A publication of
The American Institute of Professional Geologists

ELECTION BALLOT
The June issue will include a ballot for electing the AIPG National Officers.
Only AIPG Members that have the right to vote will receive a ballot in their issue.
PLEASE REMEMBER TO VOTE!

GEOLOGY OF NEVADA — Site of this year's AIPG•AEG Annual Meeting
AIPG WASHINGTON FLY-IN
THE SURVEYOR'S CORNER
ASBOG, the National Association of State Boards of Geology
NEW HAMPSHIRE GRANDFATHER PERIOD CLOSES JUNE 2002
LICENSENG OF GEOLOGISTS IN UTAH PASSES UTAH LEGISLATURE
WASHINGTON'S NO EXAM REQUIREMENT ENDS JUNE 30TH

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PLEASE REMEMBER TO VOTE!
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Come and enjoy all that the Reno Area has to offer! AEG•AIPG•2002 features short courses, field trips, technical sessions, symposia, and fun stuff! Find your way to Reno in 2002 !!

Abstract submittals due May 1, 2002

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Or submit your abstract on AEG's Web Page: www.aegweb.org, Annual Meeting
Or mail with disk to:
AEG•AIPG•2002 c/o Julie C. Keaton, P.O. Box 5204, Blue Jay, CA 92317
(909) 337-0657; Fax: (909) 337-6518

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Environmental Hazards
Expansive Soil Hazards
Slope Stability in the Mining Environment
Groundwater Investigation and Modeling in the Basin and Range
Liquefaction Hazards
Landslide Hazards
Great Basin Fault Hazards
Environmental Investigation and Cleanup
Mine Closure
General Topics in Engineering Geology
Transportation Engineering Geology
Groundwater Hydrology in the Mining Environment
Field and Laboratory Testing
Engineering Geology in Land Use Planning

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Exhibitors, Abstracts, Hotel Arrangements, Program, Registration: Julie C. Keaton, (909-337-0657, aegjuliek@aol.com)
Geology of Nevada ................................. 2-8
Jonathan G. Price, CPG-07814

AIPG National Meeting in St. Louis .......... 9-10
Lawrence M. Austin, CPG-05181

New Hampshire Grandfather Period
Closes June 2002 ............................... 11
Timothy Stone, CPG-07282

AIPG Treasurer’s Report ........................ 12
Madhurendu B. Kumar, CPG-3106

AIPG Virginia and West Virginia Sections Unite. . 15
Ira S. Merin, CPG-07298

AIPG Washington Fly-In .......................... 15

Ballot in June Issue ............................. 15

Geologist Licensing Deadline Approaches ........ 20

Licensing of Geologists in Utah
Passes Utah Legislature .................... 22

AIPG•AEG Premeeting Field Trip ............... 23

ASBOG, the National Association of State Boards of Geology ........... 30-34
Darrel W. Schmitz, CPG-07318, Frank S. Turek, CPG-04788, and
John C. Philley, CPG-04322.

The Surveyor’s Corner .......................... 34-35
Gregg Tuttle, RLS member, AZ-BTR

Official Signing of the
Texas Geoscientist Licensure Act ............ 35
Bruce Darling, CPG-09636 and Kevin Coleman, CPG-08884

DEPARTMENTS
PRESIDENT’S MESSAGE—Education, Education, Education 16
EXECUTIVE DIRECTOR’S COLUMN—AIPG and Professionalism 17
AGI GOVERNMENT AFFAIRS MONTHLY REVIEW—January 18-20
PROFESSIONAL ETHICS AND PRACTICES—Column 73 21-22
PROFESSIONAL SERVICES DIRECTORY 25-27
CALENDAR 28
AIPG MEMBERSHIPS AND REQUIREMENTS 29
NEW APPLICATIONS AND MEMBERS 36

FRONT COVER—Strata of the Green River Formation (Eocene) are arched into a small anticline exposed in a roadcut of Interstate 80, about 25 km east of Rock Springs, Wyoming (field of view is about 5 m wide). The alternating beds of siltstone and sandstone were deposited in a freshwater lake and locally contain huge numbers of fossil fish. Note that the anticline dies out upsection. It is not a tectonic structure, but resulted from local, syndepositional compression of lake bottom silt by the toe of an underwater landslide (just out of photo to the left). Photograph submitted by James P. McCalpin, CPG-07318; Frank S. Turek, CPG-04788, and John C. Philley, CPG-04322.
The geology of Nevada is the foundation of its natural resources and is closely linked to its human history. The complex geologic history of the state relates to such resources as minerals, water, and energy; to environmental issues; and to natural hazards. This article draws heavily from the references listed in the bibliography for general information on the geology of the state, particularly Stewart (1980) and Stewart and Carlson (1978).

Mountain ranges, commonly approximately 10 miles wide and rarely longer than 80 miles, are separated by valleys. The geologic structure that controls this basin-and-range topography is dominated by faults. Nearly every mountain range is bounded on at least one side by a fault that has been active, with large earthquakes, during the last 1.6 million years. For the last several million years, these faults have raised and occasionally tilted the mountains and lowered the basins. Over the years, these basins have filled with sediments that are derived from erosion of the mountains and that are locally more than tens of thousands of feet thick.

Many of the range-bounding faults are still active. Nevada is the third most seismically active state in the nation (behind California and Alaska); over the last 150 years, there has been a magnitude 7 or greater earthquake somewhere in Nevada about once every 30 years. Most faults are normal, although some are strike-slip faults. The most apparent zone of strike-slip faults in Nevada is in a 50-mile wide swath along the northwest-trending border with California, the Walker Lane. These northwest-trending faults are accommodating part of the motion between the Pacific Plate, which is moving relatively northwest, and the North American Plate, which is moving relatively southeast. The San Andreas fault takes up most of the motion between these two plates. The generally north-south trend of mountain ranges in most of Nevada is deflected into northwest-trending ranges within the Walker Lane.

The climate of Nevada is closely tied to the geologic structure and resultant topography. Judging from fossil evidence of plants that grew in different parts of California and Nevada in the past, the Sierra Nevada (in California and far western Nevada) rose to
current elevations only within the last six million years. Today the Sierra Nevada and other high mountains in California trap moisture coming off the Pacific Ocean and leave Nevada the driest state in the nation. Only a few rivers leave Nevada. These include the Jarbidge and Owyhee Rivers in northeastern Nevada, which flow north into the Snake River in Idaho, and the White and Virgin Rivers in southeastern Nevada, which flow into the Colorado River. The Colorado, which is the biggest river in Nevada, gets the bulk of its water from the Rocky Mountains to the east and provides much of the municipal and industrial water for Las Vegas and other communities in southern Nevada, before flowing southward into the Gulf of California. Most of Nevada, however, is part of the Great Basin, a large area with no drainage to the ocean and centered in Nevada, but including parts of California, Oregon, Idaho, and Utah. The Truckee, Carson, and Walker Rivers, which provide much of the drinking, industrial, and agricultural water for northwestern Nevada, flow generally eastward from the Sierra Nevada to terminal lakes and lowlands in the desert (Pyramid Lake, the Carson Sink and Stillwater wetlands, and Walker Lake, respectively). The Humboldt River, which supplies much of northeastern Nevada with drinking, agricultural, and industrial water, flows southward into Humboldt.
Lake, and, when the lake fills, into the Carson Sink.

During glacial times (most recently about 10,000 years ago), large expanses in the Great Basin were covered by water. Great Salt Lake and the Bonneville Salt Flats in Utah and parts of far eastern Nevada were once part of ancient Lake Bonneville, and Pyramid Lake, the Carson Sink, and Walker Lake were once connected in ancient Lake Lahontan. Native Americans occupied the shores of these lakes as early as 10,000 to 12,000 years ago. Glaciers existed in the higher mountains, carving some of the spectacular U-shaped valleys in the Ruby Mountains and sculpting high-mountain topography in the Sierra Nevada. Glaciers are still present high in the Ruby Mountains and Snake Range in eastern Nevada.

Ground water is used throughout the state, mostly from aquifers in alluvial basins. In some basins, ground water has been pumped out more rapidly than it is naturally recharged from rain and snowmelt. This causes significant lowering of the ground-water table and can affect the land surface. In Las Vegas Valley, cracks have developed locally in the ground (near pre-existing faults), and in a few places the land has subsided more than six feet in the last 60 years.

