenwood has it all.

For more than one hundred years, the Hot Springs Pool has been the center of activity in beautiful Glenwood Springs. People travel from every corner of the earth to enjoy the therapeutic waters of the world's largest outdoor mineral pool.

If shopping or dining is your preferred pastime, you need only walk a few blocks from Ramada Inn & Suites to enjoy all of the unique shops and wonderful restaurants in Glenwood's historic downtown.

Where in Colorado? Contest

The next AIPG Annual Meeting will be in Glenwood Springs, Colorado during October 5-9, 2003. To provide all of you with an appreciation for the scenery and geology of the state, the Annual Meeting Committee is hosting a contest. In each of the next 6 issues of *TPG*, there will be a photo of an interesting location in Colorado. The first individual (as determined by the contest committee) to accurately identify the photo will win a Colorado souvenir. No phone calls will be accepted. All entries must be by e-mail or mail. The individual or individuals that identify the requested information for all 8 photos will win a FREE registration to the meeting. Committee members and individuals supplying photos used in the contest are not eligible to win.

Although some of the photos will be relatively difficult, we hope that Coloradoans will not have a significant advantage!

We send our thanks and apologies to *Geotimes* for providing the idea for this contest. Hopefully, imitation is the most sincere form of flattery.

Where in Colorado?

This photo is of a location in Colorado. Can you identify the proper name of this geologic feature, location, and the name and age of the formation?

Please e-mail your answer to Susan Landon at susanlandon@att.net or send a postcard to Susan Landon, 780 Ballantine Road, Golden, CO 80401. Please include your name, address, and phone number. The first correct answer received will be considered the winner for this month. The winner will receive a Colorado souvenir and the winner's name and answer will be published in next month's *TPG*.

Good luck and mark October 5-9, 2003 on your calendar!

Contest Photo #2

Photographer David M. Abbott, Jr.

Ernie Otto was the first person to correctly identify last month's photo of cave bacon on the Mississippian Leadville Limestone in Glenwood Caverns, Glenwood Springs, Colorado. He will receive a prize and his name, along with the names of all of the other correct entrants, will be added to the list to be eligible to win a free registration to the 2003 meeting.

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DEPARTMENTS

FRONT COVER - Ice Mountain, Colorado. Photo by Laura Jean Wilcox, SA-0201
Photos submitted by Laura Jean Wilcox, SA-0201; Lance D. Yarbrough, SA-0210; Meghan L. Jackson, SA-0235; and Thomas E. Jordan, CPG-09384 (former AIPG Student Member).

Colorado Front Range Geoscience Career Day

William H. Hoyt, CPG-07015, and David M. Abbott, Jr., CPG-04570

On a bright October 5th morning this fall along the Front Range of Colorado, approximately 35 geoscience students and seven professional geologists gathered to discuss a variety of possible careers in the geosciences. Students and professionals alike enjoyed topics that don't often get addressed in a college geoscience education—what did the professionals wish they'd learned when they were students about getting and retaining employment in the geosciences. The venue was the new science building at the University of Northern Colorado, a $43 million red brick and sandstone building with fancy new technology and a beautiful confluence courtyard. The event was jointly sponsored by the University of Northern Colorado and the Colorado Section of the American Institute of Professional Geologists (AIPG).

Imbricate boulder beds in a road cut along the Big Thompson Canyon. At least two layers can be seen, one at the top of the cut and one just above the people's heads.

After registration and our fill of continental breakfast, the morning program opened with a welcome by host Bill Hoyt. David Abbott then distributed to each registrant a printed copy of the new, 78 page, 4th edition of Reflections on a Geological Career, edited by David Abbott. The compendium of papers and expanded outlines is available for free download from the AIPG national website <http://www.aipg.org> use "Select & Go" at the top of the page to go to "Publications" and look for the title; it is a free download in PDF format.

Bill Hoyt describing the effects of side canyon flooding during the 1976 Big Thompson flood event.

State geologist of Colorado, Vicki Cowart, provided students with two informational resource packets: one on Colorado Geological Resources and another on Colorado Natural Hazards. All were snapped up! AIPG National provided additional handouts.

Students were delighted to hear a well-organized description of geoscience careers and professionalism by AIPG National Executive Director Bill Siok. Bill's careful descriptions of the various careers and his personal experiences in a few of them set a high standard for the other speakers to follow! One theme Siok discussed was the need for post-baccalaureate training (masters and/or doctoral degrees). Many other speakers would echo that theme throughout the morning.

Next, Bill Hoyt described geoscience teaching careers in general, and where such interests might lead. In Hoyt's case teaching led to sea, sailing a tall ship and instructing college students in oceanography. Closer to home, demand for science

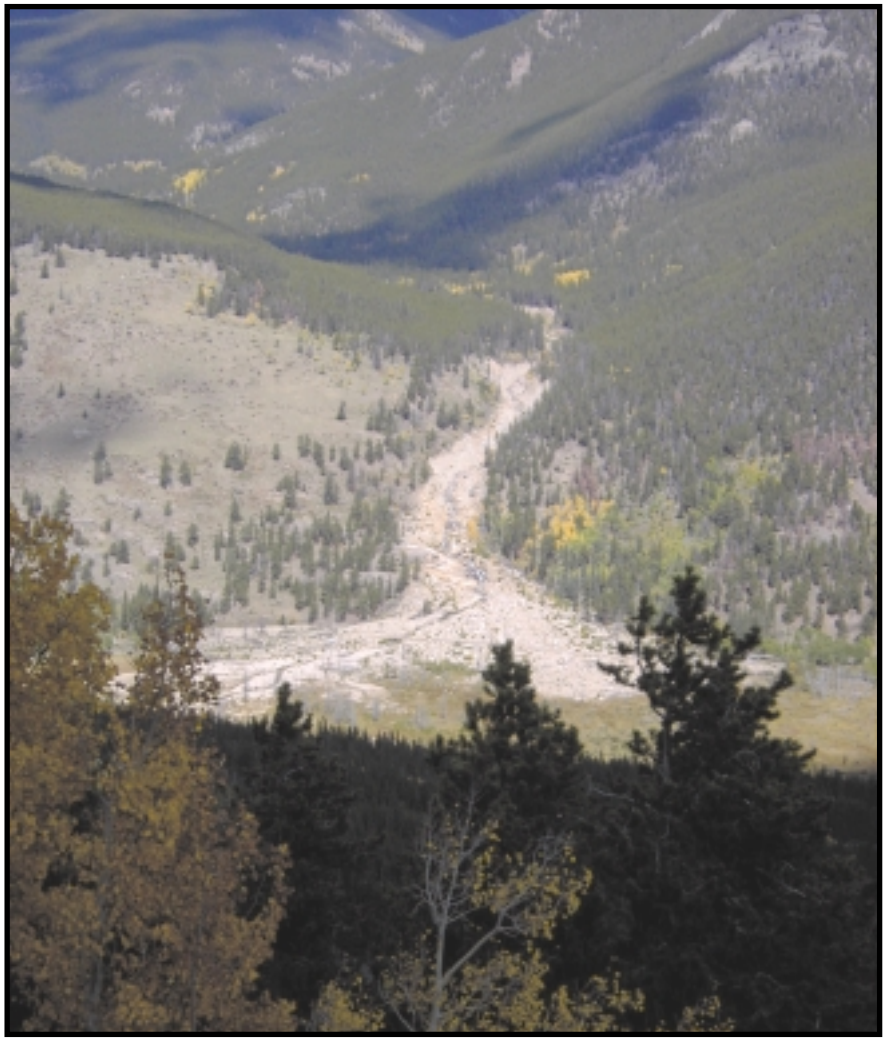
teachers in Colorado is high, especially at the middle school and high school levels.

Trevor Ellis took us overseas to get a glimpse of what it might be like to work in a foreign country doing geology. Hair-raising and hazardous are two apt descriptors of the overseas mining exploration work Trevor described with accompanying slides, and many students seemed more than a little interested in going overseas.

With Colorado's ongoing drought, there were many current issues of interest in hydrogeology that Bill Bellis presented. His thorough and varied discussion of many case studies of hydrogeology throughout the region and the world gave students a comprehensive view of what might be in store for the student going into such a field today.

John Ivey chronicled his career and the personal and professional attributes necessary for a person to be a successful engineering geologist. John's thoughtful and challenging comments added a dimension to the presentations which students don't often get a chance to consider.

Though the recent downturn in domestic mining has dampened the spirits of some, Doug Peters displayed how an effective and productive career could be shaped by combining the fields of remote sensing and GIS with mining. Examples of fascinating work done regionally and internationally helped students understand expanding opportunities in this burgeoning field of high-tech science.



Lawn Lake flood fan: the debris fan resulting from the failure of Lawn Lake earthen dam in 1982.

The morning sessions wrapped up with David Abbott developing a case for the need of geologists to consider ethics in professional practice. Many examples of ethical dilemmas were brought forward from academia, industry, and government geoscience professions. Any successful career today will require wrestling with ethical questions and coming out with your nose clean and your reputation intact!

After a delicious and pleasant submarine sandwich lunch in the courtyard, we assembled for an afternoon field trip up the Big Thompson Canyon ending in Rocky Mountain National Park. Bill Hoyt has researched aspects of Pleistocene and Recent floods in the Canyon, and was on site in Estes Park during the 1982 flood that killed three people and caused $31 million in damage to the town. The Big Thompson flood, which occurred six years earlier (July 31st, 1976) was even more catastrophic; 141 people died in that torrent. After seeing lots of flood evidences and deposits, the trip ended at the debris fan that was deposited after the Lawn Lake dam broke in the early morning hours of July 15th, 1982. The elk were out in full force and we saw them bugling along the Fall River in several places. Six people made it to dark and feasted on Mexican food in Estes Park for dinner.

What a great day and a great event for students in the region to consider what it is like to be a professional geologist! Thanks to all our presenters and volunteers. Special thanks to generous benefactors who helped support the event and to the Colorado Section of AIPG for their leadership. Jim Russell, Section President, Larry Anna, Section Treasurer, and Graham Closs, 2000 Student Day Coordinator were particularly helpful in getting the event going. They were a source of encouragement to Bill Hoyt, who coordinated the event.

Sections interested in hosting a Student Career Day are encouraged to contact Bill Hoyt or Graham Closs for information on how the Colorado Section organized theirs.

William H. Hoyt, Ph. D., CPG-07015, Professor and Chair, Earth Sciences Department, University of Northern Colorado.

David M. Abbott, Jr. CPG-04570, Consulting Geologist, Denver, Colorado.

Modeling Groundwater/Surface Water Interactions Along the Rio Grande, New Mexico

Laura Jean Wilcox, SA-0201

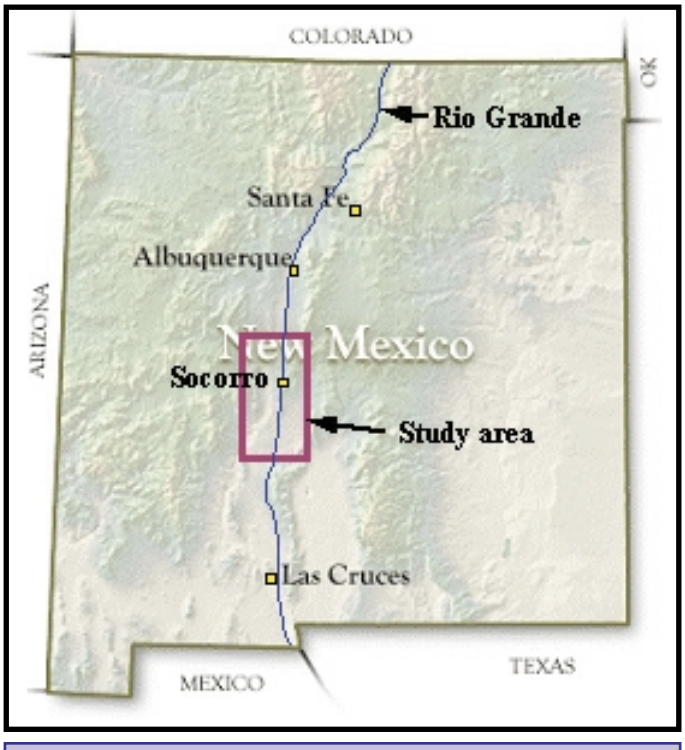
My passion for hydrology began at a young age. At six, I departed on a 42-foot sailboat with my parents to circumnavigate the globe. This adventure lasted 6 years and during that time I was exposed to the inadequate water resources that exist in many of the developing nations of the world.

After returning to my hometown of Falmouth, Maine for high school, I began my undergraduate studies at Colby College majoring in biology. By the end of my sophomore year, the geology faculty had lured me in, exemplifying all of the traits of a small school department. I was lucky enough to get a job in the Lawrence Livermore National Laboratory Environmental Restoration Division in Livermore, California during the summers of 2000 and 2001, giving me the opportunity to practice real-world hydrology on real-world problems. It was here that I was influenced to continue my education in graduate school for hydrology after completing my studies at Colby in 2001.

Another day of snorkeling under the sun in Bora Bora, French Polynesia. Photo by John Wilcox, 1988.

For me, choosing New Mexico Tech for graduate school was simple. I wanted to keep the student-advisor relationships of a small school, while having the advantages of larger universities (laboratories, equipment, and support from a large graduate student body). At Tech, all of this is true, and it helps that Socorro is located in the middle of a beautiful state with 10,000-ft peaks only 25 minutes away. This added bonus offers endless inspiration from riding my bike while training for triathlons to caving in the endless passages that exist underground. For a small town, Socorro also offers a surprisingly large number of non-academic activities such as musical groups, art classes taught through the community college, athletic teams, and great restaurants.

My current research at New Mexico Tech is being conducted under Robert Bowman and involves studying the surface water and ground water interactions between the shallow aquifer and the Rio Grande along a 50-mile reach of the river.



The project study area. Map courtesy of the New Mexico Department of Tourism.

Running of a 24-hour pump test at a local farmer's irrigation well near San Antonio, New Mexico. Photo by Laura Wilcox, February 2002.

Measuring water quality parameters in the Rio Grande. Photo by Christian Krueger, February 2002.

Unlike Maine, New Mexico must regulate its water distribution among many demands by industry, agriculture, wildlife preservation, municipality, and recreation. On top of this, New Mexico must deliver a certain amount of water to Texas and Mexico. In my first year at Tech, I have been exposed to some of the driest conditions the state has seen since the 1950's. The 50-mile reach of the Rio Grande that I study loses a large amount of water that remains unaccounted for. For several months this summer, there were many locations that had no water at all in the channel.

This drought has emphasized the importance of my role in the project. Specifically, I am constructing a model of a six-mile reach of the river that is losing an unusually high amount of water (up to 23 cfs/mile as determined from previous seepage runs done in 2000 and 2001). This small-scale simulation will aid in calibrating an existing larger scale model that will ultimately be used to help determine the water budget for New Mexico.

I find this project especially fascinating because it not only incorporates many aspects of hydrology and geology, but also covers many political issues such as water rights, land ownership, and wildlife issues.

After obtaining a masters degree in hydrology at Tech, I would like to find a job where I can apply my skills on an international level and return to the locations that I visited as a child in hopes of improving global water quality.

Laura Jean Wilcox, SA-0201, New Mexico Institute of Mining and Technology.

AIPG Student Chapters

Wright State University

Founded in 1996
Chapter Sponsor: Thomas Berg, CPG-08208

Christopher L. Atchison, SA-0220
Brian G. Bayliss, SA-0221
Jeffery R. Bird, SA-0222
Amanda Lee Bolt, SA-0179
Monte K. Bost, SA-0237
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Michelle L. Henn, SA-0223
Angela L. Hurley, SA-0224
Christy S. Jacobs, SA-0225
Andrea M. McIntire, SA-1226
Wayne E. Patterson, SA-0177
John Y. Sayers, SA-0227

1996 Recipient of the PRESIDENTIAL CERTIFICATE OF MERIT

Margaret Kloska, SA-0044

For her leadership as a student in establishing the first AIPG Student Chapter at Wright State University. We have often urged faculty to begin Student Chapters, but it was not until a Student recognized the importance of professional affairs in her future career, was the first Student Chapter established.

James Madison University

Founded in 1998
Chapter Sponsor: W. Cullen Sherwood, CPG-02811

David, P. Aguanno, SA-0236
Evan R. Bishop, SA-0255
Anna M. Ewing, SA-0238
Michael S. Field, SA-0239
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Catherine C. Harris, SA-0241
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Brian H. Neely, SA-0195
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Colorado School of Mines

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Producing What the Industry Wants: A Student Viewpoint

Meghan Jackson, SA-0235

Over the nearly five years I've been working on my degree in geology, I have heard students complain, over and over again, about sending out 50 or 100 resumes and not finding a job. On the other hand, I have heard professionals complain many times about not finding qualified recent graduates for the job openings they have. The jobs are there, the students are there, but where's the disconnect?

A few quotes from industry: "I don't want to have to train someone to map on the job! I'll hire a Brit or an Australian who can map already." "We've hired so many people from the University of X we're not getting any new ideas anymore." "I just can't find graduate students who can operate in the field." Obviously, some universities may not be producing what industry (in at least my rarified specialty of ore deposits exploration) are interested in hiring.

There's a blind spot that goes both ways on this issues; professionals are too busy to realize that professors are pretty much interested in producing miniature versions of themselves, and students are too afraid or too busy/preoccupied to approach professionals to find out what industry wants.

This is a two-way problem that demands a two-way solution. As students, we need to be more assertive about asking people in industry what they are looking for before we actively go on the job hunt, and we need to be more assertive about molding our educations to fit that model. With a few very rare exceptions, professors don't know everything, and professors aren't the only ones hiring geology graduates. On the other hand, professionals need to make it clear to students that doing this (which is considerably more work than simply coasting through one's undergrad) is to the student's advantage.

Meghan Jackson at the Salar de Coposa, Tarapacà province, Chile. Meghan was there on an internship with Rio Tinto's Antofagasta field office. Photo taken by Chritian Hub.

The means of communication are there; there are plenty of programs available that let industry people impress what they want on students. The problem is that neither the students nor the industry are taking full advantage of these opportunities. In a nutshell, here are the things that I think have worked for me and that I think will work for others, both industry and students:

Internships

For a student, an internship is a chance to make some money over the summer, learn the work that they might be doing as an industry professional, and get re-focused (hopefully) on why they wanted to get into geology in the first place (it sure wasn't that optical mineralogy final exam).

For a professional, an internship is a great low-risk test-drive of a potential employee, cheap semi-skilled labor, and a chance to influence what comes out of academia. Yet students say they have to take summer classes to graduate on time (almost never worth it) and industry says they don't have time to train a student, or that Human Resources would never go for it. The way I see it, it's a cycle; eventually other students will notice the benefits of internships, and that those students with a particular combination of classes get the good internships. Then professionals get applicants for internships who have a better combination of classes and skills, and those students require less training. Eventually you get college graduates ready to go to work, with minimal re-training, and the work put into training interns pays off. Besides, did I mention that interns are cheap labor?

Mentor programs

A lower-investment and more altruistic method of influencing a student's career is through mentorship programs. There are established programs, usually based around professional meetings (the SME annual meeting has a large and excellent mentorship program), but I can't imagine it would be very hard to simply establish your own. It could be something as simple as calling up the geology department chair of your local university, asking to speak to students, and then staying in touch with the ones who ask interesting questions. An e-mail a week, or less, could get you involved in producing what could be a very valuable employee. Students are generally scared that industry people will have no time to talk to

them, or that they have nothing to say to industry people. The industry person needs to make the first move.

Professional meetings

I can't emphasize the benefits of professional meetings enough. I met my future employer at one, and they have done a good deal toward helping me refine my interests within the field of geology, as well as simply understanding what the actual work of professional geology involves. Most students don't go to professional meetings because they're afraid it will boring, that they will have to politely eat rubber chicken dinners, and that they will miss classes or fall behind on homework. My responses: one, they can be boring, but not if you find a mentor. Finding a mentor, even just walking up to a speaker who interested you after a talk and asking them what they think of the state of geological education today, can give you important insights into what's actually going on at any professional meeting. Two, rubber chicken isn't that bad, especially when somebody else is paying for it (which can frequently be arranged at professional meetings). And three, for Pete's sake, what do you want, an A in calculus or a great first job? Trust me, in 20 years you won't remember what you got in calculus.