On a percentage basis, Nevada is the fastest growing state in the country. The U.S. Census Bureau reported a population of 1,201,833 in 1990 and 1,998,257 in 2000. Most of the increase has occurred in and around the urban areas of Las Vegas and Reno-Carson City. Urban expansion in the Las Vegas area has been at a rate of about two acres per hour and is expected to continue at a rapid rate. The Nevada State Demographer has projected the population to be 2.8 million in 2010. This increasing population places demands on ground water and other resources.

The ecological regions of Nevada are directly linked to the climate, elevations of the mountains, and rocks. A combination of precipitation and rock type (with the help of ubiquitous microbes) dictates the types of soils that develop and the plants that grow, which in turn, affect the types of animals that thrive. Geologic evi-
Evidence (primarily fossils) shows us that climate has changed substantially even within the last 10,000 years. For example, mammoths and camels once lived near springs and lakes, now mostly dry in Nevada, as recently as 11,000 years ago.

Although Nevada is, on the average, quite dry (with approximately 10 inches of rainfall across the state, but locally less than 5 inches in certain lowlands and over 40 inches in high mountains), major storms have caused significant floods and occasional landslides. Geologic evidence (and recorded history) abounds for large floods on the major rivers and “dry” washes throughout the state.

Major events in the geologic history of Nevada are highlighted in Table 1. A western continental margin, similar to the Atlantic coast of today, persisted for hundreds of millions of years before the more active, Pacific coast margin of today began to take shape about 400 million years ago. Repeated and prolonged periods of interactions between the North American and Pacific Plates, expressed in folds, thrust faults, strike-slip faults, normal faults, igneous intrusions, volcanism, metamorphism, and sedimentary basins, are recorded in the rocks.

Nevada rocks record volcanic and intrusive igneous activity intermittently and repeatedly from earliest geologic history to within the last few thousand years. Nevada’s igneous rocks are connected to sea-floor spreading about 450 million years ago (much like the Mid-Atlantic Ridge or the East Pacific Rise today), collisions of ancient and modern plates, and hot spots in the Earth’s mantle and perhaps outer core. Some Nevada volcanic rocks can be correlated with the Yellowstone hot spot, which, as a result of plate tectonics, was once underneath and produced volcanoes in southern Idaho and northern Nevada. Some of the volcanic rocks in western Nevada represent the precursor of the Cascades several million years ago, and significant intrusions about 40, 100, and 160 million years ago are probably linked to similar plate-tectonic settings, whereby tectonic plates of the Pacific Ocean were being subducted beneath western North America.
Most, but not all, ore deposits in Nevada are associated with igneous activity. In some cases, metals came from the magmas themselves, and in other cases, the magmas provided heat for circulation of hot water that deposited metals in veins and fractured sedimentary rocks. Some spectacular mineral specimens occur in some ore deposits that formed when magmas intruded and metamorphosed sedimentary rocks. Even today, driven locally by deep circulation along faults and locally by igneous activity, hot water shows up in numerous geothermal areas. Nevada produces approximately $100 million worth of geothermally generated electric power annually, and geothermal resources also are used for agriculture, industrial applications, and space heating.

Nevada produces more than $3 billion worth of mineral commodities each year. Nevada is the nation’s leading gold producer, accounting for approximately 75% of U.S. production and 10% of world production. Much of the gold comes from a northwest-trending belt of gold deposits in northeast Nevada known as the Carlin trend. One of the interesting features of the Carlin trend is that nearly all of the gold is contained in microscopic particles within Paleozoic sedimentary rocks. Although the sedimentary hosts for the gold are more than 250 million years old, the actual mineralization may have occurred much later (approximately 40 million years ago) in association with igneous activity. Nevada, the Silver State, also is the nation’s leading silver, barite, mercury, and lithium producer. Other commodities that are currently mined in Nevada include copper, gypsum, limestone (for cement and lime), clays, salt, magnesite, diatomite, silica sand, dimension stone, and crushed rock, sand, and gravel for construction aggregate. In the past, Nevada has been a significant producer of lead, zinc, tungsten, molybdenum, and fluorite. Active exploration and recent discoveries of new ore deposits attest to the potential for finding additional ones.

Nevada became a State in 1864, during the Civil War (hence the motto “Battle Born”), as a result of mineral wealth. The 1859 discovery of silver-gold ores on the Comstock Lode enticed miners and prospectors, many of whom had come to California a decade earlier in search of gold. Over the decades that followed, they spread out from Virginia City, discovering other major mining camps and establishing many nearby towns in Nevada (Argenta, Aurora, Austin, Battle Mountain, Beatty, Carlin, Elko, Ely, Eureka, Goldfield, Henderson, Las Vegas, Lovelock, Pioche, Tonopah, Unionville, Winnemucca, Yerington) and other parts of the western United States.

Nevada also produces some oil, although small relative to production from major oil states. An interesting aspect of Nevada petroleum production is that some of the oil is associated with hot water, although lower in temperature, but otherwise much like the geothermal fluids that formed gold and silver deposits. Another curiosity is that some of the oil is trapped in fractured volcanic rocks, although the ultimate source of the petroleum was from organic matter in sedimentary rocks. Most of the oil has come from the eastern part of the state, primarily Railroad and Pine Valleys.

Some environmental hazards are associated with the abundant igneous rocks in Nevada. For example, many ground waters in Nevada contain elevated concentrations of radon. Because radon is common in silica-rich igneous rocks, and because these rocks are widespread in the mountains and...
Table 1. Geologic time scale with major events in Nevada history.

<table>
<thead>
<tr>
<th>Million years before present</th>
<th>CENOZOIC</th>
</tr>
</thead>
<tbody>
<tr>
<td>65</td>
<td></td>
</tr>
<tr>
<td>1.6</td>
<td>Quaternary</td>
</tr>
<tr>
<td></td>
<td>Modern earthquakes, mountain building, volcanism, and geothermal activity are expressions of Basin and Range extension that began in the Tertiary Period. The crust is being pulled apart in Nevada, causing valleys to drop relative to mountains. Prior to 10,000 years ago, ice ages caused glaciers to form in the higher mountains and large lakes to develop, in places connecting today's valleys.</td>
</tr>
<tr>
<td>208</td>
<td>Tertiary</td>
</tr>
<tr>
<td></td>
<td>Basin and Range extension began about 30 to 40 million years ago. Igneous activity during the Tertiary Period was caused not only by extension but also by subduction (descent of oceanic crust into the Earth's mantle) of oceanic plates beneath the North American Plate and, in northern Nevada, by motion of the crust over the Yellowstone hot spot in the mantle. Numerous Nevada ore deposits, including most major gold and silver deposits and the copper ores near Battle Mountain, formed during this time. Gypsum deposits formed from evaporating lakes in southern Nevada.</td>
</tr>
</tbody>
</table>