Professionals go to professional meetings anyway. Why not take the time to participate in (or start) a meeting-mentorship program? Or even just walk up to that group of students with the deer-in-the-headlights look and introduce yourself. It could be fun.

Professional Societies

At the risk of sounding like a stooge, I should mention professional societies. Professional societies collect money from their members and in return they provide a forum for members to continue their education, meet other professionals in their areas of interest, and publish their research within the field. Membership in professional societies is pretty much the best way to get exposed to the other three items above, with the added benefit of access of publications that may cover your areas of interest in a more detailed and possibly more realistic way than your classes. And if all else fails, a big stack of quarter-inch thick journals makes a stylish dorm room doorstop.

Meghan Jackson, SA-0235, New Mexico Institute of Mining and Technology, Socorro New Mexico.

AIPG STUDENT APPLICATION

American Institute of Professional Geologists
8703 Yates Drive, Suite 200, Westminster, CO 80031-3681
303-412-6205 • Fax 303-412-6219 • aipg@aipg.org • www.aipg.org

Date received: _____ Member #: _____
Amount paid: _____ Date approved: _____
For Headquarters use. Do not write above this line.

Application for Affiliation as a Student Adjunct

Complete ALL sections. Read the Bylaws and Code of Ethics. If applying between November 1 and June 30, the application fee is **$20**; if applying after June 30, the fee is **$10**. Please PRINT or TYPE.

Current academic standing: ☐ Sophomore ☐ Junior ☐ Senior ☐ Masters Candidate ☐ Doctoral Candidate ☐ Post-Doctoral

Last Name: First Name: Middle Initial :

College/University: Geological Degree: ☐ BA ☐ BS ☐ MA ☐ MS ☐ PhD ☐ None Year:_____

Address: City: State/Zip:

School Phone: Home Phone: E-mail:

ATTESTATION: I attest that I meet the requirements for AIPG Student Adjunct (currently enrolled in a geological science degree program) and agree to abide by AIPG Bylaws and Code of Ethics.

Applicant Signature: Date:

Have your faculty sponsor complete the statement below before submitting **OR** AIPG will contact your sponsor(complete name & ph. #)

Faculty Sponsor's Statement

I certify that I am a member of the faculty of the _____ department at _____ _____, with the rank of _____, and that the statements made by the applicant in this application are true to the best of my knowledge or belief. I am ___/am not ___ the applicant's faculty advisor.

Name: Phone:

Sponsor: Signature: Date

"Kids, Balloons, and a Minor in Earth Science": The Making of a Well-Rounded Geologist

Michael Urban, SA-0261

As a young boy growing up in the small town of International Falls, Minnesota, I remember being intrigued by nature; I collected rocks, bombarded my parents with numerous questions about the weather, and spent a lot of time outside exploring the neighboring forests. I yearned to understand the "how's" and "why's" of the world. I possessed (and still do) an unquenchable thirst for knowledge and adventure. So, is anybody surprised to learn that I'm considering a possible career in geology?

The road of life tends to have more corners than a dodecahedron, and so a straight shot from here to there is primarily reserved for fantasy. After having spent most of my childhood wanting to become a teacher, I experienced a sudden change of heart upon entering college and decided to discard that idea in favor of pursuing the intent of one day going to medical school. I tailored my first two years at Rainy River Community College (RRCC), in my hometown, toward transferring into a biochemistry pre med. program, and as a result found myself deeply immersed in the realms of biology, chemistry, and calculus. I was well on my way to becoming a doctor . . . or so I thought.

As chance would have it, during the summer interim between my first and second year at RRCC, I happened across an advertisement listing an opening for a meteorological technician at the local weather service office. Seeing how much they payed in hourly wages provided enough incentive for me to throw caution to the wind and give them a call, even though I had no formal training in the subject. The senior "met tech" with whom I spoke on the telephone informed me that in order to be considered for a position I would need to pass a test. At the tender age of 19, the thought of studying during summer break sent shivers down my spine, but I elected to give it a go anyway. Several weeks of rigorously studying government-issue training manuals and logging unofficial training hours ensued, eventually paying off when I started work on a part-time basis taking hourly weather observations and launching weather balloons. I look back on this time in my life with fondness. It was a very exciting job (especially when releasing hydrogen- filled balloons into thunderstorms), and I credit it with turning me on to the earth sciences.

As my second year of junior college neared a close, my desire to become a doctor waned, and in its place the notion of joining the teaching profession resurfaced. Obviously the flame kindled by my experiences at the weather station led me directly into an earth science major, right? Actually, because I had built up so many biology credits, the next logical step for me lay within the field of biology. After graduating from RRCC, I transferred to the University of Minnesota, Duluth, as a life science teaching major. It was short-lived. A few biology classes, and one terrible mark on my transcript later (in genetics), I switched majors yet again, this time to a general science teaching emphasis. I used the flexibility of the degree to squeeze in a few geology classes, and in the spring of 1999, I graduated with a Bachelor's of Applied Science in general science education with a minor in earth science.

My overall college education made me realize that out of all the sciences, I enjoyed earth science the most. There was no question in my mind as to what type of teaching position I was going to seek. I count myself lucky to have found exactly what I was looking for only a few hours from where I grew up. In July of 1999, I accepted a position at Detroit Lakes Middle School, embarking on what amounted to a three-year adventure as an eighth-grade earth science instructor in the small town of Detroit Lakes, Minnesota. Teaching at the middle school level turned out to be a bit of a letdown; I loved teaching, and enjoyed working with students, but I really wanted to get into more detail and depth of content. These feelings culminated last spring in a decision to give it all up (including my brand-new pickup truck) and go back to school.

Currently, I am working toward a Master's degree in Earth Science at the University of Northern Colorado, in Greeley. Here I am adequately able to engage my interests in science, while at the same time indulge my passion for teaching (as a geology and oceanography teaching assistant). My ultimate goal is to someday teach at the college level. In the meantime, I continue to learn more and more about what it means to be a scientist, particularly a geologist, by researching, studying, and working as an intern at AIPG. The moral of my story is that if the shortest distance between two points is a straight line, then following a meandering stream will provide more adventure, experience, and fun!

Michael Urban, SA-0261, Graduate Student. University of Northern Colorado

So You Want Me To Hire You - An Employer's Perspective on the Interviewing Process

Bob Stewart, CPG-08332

I sometimes get direct and indirect feedback from unsuccessful job applicants, and recently one of the comments was that the interviewing process and the nature of the work seemed to be conducted by rote, which brings me to the subject of this issue's op-ed piece, interviewing from the employer's standpoint. I work for a company of 25 employees, and our bread and butter consists of various environmental investigations and remediation activities, mainly in Connecticut and Massachusetts. We are small enough that our staff, junior and senior, is responsible for the many aspects of specific projects, from developing monitoring wells ("pulling string" in the vernacular) to report preparation.

My personal goal during the process of interviewing geologists is to hire individuals who can think on their feet, become competent at field and office tasks, learn the applicable regulations, and convey their conclusions and recommendations in plain English to the client. For new hires, this means an investment of several years, a point I make to applicants during the interview. From a purely business viewpoint, based on the material provided to me by an applicant (résumé, writing sample, references), plus perhaps one hour of face time prior to hiring, I have to decide whether investing in a given geologist will pay off in the form of profit, which, in turn, pays for bonuses, 401K, continuing education, and annual raises. At the human and professional level, I must decide whether I will enjoy working with an applicant routinely, and if the applicant has the tools to succeed in the work we do. In summary, the interviewing process requires any applicant to convince me to hire him/her based on a very limited sales pitch. So in response to those who feel that the interviewing process does not depend on the applicant, here are some suggestions and thoughts to ponder, drawn from my own 20+ years professional experience with the mining and environmental consulting industries, as well as university teaching and research in the fields of geomorphology, Pleistocene geology, and ground water geology.

1. Are you looking for a job or a career? Is environmental consulting something that really holds your interest, or are you more interested in a paycheck to support your avocations outside work? Your choice is irrelevant to me as long as you are a committed employee, but if your commitment isn't apparent during the interview don't expect to be invited back.
2. Is the job description in the advertisement something that appeals to you? If it isn't, don't pursue the job. Is the job one that you could learn to enjoy? If these factors are irrelevant because what you really need is steady work to pay the mortgage and put food on the table, think about ways to turn the job to your liking and professional advancement.
3. Seek professional help to assemble a résumé that clearly identifies your skills and accomplishments – don't bury the vital information under a lot of waffling and minutiae. Once you've decided to respond to an advertisement, print your résumé on a high-quality bond paper and mail it, unless instructed otherwise. Résumés composed as tables using a word processor or spreadsheet, and sent as e-mail, do not have the same professional appearance on a computer screen as a carefully prepared paper version received in the mail. Send your résumé with a refined cover letter identifying your strong points, your relevant experience, and the reasons why I should hire you. University career services can help, and there are plenty of references at your local library. Above all, check your submittal for grammar and spelling. If you can't be bothered to do so, I will assume that you would show that same disregard to any reports you would prepare for me. My company is not large enough to employ a full-time human resources person, nor do we employ electronic résumé-screening devices. Résumés sent by fax or Internet are often hard to read and poorly composed. Many such résumés contain language left over from submittals to other companies, which highlights you as a true amateur. My e-mail volume is high enough that I sometimes inadvertently overlook unsolicited résumés, and I ignore those that are clumsily prepared.
4. On your résumé and in the interview don't inflate or lie about your accomplishments. I am re-stating this point because it doesn't seem obvious to everyone who sends me a résumé. I've addressed this issue in previous editorials. I will always call your alma mater to confirm that you did in fact graduate with the degree and major stated on your résumé. An overly embellished work history will become a major embarrassment during the interview when the interviewer (me) realizes the fraud, and what could have been a productive give-and-take degrades into a vetting becoming of George Smiley.

5. If you are invited for an interview, arrive on time, and don't brush off a standard employment form that you may be asked to complete, even if you have provided a résumé beforehand. If you struggle with completing a simple form, it conveys the impression that you would similarly struggle with your work as an employee.
6. Wear appropriate attire for the interview. Leave your cell phone and/or beeper in your car; if either one goes off during an interview with me it's an automatic disqualification. Aside from earrings, make sure I can't see any other ornamentation showing outside or from beneath your clothing. I could devote several pages to this subject. Suffice to say that the focus of the interview is you as a professional, not the miniature lightning rod sticking out of your eyebrow (or elsewhere).
7. Have you researched the target company to find out what they do? Have you prepared a list of questions for the interview? Don't assume that a 3.8 GPA automatically better qualifies you than somebody with a 2.5 GPA. If you can't apply your academic training on the job you won't do me much good. We work outside year-round, sometimes during inclement weather by necessity in the case of stormwater sampling. If you don't understand the sampling program behind a project, I can hardly expect you to prepare a report on the project. Do you think field sampling is an unconnected series of mindless exercises? Then come prepared to convince me of your position, and to discuss the various methods of soil and ground water sampling, the equipment involved with measuring soil and water chemistry in the field, and how to deal with contaminated surplus soil and ground water purged from monitoring wells. Looking for strictly a desk job? Don't come to me. Want to do field work for the rest of your life? Jobs like that are available, but they tend to be career-limiting.
8. For the actual interview, you should be prepared to impress the interviewer (me) with the amount of research and preparation you have undertaken for the roughly 60 minutes available. If you are not well-prepared, I will, out of courtesy, give you an overview of the company and what we do, but don't expect to be invited back. Whether you've just graduated or are considering changing jobs after 10 years in the business, don't be stuck for topics to discuss. If you want practice interviews, don't waste my time. Try your college or university placement office, or a professional organization that provides similar services.
9. Know how consulting companies make money, and how you fit into the picture from the business standpoint. Whether you're hired to work by the hour or on salary, your time is charged to the client at some hourly rate, which includes a multiplier on your basic wages to account for profit and overhead. Here's an example. If you are hired at $31,200 per year, that is equivalent to $15 per hour (40 hours per week x 52 weeks per year = 2,080 hours), which includes paid vacation and sick time. Your work may be charged to clients at, say, $50 per hour, which is 3.33 times your hourly rate (the multiplier), or $104,000 per year. The difference is $72,800. What happens to all that extra money? Here's a list, not necessarily inclusive, before you even get to profit for the owner or raises for the employees (you):
   a. Rent or mortgage on the office space
   b. Maintenance of building and grounds (landscaping, snowplowing, etc.)
   c. Utilities (light, water, sewer, telecommunications, etc.)
   d. Company contributions to health, dental, and life insurance for employees
   e. Company contributions to 401K plans, profit sharing, and bonuses
   f. Payments on office fixtures (computers, furniture, etc.)
   g. Payments on company vehicles and repairs to same
   h. Repair and replacement of field instrumentation not chargeable to clients
   i. Salaries for company staff who do not bill their time to clients (clerical, marketing, accounts receivable & payable)
   j. Taxes

   Hopefully, after all that, there is something left over. That's the incentive to running a business. Aside from the multiplier on your salary, how else do consulting companies make money? On many, but not all jobs, we charge a mark-up on work conducted by subcontractors such as drillers, laboratories, and remediation contractors. The mark-up varies in this business; sometimes there is none, although a common range is 5-20%. Similarly, we mark-up the cost of expendable supplies: disposable bailers, personal protective equipment, sample containers, decontamination fluids, and so forth. For non-expendable field equipment we charge the clients a daily rate. This applies to company vehicles, sampling pumps, hand tools, portable ground water treatment systems, and the like.

   You don't need a business degree to understand this discussion, but you do need to understand where your employer gets the money to pay you on a regular basis. Now, here's your homework: learn the distinction between jobs conducted for a lump sum, by time and materials, and on a cost-plus basis.
10. If you are interested in human nature as it applies to the interviewing process from both sides, I recommend Secrets of a Corporate Headhunter by John Wareham (New York: Atheneum, 1981, 280 pp.).
11. Join a professional geological organization like AIPG while a student – keep up with the profession of geology. Join some other organization so you can become familiar with the technical aspects of environmental consulting. It makes for good conversation during interviews. If you don't understand something technical, ask one of your professors – they get paid to answer those questions.
12. Please, don't call me "dude" during the interview.
13. You are entitled to ask about the salary you might expect, but don't use the tactic that you've got student loans, car payments, a mortgage, or other financial obligations to elicit sympathy and a higher offer. Your interviewer may have similar obligations, and be in no mood to listen to your sob story. If you have little to no practical experi-

ence, don't say that such-and-such company down the road is offering $2,000 more and expect me to buy it. My response has been to advise the applicant to take such a generous offer with my best wishes.

14. Whether asked specifically or not, bring a list of references and some examples of your technical writing.
15. OSHA HAZWOPER training is now offered by some colleges and universities. Having this training puts you ahead of an equally qualified candidate without it. OSHA training costs about $500 and 4-5 days time. Faculty members: please, no e-mail to tell me that OSHA training is my responsibility. Have your school do the students a favor and provide the training. The equation to remember is graduates who get jobs = happy alumni = future donations to the annual fund.
16. Follow your interview with a thank-you note via USPS mail. Again, keep it short and sweet, print it on high-quality bond, and check for spelling and grammar. Take the opportunity to tell me why I should hire you. Carefully composed e-mail – passable, but not great.
17. Although I try to respond to unsolicited résumés and interviewees promptly, my hiring schedule sometimes becomes delayed or attenuated by sudden changes in workload and vacations, especially in the summer, and my replies may not be timely. Also, don't expect your phone calls following the interview to be answered immediately, especially if they are unsolicited. For a variety of very good reasons I may not be able to take your call. Or, if your interview was a face-plant for some reason of your own making, I may not want to talk to you.

These opinions are entirely my own, but at least some of them have broad applicability in the environmental consulting business. For those of you who still believe that the interviewing process requires no great effort on your part, ask yourself what you have to offer during an interview to convince a prospective employer to hire you. If you honestly give it your best shot and lose out to someone better qualified, you got some experience, and move on to the next opportunity. If you blew your chance at a job because you were stuck for an answer when the interviewer said "hello," reflect on what I've written here and figure out how to do better the next time.

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So You Want to be a Professor in a Research University

George D. Klein, CPG-01487

Since leaving academe and becoming a consultant in the petroleum field, petroleum geologists facing layoffs and mergers have asked me whether they should explore the possibility of becoming a university professor. This paper summarizes what I tell them, but the reader is advised that some of my commentary (1) may appear a bit jaded, (2) may be out of date because I left a faculty position in 1993, and an executive directorship of an academic marine consortium in 1996, and (3) is based on a career in research universities because I never taught in a small liberal arts college. Nonetheless, I maintain contact with people in academe and such conversations update my perceptions.

All candidates for university faculty positions must have earned a PhD. I then remind industry geologists that academic life and responsibilities also should have changed considerably from their idyllic views as a student. The principle reasons for these changes are funding issues in higher education and how faculty, programs, and colleges within a university are evaluated by administrators, particularly when funds are tight.

BOTTOM LINE FACT:

The principle guideline often used for evaluating individual faculty performance, departments, and colleges is represented by the following formula:

$$E = ((CNF)X + Og)/ A \quad (1)$$

Where E = Effectiveness of either individual faculty, department, or college

C = Credit hours per course

N = Number of students enrolled in a course

F = Tuition fee rate (in dollars) per credit hour for each course

X = Number of courses taught in an academic year

Og = Overhead (in dollars) for University Campus generated from research grants a professor wins for personal research, or aggregate overhead of all faculty in department or college.

A = Annual Salary, or Annual Department appropriation (both in dollars) from university budget.

Administrators in research-oriented universities view faculty, departments, and colleges as highly effective if E is greater than 80 percent of the annual state (or endowment) budget appropriated for salary or program costs; acceptable if E ranges from 70 to 80 (but don't get complacent because things can wrong quickly); and concerned or oversized if E ranges from 60 to 70. A faculty member or a department faces strong pressure of termination or closure if E falls below 60 percent.

So, the message is clear. Faculty members will survive as a professor if she/he is awarded lots of grants with lots of overhead for the university coffers, or teach a lot of classes with large student enrollments. In reality, faculty are required to undertake and publish research, so they must develop a constant multi-tasking, juggling act. A professor is viewed as a profit center by university administrators, no different from a petroleum geologist in industry. As one friend put it, deans expect "money in and publications out".

Consequently, professors are under pressure to secure external funding and keep E respectable. Thus the collegial comfortable life of college campuses in the 1970's and early 1980's has evaporated. Faculty have less time for students and for casual conversations than in the past. Moreover, because of lack of time to talk with students, career counseling and mentoring has declined, and in some instances, has fallen out of favor due to work load and campus-wide political climate.

Accountability standards have increased also, partly in response to federal funding mandates after the "overhead scandals" of the late 1980's. Thus faculty time also is devoted to completing more forms, accounting for more of one's time, and responding to countless memoranda. Ignoring accountability requests is fraught with risk.

INDEPENDENT CONTRACTOR

A university faculty member works and functions as an independent contractor. Thus job descriptions, such as used in industry, do not exist; the department head staffs courses; and one pursues whatever research one wishes to conduct (as long as it brings in grant funds). It also means that whenever the university asks a faculty member to do something "extra" or new, it provides a negotiating opportunity to request things from one's department head so one can keep one's research program functional, and be successful within the framework of the new assignment.

THE INTERVIEW

If a prospective faculty member is invited for an interview, it is absolutely critical to determine institutional criteria for success, including tenure and promotion. Be sure to ask every-

one you meet during a campus visit to see if the response is consistent, because transparency in university dealings is a worthy goal that is sometimes difficult to attain.

During interviews, it is critical to ask about teaching loads, availability of office and lab space, starter funds for research equipment, internal grants, sabbatical leave policies, local schools (if one has children), local cost-of-living index, housing, and housing financial assistance (if the campus is located in an expensive area like the New York City area or California). All are legitimate questions. Also know what is needed in costs and space to develop your proposed program and be sure to ask if and how the university can provide it as part of your appointment.

ADVANCEMENT TO TENURE AND PROMOTION

When ready for advancement to tenure (usually at the Associate Professor rank) or a full professorship, university administrators and tenure review panels at all campus levels want to be assured that a candidate really has demonstrated a commitment to research, quality teaching, and is developing intellectual stature. At one time, to be promoted to tenure, one had to show promise, and to be promoted to a full professorship, one had to demonstrate that one's work was considered to be of national distinction. Now, to advance to tenure, one must demonstrate one's work ranks as being a scholar/scientist of international distinction. The tenure decision guarantees a faculty member a lifetime salary and benefits exceeding $2.0 million per faculty member. This is a large commitment for any university. Hence the scrutiny.

How does one attain such an international research reputation, and how does the university know? Individual faculty must attend and present papers at international meetings and develop a network of people overseas who follow their work. When one is a candidate for promotion, one is expected to provide names of senior experts in one's field who will be solicited to write evaluation letters as part of the tenure or promotion package. A candidate must be sure to include on that list some of the international contacts he/she has made who are of tenured and professorial rank, so that they can be solicited for letters. Such letters validate an international reputation and standing in the minds of campus tenure and promotion committees.

FACULTY GOVERNANCE

Perhaps the biggest change in the university work environment that a person with industry experience faces is the issue of governance. In industry, governance is in the hands of management and defined by a job description. In universities, particularly in one's home department, a shared governance system exists. Each faculty member is expected to do his/her share of and participate in department governance duties, whether chairing or serving on committees, representing the department at certain campus meetings, serving on the faculty senate, and generally making sure the enterprise functions well. This is where one's collegial and team skills are needed to elicit cooperation from colleagues, to develop a plan of action, to persuade colleagues regarding a cause one champions, to meet deadlines, and complete tasks in a timely manner. For many of these tasks, deadlines are set in advance to meet certain goals (such as graduate admission offers). Pay attention to them, and then get back to writing, research, and grant-getting.

TEACHING:

One should never neglect teaching. Teaching evaluations are used in promotion reviews, and in state universities are considered in tenure reviews mostly because too many parents complain about poor teaching or uninterested teaching to their legislators who vote the annual appropriation. In addition, letters from current and former students are solicited and included. Aim for competent teaching and then get back to writing, research, and grant getting. Post office hours and stick to them to create adequate time to get research completed and published.

Never be intimidated by lengthy student evaluation forms and output. Only a handful of the questions asked are ever used in promotion reviews. New faculty should find out from their department head which questions are considered important.

STUDENTS

Students today are different compared to those of the past and come to campus with a new set of cultural and motivational values. During the years I taught, an incremental but obvious change in student skills and attitudes appeared every six years. Be ready for it. If you have children, you know what is involved. In my experience, the students on a state university campus that share a work ethic to succeed and a desire to excel, enroll in engineering schools because of limited places and strong competition to gain admission. If a geology department is located in a college of arts and sciences, the student pool likely may be less motivated. The best bet for attracting good students and being insulated from some of the campus folderol occurs when a geology department is located in a school or college of earth sciences. These are likely to be the geology programs that have national and international standing and will be the hardest to eliminate if resources are cut campus-wide.

FACULTY COLLEAGUES

Faculty colleagues represent the full range of society that one meets in the working world. Some are brilliant, some are backsliders, and some are unethical (in a surprising way compared to what one encounters in industry). Their work does not necessarily require social skills nor the practice of common courtesy that exists in the working world. As harsh as this sounds, be aware of it. Your success on campus may depend on that awareness.

CAMPUS CLIMATE

Other factors have influenced the campus environment. The so-called "politically correct" movement dominates many institutions, particularly where faculty in humanities and social sciences rule the roost. If one raises research funds from the oil industry, be quiet about it, but do try to obtain industry consortium funding to achieve your goals. If a campus newsletter writes up your work and lists your industry funding, expect

a few nasty phone calls from the irrational disgruntled campus environmental types or faculty in other departments who feel your research is tainted (i.e. not "pure"). The "politically correct" crowd sustains their actions, but don't be intimidated. Many geology departments have moved more into environmentally-related research to maintain campus "political" credibility, and in one case known to me, was required to do so by the administration or face elimination of their PhD program.

LOCAL COMMUNITY

Before applying for faculty positions, pay attention to fact sheets about the community in which a campus is located. If a candidate is married to a working spouse, check spousal career possibilities before considering a job where no spousal opportunities exist. This has become an issue of major concern on many campuses located in remote areas or in smaller towns (i.e. <100,000 people). One may be able to negotiate something for a spouse, but it is difficult. Such communities also lack adequate medical services. If one expects spousal opportunities, focus on universities located in communities larger than 250,000 or within a 50 mile radius of such a community. Likely, there will be better schools available for one's children in such larger communities.

Space does not permit me to discuss life in college towns. The idyllic myth perpetrated by Hollywood does not exist. Don't expect to find it.

CLOSING COMMENT

These are some of the points I share with industry geologists who inquire about a professorial career. If most of these facts are kept in mind, a petroleum geologist can make the transition successfully, and many have done so. However, because of the demands on faculty for grants and publications, one can expect to work as hard, if not harder, than one did in industry.

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AIPG MEMBERSHIPS AND REQUIREMENTS

CERTIFIED PROFESSIONAL GEOLOGIST

EDUCATION: 36 semester or 54 quarter hours in geological sciences* with a baccalaureate or higher degree; certified copy of official transcripts must be sent by each college or university

EXPERIENCE: 8 years beyond bachelor's degree, or 7 years beyond master's degree, or 5 years beyond doctorate

SPONSORS: 3 required from professional geologists, 2 of whom must be CPG's (see Section 2.3.1.4 of the Bylaws for exceptions)

SCREENING: Section and National

APPLICATION FEE: $50 (to upgrade from Registered Member or Member to CPG, the fee is $35)

ANNUAL DUES: $120 plus Section dues; both pro-rated for remainder of year when accepted

MEMBER

EDUCATION: 30 semester or 45 quarter hours in geological sciences* with a baccalaureate or higher degree

SPONSORS: 1 required from a CPG or Member

SIGNUP DUES: $40 (current years dues)

ANNUAL DUES: $55 plus Section dues

STUDENT

EDUCATION: Currently enrolled in a geological science degree program*

SPONSOR: 1 letter from geological science faculty member

APPLICATION FEE: $5

ANNUAL DUES: $15

ASSOCIATE

No education, experience, or sponsors required. This category is for anyone that has an interest in geology.

APPLICATION FEE: $5

ANNUAL DUES: $60 plus Section dues; both pro-rated for remainder of year when accepted

**As defined by the American Geological Institute, a geological science is any of the subdisciplinary specialties that are part of the science of geology, e.g., geophysics, geochemistry, paleontology, petrology, etc.*

Note to those who received their degrees from non-U.S./Canadian universities: If you received a degree from a university or college outside the U.S. or Canada, and the school is unable to provide an acceptable transcript, you must submit a copy of your diploma and a list of courses taken. The Screening Committee may ask you to provide additional information or an equivalency evaluation, at your expense.

So You Want to be a College Instructor

Gail G. Gibson, CPG-09993

Key Words: College faculty; College employment; Career change

INTRODUCTION

As a former Dean for Academic Affairs at one of the two-year, regional campuses of a state university system, and as Department Chair and Center Director at four-year liberal arts or teaching institutions, I received telephone calls, unsolicited credentials packages, and more recently e-mails from geoscientists inquiring about possibilities of employment as college instructors. Some were seeking full-time employment. Others were seeking appointments as adjunct faculty, teaching one or two courses an academic term to augment existing income or as an opportunity to relax from their full-time jobs. Others were somewhere in between, perhaps thinking about making a move to other employment by getting at least one toe wet in academe. In a recent article, George Klein addressed many of the same questions relative to employment at research-intensive universities that are addressed below. However, as he indicated, there is another realm, actually two realms, of post-secondary education where teaching and working with students is the primary mission of the institution. I say two realms, in that one comprises the four-year liberal arts and teaching institutions, and the other is made up of two-year institutions. I have been employed in both realms after beginning my professional career in the petroleum industry.

The Two-Year Institutions

The two-year institutions include technical-vocational schools, many of which have curricula that are transferable to four-year baccalaureate degree programs; community colleges that offer both a vocational-technical or certificate track and an academic or associates degree track that provides the first two years of a baccalaureate degree program; and junior colleges that provide the initial two years of coursework toward the four-year degree. In order to be a member of the faculty at a two-year institution, the minimum academic requirements are a Master's Degree with 18 semester hours in the discipline.

As a full-time geoscientist in these settings, you may be employed on a year-to-year contract or be on a tenure track. Depending on whether you are working at a regional campus of a university system or a technical college, some level of scholarly activity (research) may be required. You will in all likelihood be alone academically. You will probably have no other geoscientists to converse with and will commonly hear the question, "Oh, can I bring my arrowhead collection to you to identify?" Or, "Have you been on any digs lately?" You will teach multiple sections of the same subject. This can be boring or a can be a blast, because you are presenting material that most of the students have never considered, especially when you can utilize examples from the local area. You may have to convince the administration that labs are an essential part of the courses (particularly for transfer to baccalaureate programs) and that Physical Geology and Environmental Geology make a better pair of course offerings than the traditional Physical and Historical geology sequence. Be prepared to support this statement with a list of other institutions that offer such courses, institutions in the state, and in the system. Examples from out of state are not looked upon favorably, because "…they are different."

Teaching is the primary goal of these institutions, which can, and should, take lots of your time, not only in the classroom, but in class preparation, and in review and tutoring sessions, as well as by the extra-classroom activities like attending student-sponsored functions. The students truly appreciate their faculty taking an active interest in their activities, and yes, the rewards are well worth that extra effort.

Many two-year campuses are structured around formal "student-centered learning" programs to help the academically under-prepared students learn what they are really capable of accomplishing. Be prepared to embrace this approach, because it may be very different from what you remember of your undergraduate educational experience. You will cajole, threaten, and plead with many of your students to stop by your office for extra help, or you will personally take them to the student services help center and introduce them to the tutors, mentors, and advisors or you will visit with your students in the student lounge, in their environment, to help them reach goals that you know they are capable of achieving.

You will frequently have to share teaching accommodations with other faculty, probably will have to use your personal mineral and rock samples to start with and carve out some storage space in already tight quarters, for the minerals, rocks, and maps you remember from your days sitting in an intro-

ductory geology class. As George Klein noted, the students may not be as academically and emotionally prepared or motivated as you may remember you and your classmates being. However, many students are just waiting for the door to their intellectual capabilities to be unlocked, and you can be the key! This is one of the major challenges you will face, a challenge that will require enormous amounts of your time, working with these students, agonizing over grades, and modifying the course syllabus as you change the material you present in class and how you present that material. On the upside of the equation is the warm and fuzzy feeling you get when the light finally goes on in a student's eyes or well written, coherent and correct answers begin to consistently show up on exams, or you watch a student receive his/her degree and then bring Mom and Dad over to meet you and say that "…this is my geology instructor, who helped me see what I needed to do in order to succeed." And field trips!!! Not every student wants to go, until the first, usually small, group shows their peers the minerals, rocks, and fossils that they collected. Then, the question is "When is the next field trip?"

Prepare yourself for meetings that are definitely not the "power meetings" you may have been accustomed too in industry. In many cases, such meetings dissolve into rehashing of old news, or carefully skirting the real issues, or discussions of who is related to whom. As you are well aware, committee meetings fill all of the time allocated, just like a gas filling all of an open area. Colleges and universities employ the shared governance approach to running the academic aspects of the institutions. You will note also that accomplishing routine and non-routine tasks (especially the latter) is attenuated because of time requirements of class registration days (plus the getting ready for and cleaning up after), midterm exams, fall or spring breaks, end of calendar year holidays, final exam week, and the fact that faculty are on a nine- or ten-month contract. And, at the smaller two-year institutions with few administrative staff, when an administrative staff member takes annual or sick leave, or attends an off-campus meeting, a number of functions and decisions are delayed until that individual returns.

Do not be too professional, as this tends to unnerve your colleagues, many of whom have not undertaken professional development activities in years, or do not belong to professional organizations in their disciplines, or have not published in refereed journals. There is usually little financial support to attend professional meetings, but make the effort because you are setting an example for your students. Also, do not allow your professional licenses, registrations, and certifications to lapse. Such professional registration provides students with examples of non-academic professional goals useful to or necessary in their future professional lives.

Not all two-year colleges are located in major metropolitan areas. Many of the two-year commuting campuses are located in rural settings, drawing their students from sparsely populated, politically proscribed service areas where students may commute 30 – 40 miles to class. The commuting students may be "traditional" students in terms of age, academic preparation, worldly experience, and frequently lack of motivation and vision. Other students are "non-traditional," in terms of age, experience, and/or outside responsibilities. So, you will have two or three audiences in your classes —- from the highly motivated student who is wisely attending the two-year campus that is close to home to save money, to the student who is both academically and emotionally unprepared for the post-secondary experience, and the students whose external responsibilities (work, family, etc.) may adversely impact their academic efforts. All of these students require and deserve that extra effort from you, part of which effort is academic and part is the sharing of life skills with your class.

The campus climate can be an interesting beast. Cohesion among students and faculty may be low, especially on the commuting campus or at the institutions with multiple campuses, where both faculty and students spend time on different campuses. In my most recent position, I was a 10-minute walk from home to my office on one campus and a 50-mile drive from the other campus. In this situation, faculty members are not present every day on a particular campus, do not interact professionally with their colleagues on a regular basis, and frequently do not participate in campus or community activities because of their teaching schedule or residence locations. Accomplishing campus business (committee meetings, recruiting committees, faculty meetings) becomes more drawn out since it takes longer to get committee members together. This can be particularly bothersome on campuses with older faculty who are no longer proactive in their disciplines and profession.

As I noted above, two-year colleges are located in urban, suburban, and rural areas; areas that maybe very cosmopolitan or very provincial. As George Klein pointed out, opportunities for spousal employment or activities in suburban and rural areas can be severely limited. Likewise, interaction with the community may be difficult, because you are the 'outsider.' On the other hand, you may be readily accepted because of the cosmopolitan nature of the community.

The Four-Year Teaching or liberal arts Institution

This is the third realm in higher education and is markedly different from the realm of the two-year institutions and that of the research-intensive institutions. The student body sizes of these institutions range from a few hundred students to a few thousand. The four-year teaching institution will normally have a significant residential (dormitory and apartment dwellers) traditional student population. So, you will be able to see your students mature academically and emotionally over that four-year period of time, hopefully having a positive impact on that academic and emotional maturation.

In these institutions, the terminal degree in one's discipline is normally required for full-time employment. Promotion is through the tenure and promotion process, which is based on excellence in teaching, and an acceptable level of research and service. Most institutions now have their Faculty Manual on the web page. Reviewing this document will provide you with insight into many of the job requirements and procedures. You will undoubtedly note that shared governance is stressed in that document.

The four-year teaching institution may already have a Department of Geology or Earth Sciences, so that you would be joining a small faculty with similar backgrounds. Or, geology courses and perhaps a minor in geology may be offered as part of a Department of Physical Sciences. In addition to teach-

ing, you are expected to conduct research and publish, but not to the extent of the research institutions. There will probably not be adequate space or equipment available, but one learns to make do. This research can be practical / applied, that is, directly applicable in the classroom, and should involve your student majors, as part of the institution's curriculum may be a senior thesis. Student research (especially in the areas of environmental geology or environmental science), you may remember, is one of the graduation requirements that helps pull not only what you learned together, but to apply that knowledge, and be able to demonstrate a level of competence to a potential employer.

Applying for and receiving grants is obviously a plus in this setting, just as it is at the two-year institution. As many departments are stressing the environmental aspects of geology or integrating geology, chemistry, and biology curricula into an environmental science major, collaborative grant applications and project work provide the opportunity to work with other faculty members on mutually interesting projects. The overhead generated from grant money (the politically correct "soft money") is important in funding your travel to professional meetings as well as in supporting other department activities.

Four-year institutions are more often located in at least moderately sized towns and cities. However, spousal employment may still be limited, particularly if the institution is viewed as the prime employer of the area and many of the faculty and staff have been employed there for several years. Like the two-year institutions, "new" ideas may not always be welcome.

IN CLOSING

The transition from geologic professional to geologic academician can be made. The rewards in the academic setting are very different from those of industry, but ever more satisfying. Being a great teacher means putting your whole being into the effort, but when a former student comes up to you and says something like "Do you remember me from the first geology class that you taught here, six years ago? Well, I learned more in that course than just geology. You taught me how to study and apply myself." This is the reward for all of the effort you expend and all of the frustration you will probably endure as a college instructor. Do not give up on the students!

Gail G. Gibson began his professional geologic career in the petroleum industry, was founder and CEO of his own consulting company, and subsequently worked in local government as a hydrogeologist. He has held faculty and administrative positions at both private and public colleges and universities.

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STUDENTS

AIPG encourages students to send in articles and photos to be printed in the AIPG journal *The Professional Geologist*. Send articles and photos via e-mail to aipg@aipg.org or mail to AIPG, 8703 Yates Dr., #200, Westminster, CO 80031. Ph.: (303) 412-6205.

Go to the AIPG National Web site (www.aipg.org), click and scroll down the top right drop down menu to Students to access the following information:

- **Student Application ($15 annual dues)**
- **AIPG National Student Scholarship Program**
- **2003 AGI/AIPG Summer Internships in Geoscience & Public Policy**
- **Student Chapter Organization Manual (Revised 2002)**
- **Student Career Day Flyer**
- **Reflections on a Geologic Career - 4th edition (2002)**
- **AIPG Section (State) Web sites and Officers**
- **Job Target (free resume posting and job listings)**

LESSONS LEARNED: What do Campus Oil Campany Recruiters Look For?

George D. Klein, CPG-01487

During 1996, the price of oil and gas increased, as did exploration in the USA, particularly offshore. The oil sector showed robust growth and oil rig shortages were common. Moreover, campus recruitment by major oil companies for new hirees also picked up, and some geology departments saw an oil company campus recruiter for the first time in five years.

So, what are the oil company recruiters looking for when they interview geology students on campus? Having served as a geology departmental Placement Coordinator at the University of Illinois at Urbana- Champaign during the early 1970's, the late 1980's, and the early 1990's, certain common attributes emerged, and perhaps they are worth reviewing.

The most critical factor every recruiter considers during their 30 minute interview of candidates is: *Will this candidate be able to increase revenue for our corporation?*

What does the recruiter look for to make such an assessment?

In my observations, the following are some (but not necessary all) of the factors they will consider.

1. The candidate should elicit as quickly as possible from the recruiter what are the company's needs and expectation if hired, thus indicating to the recruiter an interest in working for that company and wishing to seek common ground and rapport.
2. Was the thesis topic of the candidate generated by the candidate only, jointly between the candidate and the faculty, or totally by the adviser? Why is this important? It demonstrates the candidate's degree of independent thinking, initiative, ability to function on their own, and responsibility for their own goals and work. As a bonus, it could indicate a candidate's ability to do the extra things (going the extra mile) that corporations need to meet deadlines, production targets, overcome a sudden crisis, and again, generate revenue.
3. What special skills does the candidate possess and which are unique? Today, the most critical skill is computer utilization. Candidates should be prepared to show examples of computer programs they wrote, computer-based projects they completed (or are underway), and discuss hardware and soft-ware systems they used. Such a summary lets the recruiter know quickly if the candidate is ready to work.

Writing and oral communication skills are critical. The ability to write and verbally express oneself clearly, precisely and in a focused manner, is a premium skill. *Focus* tells the recruiter the candidate is organized, is likely to meet deadlines, can utilize time effectively, and make themselves understood easily and quickly. It also shows if candidates focus on the topic at hand, namely showcasing skills that implicitly will be perceived to generate revenue for the corporation.

One favorite gambit of interviewers is to ask candidates "Tell me about yourself". Focused candidates know, after providing their name and a quick rundown of their education, to speak about their geological experience, courses, projects, and computer skills/experience, and then showcase a portfolio of written projects, computer output, and drafts of work in progress. Team projects should be included and candidates should discuss their role in such teams. This response must be completed in five to seven minutes, speaking at one's normal rate of speech. Showcasing one's skills and achievements by summary and example provides a recruiter with the essence of a candidate's capabilities (especially integrative ability), background and preparedness to work at the next level as an individual and as a company team member.