| 144                         | Jurassic                                                                 |
|                             | A subduction zone to the west caused igneous intrusions, volcanism, and associated ore deposits, including copper deposits near Yerington. Sandstones, including those in the Valley of Fire, were deposited in southeastern Nevada, and sedimentary gypsum deposits formed in northwestern Nevada. |
| 245                         | Cretaceous                                                               |
|                             | The Cretaceous Period and Mesozoic Era ended abruptly with the extinction of dinosaurs and many marine species: chemical, mineralogical, and other geological evidence suggests that these extinctions were caused by a large meteorite striking the Earth. Numerous granitic igneous intrusions, scattered throughout Nevada, originated from subduction along the west coast of North America. Much of the granite in the Sierra Nevada formed at this time. The igneous activity caused many metallic mineral deposits to form, including the copper-gold-silver-lead-zinc ores at Ruth, near Ely in White Pine County, copper-molybdenum ores north of Tonopah in Nye County, and tungsten ores in several mining districts. In southern and eastern Nevada, sheets of rocks were folded and thrust from the west to the east during the Sevier Orogeny (mountain building), which began in Middle Jurassic time and ended at or beyond the end of the Cretaceous Period. |
| 286                         | PALEOZOIC                                                                |
|                             | Permian                                                                   |
|                             | Volcanism to the west and deposition of thick limestones to the east were characteristics of much of the Paleozoic Era in the Great Basin. Some marine gypsum deposits formed in southern Nevada. |
| 320                         | Pennsylvanian                                                            |
|                             | The Antler highland, formed earlier, was eroded and shed sediments into the basins to the east. Carbonate rocks were deposited in eastern and southern Nevada. |
| 360                         | Devonian                                                                 |
|                             | Limestone was deposited in eastern Nevada, and shale, chert, and economically important barite were deposited in northeastern and central parts of the state. No record of middle to lower Paleozoic rocks exists in the western part of the state. The quiet, shallow-marine tectonic setting that persisted earlier in the Paleozoic Era began to change, as small land masses from the Pacific Ocean collided with western North America. |
| 408                         | Silurian                                                                 |
|                             | Carbonate rocks (dolomite and limestone) in the eastern part of the state and silica-rich rocks (shale, sandstone, and chert) in the central part of the state record similar deposition to that during the rest of the middle to lower Paleozoic Era. |
| 438                         | Ordovician                                                               |
|                             | Marine deposition during the Ordovician Period was similar to that during the rest of the early Paleozoic Era, with the exception of basaltic (metamorphosed to greenstones) locally interbedded with sedimentary rocks found today in the central part of the state. Some sedimentary barite deposits and copper-zinc-silver ores formed in sea-floor sediments during this time. |
| 505                         | Cambrian                                                                 |
|                             | Middle and Upper Cambrian deposition resembled that during much of the Paleozoic Era, with carbonate rocks to the east and shale plus sandstone to the west. Lower Cambrian and uppermost Precambrian rocks are characterized by quartzite and metamorphosed allstone throughout much of Nevada. |
| 570                         | PRECAMBRIAN                                                              |
|                             | The oldest rocks in Nevada (at least 2,520 million years old in the East Humboldt Range in northeastern Nevada and at least 1,740 million years old in southern Nevada) are metamorphic rocks (including gneiss, schist, marble, and metamorphosed granite, pyroxenite, hornblendite, and pegmatite). Precambrian rocks also include granites (about 1,450 million years old) and younger sedimentary rocks. Beginning approximately 1,100 million years ago, Antarctica and Australia may have rifted away from western North America, setting the stage for the development of a western continental margin that is similar to the Atlantic coast of today. A shallow marine, tectonically quiet setting persisted in eastern Nevada for the next 700 million years. |
make up much of the sediment in the valleys, radon occurs in ground water, soil, and air. Similarly, arsenic is relatively abundant in certain types of igneous rocks and is locally a problem as a dissolved natural constituent in Nevada ground and surface water.

**BIBLIOGRAPHY**

*references and suggested reading*


www.nbmg.unr.edu (the Web site of the Nevada Bureau of Mines and Geology).

I can’t say there’s been a national meeting I didn’t enjoy, but if you missed this one, you really missed it! The field trips, the technical presentations, the displays, the social events and yes, even the all-important meetings.

This was the first joint national meeting I’ve attended. Taking a cue from our success in Michigan, both AIPG and AEG worked together to make this one happen. And happen it did with about 350 participants compared to our usual 125 to 150. There were more things for a wider variety of geological specialties to dive into than could be accomplished in the time available. Most things went well, the timings were smooth and, though a few glitches in execution crept in to keep the organizer’s stress level appropriately high. Overall, the meeting appeared to be a smashing success. But let me try to give you a little flavor for the meeting and then a few more crumbs (and the obligatory public service message) for the detail oriented.

First, as usual, I took the entire family including our 19-month old foster son, Houston. We selected a couple of field trips (the pre-meeting Karst trip and the post meeting New Madrid Tectonics trip) for my 13-year old daughter (Stephanie for those who’ve met her) to accompany me on the arranged transportation. As a courtesy to both the other field trippers and our foster son, arrangements were made for my wife, Mary and Houston to follow in our vehicle. Being amateur radio operators, we kept in touch and I was able to point out some of the road-visible features to Mary, and she reminded me when I missed something. We’ve done field trips with our kids before and would recommend it. As an example, you can always visit Kitch-iti-kipi (Big Spring) in Michigan’s Upper Peninsula if you want to see a lot of water flowing from the ground. But Steph now has an appreciation of how the water got into the ground in the first place, where/how it flowed (beneath) and how/why it emerges in Maramec Spring. At the same time, we toured Onondaga Cave and enjoyed a thorough discussion of the stratigraphic column throughout the area. How many 13-year olds can rub shoulders and learn from the best? And as always, it was a good refresher for me on many of the underlying principles on which my daily work is based.

We’d have to say the same for the New Madrid Tectonics trip. This well organized 2-day excursion gave one a real appreciation for the mechanics and power of tectonism in this central lowland region. Intrusive sand dikes, sand blows, landslides and subsidence, liquifaction, rearranged stream patterns (the Mississippi!) and floods are examples of some of the features presented. The trip also showcased man’s infinite ability to ignore the obvious and create risk with such things as reactivated landslides. Even Stephanie caught on to the immense nature of the situation. And Houston got to pretend to drive the bus. But enough said for the field work.

The indoor aspects consisted of four primary endeavors. Of greatest concern to employers who sent people to keep up on the latest technology, both the displays and technical sessions were of high value. The displays included everything from the various organizations involved, software vendors (best check out the latest offering from Rockware!), geophysical instrumentation (Houston loved the buttons!), drilling equipment and supplies, even books. Poster sessions by graduate and undergraduate students lined one side of the room. Some of the social events were held in this area to allow more time to check out the posters and displays.

Fast paced and diverse, these technical sessions covered a variety of both environmental and geotechnical topics. Generally the topics were either site or technique specific, not the overview, national discussions that have often characterized our meetings in the past. Remember the AEG is a technical society and was instrumental in selecting many of the topic and included down to earth, nitty gritty get your hands on it discussions of methods, approaches, techniques and site/case histories. Typically four concurrent sessions of 20 minute presentations were conducted at any one time. Each morning and afternoon session included a break and, of course, plenty of time was allowed for lunch.
A key third component to a successful meeting is the social events. A trip to the Gateway Arch included a special opening of the Arch for us, including museum and the “elevators” to the top. Hors d’oeuvres were included that comprised a meal and an open bar for our enjoyment. Other events included the ice breaker in the display room, joint awards banquet and a variety of spouse/guest tours. I enjoyed those I attended. Mary and Steph reported the others to be well organized, generally well executed, and enjoyable.

Finally, at least with respect to the general flavor of the meeting, there’s the individual/small group socialization. Yes, like the social animals we are, we tend to herd up with old friends and acquaintances at a quiet watering hole. This is the time when the merits of the latest books, most recent industry scandal and dastardly actions of Congress can be hashed and re-hashed over a few brews. The world was saved and the catastrophe averted several dozen times over just for the price of a six-pack. It’s also the time when lasting friendships are established and reaffirmed. A time not to be missed!

Then there are the meetings. The 2001 Advisory Board Meeting and the 2002 Advisory Board Meeting, the Annual Business Meeting, and finally, a brief encounter to discuss National Screening Committee issues (conducted over lunch). There also were a host of others honoring past presidents, speakers, officers, and guests. Now we’re at the detail stage and I’d like to discuss two very important meetings separately from describing the general flow of the overall event. These two are the 2001 Advisory Board Meeting and the 2002 Advisory Board Meeting.

The 2001 Advisory Board Meeting (basically the outgoing Advisory Board) provides a forum for two important tasks. First, the elected representatives from this board (who serve on the Executive Committee - Excom) provided brief reports of the tasks accomplished relative to the guidance they received at the time they were elected. This is their chance to detail for the board exactly how much of the work set before them was accomplished and what remains to be done. The second aspect of this meeting is an opportunity for each section to summarize their activities, successes, failures, and concerns. The goal is for discussion of these issues by the board and thoughtful reflection by the section’s incoming delegate prior to the incoming board meeting, in this case the 2002 Advisory Board Meeting. It’s also time for a little politicking prior to the finalization of the slate of potential delegates for the next year’s advisory board. Now’s the time to get a delegate friendly to your side of the issues on the slate for next year!

The 2002 Advisory Board also has two principle tasks. These are the election of the four representatives to the Excom and providing them direction and guidance as to what the sections would like to see accomplished. The seriousness of this endeavor cannot be overemphasized. The four representatives comprise nearly a third of the votes on the Excom. Consequently they are not without significant power. Their charge is to guide and direct the Institute toward the future; essentially to present/promote your opinions and ideas. Typically our future leadership, both within the Excom level and the many committees that assist and guide the Excom, come from the Advisory Board level and in particular its representatives to the Excom. This is the entry point to the upper echelon and I recommend not missing it.