4. How broadly trained and adaptable is the candidate? A broad background in geology and cognate fields is critical to an individual's chances of being hired. For operations, all industries, including the petroleum industry, need generalists who can solve problems, and that means THEIR PROBLEMS. A broad background shows recruiter that a candidate will bring knowledge that helps the corporation immediately increase revenues. Evidence of quality work in different areas or topics outside the thesis specialty are key indicators of a candidate's adaptability. The desire to want to expand one's skills through corporate or external short-course training indicates to a recruiter that the candidate is interested in staying current and contributing to the company long-term.

5). Read any and all company literature before the interview. Examine annual reports, and earnings records in standard summary reports ahead of time. Learn all you can about the company for use during questions in the interview. This showcases interest in the corporation.

It is, perhaps, worthwhile also to review some basic things that student candidates should consider before going to the interview. First, grooming is critical. Dress for an interview as if one is ready to go to work. Look like the professional you will be expected to be on the job. Avoid bright and clashing colors. For the men, get a haircut three days before the interview; for the ladies, keep the hairdo kempt.

Second, speak clearly in main-stream American English. The regional accent may be difficult to understand for some individuals.

Third, both on the day before and the day after the recruiter visits your department, wear a regular shirt or blouse and Levi's, slacks or skirt around the department building. The well-dressed person who asks you directions in the hall the day before the meeting may be the recruiter who interviews you the next day (and remembers you). On the day after interviews are completed, the recruiter may return to the geosciences building to pick up transcripts, reference forms, or meet the department head. It is best not to meet the recruiter again wearing an outrageous T-shirt, which won't pass muster in the business district of any community.

Fourth, candidates should never discuss politically-related topics with recruiters and avoid the bait if given. One company stopped visiting a certain university geology department because many of its students used the interview to question corporate policy overseas and really weren't interested in a job. The company responded by inviting all serious candidates from that department to complete applications for employment, and the departmental office mailed them in collectively. The most promising candidates were then flown to corporate headquarters for a combined interview and plant trip.

Fifth, during a plant trip, as the visit comes to a close and one has determined who makes the critical hiring decision, ask that individual "Where do we go from here?." If the visit went well, even add to that question "I think it looks like a good match". That gives the interviewer a chance to let you know informally how things look. Moreover, it provides the interviewer a chance to spell out time lines over which the candidate can expect to hear more.

Last, during the 1990's, etiquette re-emerged as important behavior in the business world, and even on some campus's etiquette was the most popular non-credit course as students realized they weren't learning it anywhere else. Writing a thank you letter or note to one's host (or critical decision maker) during a plant trip, and including a short paragraph about the shared common professional highlights during the visit seemed to payoff for some students. Such notes get read and prompt another look at one's file again, and may even move the file to the top of the stack.

While a faculty Placement Coordinator, I shared these perceptions with students looking for jobs and going to interviews. As formidable as all this appeared to some of them, I also reminded them that this was not the first time they were screened. They had presented themselves to get admitted to our undergraduate or graduate programs and achieved that goal. They should be able to fine tune themselves one more time to gain entree into the petroleum industry. Many not only did so, but to the shock of many of my faculty colleagues, they are doing very well there.

George D. Klein is president and chief geologist of SED-STRAT Geoscience Consultants, Inc. focusing on Petroleum Geology (domestic and international), advising on clastic reservoirs and facies, sequence stratigraphy, seismic sedimentology, reservoir characterization, and sedimentary basin evaluation. Before becoming a consultant in 1996, he taught at the Universities of Pittsburgh, Pennsylvania, and Illinois (Champaign-Urbana). In 1993, he left Illinois to become Executive Director of the NJ Marine Sciences Consortium and New Jersey State Sea Grant Director for a period of three years.

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Wright State University

Founded in 1996

Chapter Sponsor: Thomas Berg, CPG-08208

Student Chapter President, Brian Bayliss, SA-0221, provided a list of the past years activities:

- Hosted the January dinner meeting.
- Started an adopt-a-highway program.
- Conducted several field trips.
- Set up an Earth Science Week booth in the center of campus, including a seismic-reflection contest for students to try to generate the biggest waves using a sledge hammer.

Seven student from Wright State attended the AIPG Annual Banquet Meeting held November 21, 2002 in Columbus, Ohio.

AIPG Arizona Section Meeting and Tucson Gem & Mineral Show

February 14 – 15, 2003

Join the Arizona Section at the Tucson Gem & Mineral Show, February 14th - 15th, 2003. There will be a dinner followed with a talk by Paul Lindberg on the *Evolution of the Grand Canyon* on Friday evening, February 14th. The Arizona Section business meeting will be held at the Arizona Geological Survey office, 416 W. Congress Street, on Saturday morning, February 15th, followed by a tour of Gem & Mineral Show at the Tucson Convention Center (within walking distance of the Arizona Geological Survey). The AIPG Executive Board will be meeting in Tucson so they will be joining us. Please contact Dennis Turner (602-771-4501 or turner.dennis@ev.state.az.us) or Barbara Murphy (602-294-9600 or bmurphy@clearcreekassociates) for more information.

How to Give a Speech

Henry H. Fisher

Rules are presented for giving a speech. They were arrived at after years of speaking, listening to others, and collecting ideas from many sources. Every good speaker has his (her) method of presentation, but using the ideas given will help most people.

I've heard many speeches throughout my career. A few have been excellent, more than twice that number were very poor, and the rest fell in between. As part of my work, I've given many speeches and developed a successful technique for speaking. The idea for helping others to give good speeches came from an article describing a speech at a technical meeting that was so bad that the moderator publicly berated the speaker for taking up the time of the audience. In an effort to aid others, my ideas on speaking were formulated into a series of guidelines. This does not mean that ideas on my list are the final rules for speaking since additional ones can always be added to them. My object is to prevent dull speeches because it is really easy to give a good presentation and good speeches are much easier to listen to than bad ones.

Many people think it is difficult to give a speech. Many people have a great fear of speaking before an audience. Hesitant speakers lack confidence. Speakers acquire confidence when they realize that they know more about the subject than anyone in the audience does. Slight nervousness can be helpful when speaking because it keeps the speaker from being too comfortable and "sloppy" and that "sharpens" the delivery. The nervous feeling will disappear as the speaker talks about their subject.

There are two basic types of speeches; those purely for entertainment, and those to provide information, such as formal technical lectures. Some of my rules apply to both kinds of speeches; others are mainly for technical lectures. The first set of rules apply to all types of speeches:

1. Tailor your voice to the type of speech. Sound confident and definitive when delivering an instructional lecture. Use a conversational voice for one that is more entertaining.
2. Vary the pitch and volume (loudness) of the voice to emphasize points.
3. Speak in complete sentences and don't hesitate between words.
4. Be friendly. Look at the audience and make eye contact with different individuals in it; speak to them.
5. Ask questions to engage the audience's attention.
6. Avoid extreme mannerisms such as continuously waving your hands back and forth, the "fig-leaf clutch" (clasping both hands together, down in front), keeping your hands in pockets, leaning on the podium.
7. Know what you want to say and be prepared.
8. Make an outline of speech. It should have an introduction, body, and a conclusion.

Rules for giving a formal lecture:

9. Know the subject. The speaker knows more about subject than the audience does. If the speaker wasn't the expert then someone else would be giving the speech. Geology is exciting, and the speaker's voice should express that.
10. Be entertaining. First, grab the audience's attention, then inform them.
11. Be enthusiastic. Why speak about something you don't like?
12. Keep it simple. Audience members can't absorb too many facts. For the most part, details are easier to learn if they are read from a book than heard in a speech.
13. Determine the main point(s) of the speech and stress them. Make sure all important parts are covered.
14. Keep slightly too much (but less important) material available for the speech. Less important material may be used to fill up time at the end of a speech that is too short. It can be omitted if the speaker runs out of time.
15. If speech is not memorized, write out notes (key words), not complete sentences. Sometimes the notes can be written after a speech is written as complete sentences. Enlarge the notes on a computer or copying machine to size 20 font, or larger. The speaker can then stand back from the notes (even walk away from a podium), see them, be reminded of the various points to cover, and appear to be quite prepared when speaking. The speaker can walk back to the podium and turn over the note pages from time to time. Speaking from notes forces the speaker to fill in the missing words to form complete sentences and gives the speech a "freshness." ONLY ACTORS OR PROFESSIONAL SPEAKERS CAN READ COMPLETE SENTENCES AND MAKE THEIR SPEECHES SOUND LIKE ORDINARY CONVERSATION.
16. NEVER, NEVER apologize for any mistakes unless they are important technical mistakes that you realize while giving the speech, and then correct them as soon as possible. Audience members probably won't notice ordinary mistakes that many speakers call attention to such as "I forgot to bring slide such-and-such," or "the quality of the slide is poor." Drawing attention to them by apologizing emphasizes them, makes them obvious, and they then appear worse.
17. Rehearse the speech.
18. Don't give handouts out too early during speech unless it is absolutely important.

Audience members tend to look at handouts and not pay attention to the speaker. The audience members also may be taking notes and lose track of the speakers thoughts.

RULES FOR SHOWING ILLUSTRATIONS:

1. DON'T FACE THE PICTURES WHILE SPEAKING, face the audience and speak to people in it.
2. Use pictures only when applicable – not to merely entertain (during a formal lecture) or kill time.
3. Do not use pictures as an outline for a speech.
4. Many speakers show too many pictures. Choose pictures wisely and don't show all that you have.
5. We learn a lot from hearing. Pictures are useless if a person can close their eyes and learn as much from listening to the speech. This is what makes the TV program 60 Minutes so good. It is really radio with pictures – and it was designed to be that way. The spoken word is the most important part of 60 Minutes. I do not mean to imply that pictures are useless as they can reinforce the spoken word.
6. Consider whether projecting the main points and subpoints as text on a screen really aids the speech. It is possible to emphasize points verbally by a change in the pitch or volume rather than by projecting text.
7. DON'T READ PROJECTED TEXT TO THE AUDIENCE, IT IS INSULTING, those in your audience know how to read!
8. Use pictures to show a specific point, not a generality the audience is familiar with. For example, don't say an area has a landslide and then show an ordinary picture of a landslide; an audience of geologists should know what landslides are like. Showing a specific feature of a particular slip can be done if it will add to the speech.
9. Don't show pictures that would be meaningless to the audience. Don't show a photomicrograph of a specific fossil to an audience of ground water geologists, most of them won't know whether they are seeing the right or wrong fossil, and they probably won't care.
10. Don't show text or diagrams that are complicated or too small to be seen. If such pictures must be shown then the speaker must interpret them for the audience.
11. Depending on the type of speech and the order of presentation, slides and handouts might best be shown after speaking.
12. Show each picture for a minimum of five seconds. If it is worth showing, than it should be seen for a reasonable amount of time.

RULES FOR MAKING PICTURES:

1. All illustrations should be bold and simple.
2. Don't show long formulas or equations.
3. The minimum height of readable lettering on a slide is 3-mm.
4. It is best to show only 1 or 2 curves on a diagram. Three or 4 curves is the maximum, but only if they are well separated.
5. Do not use more than 3 or 4 vertical columns in an illustration; 6 to 8 horizontal lines.

Following this advice will improve most speakers. In conclusion, remember good speakers can "get away" with all kinds of deliveries; and when you're good so can you! And the audience will love you.

Henry H. Fisher, Natural Resource Conservation Service, USDA, 200 North High Street, Columbus, OH 43227.

AIPG 40TH ANNUAL MEETING
Glenwood Springs, Colorado
October 4 - 9, 2003

PLANNED FIELD TRIPS

PICEANCE BASIN TRIP
Petroleum, stratigraphic and structural geology for tight-gas sands and coals

YULE MARBLE QUARRY
Redstone and the Crystal River Valley

GYPSUM QUARRY AND WALLBOARD PLANT

GEOHAZARDS, COLLAPSE FEATURES, AND EVAPORITES OF THE EAGLE VALLEY

UNCONVENTIONAL RESERVOIRS – TIGHT GAS SANDS,

BASIN-CENTERED ACCUMULATIONS, AND OIL SHALE

ENGINEERING GEOLOGY AND STRATIGRAPHY OF GLENWOOD CANYON

CARBONATE DISSOLUTION AND PRECIPITATION – TOURS OF GLENWOOD CAVERNS AND FAIRY CAVE

HYDROLOGY OF GLENWOOD HOT SPRINGS WITH DISCUSSION OF WATER RIGHTS

ASPEN AND MAROON BELLS
with ghost town of Ashcroft, lecture on avalanches, Crystal River Valley and Redstone. Geologic stabilization of Highway 82 between Carbondale and Aspen

PALISADES WINERY AND VINEYARD

Geologists and other interested parties who are not AIPG members are welcome to register as non-members to attend the Annual Meeting and participate in the Field Trips and Professional and Technical Sessions. For additional information, please contact AIPG Headquarters at phone 303-412-6205, fax 303-412- 6219, e-mail aipg@aipg.org

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The Geologist: Past, Present, Future

Susan M. Landon, CPG-04591, AIPG 1990 National President

Introduction

I had never seen a well log before the day I walked in the door at Amoco. Although I grew up in the middle of a major oil field, my education had not included a course in petroleum geology. The petroleum industry has frequently expected trained petroleum geologists to be ready for hire from the university when the company needed one. That is not a practical expectation nor is it necessary. As cycles occur in the industries that employ geologists, there is a need for flexibility on the part of the student, academic institution, and employer. What should a graduate in geology know to be prepared for a career? What will that career be?

Predicting future trends in the geologic profession is easy; trends will be erratic. Historic trends in employment, in enrollment, and in numbers of degrees granted document cyclicity. The question is how do we, geologists, companies, academic institutions, effectively manage the cyclicity of our profession? Several sources were used to develop this background information including the AAPG Annual Survey of University Geology Departments, the American Geological Institute, and various meetings on geologic education and careers. Many of the conclusions in these comments are my personal opinions.

Our profession, geology, is subjected to the cyclicity of several industries that employ us and, to a degree, industries that support research and education in geological sciences. The traditional employers (petroleum, mining, environment/hydrology/engineering, academia, and government) experience changes in hiring levels relative to markets and politics. Opportunities in petroleum and mining geology are driven by markets and politics that are usually impacted by global issues, environmental geology is driven by government regulations, and other areas by diverse issues. Through time, through, new graduates with degrees in geology will be necessary in all of these areas. The big questions are:

1. How many graduates and at what degree level will be adequate?
2. What kind of education should these graduates receive?

Observations and Recommendations

Undergraduate Education

My opinion is that there can never be too many undergraduates in geology. An undergraduate degree in geology, especially from a liberal arts institution, should be considered as an excellent background for a broad spectrum of careers beyond geology. This is no different than many other areas of study (like English or history). Individuals receiving a degree in geology with a sound education, ability to communicate, an understanding of the scientific method, and an appreciation for the earth and its process, will be able to pursue a variety of career options ranging from attorney, member of the diplomatic corps, law officer, congressman, rancher, primary or secondary school teacher, insurance agent, mystery writer – to name a few. At the very least, the result is an educated voter. (I recently visited with a guy who had graduated from college with me. He had a double major in geology and music and is now a doctor and avid fossil collector!) Therefore, our society should continue to encourage young people to study geology and other sciences at the undergraduate level. Care will be needed for realistic career counseling as these undergraduate students contemplate their future.

If a student does plan to pursue a career in geology, the best possible curriculum would be one that provides a strong, well-balanced foundation in the principles of geology. Specialization is not appropriate at the undergraduate level. An incoming college student generally has a minimum of six years of college-level studies, i.e., a Master's degree, before contemplating a career position.

Graduate Education

A Master's degree will continue to be the degree of preference for most of industry. I strongly feel that the major value of this degree is the thesis. It is an opportunity to practice what will be expected of the student once employed: figuring out the problem, what you need to address the problem, doing the integration, and communicating the results of your work.

What should that student learn while working for a Master's degree? First of all, the student should continue to gain a sound, comprehensive geological education that began at the undergraduate level. The student should not become so limited in scope as to prevent flexibility in career opportunities in geology. A student should be encouraged to work on a thesis topic that is of personal interest because the student will learn more in the process and probably do a better job.

We have many successful geologists in the petroleum industry who have completed thesis topics ranging from planetary geology to metamorphic geology to environmental controls on coral growth rates. Murray Hitzman, Head of the Geology and Geological Engineering Department at the Colorado School of Mines, recently told me that oil companies were hiring graduates from the Economic Geology program because of their success with the companies. This is at a time when mining companies have dramatically cut their own hiring programs. It is not mandatory for a student to do a subsurface thesis to be qualified for a position in the petroleum industry. These same concepts apply (or should apply) to other industries and the students they hire. The important lesson is to gain the ability to identify a problem, conduct research, and document the results of the work – practice for real life.

A PhD will continue to be required for academia and most research positions. This is, of course, a level at which specialization is important. This also is the degree that is the subject of much of the controversy regarding the appropriate number of degrees that our universities should be granting in most areas of study. At times a significant number of new PhD graduates end up in post-doctoral positions with only modest hope of a meaningful long-term, career position as new PhD's continue to increase competition for the limited number of positions.

How the system can balance the number of advanced degrees granted with the number of opportunities for employment is beyond the scope of these comments but should continue to be of concern for our profession.

Susan M. Landon, CPG-04591, AIPG 1990 President, Independent Petroleum Geologist.

My Pathway to Geology - Exploration, Development and Production

By Richard Powers, CPG-06765, AIPG National President

Upon entering Boston University (BU) in the fall of 1970, the future was bright with the notion of pursuing a degree in biology and ultimately attending one of America's great veterinary schools. After performing miserably in BU's pre-med "weed out" course of inorganic chemistry and getting completely discouraged with the extremely dedicated and brilliant (they will tell you that) pre-med students a course correction was warranted. As an ocean-loving northeastern coastal kid, marine biology looked good and became the "new" focus of my second year in college.

Have you ever spent two weeks looking at the radiolarians and dinoflagellates of Narragansett Bay? Beautiful, but boring and of no economic interest. Next—zoology. The final exam – a laboratory filled with dead vertebrates that had been slit opened in various places. Each opening had a small, numbered pin stuck into a tiny organ and I was supposed to identify the "pinned" object. 100 pins – I passed but this was not my calling. (I have always wondered which TA was given the job of making all those little numbered pins). Lastly, genetics—taught by a German professor who was a remnant of the Third Reich. All this, plus the disturbing fact there was little work for marine biologists in the early "70s", resulted in yet another course change.

Enter my buddy Bill,"Hey, you should check out this geology course I just took." OK. I enrolled in physical geology 101, and Dr. C. Wroe Wolfe taught the course. A towering geologist in his early 60's with a passion for the earth and its solids, liquids and gases that amazed and energized me. In addition to Dr. Wolfe's motivational lectures, the people majoring in geology appeared to be normal human beings that appreciated deep discussions of life and earth at the local pub and loved to go on weekend field trips. This was just to good too be true—I was hooked.

Physical geology, mineralogy (taught by another amazing professor, Dr. Ed Geith), geochemistry, seismology, hydrology, sedimentation and stratigraphy, optical mineralogy, etc, and the best of all, six weeks of field camp in Maine mapping hard to fine outcrops and fighting black flies and mosquitoes with Dr. Wolfe. Probably the best summer of my life—doubled hooked. Was it true that you could be paid to have this much fun? Was it possible to talk in three dimensions and have everyone know what your saying? The answer was a resounding—YES!

That was almost 30 years ago and I have never regretted my decision to be a geologist. During the course of my career I have worked in various capacities with uranium, coal, oil and gas, tar sands, heavy minerals, limestone, sand and gravel, phosphate, bauxite, etc. I have traveled to many interesting places and met numerous great people along the way. My work has always been and continues to be fun and rewarding.

I'm very fortunate that I didn't end up taking stool samples from dogs and cats on a daily basis!

Internship Exposes Geoscience Students to Public Policy

Margaret Baker

For the last seven years, the American Geological Institute (AGI), has introduced 2-3 geoscience students each summer to the world of public policy thanks to the generous support of the AIPG Foundation. The AGI/AIPG Geoscience and Public Policy Internship is a unique learning opportunity for the students, but it also provides some much-appreciated help for AGI's Government Affairs Program. Interns maintain the program's web site, writing summaries of recent events and background on issues affecting the geoscience community. But this doesn't mean that they are stuck at a computer all summer. Instead, the internship program is designed to expose them first-hand to a range of experiences, from attending congressional hearings and briefings to researching current events to meeting with leading geoscientists in the federal government.

Unlike many Washington internships, the AGI/AIPG internship is geared specifically toward providing an opportunity for geoscience students who have an interest in public policy rather than students already studying policy or with policy experience. Over the years, the program has drawn undergraduate geoscience majors, recent graduates, and graduate students from all across the country. In the summer of 1998, I came to the internship as a rising senior geology major. One of the other interns that summer was entering graduate school and the other was finishing a master's degree.

What Do Interns Do?

The signature experience of the internship is spending time on Capitol Hill attending congressional hearings and briefings. When Congress is in session, there is a flurry of hearings in both the House and the Senate. Most hearings are held between Tuesday and Thursday — the congressional work week. Contrary to what one might think, hearings can be very entertaining. The gentile banter between members, especially when they differ in opinion, can be similar to a velvet-draped Punch and Judy show. Interns also attend briefings sponsored by outside groups to educate congressional staff members, and they attend meetings at federal agencies and the National Research Council.

Mondays and Fridays are reserved for background research and writing up summaries of the events of the week for the web site and the program's e-mailed updates. Through going to Capitol Hill and researching topics over the course of a summer, the interns become the resident experts on issues they are covering. During my internship, I became educated in the complexity of the royalty-in-kind program for oil and gas leases on federal lands. A summer's worth of learning and experience is pulled together in an article for The Professional Geologist.

The summer that I interned, a "quasi-weekly" series of discussions was initiated to provide a common base of understanding in the legislative and budget processes. These discussions (often held over cookies) also provide the interns with an opportunity to learn about how the geosciences relate to hot topics, such as climate change or access to public lands, being debated on Capitol Hill.

Congress leaves for most of August, providing a chance for the interns to meet earth scientists that are working in the federal government. As an intern, these "field trips" were an eye opener to the possibilities available to someone with a geoscience background. Geoscience students are often faced with questions (often from family) about what they plan to do once they're out of school. Meeting geoscientists working in different types of government positions provided me with the knowledge that there were other career paths besides pure academic research or industry.

Where Are They Now?

Former interns have gone on to a range of careers paths. Some remain within the geoscience community, while others have taken their geoscience training and applied it to different walks of life. Many have decided to stay inside the Beltway, stricken by the malady of Potomac fever. Heidi Mohlman Tringe has held a number of congressional staff positions since she was a Summer 1996 intern and is now the Communications Director for the House Science Committee. Summer 2000 intern Nathan Morris also works for Congress, but not for a member or committee. Instead, he works for the General Accounting Office, a support agency that serves as the investigative arm of Congress. The majority of those who stayed in the D.C. region are working for consulting firms that work closely with federal, state and local agencies on environmental and regulatory issues. Other former interns are pursuing graduate degrees in policy and law. Still others have gone on to pursued more traditional geoscientific careers. Sarah Robinson, a Summer 1999 intern, completed her doctorate in geomorphology at Arizona State University and is now a Mendenhall Post-Doctoral Fellow at the U.S. Geological Survey. One of the interns from this past summer, David Viator, has just completed his master's degree at Louisiana State University and is going to work for ExxonMobil. And this former intern took a job at AGI in the Government Affairs Program.

Margaret Baker is the program associate for government affairs at the American Geological Institute. She also is pursuing a Ph. D. in geology at the University of Maryland. E-mail: mab@agiweb.org.

Information about applying for an AGI/AIPG Geoscience and Public Policy Internship is available at http://www.agiweb.org/gapac/intern.html. The deadline for this coming summer is March 15, 2003. Building on the success of the AIPG Foundation-supported summer program, AGI , introduced a semester internship program in 1999 with the support of the American Association of Petroleum Geologists.

Colorado School of Mines AIPG Student Chapter

L. Graham Closs, CPG-07288 and Dawn A. Schippe, SA-0139

This article provides a brief history of the Colorado School of Mines AIPG Student Chapter, a review of Chapter activities in 2002, and cite several issues that we have encountered in the operation of our Chapter.

The Colorado Section of AIPG held its first Student Day in September, 1996, at the Colorado School of Mines. As a result of this event, CSM undergraduate Dean Feller (CSM BSC GE, 2000) expressed interest in starting a Student Chapter of AIPG at CSM. Student interest was explored over the next two semesters. The first Brown Bag lunch meeting was held during Spring semester 1998 and two talks were scheduled for Fall semester 1998. This resulted in increased student interest and an expanded speaker program was developed for Spring 1999. A decision was made to move forward to establish a Student Chapter at CSM. Ms. Margie Kloska, then a graduate student at the University of Wyoming and formerly the President of the first Student Chapter at Wright State University in Ohio, was a great help in getting the ball rolling.

At the time of initiation of the CSM AIPG Student Chapter, the second such chapter, there were nine CSM students who had obtained membership in AIPG and three applications in progress. The Chapter sponsors were: Stephen A Sonnenberg, CPG-06201 – Chapter Sponsor, Robert J. Weimer, CPG-98 – Honorary Chapter Sponsor, and L. Graham Closs, CPG-07288 – Faculty Sponsor. Currently there are seven Student AIPG members.

Since the CSM Geology and Geological Engineering Department is well complimented with student chapters of the major technical societies (AAPG, SEG, and AEG), the CSM AIPG Student Chapter has focused on expanding awareness of the aspects of practicing as a professional geologist: technical competence, integrity, ethics, registration, and certification. Three to four monthly Brown Bag lunch meetings are scheduled each semester. Increasingly these are co-sponsored by the AIPG Student Chapter and one or more of the student technical societies chapters. Announcements of the Student Chapter meetings are distributed through the AIPG Colorado Section email site. The Colorado Section has been strongly supportive of our Student Chapter through member attendance and contributions to the program. The mix of local professionals and students makes for more dynamic and mutually beneficial discussions at these meetings. We are most appreciative of this support.

A review of the Chapter's activities in 2002 provides a flavor of our annual program. A wide range of talks have been presented this past year by a number of distinguished geologists from both our local community and beyond: John Calkins (ESRI) – The Use of Geographic Information for Emergency Management and Homeland Security; David Holmes (Holmes Reserves) – The Geologist as Expert Witness; Larry Cerrillo (National AIPG President) – Beyond Geology; Jim Reed (Rockware) – Utilization of Computer-based Geological Exploration Methods in Forensic Investigations; and David Abbott, Jr. (Consulting Geologist) – Definition Related Problems Between CMMI, SEC, and USGS Mineral Reserve and Resource Classification Systems (January) and My Favorite Frauds (November). We are grateful to all these speakers for contributing to our program.

Our CSM/AIPG Student Chapter is increasing awareness among students at many of the issues that face professionals and non-professionals alike. For instance, ethics and registration are two topics that appear every year in our schedule of talks. These are very timely issues, especially since Colorado is hopefully only a few years from instituting mandatory registration to practice geology, a procedure that is required in over 30 other states.

Several Chapter issues that we are facing may be worth putting on the table for both current discussion and future consideration: increasing enrollment and participation, and exploring ways to effectively exposing students to these principles for which AIPG itself was formed. We naturally wish to expand our membership as we believe it provides our students an advantage as they transition from student to professional geologist. In addition, participation in the Chapter Executive provides opportunities to develop leadership skills and network interaction with active Colorado Section members sets a foundation for contribution to professional organizations throughout their careers. The biennial Colorado Section Student Day meetings continue to be an excellent compliment to Chapter activities.

It often appears that we are competing for student time with the technical organizations. Students are more familiar with these types of organizations, given that they are currently involved with the formal education portion of their career development. It is a challenge, but one worth accepting, to make them aware of other dimensions of a career in geology. A blend of activities that will attract student interest while conveying aspects of professional practice is the way to go. Joint sponsorship of speakers is one approach that is paying dividends.

We look forward to productive discussions of these and other topics of concern to student chapters that will follow from coverage of this topic in *TPG*.

L. Graham Closs - Faculty Advisor, CPG-07288, and Dawn A. Schippe, SA-0139 - President CSM AIPG Student Chapter.

AIPG SCHOLARSHIP AND PRESIDENT AWARDEES

AIPG 2000 President's Awards for Student Posters

Graduate Category

First Award: **Timothy T. Eaton**, Wisconsin Geological & Natural History Survey, Madison, Wisconsin, e-mail: teaton@facstaff.wisc.edu. Mary P. Anderson, Herbert F. Wang and David Hart, University of Wisconsin-Madison, Department of Geology and Geophysics, Madison, Wisconsin, and Kenneth R. Bradbury, Wisconsin Geological and Natural History Survey, Madison, Wisconsin, *Importance of a Sparse Fracture Network in the Maquoketa Confining Unit: Evidence for Preferential Flowpaths.*

Second Award: **Shawkat Ahmed** and Philip J. Carpenter, Department of Geology & Environmental Geosciences, Northern Illinois University, DeKalb, Illinois, e-mail: sahmed@geol.niu.edu and Mike E. Konen, Department of Geography, Northern Illinois University, DeKalb, Illinois. *Filled Sinkholes and Soil Piping in Thinly Mantled Karst, Northeastern Illinois.*

Third Award: **C. J. La Cosse**, Department of Geosciences, University of Wisconsin-Milwaukee, Milwaukee, Wisconsin, e-mail: cjlac@csd.uwm.edu, *Historical Trends in Ground-Water Recharge Rates for Southeastern Wisconsin.*

Undergraduate Category

First Award: **Colleen Kelly**, Department of Geosciences, University of Wisconsin-Milwaukee, Milwaukee, Wisconsin *Magnetic and Mineralogical Investigations of Phyllites from the Baraboo Area, Wisconsin.*

Second Award: No award made.

Third Award: **Lee Ann Atkinson**, Department of Geosciences, University of Wisconsin-Milwaukee, Milwaukee, Wisconsin, e-mail: leeann@csd.uwm.edu, *Magnetic Properties of Pre-Illinoian Tills from Northern Missouri.*

AIPG Scholarship Awarded for 2000

The AIPG Executive Committee is pleased to announce the awardees of the first two AIPG student scholarships. They are Dawn A. Schippe, a junior majoring in Geological Engineering at the Colorado School of Mines in Golden, Colorado, and Alison Culver, a senior majoring Geology at Centenary College of Louisiana in Shreveport, Louisiana. AIPG, through the Executive Committee, is proud to be able to assist aspiring geologists in pursuit of their degrees. We wish for their successful careers in an honorable and worthwhile profession.

AIPG 2001 President's Awards for Student Posters

Graduate Category

First Place: $500 cash award plus Associate AIPG Membership. **Lance Yarbrough**. *The Effects of Riparian Vegetation on Bank Stability.University of Mississippi.*

Second Place: $100 cash award plus Associate AIPG Membership. **Erika C. Cohen**. *Investigation of Earthquake Phenomena to the Republic Day Earthquake in India. University of Mississippi.*

Third Place: Associate AIPG Membership. **Jennifer Thompson**. *Hydrogeologic Investigation of an Alluvial Aquifer in Cape Girardeau, Missouri. Southwest Missouri State University.* **Jon D. Wilson**. *The Effect of Variations in Joint Orientation of Keyblock Size in Rock Slopes. University of Mississippi.*

Undergraduate Category

First Place: $250 plus Associate AIPG Membership. **Julie Ann Evans**. *Characterization of Dispersive Soils Found in Mississippi by the Pinhole Test. University of Mississippi.*

Second Place: $50 plus Associate AIPG Membership. **Emily A. Strack, Jennifer F. Henderson, Beth A. Reimer**. *Assessment of Arsenic Concentra-tions in an Agricultural Soil of Northern Mississippi. University of Mississippi.*

AIPG Scholarships Awarded for 2001

The AIPG Executive Committee is pleased to announce the awardees of the 2001 AIPG student scholarships. They are Dean A. Brower, an undergraduate in Geological Engineering at Montana Tech of the University of Montana in Butte; Abigail L. McQueen, recently completed her fourth year at James Madison University and will be returning to JMU in the fall to fulfill the requirements needed to obtain a Bachelor of Science Degree; **Jennifer J. Pagach**, SA-0186, a student at Central Connecticut State University is currently completing an undergraduate Honors Thesis in which she is creating a GIS project of her own design to assess slope stability in West Hartford, Connecticut.

AIPG Scholarship Awarded for 2002

The AIPG Executive Committee is pleased to announce the awardee for the 2002 AIPG student scholarship. **Meghan Jackson**, SA-0235, is a senior in her fourth year at the New Mexico Institute of Mining and Technology, located in Socorro, New Mexico. Her major is geology with a minor in Mining, and expects to graduate in December, 2002.

Professionalism in Geology

(reprinted from *Guiding Your Career as Professional Geologist*, AAPG 1993)

Stephen A. Sonnenberg, CPG-06201

Almost all geologists think of themselves as scientists. Unfortunately, far fewer seem to think of themselves also as professionals; this thinking constitutes an unrecognized career handicap.

Geology is both a science and a profession. A science pertains to accumulated systematized knowledge. A profession pertains to a special occupation, often for monetary gain (Weimer, 1980). Petroleum geology, for example, is an occupation that requires specialized knowledge and academic preparation.

What is Professionalism?

The dictionary defines professionalism as the conduct, aims, or qualities that characterize or mark a professional person. A professional person is one who is engaged in a learned profession and who has an assured competence in a given field or occupation. A professional develops an attitude that brings about a dedication of time and effort to acquire knowledge, and to apply it for the benefit of mankind (Weimer, 1984).

The Taft-Hartley Act defines a professional in the following way:

> (a) any employee engaged in work (i) predominantly intellectual and varied in character as opposed to routine mental, mechanical, manual, or physical work; (ii) involving the consistent exercise of discretion and judgment in its performance; (iii) of such a character that the output produced or the result accomplished cannot be standardized in relation to a given period of time; (iv) requiring a knowledge of an advanced type in a field of science or learning customarily acquired by a prolonged course of specialized intellectual instruction and study in an institution of higher learning or a hospital, as distinguished from a general academic education or from an apprenticeship or from training in the performance of routine mental, manual, or physical processes; or (b) any employee who (i) has completed the courses of specialized intellectual instruction and study described in clause (iv) of paragraph (a), and (ii) is performing related work under the supervision of a professional person to qualify himself [or herself] to become a professional employee as defined in (a) (Campbell, 1990).

Professionalism and Ethics

Professionalism also is linked to ethics (Spoelhof, 1992). Ethics is the discipline of dealing with what is right and wrong. "In a general sense ethics is the name we give to our concern for good behavior" (Albert Schweitzer). Ethical behavior is motivated bv adherence to high moral principles (based on personal philosophy and ideals); desire for a good reputation; enhancement of productivity; fear of sanction (lawsuits, lost sales, dismissal, etc.); demands of society (environmental regulations and protection of investors); and requirements of professional affiliations (as stated in the Code of Ethics).

Spoelhof (1992) offers the following guidelines for ethical behavior in petroleum exploration:

- Decide on your fundamental assumptions.
- Separate the facts from the opinions. No one will be misled if the data are identified and the conclusions are separated and identified as such.
- Develop a commitment to the highest quality work.
- Devote the time and energy necessary to produce outstanding work.
- Do not cheat on time. Give full time while in the office, and do not double-bill your clients.
- Maintain confidentiality. Do not use knowledge gained from one source to the unfair benefit of another.
- Do not defame other companies or explorationists.
- Maintain the ethics of exploration by following proper channels to remove unethical individuals from practice.
- Do not plagiarize. Give credit to earlier studies.
- Do not use inside information for unfair personal gain.
- Avoid conflicts of interest. Do not take bribes.
- Make no unilateral adjustments to any part of an agreement.
- Be worthy of trust—call a situation just as you see it (such as in an employee evaluation or an estimation of risk).
- Be at the leading edge of technology.
- Do reject some conclusions—not everything is a good deal.
- Change company policy if you must, but do not circumvent it.
- Do not be a bigot or a chauvinist.
- Do what is right before you receive a court order.
- Recognize and credit employees and supervisors who do a good job.

Partly because of the savings and loan crisis and other ethical business problems of the 1980s, many business schools now require that students take courses in business ethics. The difference between what is right and wrong in business apparently is not clear to everyone.

Professional practice requires professional morality (principle of right and wrong), adherence to a code of values, and

professional responsibility. Professional responsibility includes high standards of business ethics and professional behavior. Professionals must conduct themselves with the highest standards of ethical behavior when dealing with the public, employers, clients, and other professionals.

Many of the attributes of a professional geoscientist are summarized in AAPG's Code of Ethics (see Appendix 1). Key words or phrases describing a professional are honesty, integrity, loyalty, fairness, impartiality, candor, fidelity to trust, utter sincerity, and inviolability of confidence.

Maintaining and Expanding Your Expertise

Other important qualities of a professional include knowledge and competence. Formal education gives an individual a certain amount of knowledge that leads to professional competence. Work experience supplies additional knowledge and competence. The half-life of one's scientific knowledge has been estimated as being 8 years (Weimer, 1984). In other words, half of what you know today will not be correct, useful, or remembered after 8 years. The answers to the problems keep changing, which means that the professional must be committed to expanding and improving his or her knowledge. Maintaining professional and technical competence, however, requires continuing education, which can take many forms (modified from Knight, 1989).

- Academic courses on a university, or college campus;
- Short courses;
- Seminars and/or field trips;
- Lectures, typically presented at luncheon or dinner meetings;
- Home or group study of technical or nontechnical journals, cassettes or videotapes;
- Formal correspondence courses;
- Having personal libraries (and using them!); and
- Attending conventions.

The changes that have taken place in our profession during the last 10 years (advances in computers, sequence stratigraphy, etc.) are remarkable. Part of being a professional geologist implies that the individual stays current with the latest ideas. *Such is the state of progression in geological science, that the geologist who stands still for but a very little, must be content to find himself left behind* (Miller, 1841).

The following guidelines for becoming a professional are modified from those offered by Gibbs (1991):

- Know what you know; always keep 1earning.
- Know what you don't know; don't bluff or proffer opinions on matters about which you're not informed.
- Acquire a broad overview of geological knowledge, not only as a science, but also as a business and a profession.
- Comply with the highest standards of ethical behavior.
- Communicate. We all need to help educate the media and to pass on our knowledge and enthusiasm to students and the public.

Is Professionalism Declining?

Many prominent professional geologists today are concerned that professionalism among geologists is declining. Weimer (1984) believes professionalism in geology is vanishing for four reasons: (1) inadequate education; (2) the attitude of the professional; (3) the way success is measured by society (i.e., material wealth and monetary gain); and (4) lack of recognition of the professional.

The first reason calls on universities or colleges to continuously revamp the curriculum necessary for geology degrees. Industry requirements continuously change and the academic world must respond accordingly. Today, most universities and firms consider the master's degree as the professional degree. The individual needs to make sure his or her educational background is sufficient to enter a chosen profession. Professionals also must be responsible for continuing their educations throughout their careers.

The second reason deals with attitude. This starts at home, is augmented and refined in college, and is continuously reinforced in the workplace. Professionals must be committed to doing the hard work necessary to achieve and maintain competence. They also should take great pride in their work. Professionals should participate in professional societies and get involved in community activities. They need to practice using clear and accepted ethical guidelines. Being a professional requires day-to-day application of standards. Academic institutions should do more to prepare students for lifetime professional careers through development of personal traits and habits. Miller (1969) points out that educators can help develop the following long-lasting desirable traits: self-discipline and individual competence; acute analytical observation; systematic interpretation and analysis; memory training; enthusiasm and patience; initiative and persistence; and imaginative reasoning and measured aggressiveness.

The third reason relates to the way society measures success. Weimer (1984) believes that recognition is diminishing for the person who does the job right for the sake of pride and accomplishment, regardless of external considerations. Individuals often succumb to societal pressures toward mediocrity, expediency, and bias. The interests and standards of society often suffer from a preoccupation with short-term goals because of the absence of historical perspective. An example is Wall Street's concentration on quarterly performance of petroleum and mining firms, whose real success depends on what is manifestly a long-term process—the discovery and development of mineral properties with lives of 20 to 100 years!