It’s my understanding that the minutes of these meetings will be published in TPG and also available on the AIPG website. Consequently I’ve not attempted to recover my chicken scrawls made all the more illegible by the passage of time related to my recent surgery and other delays in life. For the most part the recording secretary does a much better job than I could anyway. But I would like to pass on a couple of general observations - here comes the public service message!

Virtually every other section represented at the meeting detailed identical problems to those facing the Michigan Section. Apathy, lack of attendance at meetings, lack of sufficient volunteers for the various committees (resulting in an inappropriately heavy load on those willing to volunteer) and a continuing attitude that National should be doing more for me while I neither contribute ideas/time/expertise nor make any significant effort to participate. I’m sorry, this is not a spectator sport. You’ll get out of AIPG what you put into it. In the mid-1990’s the Michigan Section put a tremendous effort into getting CPG’s recognized at several levels in Michigan and the result was an influx of members that make us fifth largest of 35 sections in the Institute with 228 members as of September 6, 2001. That’s a tremendous achievement when you consider that we were only about 55 members in the early 1990’s!

However, we need these (and more) new CPG’s to recognize what we (the gray haired oldtimers) did for them and, more importantly, to become more active in the Section. Lighten our current load or pick up where we left off. After all, you’ll be taking over when we’re eventually to retire. We need truly active members to help keep that status and we need you now. Literally all of the concerns of every section in the Institute revolve around the same four issues and could be resolved relatively instantly if each of us devoted an hour or two a month plus attending the meetings when possible. I’m doing my part on the National Screening Committee (a couple hours a month) and, whenever asked, representing the Michigan Section at the Annual Meeting. Will each of you please do yours?

Oh, by the way, Houston, the foster son we took to St. Louis is now our adopted son, Robbie. He and Stephanie will be attending many more annual meetings! We’ll see you there if not before.
Less than five months remain of the “grandfather period” that waives the examination requirement for qualified geologists applying for a New Hampshire Professional Geologist license. Fortysix geologists have received licenses from the New Hampshire Professional Geologist Board as of January 31, 2002. Since the NH Joint Board of Licensure (Joint Board) received requests for and mailed more than 350 application packages, and many applications have been downloaded from their web site, they anticipate that there will be quite a flood of applications in the coming months. Additionally, as a direct result of the licensing of geologists in New Hampshire, the NH Department of Environmental Services is currently working on draft regulations that would require a NH licensed geologist (or licensed engineer) to supervise and sign certain documents for submittal to the agency. These regulations are likely to be in place by the Fall of 2002.

The Joint Board must receive license applications by June 30, 2002 to be included in the grandfather period that opened on July 1, 2001. Candidates whose applications are received after June 30 will have to meet the additional requirement of passing the National Association of State Boards of Geology (ASBOG) Fundamentals of Geology and Practice of Geology exams. In summary, to qualify as a candidate for licensure in New Hampshire, you must have:

1. A Bachelors, Masters, or Doctoral degree in geology or a related field; and,

2. At least five years of experience in the practice of geology, three of which were under the supervision of a licensed professional geologist or a geologist who otherwise would meet the requirements of licensed professional geologist in New Hampshire.

Detailed licensing requirements and an application form can be found on the Joint Board web site at www.state.nh.us/jtboard/geo.htm.

The licensing process begins with the initial submission of a completed application and a $200 fee to the Joint Board. If the Joint Board staff review finds that the application form is complete, they will send reference and transcript request forms to the applicant. It is then the responsibility of the applicant to send the requests out to their references and schools, who must return the completed references and transcripts directly to the Joint Board. It is the responsibility of the applicant to followup to make sure the requested documents are submitted to the Joint Board. Once a complete application package with references and transcripts is received by the Joint Board, the package will be reviewed by a Geologist Board member. If the reviewer finds that satisfactory evidence has been provided supporting that the applicant meets the requirements for licensure, at the next Geologist Board meeting the application will be voted on and a license granted, if appropriate. If the reviewer finds that clarification and/or more information is needed, then the candidate will be contacted. The timing from initial application receipt by the Board to issuance of a license is typically two months, with the greatest delay associated with the receipt of reference letters.

Having just completed the application myself, I found the process was relatively painless, particularly if you download the application form and complete it in MS Word. The instructions are self explanatory and I identified only two items which are worth clarifying. The first is that the three required professional geologist references must clearly indicate that they are licensed by a State or would otherwise meet the requirements for licensure in New Hampshire. Certification (CPG) by AIPG is one way for the reference to demonstrate having the education and experience equivalent to the New Hampshire geologist licensing requirements. The second clarification is that when completing the detailed “Supplemental Experience Record” portion of the application, it is not necessary to list all of your projects or assignments, contrary to what the instructions may imply. Joint Board staff have indicated that it is adequate to identify key pertinent project experience for each period of employment that demonstrates increasing responsibilities with regard to geology.

The New Hampshire Council of Professional Geologists (NHCPG) anticipates that New Hampshire will likely be the last New England state to license professional geologists. Connecticut and Massachusetts have their Licensed Environmental Professional (LEP) and Licensed Site Professional (LSP) programs, respectively. Neither Vermont nor Rhode Island have indicated any movement to date towards the licensing of geologists. As such, if you believe that a licensed professional geologist credential may be useful in your career, or you are currently working in New Hampshire or anticipate that you may in the future work in the State, you are encouraged to download a copy of the application and go to work on it. Application information also can be requested by calling the Joint Board (603) 271-2219 or by e-mail: dlobbell@nhsa.state.nh.us. For information on NHCPG, visit their web site at www.nhcpg.org or contact Timothy Stone, NHCPG President, at 603-433-1935.
AIPG contracts an independent audit or a financial review in alternate years. Wagner & Barnes, P.C. conducted an audit of the financial position of AIPG for FY 2000, and will review the statements of activities and cash flow for FY 2001. An official report on the financial review will be issued in May, 2002.

Unaudited and unreconciled year-end figures on revenues, expenses, assets, and liabilities of AIPG are provided in Tables 1 through 3. They demonstrate the AIPG cash flow for FY 2001 is higher for projected income and less than anticipated for expenses. This resulted in the increase of net assets from approximately $243,000 at the end of FY 2000 to more than $370,000.

At present, AIPG is in sound financial shape. However, it is noteworthy that the membership dues constitute the principal source of revenue. The historic trends and future projections as depicted in Figure 1 indicate that expenses will increase in the future while revenues will decline, which is attributed to a dwindling trend of membership.

### Table 1 - AIPG Revenue

<table>
<thead>
<tr>
<th>Revenues and Gains</th>
<th>2001 Actual (unaudited)</th>
<th>2001 Budget</th>
<th>2001 Variance</th>
<th>Proj. 2002 Revenue</th>
</tr>
</thead>
<tbody>
<tr>
<td>Net Dues Revenue</td>
<td>503,141.50</td>
<td>467,784.00</td>
<td>35,357.50</td>
<td>467,120 (1)</td>
</tr>
<tr>
<td>4010 Application Fees</td>
<td>4,950.00</td>
<td>5,500.00</td>
<td>&lt;550.00&gt;</td>
<td>5000</td>
</tr>
<tr>
<td>4015 Sponsorship Program</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
<td>0</td>
</tr>
<tr>
<td>4020 Grants</td>
<td>3,800.00</td>
<td>5,000.00</td>
<td>&lt;1,200.00&gt;</td>
<td>6500</td>
</tr>
<tr>
<td>4030 TPG Subs., Sales, etc.</td>
<td>696.00</td>
<td>500.00</td>
<td>196.00</td>
<td>500</td>
</tr>
<tr>
<td>4045 Shipping &amp; Handling</td>
<td>1,155.47</td>
<td>1,000.00</td>
<td>155.47</td>
<td>1000</td>
</tr>
<tr>
<td>4050 Advertising Revenue</td>
<td>12,017.00</td>
<td>6,500.00</td>
<td>5,517.00</td>
<td>6000</td>
</tr>
<tr>
<td>4070 Income from Annual Mtg</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
<td>0</td>
</tr>
<tr>
<td>4100 Member Contributions</td>
<td>497.00</td>
<td>500.00</td>
<td>&lt;3.00&gt;</td>
<td>500</td>
</tr>
<tr>
<td>4200 Dividends &amp; Interest</td>
<td>14,972.08</td>
<td>20,000.00</td>
<td>&lt;5,027.92&gt;</td>
<td>15000</td>
</tr>
<tr>
<td>4300 Cap. Gains &amp; Misc.</td>
<td>11,864.97</td>
<td>5,000.00</td>
<td>6,864.97</td>
<td>10000</td>
</tr>
<tr>
<td>4680 Publications</td>
<td>31,299.30</td>
<td>25,000.00</td>
<td>6,299.30</td>
<td>25000</td>
</tr>
<tr>
<td>4900 Other sales</td>
<td>5,512.50</td>
<td>5,000.00</td>
<td>512.50</td>
<td>5000</td>
</tr>
<tr>
<td><strong>Total Non Dues Revenue</strong></td>
<td><strong>86,764.32</strong></td>
<td><strong>74,000.00</strong></td>
<td><strong>12,764.32</strong></td>
<td><strong>74500</strong></td>
</tr>
<tr>
<td><strong>Total Unrestricted Revenues &amp; G</strong></td>
<td><strong>589,905.82</strong></td>
<td><strong>541,784.00</strong></td>
<td><strong>48,121.82</strong></td>
<td><strong>541,620.00</strong></td>
</tr>
</tbody>
</table>
Table 2 – AIPG Expenses

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>5005 Salary</td>
<td>168,419.91</td>
<td>170,525.00</td>
<td>&lt;2,105.09</td>
<td>178,012.50</td>
</tr>
<tr>
<td>5006 Fringe Benefits (Ins.)</td>
<td>7,587.51</td>
<td>10,000.00</td>
<td>&lt;2,412.49</td>
<td>15,000.00</td>
</tr>
<tr>
<td>5007 Payroll Taxes</td>
<td>13,873.17</td>
<td>14,000.00</td>
<td>&lt;126.83</td>
<td>14,500.00</td>
</tr>
<tr>
<td>5009 Pension</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
</tr>
<tr>
<td>5010 Temporary</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
</tr>
<tr>
<td>5015 Retirement</td>
<td>4,823.33</td>
<td>5,200.00</td>
<td>&lt;376.67</td>
<td>5,570.00</td>
</tr>
<tr>
<td><strong>I. Total HR Expense</strong></td>
<td>194,703.92</td>
<td>199,725.00</td>
<td>&lt;5,021.08</td>
<td>212,882.50</td>
</tr>
<tr>
<td>5100 Publication Printing</td>
<td>50,792.83</td>
<td>54,000.00</td>
<td>&lt;3,207.17</td>
<td>54,000.00</td>
</tr>
<tr>
<td>5105 Publication Mailing</td>
<td>3,558.04</td>
<td>3,500.00</td>
<td>58.04</td>
<td>4,000.00</td>
</tr>
<tr>
<td>5230 TPG/Dig Postage</td>
<td>13,525.55</td>
<td>15,000.00</td>
<td>&lt;1,474.45</td>
<td>15,000.00</td>
</tr>
<tr>
<td>5150 Other Printing</td>
<td>183.05</td>
<td>1,000.00</td>
<td>&lt;816.95</td>
<td>250.00</td>
</tr>
<tr>
<td>3200 Svs &amp; Maintenance</td>
<td>13,142.07</td>
<td>4,000.00</td>
<td>9,142.07</td>
<td>15,000.00</td>
</tr>
<tr>
<td>5205 Mfgs Svs &amp; Rentals</td>
<td>&lt;1,203.27</td>
<td>7,500.00</td>
<td>&lt;8,703.27</td>
<td>1,000.00</td>
</tr>
<tr>
<td>5210 Supplies</td>
<td>4,065.96</td>
<td>5,000.00</td>
<td>&lt;934.04</td>
<td>5,000.00</td>
</tr>
<tr>
<td>5215 Subscriptions &amp; Pub</td>
<td>146.55</td>
<td>100.00</td>
<td>46.55</td>
<td>150.00</td>
</tr>
<tr>
<td>5220 Postage &amp; Freight</td>
<td>7,341.18</td>
<td>6,500.00</td>
<td>841.18</td>
<td>7,500.00</td>
</tr>
<tr>
<td>3240 Cost of Sales</td>
<td>10,407.90</td>
<td>10,500.00</td>
<td>&lt;92.10</td>
<td>10,500.00</td>
</tr>
<tr>
<td>3242 Advertising</td>
<td>193.46</td>
<td>2,000.00</td>
<td>&lt;1,806.54</td>
<td>1,000.00</td>
</tr>
<tr>
<td>3500 Travel Staff</td>
<td>2,271.92</td>
<td>5,000.00</td>
<td>&lt;2,728.08</td>
<td>5,000.00</td>
</tr>
<tr>
<td>5305 Travel Ex Dir</td>
<td>22,164.52</td>
<td>24,000.00</td>
<td>&lt;1,835.48</td>
<td>25,000.00</td>
</tr>
<tr>
<td>5310 Staff/Ex Dir Exp</td>
<td>472.32</td>
<td>500.00</td>
<td>&lt;27.68</td>
<td>500.00</td>
</tr>
<tr>
<td>3320 Travel Excom</td>
<td>20,273.28</td>
<td>25,000.00</td>
<td>&lt;4,726.72</td>
<td>25,000.00</td>
</tr>
<tr>
<td>3320-P Travel President</td>
<td>5,368.44</td>
<td>7,500.00</td>
<td>&lt;2,131.56</td>
<td>7,500.00</td>
</tr>
<tr>
<td>3330 Honorary, Awards, etc.</td>
<td>6,561.92</td>
<td>4,500.00</td>
<td>2,061.92</td>
<td>6,500.00</td>
</tr>
<tr>
<td>3410 Member Society Dues</td>
<td>13,363.80</td>
<td>15,000.00</td>
<td>&lt;1,636.20</td>
<td>15,000.00</td>
</tr>
<tr>
<td>3500 Telecommunications</td>
<td>4,603.46</td>
<td>7,000.00</td>
<td>&lt;2,396.54</td>
<td>5,000.00</td>
</tr>
<tr>
<td>3610 Insurance</td>
<td>5,437.81</td>
<td>6,000.00</td>
<td>&lt;562.19</td>
<td>6,000.00</td>
</tr>
<tr>
<td>5620 Interest</td>
<td>9.42</td>
<td>100.00</td>
<td>&lt;90.58</td>
<td>50.00</td>
</tr>
<tr>
<td>5630 Taxes</td>
<td>0.00</td>
<td>1,000.00</td>
<td>&lt;1,000.00</td>
<td>1,000.00</td>
</tr>
<tr>
<td>5640 Bank Charges</td>
<td>6,331.94</td>
<td>5,000.00</td>
<td>1,331.94</td>
<td>6,500.00</td>
</tr>
<tr>
<td>5700 Accounting Svs</td>
<td>7,641.06</td>
<td>12,000.00</td>
<td>&lt;4,358.94</td>
<td>10,000.00</td>
</tr>
<tr>
<td>5720 Legal Svs</td>
<td>469.76</td>
<td>6,000.00</td>
<td>&lt;5,530.24</td>
<td>6,000.00</td>
</tr>
<tr>
<td>5800 Rent</td>
<td>47,741.80</td>
<td>46,500.00</td>
<td>1,241.80</td>
<td>50,000.00</td>
</tr>
<tr>
<td>5900 Miscellaneous</td>
<td>2,069.79</td>
<td>8,500.00</td>
<td>&lt;6,430.21</td>
<td>4,000.00</td>
</tr>
<tr>
<td>5950 Prepaid Expenses</td>
<td>0.00</td>
<td>1,000.00</td>
<td>&lt;1,000.00</td>
<td>0.00</td>
</tr>
<tr>
<td>6600 Depreciation</td>
<td>7,951.70</td>
<td>13,000.00</td>
<td>&lt;5,048.30</td>
<td>13,000.00</td>
</tr>
<tr>
<td>6603 Reserves</td>
<td>13,750.00</td>
<td>15,000.00</td>
<td>&lt;1,250.00</td>
<td>15,000.00</td>
</tr>
<tr>
<td><strong>II. Total Gen'l Expenses</strong></td>
<td>268,636.26</td>
<td>311,700.00</td>
<td>&lt;43,063.74</td>
<td>314,450.00</td>
</tr>
</tbody>
</table>

**Total Expenses & Losses**

|                    | 463,340.18 | 511,425.00 | <48,084.82 | 527,332.50 |

Increase in Unrestricted Assets

|                          | 126,565.64 | 30,359.00  | 96,206.64  | 14,287.50  |
### Table 3 – AIPG
Statement of Financial Position
December 31, 2001