Weimer's fourth reason has two aspects: lack of recognition by the organization for which one works, and lack of recognition by legislative bodies of the professional's contribution to society. A corporate reward system should be in place to recognize and compensate productive professionals. Industry should recognize good professionals by giving raises, promotions, and reasonable job security. However, in the end, job security is in your own head, based actually on your own energy, knowledge, contacts, and integrity. Corporations cannot have loyalty—only people can. Thus, you must be a professional geologist first, and a company employee second. Professional geologists must interact much more with the local community and government, as well as state and national

agencies and legislative bodies, if we are to gain public recognition for the profession. So get involved!

Another common deterrent to professionalism is the pressure to conform to the biases of one's employer (Campbell, 1990). A professional should follow orders, but also should suggest alternatives (and reasons) if his or her opinion conflicts with the employer's. A professional will not assume an adversarial role, but will try to overcome the employer's preconceived ideas with better, alternative recommendations. And in no case will the professional allow the employer to coerce him or her into unprofessional behavior.

Professional Organizations

How can you enhance your profession, which in turn will enhance your professional stature? Besides practicing a code of ethics, you can join and become active in geological societies. There are two types of geological societies: scientific and professional. Scientific societies, such as AAPG, gather develop and disseminate technical information. The business purposes of the AAPG, as stated in the constitution, are to

> ...advance the science of geology, especially as it relates to petroleum, natural gas, and other energy mineral resources; to promote the technology of exploring for, finding, and producing these materials from the earth; to foster the spirit of scientific research throughout its membership; to disseminate information relating to the geology and the associated technology of petroleum, natural gas, and other energy mineral resources; to inspire and maintain a high standard of professional conduct on the part of its members; to provide the public with means of recognition of adequately trained and professionally responsible petroleum geologists; and to advance the professional well-being of its members.

AAPG meets these objectives through its publications, short courses, and conventions.

Professional affairs societies such as AAPG's Division of Professional Affairs, the American Institute of Professional Geologists (AIPG), or the Society of Independent Professional Earth Scientists (SIPES) have different objectives. These organizations establish and certify qualifications of the geoscientist. Individuals have to meet stringent educational and experience requirements and must pass a peer review. Professional affairs groups also monitor and try to influence governmental affairs and public opinion. These organizations generally have a paid lobbyist to help achieve these purposes.

Many states currently have registration bills or definition clauses that define what a professional geologist is and does. For example, Colorado defines a professional geologist as a person who is a graduate of an institution of higher education that is accredited by a regional or national accrediting agency with a minimum of 30 semester (45 quarter) hours of undergraduate or graduate work in a field of geology and whose postbaccalaureate training has been in the field of geology with a specific record of an additional 5 years of geological experience to include no more than 2 years of graduate work. Note that both academic education and experience are necessary to qualify as a professional geologist.

Examples of Problems in Professional Practice

The following examples are typical situations encountered by professionals from time to time. The problems are designed so that you, as a professional, can come up with your own solutions. (The solutions offered are short and incomplete.)

Problem 1. *What do you do when asked by your client to do something unethical or unprofessional?*

This situation occurs sometimes for consultants and expert witnesses. The solution is simple you do not work for such clients! The sad news is that it seems someone can always be found to do this type of work, especially if he or she is being well compensated. A more painful dilemma occurs when a professional employee is asked a similar question by his or her firm. Even so, the basic solution must be the same—play it straight, decline the assignment, or resign.

Problem 2. *What do you do when approached by a colleague to divulge information or slant a recommendation?*

The solution again is fairly simple—you do not do it. Your colleague is being unprofessional by putting you in the position in the first place. This again can become a problem when people are being compensated for information or for proffering opinions.

Problem 3. *What ethics are involved in job changes?*

Obviously, a professional will not steal or take information from one job to another. The gray area occurs for ideas that may be only in the mind of the professional—obviously these ideas do go with the individual. Many companies prefer that individuals not work in the same area or on the same type of project they worked on for their previous employer. Unethical companies want to steal or borrow ideas from their competitors, and may hire individuals from the competitor to gain an advantage. A professional simply must maintain confidentiality with the previous employer. Sometimes it may help to get the previous employer to state what would be considered a conflict of interest.

Problem 4. *How do you handle the short-fuse project in which you do not have ample time to do the job as you would like to?*

Consultants are always being put in this type of situation, The professional should devote the time and energy necessary to produce outstanding work. If a time problem exists, it should be brought to the attention of the client. The client or company needs to be aware that short-fuse projects tend to produce lower quality work, which is commonly less precise or reliable. In severe cases, the professional may have to decline accountability for the project or turn down the assignment. Sometimes, a productive and realistic way to deal with such assignments is to express your results or predictions as probabilistic ranges: where there is much uncertainty, you will show wide ranges. Often the client will be uncomfortable with such results and request more time be devoted to the problem.

Concluding Thoughts

- Professional practice is an ongoing, active undertaking (Sprinkel, 1987).

- Professionalism is not a product, it is a process of becoming (Gibbs, 1991).
- Professionalism is an attitude; it is a frame of mind (Foose, 1984).

References

American Association of Petroleum Geologists, 1991, The American Association of Petroleum Geologists constitution and bylaws: AAPG Bulletin, v. 75, n. 12, p. 1918-1925.

Campbell, J. M., Sr., 1990, Improved professionalism: a critical need: Journal of Petroleum Technology, v. 42, n. 3, p. 338-341.

Foose, R., 1984, Reflections on professionalism in geology: The Professional Geologist, v. 21, n. 7, p. 5.

Gibbs, J., 1991, What is professionalism? (abs): AAPG Bulletin, v. 75, n. 3, p. 580.

Knight, W. V., 1989, Maintaining professional competence: The Professional Geologist, v. 26, n. 8, p. 22.

Miller, D. N., 1969, The challenge of professionalism in geological education: WGA Earth Science Bulletin (March), p. 5-6.

Spoelhof, R. W., 1992, Ethics in the business of petroleum exploration, in R. Steinmetz, ed., The business of petroleum exploration: AAPG Treatise of Petroleum Geology Handbook, p. 331-340.

Sprinkel, B., 1987, Why AIPG?: The Professional Geologist, v. 24, n. 8, p. 1-4.

Weimer, R. J., 1980, Colorado School of Mines commencement address (unpublished): Golden, Colorado, December 19.

Weimer, R. J., 1984, Response to conferring of the Sidney Powers memorial medal: AAPG Bulletin, v. 66, n. 8, p. 1058-1061.

APPENDIX 1

Code of Ethics (American Association of Petroleum Geologists, 1991)

SECTION 1. General Principles

Geology is a profession, and the privilege of professional practice requires professional morality and professional responsibility.

Honesty, integrity, loyalty, fairness, impartiality, candor, fidelity to trust, and inviolability of confidence are incumbent upon every member as professional obligations.

Each member shall be guided by high standards of business ethics, personal honor, and professional conduct. The word "member" as used throughout this code includes all classes of membership.

SECTION 2. Relation of Members to the Public

Members shall not make false, misleading, or unwarranted statements, representations or claims in regard to professional matters, nor shall they engage in false or deceptive advertising.

Members shall not permit the publication or use of their reports or maps for any unsound or illegitimate undertakings.

Members shall not give professional opinions, make reports, or give legal testimony without being as thoroughly informed as is reasonably required.

SECTION 3. Relation of Members to Employers and Clients

Members shall disclose to prospective employers or clients the existence of any pertinent competitive or conflicting interests.

Members shall not use or divulge any employer's or client's confidential information without their permission and shall avoid conflicts of interest that may arise from information gained during geological investigations.

SECTION 4. Relation of Members to One Another

Members shall not falsely or maliciously attempt to injure the reputation or business of others.

Members shall freely recognize the work done by others, avoid plagiarism, and avoid the acceptance of credit due to others.

Members shall endeavor to cooperate with others in the profession and shall encourage the ethical dissemination of geological knowledge.

SECTION 5. Duty to the Association

Members of the Association shall aid in preventing the election to membership of those who are unqualified or do not meet the standards set forth in this Code of Ethics.

By applying for or continuing membership in the Association each member agrees to uphold the ethical standards set forth in this Code of Ethics.

Members shall not use AAPG membership to imply endorsement, recommendation, or approval by the Association of specific projects or proposals.

SECTION 6. Discipline for Violations of Standards

Members violating any standard prescribed in the Article shall be subject to discipline as provided by the Bylaws.

"In this profession, your credibility is your only real asset."

Steve Sonnenberg, CPG 06201 is a petroleum geologist with EnCana Energy Resources Inc. from Denver, Colorado, who specializes in international and Rocky Mountain area projects. He holds a doctorate in geology from Colorado School of Mines and has over 20 years of experience in the oil and gas business. Steve began his career with Exxon and later worked for a smaller independent, Bass Enterprises. From 1990 through 1997 he was an independent consultant. In 1997 he joined North American Resources which through an acquisition and later merger has become EnCana. He has published extensively on regional petroleum geology in the Rocky Mountain region. He is a past president of the Rocky Mountain Association of Geologists and is currently president elect of AAPG.

Responding to Financial Requests from Colleges and Universities

Robert G. Corbett, CPG-04502

Almost certainly you receive one or more requests annually from schools, colleges, and universities for financial support. A preparatory school and three universities contact us at our house. Did you know that in many instances a dollar contributed does not equate to a dollar spent for the use intended?

When I learned about the skimming of funds for support of development officers and workers, the athletic program, and other activities over which I had no control, I changed my mode of giving. I can understand the argument that fund-raising efforts cost money, and if they weren't in part borne by contributions, funds would come from the same pot of money used to support academics. Frankly, I believe the cost of operating a development office should stand in the same line and receive the same scrutiny as academic programs when it comes to allocation of the university budget.

Well, I just don't enjoy receiving dunning phone calls and letters. However, I do receive satisfaction by supporting worthwhile activities. I have provided funds to support guest speakers, student field studies, and student research expenses. I have helped solicit funds from others for these purposes and to establish an endowed chair.

For a few years, I would send an unsolicited check to the Geology Department Chairperson, who would assure me that such funds would go 'untaxed' and would be used solely for my preferred specific purpose. However, a change in administrative regulations intruded on this arrangement. At one major university that I used to support, such funds, even though unsolicited and not in response to any fundraising campaign, were diminished by 6%, an amount less than that siphoned from solicited funds, as an overhead charge (to pay for accounting and other unspecified services). Shades of newly established bank practices that charge you to make a deposit or withdrawal or to speak to a live teller!

Well, my colleagues, I have three suggestions for you.

- Insist on full disclosure on overhead charges, before you respond by making a financial gift to a phone or letter solicitation.
- Call the Department Chairperson, and ask him or her to verify whether unsolicited funds sent directly to the department would escape this taxation, remain recognized as a contribution for tax considerations, and would be used solely for the intended purpose.
- The third suggestion is to consider my current practice. I am now giving funds sufficient ***to cover the first year costs of student membership in AIPG for each undergraduate and graduate student*** at a local university.

I also have asked for time to meet with students and explain the benefits of membership in AIPG. Later this month, I will be the guest speaker at the meeting of the Geology Club. Although every student won't attend this meeting, word will spread once it becomes known that this is a win-win situation. I have worked with the department head, the Geology Club advisor, and a person in the development office to achieve agreement on this arrangement. Information needed by the development office included that I (as donor) will not choose specific individuals to benefit and that these funds will enhance the education and career aspirations of students.

Obviously students will receive a benefit from membership, and many should find student membership worthwhile. I hope that they will continue as members in the future.

Among points that I will make in my presentation to the students are the

- range of information and topics in each issue of *TPG*
- AIPG website and employment opportunities posted there
- eligibility to apply for an AIPG Scholarship
- value of networking with professional geologists.

In addition, I shall offer to meet again with the club to discuss information about licensure in my state and the Certified Professional Geologist program of AIPG. These topics are not generally covered in the academic curriculum. When I spoke on them to geology students at another university, students were surprised about licensure and the information provided them an opportunity to look into their future.

We know that a voice representing more persons commands greater attention than one speaking for a smaller group. AIPG, in representing a larger segment of the profession, would become more effective at advocacy. I have chosen to support this effort of increasing membership through recruiting students. This is a cost-effective approach that I ask you to consider as you review how you can help a college or university.

Primary Mission - 1000+

Richard M. Powers, CPG-06765

During the last week of September 2002, AIPG and AEG held their second joint conference in Reno, Nevada. For those who could not attend you missed an excellent technical and business meeting. Our annual conference is the one time per year when we can spend a relaxed time with our peers and friends discussing institute business, technical issues and life. Next year, AIPG will celebrate its 40th anniversary. The 40th annual meeting will be held on the west slope of the Rocky Mountains in Glenwood Springs, Colorado and I encourage everyone to attend. It's a great time to be in the Rocky's and the planned field trips will be fantastic. I hope to see you there!

Much progress was made last year under the leadership of Larry Cerrillo and during the 2002 Annual Meeting. This year I plan to work diligently to complete several tasks and implement others that are important to the long-term vitality of the Institute. I only ask for one thing—**your help**. The strength of the Institute resides within our membership and by working together we can make measurable and substantive progress in the next 12 months.

AIPG Business Plan

During the Executive Committee meeting in Reno, Executive Director Bill Siok presented a business plan for AIPG.The plan discusses several topics in detail and concluded the following:

- AIPG is financially sound.
- During recent years AIPG has experienced a continuous decline in total members and requires an immediate effort to reverse the trend.
- The key to AIPG's long-term effectiveness is the twin goal of increasing membership and the generation of continuous sources of non-dues revenue.

The plan also identifies several key objectives:

- Identify sources and develop a sustainable, non-dues based, revenue initially of $80,000/yr to sustain another geologist staff member.
- Increase membership by 1000 by the end of 2003.
- Increase membership to 6000 by 2005.
- Increase membership to 10,000 by 2008.
- Add to member services:
  - Professional Liability Insurance
  - Employment service
  - On-Line CPD courses.

Our total membership has declined from 5,102 (4,589 CPG's) in 1996 to 4,536 (4,006 CPG's) for 2001 and the trend continued through 2002. Why is this happening? There are a couple of reasons starting with, our membership is aging and many CPG's are retiring. Currently, 20% of our CPG's are between 66 and 96 years old. Secondly, many geologists do not see the value of being a CPG due to state registration. We must reverse the membership trend from decline to growth and the following describes the strategy that I need your help to implement.

Membership Growth

Individual

Forty years ago, AIPG's original mission was to attest to the competency of professional geologists through certification and act as an advocate for the profession. In the wake of state registration, I feel we must focus our attention towards advocacy of our profession and member services, while encouraging AIPG certification. By most estimates there are approximately 120,000 practicing geologists in the United States and if the Institute is to be "the voice of geologists", we must facilitate membership growth and entice all geologists to be AIPG members. So how do we do this?

I'm sure you have all heard the following:

- "I have to fill out that application and then wait 6 or more months to become a CPG?"
- "Why should I join? I'm already a registered geologist."

Here are your answers:

- "No, you don't have to become a CPG. We want you to join the Institute as a member and help us promote the profession and the ethical practice of geology. All you need to do is fill out a card, attest that you're a degreed geologist and will abide by AIPG's Bylaws and Code of Ethics. I will be your member sponsor and even mail the card for you. In the future if you want to add the CPG credential to your resume you can apply later."

- "Are you concerned about your profession? If so you should join with the other several thousand geologists that believe strongly in the profession of geology and its ethical practice. AIPG's introductory membership is just $40 for the first year. What do you have to lose? Please give it a try."

With the membership vote in October to require only one member sponsor and the introduction of the single postcard size application, our biggest barrier to signing up new members disappeared. In addition, the $40 first year membership fee should make cost a non-issue.

Corporate

AIPG has implemented a Corporate Membership Program that is aimed at two central issues:

- Developing a better relationship with Corporation's practicing geology and stressing competence, integrity and ethical practice
- Providing a career path and business reason for geologists to be AIPG members.

The program requires that a Corporate Member must have a CPG in a position of senior responsibility that is responsible for the Corporations compliance with AIPG Corporate Membership Requirements. Additionally, the Corporation's practice of geology and geoscience must be conducted under the supervision and review of CPG's at all locations. A Corporate Member will pay dues based upon its dollar volume of geological business and will include the membership dues of the Corporations designated CPG and between 2 and 6 regular memberships in AIPG.

In 2003 we hope to enroll 50 or more Corporate Members into AIPG. The application process is simple and we believe the program will provide benefits to AIPG, corporations, and individual members. If your company is a candidate for membership please let either Bill Siok or me know and we'll follow up.

I am asking for your help this year to build our membership by 1000 or more.

Today—take a membership application card, sign it as a member sponsor, bring it to your co-worker, ask them to join and have them fill out the card while your there. If they are a little uncertain—tell them you will pay their first year membership fee of $40. You will feel great, as you have made a contribution to the Institute and your profession, and your friend will always remember you as someone who cared about their career.

Remember that if half of us bring in one new member each—our membership will increase by over 2000!

AIPG STUDENT SPONSOR APPLICATION

To sponsor a student membership, simply complete the form below, provide the name of the student along with your own, and return with the appropriate payment of $20 to AIPG, 8703 Yates Dr. #200, Westminster, CO 80031-3681. If you do not personally know a student to sponsor, but are interested in the program, the AIPG Executive Committee has compiled a list of students, and one will benefit from your generosity.

Full-time students pursuing a career in geology are immediately rewarded when becoming an AIPG member. Each will receive the journal *The Professional Geologist*, free access to the members only portion of the AIPG National Web site, and discounts on all AIPG publications.

STUDENT

Name_____
(If left blank a student will be assigned.)
University_____
Dept._____
Address_____
City, State, Zip_____
Phone_____
Fax_____
E-mail_____

SPONSOR

Name_____
Company/Agency_____
Dept._____
Address_____
City, State, Zip_____
Phone_____
Fax_____
E-mail_____

Office Use:
Date Received:_____ Amount Received:_____ Authorized Sig.:_____

Return to form and $20 to: AIPG, 8703 Yates Dr., #200, Westminster, CO 80031-3681, or fax to (303) 412-6219.

Reality

William J. Siok, CPG-04773

The current reality for all geologic and geoscience organizations is that regardless of their specific professional missions, the future of each organization will be the province of today's students. There is nothing new in this statement, including the implied concern over the diminished interest of geology students in active organizational participation.

This commentary is directed at each student willing to take a few minutes to consider the geologic profession from a slightly different perspective beside job. There is plenty of information in all professional journals about career opportunities and proper preparation for them. Geologists who are practicing are also willing to advise graduates of market conditions and assist them in procuring positions.

Most have heard the joke about voting "early and often". Putting a serious spin on this old saw, I think students and graduates can do themselves a world of good through early and active participation in professional organizations.

Perhaps most students and recent graduates are of the opinion that the primary value of a professional geologic organization is in the technical information, the literature, provided through the organization. Of course, this is a major benefit of such affiliation. But it's not the only and perhaps not the most important benefit.

Could it be that the most important benefit of active affiliation with a geologic professional organization is the opportunity to regularly meet fellow practitioners, develop permanent long-standing relationships, and generally to support one another in pursuit of a long and personally satisfying career? I suggest that this is indeed a most important value of professional associations.

We all know geologists (and others of course) who choose to go it alone. But consider the successful careers of those geologists, both prominent and not, who have been active members of professional geologic organizations. We all know some of these (I cannot begin to list them here because there are too many.) If you know about the professional accomplishments of these colleagues, you recognize first and foremost their talents and competence in their chosen profession. *Ipso facto*, one can't help but also take notice of their many contributions to the profession in general through their active participation in variousgeologic associations. It seems that those who are the most successful are the same people who contribute the greatest amount of time and talent to promoting the profession.

Why state what should be obvious? It behooves students and recent graduates to take note of successful (this does not imply merely financial attainment) geologists, and emulate their approach to career achievement. It's a combination of talent, training, and development of productive relationships achieved through active association membership begun early on in the career. (Although it's never too late to start, early is better.)