<table>
<thead>
<tr>
<th>Assets:</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>1000 Petty Cash</td>
<td>$106.11</td>
</tr>
<tr>
<td>1045 CLEARING</td>
<td>&lt;$472.30&gt;</td>
</tr>
<tr>
<td>1050 CHECKING 9085554535 (1ST)</td>
<td>144,790.79</td>
</tr>
<tr>
<td>1060 SAVINGS 9086509231 (1ST B)</td>
<td>384,968.26</td>
</tr>
<tr>
<td>1200 Accounts Receivable Regular</td>
<td>4,345.54</td>
</tr>
<tr>
<td>1410 Prepaid Postage-Meter</td>
<td>4,318.07</td>
</tr>
<tr>
<td>1420 Prepaid Postage-Address Chang</td>
<td>156.31</td>
</tr>
<tr>
<td>1500 Publications Inventory</td>
<td>16,478.26</td>
</tr>
<tr>
<td>1510 Insignia Inventory</td>
<td>7,046.34</td>
</tr>
<tr>
<td>1530 Office Supplies Inventory</td>
<td>2,133.69</td>
</tr>
</tbody>
</table>

| Total Current Assets                     | $763,871.07 |

<table>
<thead>
<tr>
<th>Property and Equipment:</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>1600 Office Equipment- 3 yr.</td>
<td>5,776.74</td>
</tr>
<tr>
<td>1605 Accumulated Depreciation-3yr</td>
<td>&lt;$2,651.49&gt;</td>
</tr>
<tr>
<td>1610 Office Equipment- 5 yr</td>
<td>64,553.48</td>
</tr>
<tr>
<td>1615 Accumulated Depreciation- 5 yr</td>
<td>&lt;$54,548.24&gt;</td>
</tr>
<tr>
<td>1620 Office Equipment- 10 yr</td>
<td>23,689.37</td>
</tr>
<tr>
<td>1625 Accumulated Depreciation- 10y</td>
<td>&lt;$18,128.51&gt;</td>
</tr>
<tr>
<td>1630 Leasehold Improvements</td>
<td>1,426.01</td>
</tr>
<tr>
<td>1635 Accumulated Deprec.-Leasehold</td>
<td>&lt;$166.46&gt;</td>
</tr>
</tbody>
</table>

| Total Property and Equipment             | $19,950.90 |

<table>
<thead>
<tr>
<th>Liabilities &amp; Net Assets:</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>2000 Accounts Payable</td>
<td>$5,160.00</td>
</tr>
<tr>
<td>2005 Credit Card Payable</td>
<td>290.53</td>
</tr>
<tr>
<td>2020 Payroll/Unemployment Taxes</td>
<td>&lt;$2.15&gt;</td>
</tr>
<tr>
<td>2030 Due to Retirement Funds</td>
<td>&lt;$43.53&gt;</td>
</tr>
<tr>
<td>2035 Accrued Annual Leave</td>
<td>10,625.75</td>
</tr>
<tr>
<td>2050 Advances for Publications</td>
<td>1,000.00</td>
</tr>
<tr>
<td>2100 Lease Obligation</td>
<td>&lt;$1,832.95&gt;</td>
</tr>
<tr>
<td>2200 Deferred Inc-Mbr Dues</td>
<td>361,280.00</td>
</tr>
<tr>
<td>2400 Section Dues Payable</td>
<td>53,017.70</td>
</tr>
<tr>
<td>2500 Foundation Donations Payable</td>
<td>2,493.50</td>
</tr>
<tr>
<td>2600 Refunds Payable</td>
<td>279.00</td>
</tr>
</tbody>
</table>

| Total Liabilities                        | $432,247.85 |

### Net Assets:

| 3810 Unrestricted Assets                 | 231,790.78 |
| 3870 Planted Reserves                    | 13,750.00 |
| Net Income                               | 126,565.64 |

| Total Net Assets                         | 372,106.42 |
AIPG Virginia and West Virginia Sections Unite

The AIPG Virginia and West Virginia Sections have merged into one section called the Virginias Section. We believe this is a “win-win” for everyone, because historically the Virginia Section was very active and the West Virginia section was inactive. The merger provides opportunities for West Virginians to become more active and provides Virginians and West Virginias with the opportunity to share experiences. The Virginia Section held events (business meeting with field trip) quarterly and to accommodate the large geographical area, held each of the quarterly events at different parts of the state to allow easy access to various members. We anticipate the merged section will continue with that tradition and hence provide opportunities to members that are currently unavailable.

The concept of the merger officially began in April 2001 during communications between various Virginia and West Virginia Section members and was consummated in February 2002 after the National Executive Committee ratified the revised bylaws. The first meeting of the merged section will be held April 20, 2002 at Lost World Caverns in Lewisburg West Va. All members and guests are welcome; please contact Bill Balfour (WVA) or John Jens (Va), or visit our web site http://www.aipgva.org/ for more details. This note was prepared by Ira Merin, the last Virginia Section President.

Fulbright Offers Lecturing/Research Grants in 140 Countries

The Fulbright Scholar Program is offering lecturing/research awards in some 140 countries for the 2003-2004 academic year. The competition opens March 1.

Opportunities are available not only for college and university faculty and administrators, but also for professionals from business and government, as well as artists, journalists, scientists, lawyers, independent scholars, and many others. There are awards in 37 different disciplines and professional fields, as well as in a variety of subdisciplines such as gender studies and peace studies.

Traditional Fulbright awards are available from two months to an academic year or longer. A new short-term grants program—the Fulbright Senior Specialists Program—offers two-to-six-week grants in a variety of disciplines and fields.

While foreign language skills are needed in some countries, most Fulbright lecturing assignments are in English. Some 80 percent of the awards are for lecturing.

Application deadlines for 2003-2004 awards are:

- May 1 for Fulbright Distinguished Chair awards in Europe, Canada, and Russia,
- August 1 for Fulbright traditional lecturing and research grants worldwide,
- November 1 for the summer German Studies Seminar and for spring/summer seminars in Germany, Korea, and Japan for academic and international education administrators,
- Fulbright Senior Specialists Program—rolling deadline

For information, contact the Council for International Exchange of Scholars (CIES) at 3007 Tilden Street, NW, Suite 5L, Washington, DC 20008-3009.

Telephone: (202) 686-7877; e-mail: apprequest@cies.iie.org. Information and an online application also are available on the web at <www.cies.org>.

The Fulbright Scholar Program is sponsored by the United States Department of State, Bureau of Educational and Cultural Affairs.

AIPG ANNUAL FLY-IN

AIPG Washington D.C. Fly-In
May 6-8, 2002

The annual AIPG Washington D.C. Fly-In is scheduled for May 6-8, 2002. John Talley, Chair of the National Affairs Committee, is working with President Larry Cerrillo and Headquarters to make the arrangements for the Washington D.C. Fly-In. AIPG encourages the participation of members who are interested and able to contribute some time to this important political activity. If you are interested in participating this year, please send an e-mail to AIPG Headquarters <aipg@aipg.org> and you will be placed on an e-mail list to receive all Fly-In information. This is an opportunity for self promotion at its best. Please give serious consideration to participating in this advocacy effort on behalf of yourself and the entire profession. The Executive Committee meeting will be held in conjunction with the Fly-In on Sunday, May 5 and you are welcome to attend. The AIPG Web site will have updated information and you can subscribe to the e-mail listing to receive updated Fly-In information on the members portion of the web site.

BALLOT IN JUNE ISSUE

The June issue of The Professional Geologist will include the AIPG Candidate Articles, Biographicals, and the BALLOT to elect AIPG National Officers.

Only AIPG Members that have the right to vote will receive a ballot in their JUNE issue.

PLEASE REMEMBER TO VOTE!
Education, Education, Education

Lawrence A. Cerrillo, CPG-02763

“We do not teach enough geology. We do not graduate enough geology majors, and, worst of all, we are not doing enough to educate the public about the geosciences.” These are the opening sentences of an article by Wendy Van Norden from an article in the Palaios journal of SEPM. Thank you Doug Peters for calling our attention to the article.

Everyone stop what you are doing! Go to the AIPG web page (http://www-aipg.org/StaticContent/1/Sections/CO/co.htm), Colorado Section, and download the article by Wendy Van Norden. Wendy is a high school science teacher of 27 years and says far better than I ever could our need to get out and spread the word on earth science. She provides some interesting statistics and references to support her opening remarks.

Some of you may recall one of the goals of my tenure is to get speakers within each of our sections up and speaking. We need to be shouting this message across the country in all of our K-12 grades. There are surely retired or semi-retired members in many of our sections that could take up this call and encourage our younger members to do the same. If you are hesitant about giving talks, join a local chapter of Toastmasters, or invite a member from Toastmasters to a section meeting to discuss giving talks. As CPGs we should not be bashful about talking on a subject we truly enjoy.

Lost for topics? Pick up your local paper, or your recent journal—I am sure you will find geologic topics of interest. You can talk about how geologists affect everyone’s life from the brushing of their teeth in the morning to the switching on of their electric blanket at nite. Be imaginative, be creative, and most of all be enthusiastic! You can do this.

If you have questions or need help, let headquarters know or e-mail me. You will find that it might improve your presentation skills, and help you in your career. I have taken Step 1 and signed up with a local Toastmasters Club. I am as apprehensive as most, but we need to act now. Make it a great day!

The AIPG web site <aipg@aipg.org> includes AIPG member resumes and employment opportunities. If you would like to post your resume on the AIPG web site or have an employment opportunity please e-mail it to <wjd@aipg.org>. Employment opportunities are listed on the members only portion of the web site.

SPONSOR A STUDENT!

To sponsor a student membership, simply fill out the form on page 24 of this issue, 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.

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AIPG and Professionalism

William J. Siok, CPG-04773

All AIPG sister geologic organizations are professional associations and treat with the issues affecting the technical and practice aspects of a career in geology. AIPG is unique though, in that AIPG treats exclusively with the professional components of the practice. Ethical standards, technical competency, and continuing professional development are the mainstays of the AIPG mission, along with advocacy for the profession.

David Abbott, CPG-04570, unfailingly prepares a column for TPG addressing the fundamentals, nuances, and actual examples of appropriate ethical comportment applied to the practice of geology. If you have been reading his column regularly, you are aware of the fact that AIPG, through the Executive Committee and the Ethics Committee, considers the active adherence to a formal Code of Ethics a fundamental requirement of a true professional. Although there is a continuing discussion among geologic practitioners about most effective means of instilling this expectation in undergraduate and graduate students, there is minimal effort to formalize training, particularly at the university level. The lack of early exposure to this critical professional issue is a major concern that AIPG is determined to change through its student chapters and by closer cooperation with sister societies in promoting professional practice standards.

In light of the generally recognized need for more emphasis upon an ethics code as a standard of practice, it is somewhat discouraging to note that a session, addressing the subject of ethics applied to the practice of geology, and accepted as a scheduled event for the 2001 GSA Annual Meeting, was cancelled due to lack of interest. Isn’t it equally important to be equipped to deal fairly and justly within the community as it is to be technically prepared?

The issues of technical preparation and competency are two other subjects of frequent columns within the pages of TPG. Technical preparation in geology has been increasingly deficient throughout the U.S. university system in the past two decades. Field training (field camp), structural geology, even courses as fundamental as physical and historical geology, have been dropped from curriculum in many institutions of higher learning, which continue to grant degrees in “geology”. Some degrees in geology are not valid from the standpoint of preparing the student to practice fundamental geology. The reasons for these dilutions in academic programs are many and varied, but the fault lies with the universities that diminish the geology curricula and with the industries which are satisfied with the quality of students receiving such degrees.

On the other hand, the issue of competency devolves in part to “geologists” who identify themselves as geologists but who, in fact, are not qualified due to insufficient academic preparation or to ignorance of professional standards (ethical requirements). The AIPG Screening Committee regularly grapples with applicants who are exceptionally well educated, but who do not fulfill even the most basic requirement of a geology curriculum designed to produce a competent practitioner. How can an individual refer to himself as a geologist without learning how to map by measuring and observing in the field?

Under the general category of continuing professional development (CPD), the Executive Committee unanimously agreed that AIPG will implement a CPD requirement for CPGs. The particulars of the program will be finalized and implemented before year-end. It has taken AIPG a few years of internal debate to fashion a CPD concept that will satisfy the basic professional tenants of valid certification and also begin to satisfy general CPD requirements of licensing states so that practitioners will be able to comply with CPG and licensure maintenance simultaneously.

Under the category of advocacy, AIPG’s mission is primarily to assure all practitioners, whether members of AIPG or not, opportunities for careers using a geology education, long into the future. While many of the traditional jobs previously available are no longer there in great numbers, there are many new and varied career paths for which a geology curriculum is an exceptional preparation. AIPG will, by diligence and professional advocacy, continue to argue for geology and geologists to have a role in the national agenda, and to help advise geology undergraduates about the ways the geology degree can be applied to non-traditional careers. The AIPG philosophy is to strive to prepare undergraduates for the marketplace, not to become career graduate students. As far as the practitioner is concerned, AIPG’s role is to promote the professional profile and underscore the significant role of geologists in our national well being and never cease arguing for a place in decision-making processes.

Professionalism is a multi-faceted gem. AIPG’s responsibility is help our sister societies keep each polished to a sparkle.
In President Bush’s first State of the Union Address on January 29th, he highlighted what we will likely see in his budget that comes out on February 4th. Defense, homeland security, and economic renewal will be the over-riding themes, with defense spending marked for the largest increase in 20 years. Bush stated: “to achieve these great national objectives—to win the war, protect the homeland and revitalize our economy—our budget will run a deficit that will be small and short term as long as Congress restrains spending and acts in a fiscally responsible way.” Exactly how science funding in general, and the geosciences in specific, fare in a war budget will be known after February 4th, when the budget proposal will be released. An AGI special update will go out within a day or two of the budget release. President Bush’s complete State of the Union Address is available at http://www.whitehouse.gov/stateoftheunion/.

Energy Secretary to Recommend Yucca Mountain for Nuclear Waste

On January 10th, Secretary of Energy Spencer Abraham informed Nevada Governor Kenny Guinn (R) and the Nevada Legislature of his intent “to recommend to the President that Yucca Mountain be approved as the site for the Nation’s first geologic repository for spent nuclear fuel and high-level radioactive waste.” Governor Guinn’s initial response to the Secretary’s letter was succinct: “This decision stinks.” Reflecting the times, the Secretary’s letter argues that the consolidation of nuclear waste will “enhance protection against terrorist attacks,” while also asserting that the chosen site is “scientifically sound and suitable.” This action, which is mandated by the Nuclear Waste Policy Act, signals that the Secretary’s recommendation will be forwarded to the President in at least 30 days. If the President accepts the recommendation—there is no time limit set for his decision—then the governor will have 60 days to issue a “Notice of Disapproval”, essentially a veto. It will then fall to Congress to vote within 90 days of continuous session (an important qualifier) on whether to sustain the governor’s disapproval. Unlike a presidential veto, however, only a simple majority of both houses is required to override the veto. Overriding the disapproval is virtually assured in the House but is less certain in the Senate, where the Democratic leadership—most notably Assistant Majority Leader Harry Reid (D-NV)—is strongly opposed to the site’s selection. Assuming that President Bush does not delay his decision, congressional action could take place as early as this fall, although election-year politics may encourage a delay until 2003. More at http://www.agiweb.org/-gap/legis107/yucca.html.

Enron Dominates Energy Debate

Early in 2001, the energy crunch in California and gasoline price spikes helped to motivate the Bush Administration to develop a comprehensive energy policy for the nation. Directed by Vice-President Dick Cheney, the National Energy Policy (NEP) was released in May of last year. Since then, the House passed a comprehensive bill (H.R.4) incorporating many of the NEP provisions, but the Senate has been caught up in partisan debate sparked by the administration’s proposal to open the Arctic National Wildlife Refuge for petroleum development. Although Majority Leader Tom Daschle (D-SD) has announced that the Senate will take up energy legislation this spring, the collapse of Enron now appears to be the driving force for interest in energy issues. Several committees have held hearings—and scheduled many more—regarding the energy trading company’s downfall and its implications for electricity deregulation, pension regulation, and other related issues. The General Accounting Office—the investigative and auditing arm of Congress—has renewed its plans (put on
hold after September 11th) to sue Cheney in order to gain access to information about meetings that he held while developing the NEP, including meetings with Enron executives. More on energy policy at http://www.agiweb.org/gap/legis107/energy.html.