So students, in particular those of you who are not affiliated with a professional geologic organization or not active even if you are affiliated, you should for the sake of your own self-interest make an effort to become a regular participant in your favorite two or three organizations. You can do this by organizing a student chapter if one doesn't exist; taking on the responsibility of becoming an officer of a student chapter; volunteering time to support the professional activities of other campus-based geologic organizations; writing technical or general interest articles for professional publications (don't be discouraged by a few early rejections); try to attend meetings of local sections of national organizations (in many cases, the sections will pay the fees associated with student attendance); and get to know people presently employed in the profession.

However you're able, do get actively involved. The benefits of regularly working with your professional colleagues to enhance the geologic profession vastly outweigh any negatives. Your career will be more rewarding by far if you participate in collaborative professional activities.

Lame Duck Session Leaves Much for New Congress

John J. Dragonetti, CPG-02779

In an unusual series of events, the control of the Senate's post-election ("lame-duck") session was up for grabs due in part to the death of Minnesota Senator Paul Wellstone (D) and the outcome of the Missouri election between Sen. Jean Carnahan (D) and Rep. Jim Talent (R). Minnesota Governor Jesse Ventura (I) announced the appointment of Dean Barkley (I) as the interim senator, replacing Wellstone until the Republican victor, Norm Coleman, takes office in January. Barkley's decision to remain independent — not to align with either the Republican or Democrat caucus — left the lame-duck session in control of the Democrats. Even so, the impending power switch clearly meant that Republicans would only support the most limited of agendas. And that meant homeland security legislation, not appropriations.

In a speech on November 12th, President Bush called on Congress to pass legislation to establish a Department of Homeland Security, calling it "the single most important business before Congress." The Republican-controlled House made quick work of the homeland security legislation (H.R. 5710), passing it on November 13th in a 299-121 vote. The Senate took more time, but after a Democratic amendment to drop several business-oriented provisions failed 47-52, the bill was passed and sent to the president on November 20th. Encompassing all or part of 22 currently separate federal agencies and 170,000 employees, the new department represents the largest governmental reorganization since the creation of the Department of Defense in 1949.

With Congress focused on passing homeland security legislation, little attention was spent on the appropriations bills. The fiscal year began on October 1st and, since then, only the defense and military construction spending bills have been signed into law. While the 11 remaining bills remained in various stages of completion, the rest of the federal government operated under a continuing resolution (CR) that was scheduled to expire on November 22nd. Realizing that little progress could be made on the budget front with the days numbered, the House again took the lead as to how Congress would approach the appropriations end-game. On November 14th, it passed a CR, set to expire on January 11, 2003, that would continue to fund federal programs at fiscal year (FY) 2002 baseline levels — a level that translates into a funding decrease for most programs because of inflation. The Senate is expected to follow the House's lead and pass the CR, leaving the funding questions to the 108th Congress. In the interim, congressional staff will seek to hammer out differences in the House and Senate bills and create a single omnibus package that would be ready for passage at the start of the new Congress on January 7th.

Placing the federal government's budget on auto pilot means federal agencies cannot respond to the changing needs of their programs. The CR passed by the House would allow for some flexibility, but mostly in regards to providing funds to the new Department of Homeland Security, anticipating its establishment. A question that faces our community is how this treatment of the budget will translate for geoscience-related programs. Congress restored many of the cuts proposed in the president's budget request for geoscience programs, particularly the U.S. Geological Survey (USGS). Both the House and Senate Appropriations Committees included strong language in their reports accompanying the Interior and Related Agencies bill, reflecting bipartisan support for the USGS. House language stated that the White House Office of Management and Budget "seemingly believes that the Department of the Interior no longer needs science on which to base natural resource policy decision" and took exception to that belief.

Despite the return of Republican control of both the House and the Senate in the 108th Congress, it seems unlikely that the new Congress will spend much time tinkering with the FY 2003 appropriations bills — either they will pass it quickly or they might not pass it at all. Congress will be in session for less than a month before President Bush releases his FY 2004 budget in early February. Some lawmakers favor a full-year CR in which case the advances made by geoscience programs would be lost.

LOOKING FORWARD

The strong Republican showing in the Senate will give the president virtual control over both houses of Congress and their legislative agendas. In January, the Republicans will have at least 51 votes, reversing the 51-49 vote margin held by the Democrats through most of the current Congress. New Republican chairs will take over Senate committees. In some cases, the chairs are simply reassuming positions they held before Sen. Jim Jeffords (I-VT) left the Republican Party early in 2001. But in two key committees that hold jurisdiction over environmental issues and energy policy, the chairs will be new faces. Sen. James Inhofe (R-OK) replaces Jeffords as chair of the Environment and Public Works Committee. The previous Republican chair, Sen. Bob Smith (R-NH) lost in the primary to Rep. (and now senator) John Sununu (R-NH). Sen. Pete Domenici (R-NM) takes over the Energy and Natural Resources Committee from fellow New Mexican Jeff Bingaman (D). Former Republican chair Frank Murkowski (R-AK) has returned home as the newly elected governor of Alaska. Inhofe's history shows strong support for the oil

industry, and he is considered by environmentalists to be among their least favorite senators. Domenici has been a strong supporter of the nuclear industry and the Department of Energy's national laboratories, he favors limiting the federal government's role in western public lands issues and is a vigorous supporter of increased domestic oil and gas production. The agenda for the new Senate leadership is expected to include strong support for increased energy production incentives. Although comprehensive energy legislation failed to pass in the current Congress, it is certain to be taken up again by the new leadership.

On the appropriations front, the players will remain much the same, but titles will change. The Senate Appropriations Committee leadership will return to Sen. Ted Stevens (R-AK), who held it before the Jeffords switch. On the House side, Rep. Bill Young (R-FL) continues as chairman, but the leadership of two key subcommittees — Interior & Related Agencies and Energy & Water — is up for grabs due to retirements. At an organizational meeting in November, Republican representatives voted to give the House leadership power to appoint Appropriations subcommittee chairs, a power previously reserved to Young as full committee chairman. The move is intended to limit the independence of Republican appropriators who opposed many of the administration's spending proposals. It remains to be seen how successful the efforts to rein in their independence will be.

This column is a bimonthly feature written by John Dragonetti, CPG-02776, who is Senior Advisor to the American Geological Institute's Government Affairs Program.

In Memory

Warren C. Roberts
CPG-04824
November 21, 2002
Wheat Ridge, CO

Russell G. Wayland
CPG-00597
Charter/Emeritus Member
November 11, 2002
Arlington, VA

Malcolm P. Weiss
CPG-01373
January 1, 2002
Santa Barbara, CA

James F. Westcott
CPG-01819
September 10, 2002
Mexico, MO

Warren C. Roberts retired from the U.S. Government Forest Service and USAF. He was born April 8, 1921 and died November 21, 2002. He is preceded in death by his wife Natalie and oldest son Michael. He is survived by one son, Gregory; four grandchildren; and two great-grandchildren.

Denver Newspaper Agency

AIPG MEMBERSHIP POSTCARD

American Institute of Professional Geologists Membership Application

Current year $40; Thereafter $55 plus Section Dues. Payment (Check one): ☐$40 Enclosed ☐Bill Me

Last Name: First Name: MI: Suffix:

Employer Name: Mr. Ms. Mrs. Dr.

Preferred Mailing Address: Home Business Self-Employed? Yes No Birth Year:

Street:

City: State: Zip: Country:

Work Ph: Home Ph: Fax:

Email: Yr Highest Degree Awarded:

Geological Degree: BA BS MA MS PhD University:

ATTESTATION: I attest that I meet the requirements for AIPG Member (30 semester hours/45 quarter hours for Member) and agree to abide by AIPG Bylaws and Code of Ethics.

Applicant Signature: **Date:**

AIPG Mbr Sponsor Signature (Required): CPG MEM RM AIPG #: Date:

HEADQUARTERS USE ONLY Amt: Date Rcvd: Mbr #:

PROFESSIONAL ETHICS & PRACTICES - COLUMN 81

Compiled by David M. Abbott, Jr., CPG-04570, 2266 Forest Street, Denver, CO 80207-3831, 303-394-0321, fax 303-394-0543, DMAgeol@aol.com or dmageol@msn.com

Unethical Competition?

A consultant agreed to be part of a team assembled to prepare a bid on a proposed job. As part of his participation, he discussed with the team leader the work to be performed on the proposed job and prepared a description of his proposed work on the project. The consultant also decided to independently submit his own bid for the project.

In preparing the competing bid, having agreed to be part of the team effort, did the consultant violate Standard 3.2 and Rule 3.2.1 of the AIPG Code of Ethics? Standard 3.2 of the AIPG Code of Ethics states, "Members should protect, to the fullest possible extent, the interest of an employer or client so far as is consistent with the public health, safety, and welfare and the Member's legal, professional, and ethical obligations." And Rule 3.2.1 states, "A Member shall not use, directly or indirectly, any confidential information obtained from or in the course of performing services for an employer or client in any way which is adverse or detrimental to the interests of the employer or client, except with the prior consent of the employer or client or when disclosure is required by law."

Have you encountered a similar situation? What did you do? What do you think AIPG should do?

Client Reports and Subpoenas

A member received a subpoena to give a deposition in a lawsuit and was asked to provide a copy of a report he had prepared for another client. The last time he'd spoken with the client for whom he'd prepared the report, he was told that the report had "been put on the shelf," and believed, on that basis, that the client was no longer interested in the report. I also should note that the member in question had only a day between receipt of the subpoena and his scheduled deposition. It turned out that the client for whom the report was prepared was not interested in having the report released and, on learning that it had been provided in response to the subpoena, moved to have the report suppressed and all testimony relating to it stricken from the deposition transcript. This result was both embarrassing to, and a real lesson for, the member involved.

Our professional reports are prepared for, paid for, and are therefore owned by our clients despite being our professional work. Although retention of the final draft of reports is good practice in case the report is questioned in some way, our clients' interest in our reports must be recognized and protected. When a subpoena for a client's report is received, the client should be notified so that the client can assert any rights it chooses. If time is required to assert these rights, reasonable delays in production can usually be arranged.

Anyone with similar experiences is urged to share that experience for the benefit of all of us.

Should this Column Address Ethical and Moral Fundamentals?

A reader who asked to remain anonymous wrote to express his concern about the lack of fundamental ethical and moral education in this country and its affect on the ability of many to critically analyze the discussions in this column and other contributions on professional ethics. The perceived lack of fundamental moral and ethical training is commonly the topic of articles in various magazines and newspapers and discussions on radio and television.

I agree that a proper moral and ethical foundation is required to analyze particular cases. In my book review of *Fundamentals of Ethics for Scientists and Engineers for Geotimes* (May 2001, p. 34), I commented that a lack of an ethical or moral foundation constituted a major deficiency of the book, which was designed as a course text. Column 55 (June '00) contained a review of Bernard Gert's *Morality, its Nature and Justification* (1998, Oxford University Press), which provides an excellent foundation in common morality without specific religious or other societal overtones. (The problem with frequent calls for more attention to the *10 Commandments* are those commandments relating to specific religious beliefs. While most people in the U.S. identify themselves as Jews, Christians, or Muslims, all of whom recognize the *10 Commandments* (albeit with variations in wording and order), there are significant numbers of people with different religious beliefs or who are atheists. These latter groups are not any less moral as groups than are those who profess belief in one of the Abrahamic traditions.) I've referred to Gert's book or concepts from it in various columns.

Examination of most professional ethics codes, AIPG's included, reveals that they are generally organized by the relationship between the professional and other groups: the public's health, safety, and welfare; the employer or client; fellow professionals; employees; students; the profession; etc. While the statements in professional ethics codes do have a moral foundation, the relationship is not necessarily obvious. The common statement advocating honesty in professional ethics codes is perhaps the most obvious inclusion of a general moral principle. Others can be worked out.

The question remains however, is more discussion of fundamental concepts required in this column or somewhere else? Your comments and suggestions are welcomed.

PROFESSIONAL ETHICS & PRACTICES - COLUMN 81

Oregon's Licensing Law Challenged

A University of Oregon professor who does not have an Oregon Professional Geologist's license testified at a public hearing on a proposed sand and gravel quarry. During his testimony, the professor presented his reinterpretation of geologic data presented. Despite the fact that the professor's testimony was offered as that of a private citizen and no one engaged or paid the professor for his interpretation of the data, the Oregon State Board of Geologic Examiners believes the professor was practicing geology that related to the public welfare. The professor was offered a consent settlement in which proposed fines would be waived if the professor agreed not to represent himself as a professional geologist in future public hearings. The professor declined citing his rights of free speech. The case has not yet been resolved. (The information in this paragraph is based on an article by Alice Tallmadge, "Sand, gravel firm files complaint over geology professor," printed in the October 11, 2002 issue of the *Oregonian*, p. B1 and B6, that a colleague forwarded to me.)

This case strikes at the heart of what constitutes geologic practice before the public. The professor presented a professional opinion on geologic data at a public hearing. The professor believes that the fact that he was not paid for his testimony is critical and should provide the basis for exemption from the licensing requirements. I don't know that I agree. I suggest that many of us make professional contributions (papers, speeches, this column, etc.) for which we are not compensated. While one could argue that professors face "publish or perish" pressure and members of geologic surveys and other agencies are expected to make various professional contributions as part of their jobs, that is not true for those employed by private industry. Nor is it true of all contributions by government geoscientists or even some work by professors.

The issue of what constitutes practice before the public in a particular state can be an important question in some cases. But that is apparently not an issue in this Oregon case. Testifying using one's geologic knowledge, skills, and experience to give weight to one's statements at a public hearing clearly constitutes professional practice before the public. This differs from non-professionally based testimony. Had the professor testified that, for example, he was concerned about increased truck traffic in his neighborhood, such testimony would not be professionally based and would not violate a licensing law.

Discussions of this and similar cases and their resolution are welcomed. Do you believe that the issue of compensation is critical to determining whether professional practice occurred?

Proposed Changes in Engineering Licensing

Bill Siok, CPG, called my attention to an article in the November *Engineering Times*, "Ethics Testing for Engineering Licensing" by Michael J. Rabins and Thomas Stout, that notes a decline in the importance of engineering licensing stemming from exemptions from licensing among other reasons. It reports that to bolster the status of the PE license, the American Society of Civil Engineers has proposed a model licensing bill calling for applicants to have a master's degree and changes in the professional exam to focus more on engineering ethics, business practices, codes, and professional standards. Canadian engineering practice is cited as a model for this testing focus. **Graham Closs**, CPG, frequently sends me articles from Canadian engineering journals supporting the relative importance of professional ethics in Canada.

President **Larry Cerrillo**, CPG, has commented on the fact that most engineers only have BS degrees compared with the graduate degrees commonly held by practicing geoscientists as a disparity between geoscience and engineering practitioners and wonders why engineers are given more credibility.

The article focuses most of its attention on testing procedures and whether ethics and other subjects can be handled with a multiple choice exam. It notes that current National Council of Examiners for Engineering and Surveying tests are strictly multiple choice and that the guidelines for questions state, among other things, "that questions must:

- have only one correct answer,
- use simple, direct language and be clear and unambiguous,
- have answers that are mutually exclusive and plausible, such as results of common errors or mistakes, and
- be independent, so that one erroneous answer does not lead to errors for subsequent questions."

The article notes that the advantage of multiple choice exams is ease of grading and objectivity. Grading essay exams requires more analysis and subjectivity. I agree that multiple choice exams have the advantages stated. I also recall one professor in particular whose multiple choice exams were among the most difficult exams I ever took. The distinctions between answers were subtle but critical and required mastery of the material in order to correctly answer the question. Clearly such questions and answers are harder to write but convinced me that a good multiple choice exam was possible.

Having expended a good deal of discussion in this column pointing out that critical changes in fact can affect how one views a particular ethical issue, can I still argue in favor of a multiple choice exam on ethical issues? I believe that I can. It involves careful construction of the question to set out facts so that the critical issues are addressed, thereby leading to a unique answer to the question. Doing so may not be easy but is not impossible.

Comments on this topic are welcomed.

Topical Index to the Professional Ethics and Practices Columns

I have prepared a topical index covering columns 1 through 81 that has been placed on the AIPG web site in the ethics section. The index is in PDF format. The original file is in Microsoft Excel format. If you would prefer the Excel file, send me an e-mail and I'll send it to you. I'll update this index periodically and post the new copy on the AIPG web site. If you have suggestions on organization, please let me know.

David M. Abbott, Jr., CPG-04570,
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303-394-0321, fax 303-394-0543, DMAgeol@aol.com

EXPEDITION TO PERU

EXPEDITION TO PERU
8 days: July 13-20, 2003

- **Transportation: Roundtrip airline from Miami and all on-tour flights**
- **Accommodations: Superior Tourist Class Hotels**
- **Meals: Daily breakfast, lunch and dinners generally included**
- **Expedition Highlights: See Lima's Plaza Mayor and Gold Museum**
- **Expore Cuzco, the Temple of the Sun and the Fortress of Sacsayhuaman**
- **Go by train through the Urubamba River Gorge to Machu Picchu**
- **Explore the "Lost City" of Machu Picchu in the company of a guide**
- **Overnight at Machu Picchu**

Guides: **Jim Jacobs and local guides**
Tour: **8 days Cost: $2,950 per person**
Timing: **July, 2003**
Down payment by February 15, 2003 of $500/person (non-refundable)

Jim Jacobs, a geologist, will discuss the geology and natural history of Peru and the events surrounding the Spanish conquest of the Inca Empire. Local guides also will be part of the tour. Learn how Francisco Pizarro with his 168 men prevailed against Atahuallpa, the Inca leader with over 80,000 Inca troops on November 16, 1532. The group will visit some of the sites associated with the Spanish invasion and conquest of the Inca Empire.

The group will visit the colonial city of Lima, founded in 1535 by Francisco Pizarro, as the "City of Kings", once the capital of Spain's South America Empire. Tour the San Francisco Monastery and Cathedral, the internationally famous Gold Museum with its dazzling collection of pre-Columbian gold jewelry and artifacts. A morning flight to Cuzco will allow for a tour of the grandiose Andean city that was once the capital of the Inca Empire. Explore the Fortress of Sacsayhuaman and nearby Inca baths of Tamomachay, and the Kenko Amphithearter. Take the train to Machu Picchu and spend the night at the famous ruins discovered by American historian Hiram Bingham in 1911.

Machu Picchu, Peru

Plaza De Armas in Cuzco, Peru

About the trip leader: Jim Jacobs, CPG-07760, is a geologist with over 24 years of experience, will discuss the geology and natural history of Peru and the events surrounding the Spanish conquest of the Inca Empire. He will discuss some of the engineering marvels at Machu Picchu.

All profits donated to AIPG

Questions: Call Jim Jacobs at 415-381-5195 or email at augerpro@sbcglobal.net. Deposits should be made payable to: James A Jacobs, 707 View Pt. Road, Mill Valley, CA 94941.

NOTE: Some changes may occur in schedule or activities.

Today, Trinidad and Tobago: Tomorrow...

Willy Aspinall writes: As the result of a (not so) recent general election in Trinidad & Tobago, the government who took power included three geologists in ministerial positions. (Patrick Manning (petroleum geologist) Prime Minister and Minister of Finance; Dr. Kieth Rowley (volcanologist) Minister of Planning and Development; Eric Williams (geophysicist) Minister of Energy; and (stretching the point a bit perhaps) Hedwidge Bereaux (petroleum law) Minister of Science Technology and Tertiary Education. Trinidad & Tobago could therefore be described as the only GEOLOCRACY in the world (where geolocracy = a hydrocarbon bearing, democratic state run by geologists).

From *Geoscientist*, November 2002, magazine of the Geological Society of London, vol. 12, no. 11, p. 13.

NEW APPLICANTS AND MEMBERS (11/06/02-12/17/02)

Applicants for certification must meet AIPG's standards as set forth in its Bylaws on education, experience, competence, and personal integrity. If any Member or board has any factual information as to any applicant's qualifications in regard to these standards, whether that information might be positive or negative, please mail that information to Headquarters within thirty (30) days. This information will be circulated only so far as necessary to process and make decisions on the applications. Negative information regarding an applicant's qualifications must be specific and supportable; persons who provide information that leads to an application's rejection may be called as a witness in any resulting appeal action.

Applicants for Certified Professional Geologist

NV-Richard L. Bachman
Minera Teles Pires Inc., P.O. Box 33084, Reno NV 89533. Sponsors: Ronald Parratt, Tom Durkin, William Wright.

AK-William Loskutoff
P.O. Box 241221, Anchorage AK 99524-1221. Sponsors: Dave Sadoff, Nancy Darigo, Paul Dworian, Ablert Ridley.

NV-Timothy D. Master
6583 Rey Del Sierra Dr., Sparks NV 89436. Sponsors: Roger Steininger, Thomas Callicrate, Gassaway Brown.

NV-John W. Norby
784 Holyoke Dr., Spring Creek NV 89815. Sponsors: Lewis Teal, O. Jay Gatten, Roy Owen.

OH-Eric M. Showalter
6488 Margaret Dr., Westerville OH 43082. Sponsors: Steven Gross, Alison Dunn, Glenn Hartzell.

AK-Thomas E. Sparley
P.O. Box 143272, Anchorage AK 99514-3272. Sponsors: Diane Solie, Bruce Giffen, John Ford.

CT-David T. Williams
41 Willow Ct., Clinton CT 06413. Sponsors: Robert Stewart, David Cook, Jeffrey Pearl.

CT-Margaret M. Winfield
32 Whalley Ave., Milford CT 06460. Sponsors: Robert Stewart, Curt Kraemer, Giselle Beaulieu, William Jackson.

New Certified Professional Geologists

AK-Robert C. Hazlett CPG-10689
2731 Monmouth Ave., Anchorage AK 99502,

OH-Jeffrey A. DeVaughn CPG-10692
SAIC, 8866 Commons Blvd., Ste. 201, Twinsburg OH 44087, (330) 405-9810

MN-John C. Grams CPG-10693
Delta Envir. Consultants, 5910 Rice Creek Pkwy., Ste. 100, Shoreview MN 55126, (651) 697-5166

NJ-Rebecca K. Hollender CPG-10694
8 Harvard Ave., Maplewood NJ 07040, (973) 564-6006

MN-James M. De Lambert CPG-10701
12100 Meadow Lane West, Minnetonka MN 55305, (763) 559-1423

OH-Kevin M. Reaman CPG-10702
1429 Jefferson Ave., Cuyahoga Falls OH 44223, (330) 677-0785

OH-Scott A. Spesshardt CPG-10703
PSARA Technologies, Inc., 10925 Reed Hartman Hwy, Ste. 220, Cincinnati OH 45242, (513) 791-4418

AK-Robert A. Glascott Jr. CPG-10704
205 E. Dimond Blvd. #362, , Anchorage AK 99515, (907) 269-7550

CO-James R. Robinson CPG-10705
International Northair Mines Ltd., 3552 E. Fremont Pl., Littleton CO 80122, (303) 694-7290

NY-James J. Richert CPG-10706
Malcolm Pirnie, Inc., 40 Centre Dr., Orchard Park NY 14127, (716) 667-0900

NM-Linda J. Fluk CPG-10707
160 County Road 113, Santa Fe NM 87506, (505) 660-8002

NM-Catherine J. Goetz CPG-10709
P.O. Box 28, Los Alamos NM 87544, (505) 672-3666 x25

New Members

FL-Alan F. Yoder MEM-0140
P.O. Box 5701, Lakeland FL 33807, (863) 428-2500

KY-James C. Cobb MEM-0141
KY Geological Survey, 228 MMRB, Univ. of KY, Lexington KY 40506-0107, (859) 257-5500

TX-Vincent S. Cronin MEM-0143
26 Timber Ridge Trail, Lorena TX 76655, (254) 710-7330

IL-Kimberly M. Janson MEM-0144
155 Golfview Dr., Glendale Heights IL 60139, (630) 993-2114

CO-Thomas R. Fisher MEM-0145
1211 6th, , Golden CO 80403, (303) 349-2302

CO-Brett G. Conner MEM-0150
451 E. Boardwalk #824, Ft. Collins CO 80525, (970) 493-8878

NJ-William J. Sweeney MEM-0151
1412 Azalea Dr., North Brunswick NJ 08902, (732) 457-0500

MI-Nicholas B. Swiger MEM-0152
306 Lansing St., Cadillac MI 49601, (231) 775-3560

MI-Kevin R. Wilson MEM-0153
ARCADIS G&M Inc., 25200 Telegraph Rd., Southfield MI 48034, (248) 936-8000

MI-Matthew A. Vandereide MEM-0154
4054 Kentridge Dr. SE, Grand Rapids MI 49508, (616) 956-6123

NY-James H. Harris MEM-0155
351 East 4th St., Ste. 1, Jamestown NY 14701, (716) 487-3162

NM-John F. Kennedy MEM-0159
NM State Univ., MSC 3167, P.O. Box 30001, Las Cruces NM 88003-8001, (505) 646-8012

GA-Dean R. McCartney MEM-0160
5815 Awtrey Church Rd., Acworth GA 30101, (678) 574-3360

AZ-Bradley D. Ross MEM-0161
4615 N. 22nd St. #205, Phoenix AZ 85016, (602) 369-6437

GA-John D. Shepherd MEM-0163
Epic Engineering, Inc., 1341 Canton Rd., Ste. E, Marietta GA 30066, (770) 528-0200

CT-Jennifer J. Pagach MEM-0164
328 Burnt Hill Rd., Hebron CT 06248, (860) 509-8050

NJ-Edward M. Jakubowski MEM-0165
8 Stanley Oval, Westfield NJ 07090, (609) 688-4108

AL-Joel W. Mitchell MEM-0167
11578 US Hwy 411, Branchville AL 35120, (205) 629-3868

CO-Marian S. Fournier MEM-0168
7010 Newman St., Arvada CO 80004-1451, (303) 467-9744

CA-Brett A. Bardsley MEM-0169
1119 43rd Ave. #39, Sacramento CA 95822, (916) 638-2164

PA-Edward J. Layton MEM-0170
Blazosky Associates, Inc., P.O. Box 987, Valley Forge PA 19482, (610) 783-0125

CT-Nicholas M. Berliner MEM-0172
CEE, Inc., 100 Shield St., W. Hartford CT 06110, (860) 953-0023

CO-Vincent Matthews III MEM-0173
1313 Sherman St. #715, Denver CO 80203, (303) 866-3028

New Student Adjuncts

CO-Lisa L. Schultz SA-0264
2625 23rd Ave., Apt. C18, Greeley CO 80634

NM-Dominic C. Druke SA-0265
129 Breland Hall, Las Cruces NM 88001, (505) 646-5384

PA-Emily A. Cook SA-0266
14 Stillmeadows Ln., Enola PA 17025, (610) 894-3656

AIPG Membership Totals

	As of 1/28/02	As of 1/06/03
CPG - Active	4,011	3,936
CPG - Retired	523	505
Member	81	117
Registered Memb.	21	24
Associate Memb.	9	13
Student Adjunct	127	131
Honorary	21	24
TOTALS	4,793	4,750

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A GLIMPSE OF THE PAST

1976
Historical Facts

- **U.S. President, Gerald R. Ford**
  U.S. Vice President, Nelson Rockefeller
- **U.S. Bicentennial**
- **An 8.2 earthquake, the worst of the century, shatters 20 square miles around Tangshan, China, leaving over 650,000 dead.**
- **First Apple computer**
- **Resource Conservation and Recovery Act (RCRA) passed by Congress.**
- **Food prices: milk, 33 cents a qt.; bread, 24 cents a loaf; round steak, $1.30 a pound.**
- **Official price of Saudi Light remained at $12.37 per barrel throughout 1976.**
- **AIPG Annual Meeting was held in Denver, Colorado.**
- **AIPG's name was changed to Association of Professional Geological Scientists (APGS). It was changed back in 1979.**
- **AIPG President, John D. Haun, CPG-136**
- **AIPG Executive Director, Arthur F. Brunton, CPG-24 (1964-79)**
- **Greatest surge in membership (886)**

AIPG 1976 President John D. Haun:

1. What were your accomplishments/achievements during your term?
   See my review of 9/1/98, below
2. What significant events, geology or other, occurred during your term and how did it affect your tenure as president and geologists as a whole (i.e. Sept. 11, Mt. St. Helen eruption, other)?
   See my review of 9/1/98, below
3. Why did you choose geology as a career?
   My first course in geology in 1939.
4. How has the practice changed during your career?
   From an interest in field work and drilling projects there has been a change to computer analyses and the fact that you don't need to get your hands dirty.
5. What advice/wisdom would you offer to encourage young people to become geologists?
   Geology is an exciting profession.
6. Did anyone in particular get you interested in geology or who was your mentor in the early part of your career?
   Dr. W. G. Burroughs, Berea College, made geology the most interesting course in school.
7. What was your first job?
   Field geologist with Stanolird Oil and Gas (Amoco).
8. Other Comments.
   There needs to be more earth science at the 8th and 9th grade levels.

AIPG 1975 Executive Committee
(John Haun is wearing the plaid pants).

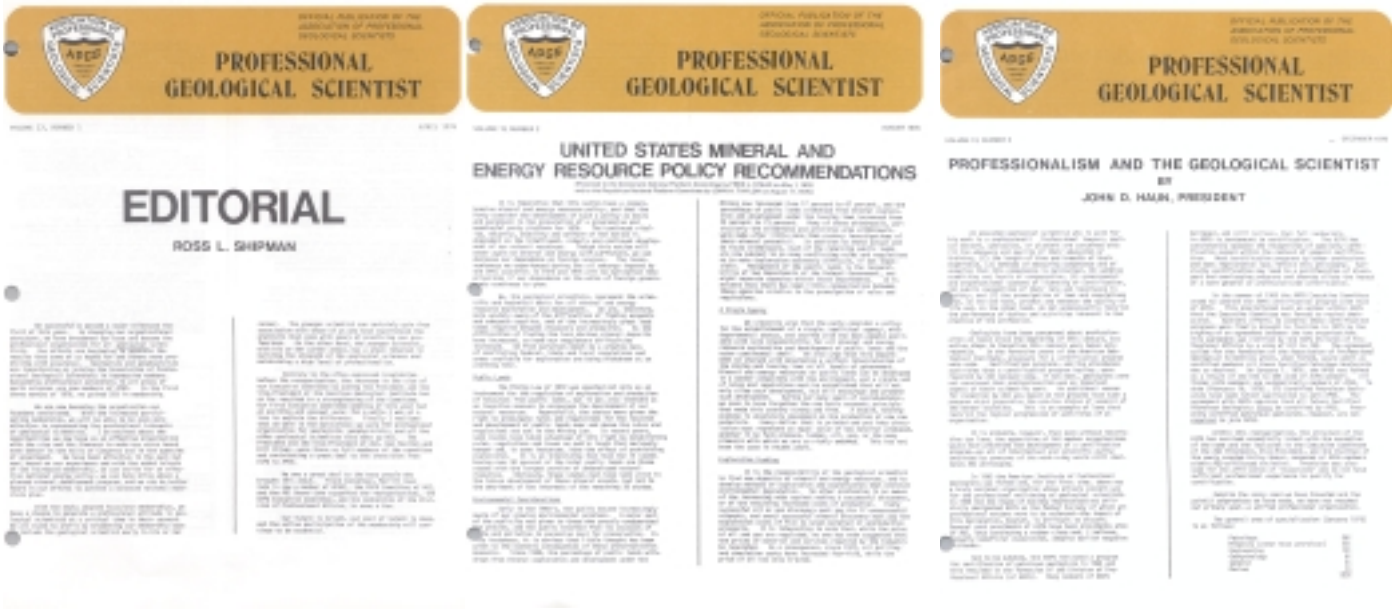
AIPG Executive Committee Meeting, July 1975, Pennsylvania.

1976 - A Critical Year in the History of AIPG by John D. Haun, CPG-136, AIPG President (1976)

The certification programs of AAPG and AIPG were combined in 1975 by the formation of the Association of Professional Geological Scientists. This "new" Association broadened the membership to include all professional geologists and geophysicists. The result was an immediate 32 percent increase in certified membership (during the 1976-1978 period), the largest increase in AIPG history (886 new members were added in 1976 alone, 1679 from 1976 to 1978). By 1979 the membership growth rate had declined and the minority of members who objected to the new APGS organization began to gain allies, culminating in a return to the original AIPG name. The spectacular increase in membership during my year as President will not be repeated until a dramatic new program of broadened inclusion of other professional associations is attained. Further details of the critical 1976 year in the history of AIPG are included in the following excerpts from my President's column in the Professional Geological Scientist, Volume 13, number 3 (December 1976).

Review of 1976 by John D. Haun

In 1963 the American Institute of Professional Geologists was formed and, for the first time, there was a truly national organization whose primary concern was for the professional well- being of geological scientists. In 1966 the AGI House of Society Representatives officially designated



Three issues of *The Professional Geologist* were printed in 1976.

AIPG as the Member Society to which all professional matters were to be referred–the impact of this designation, however, is difficult to discern. Several past presidents of AIPG have been presidents also of AGI, thus continuing a rather close and, I believe, mutually beneficial association, despite earlier negative attitudes.

Not to be outdone, the AAPG initiated a program for certification of petroleum geologists in 1964 and this resulted in the formation of the Division of Professional Affairs (of AAPG). Many members of AAPG believed, and still believe, that full membership in AAPG in tantamount to certification of specialty certification except within the context of general certification. Most certification programs by other professions and most registration laws reflect this philosophy. Specialty certification may lead to a proliferation of divergent and overlapping programs and thereby dilute the impact of a more general of profession-wide certification.

In the summer of 1965 the AAPG Executive Committee voted to combine the AAPG certification program with that of AIPG. This precipitated such an uproar with AAPG that the Executive Committee was forced to rescind their action. Sporadic efforts to combine these certification programs were finally brought to fruition in 1975 by the signing of an agreement between the two organizations. This agreement was ratified by the AAPG Division of Professional Affairs by a vote of 811 to 142. The agreement called for the formation of the Association of Professional Geological Scientists which, when formed, would admit as certified members all those Certified Petroleum Geologists who so desired. On January 1, 1976, the APGS was formed as a result of the 834 to 405 vote of AIPG members. All former AIPG members are automatically members of APGS. To date (February 16, 1976), 373 Certified Petroleum Geologists have made letter applications to join APGS. The agreement with AAPG requires that all future Certified Petroleum Geologists first be certified by APGS. Presently certified petroleum geologists, however, are not required to join APGS.

Within this reorganization, the structure of the AIPG has survived essentially intact with the exception of the name and the inclusion in the Executive Committee of the AGI President, Vice- President, and the Chairman of the newly created Policy Board, composed of APGS members within AGI-affiliated societies. Provision was also made for the affiliation of "Associates" who do not have sufficient professional experience to qualify for certification.

Despite the rocky road we have traveled and the painful compromises we have made, we have now reached our primary goal–a unified professional organization.

The general area of specialization (January 1975) is as follows:

Petroleum	56%
Minerals (other than Petroleum)	23%
Engineering	12%
Geohydrology	6%
General	2%
Marine	1%
	100%

Our second goal has been to increase membership. The number of AIPG members has been on a plateau of 2,200 to 2,300 for several years. We cannot in good conscience, claim to speak for the entire profession with such a small membership. The encouraging influx of Certified Petroleum Geologists is certainly welcome, and we hope this will create new vigor on the part of our Membership Committee and, in fact, all members in the drive for a more broadly based representative of our profession.

John D. Haun, CPG
9/01/98

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Each student who is awarded a scholarship agrees, by accepting the scholarship, to prepare a 600 to 800 word article for publication in *The Professional Geologist*. The subject of the article must be related to a timely professional issue.

Application Process

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American Institute of Professional Geologists
Attn: Education Committee Chr.
8703 Yates Drive, Suite 200
Westminster, CO 80031-3681

For questions regarding the application process call (303) 412-6205 or e-mail: aipg@aipg.org.

Applications must be received by
FEBRUARY 15th
Awarded the month of
SEPTEMBER

Basis of Awards

Awards will be based on the content and creativity of the essays as judged by the Education Committee.

The decisions of the Education Committee are final.

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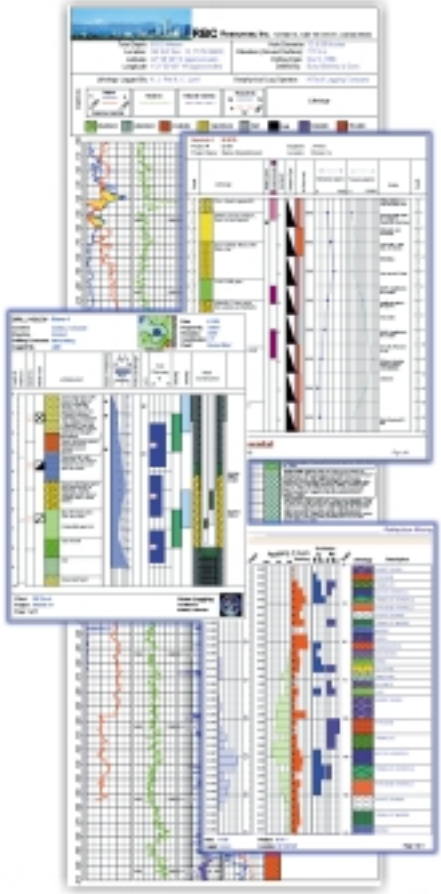

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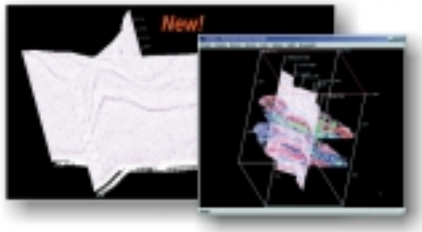

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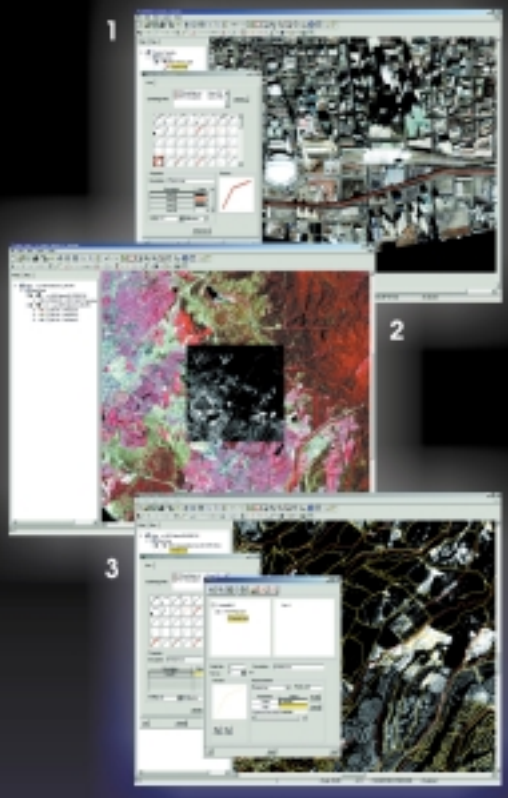

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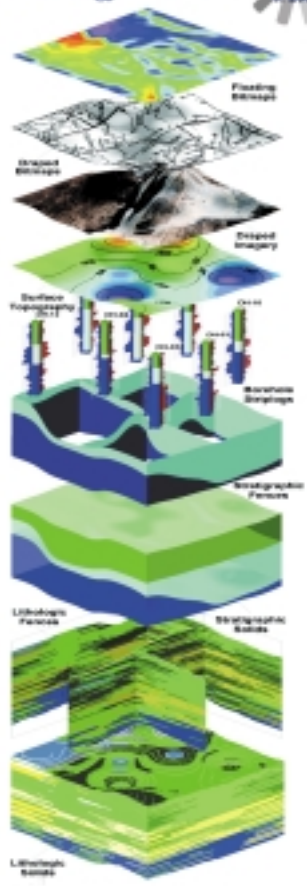

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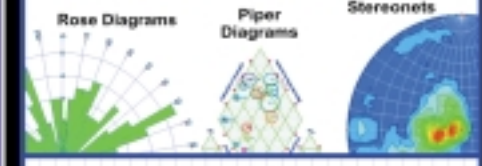

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