**Effort Underway to Stop California from Marginalizing Earth Science**

AGI has sent a letter to the California State Board of Education urging them not to act on a proposal that would remove Earth science as a core credit science course for high school graduation. The board may vote on the proposal at its meeting on February 6. AGI also sent letters to geoscience department chairs and member society leaders, urging them to send letters to Reed Hastings, President of the California State Board of Education. The American Geophysical Union sent an alert to all its California members (see http://www.agu.org/cgi-bin/asla/asla-list?read=2002-03.msg for Hastings’ contact information). The Seismological Society of America also sent out an alert to their members.

The letter from AGI Executive Director and Stanford Dean of Earth Sciences Lynn Orr to Board President Hastings sought to convince the Board to retain Earth Science as a recommended high school core science course for graduation. The proposal under consideration is spelled out in the January 25, 2002, “Draft of California Science Framework for K-12 Public Schools,” which can be found on the Web at http://www.cde.ca.gov/board/notices/sciencefrmkw (the key passage is on page 9, lines 7-10). In order to meet the minimum two-year laboratory science requirement for high school graduation, students must take “two of the following subjects: biology/life science, chemistry, and physics.” The draft proposal goes on to point out that “laboratory courses in Earth sciences are acceptable if they have as prerequisite (or provide basic knowledge in) biology, chemistry, or physics.” In AGI’s opinion, this proposal essentially relegates Earth Science to a non-course because there is no incentive for schools to offer it or for students to take it. Moreover, the state exit exam—which takes effect with the Class of 2004—will only test on material from required courses, further marginalizing Earth Science.

**Evolution At Issue in Washington, Ohio; Biologists To Hold Conference**

The Ohio State Board of Education is currently considering a reevaluation of the state’s science curriculum for grades 10 and 12. An alternative curriculum draft is being proposed by the Science Excellence for All Ohioans (SEAO) group, which advocates the approach of intelligent design (ID) creationism. The SEAO curriculum modification would add a new discipline, “origin science,” defined as “the study of the origin and development/diversity of life on earth.” In SEAO’s draft, statements in the existing curriculum that deal with evolution are modified to emphasize doubts about the validity of evolutionary theory, adding words such as “may” and “might.” The Ohio State Board of Education will meet in March 2002 for further discussion. SEAO has invoked the U.S. Senate-passed Santorum resolution to justify its current actions. On January 23, a General Assembly bill (House Bill 481) was introduced to require the teaching of “origin science” to encourage the teaching of alternate theories to evolution. Another bill (House Bill 484) introduced the following day would require that state science education standards be approved by both houses of the Ohio legislature, a requirement that does not apply to any other state education standards.

A Washington state legislator re-introduced Senate Bill 6058 on January 14, which proposes that all state-purchased science textbooks contain a disclaimer similar to the one used in Alabama that labels evolution as a controversial theory and reminds students that nobody was around when life began. On January 18th, the same legislator introduced Washington Senate Bill 6500, which states: “the legislature finds that the teaching of the theory of evolution in the common schools of the state of Washington is repugnant to the principles of the Declaration of Independence and thereby unconstitutional and unlawful. All textbooks and curriculum that teach the theory of evolution shall be removed from the public schools forthwith and replaced with textbooks and curriculum that teach the self-evident truth of creation.” A companion bill was introduced in the House (House Bill 2681). More on evolution flare-ups around the nation at http://www.ncseweb.org and http://www.agiweb.org/gap/legis107/evolution.html.

The American Institute of Biological Sciences is making evolution the subject of its annual meeting to be held in Washington DC on March 22-24, 2002. For additional information, please visit http://www.aibs.org.

**AGI's Government Affairs Program Celebrates 10th Anniversary**

The notion of an AGI role in public policy dates back to the institute’s inception in 1948. But it took the leadership of two successive AGI presidents, Frank Harrison in 1990 and especially Bill Fisher in 1991, to get a full-fledged program going in this area. And 10 years ago this month, Craig Schiffries joined AGI as the program’s first manager, fresh from a stint as a GSA congressional fellow. The program’s goal then as now was to serve AGI’s member societies. Then as now, a significant percentage of the program’s budget comes from voluntary member society contributions. The Political Scene column in the January 2002 issue of Geotimes reprints excerpts from an editorial written at the time of the program’s inception by AGI’s then-executive director, Charles G. “Chip” Groat, who—along with current AGI executive director Marcus Milling—was responsible for nurturing the fledgling program. Please take a moment to read the column at http://www.geo-times.org/jan02/scene.html.

**AGI Co-Sponsors Capitol Hill Briefing on Measuring Science Results**

The American Geological Institute joined the American Chemical Society to co-sponsor a January 15th luncheon briefing entitled “Measuring the Return on the Federal Research & Development Investment.” The briefing, held in a House Science Committee hearing room, drew over 100 congressional staff. Speakers included Marcus Peacock, Associate Director of the White House Office and Management and Budget (OMB) Associate Director Marcus Peacock, who discussed the administration’s plans for the coming fiscal year and OMB’s efforts to develop performance-based budgets for science programs. Other speakers discussed how industry and federal agencies...
measure science performance as well as a recent report by the National Academy of Sciences’ Committee on Science, Engineering, and Public Policy on how to implement the 1993 Government Performance Results Act for science.

Semester Intern Welcomed, Summer Internship Applications Accepted

AGI welcomes University of Georgia geology graduate student Heather Golding as the spring semester AGI/AAPG Geoscience and Public Policy Intern. She will be spending nearly four months with AGI attending congressional hearings, researching policy issues, and writing issue updates for the program’s website. We gratefully acknowledge stipend support for the internship provided by the American Association of Petroleum Geologists. Applications for the 12-week summer geoscience policy internships must be postmarked by March 15, 2001. Interns will gain a first-hand understanding of the legislative process and the operation of executive branch agencies. They also will hone both their writing and Web publishing skills. Stipends for the summer interns are funded jointly by AGI and the AIPG Foundation. For more information, please visit http://www.agiweb.org/gapac/intern.html.

DOE Bids to Replenish Strategic Petroleum Reserve

According to a January 23rd Greenwire report, the Department of Energy opened bidding for 22 million barrels of oil to fill the Strategic Petroleum Reserve (SPR) as a result of an executive order issued by President Bush. Energy Secretary Spencer Abraham said the installment would not only fill the SPR to its full capacity of 572 million barrels but also would carry out President Bush’s efforts to “strength our nation’s emergency energy supplies.” The oil would be royalty-in-kind payment from companies at the price determined between an oil producer and a willing buyer. Responses from bidders must be completed by February 4 to achieve the initial delivery rate of 60,000 barrels per day in April followed by a rate of 130,000 barrels per day later in 2002. More at http://www.spr.doe.gov. Background on SPR-related issues can be found at http://www.agiweb.org/gap/legis107/spr.html.

New National Academy Geotechnical Committee Holds First Meeting

This month, the National Research Council’s Committee on Geological and Geotechnical Engineering held its first meeting to discuss potential research topics. The intent of the committee, which is part of the Board on Earth Sciences and Resources, is to identify, investigate, and report on issues dealing with geological and geotechnical engineering and act as an independent adviser on scientific and technical questions of significance. The committee heard from various government agencies such as the National Science Foundation, U.S. Nuclear Regulatory Commission, Department of Energy, and U.S. Army Corps of Engineers in order to discuss their role in geological and geotechnical engineering issues. As a secondary focal point of the meeting, the committee considered the long-term effectiveness of engineered containment systems, in particular the proposed Yucca Mountain nuclear waste repository site. More at http://www4.nationalacademies.org/cger/besr.nsf/

New Material on Web Site

The following updates and reports were added to the Government Affairs portion of AGI’s web site http://www.agiweb.org/gap since the last monthly update:

- Superfund and Brownfields (1-3-02)
- Geotimes Political Scene: A Decade in the Game: AGI’s Government Affairs Program (1/02)
- Challenges to the Teaching of Evolution (12-22-01)
- Natural Hazards Mitigation Policy (12-22-01)
- Special Update: OMB Plans Transfer of Research Programs to NSF (12-21-01)
- Overview of Fiscal Year 2002 Geoscience Appropriations (12-19-01)
- Science Education Policy (12-19-01)
- Action Alert: Congress Moves Ahead with Education Reform (12-10-01)
- Arctic National Wildlife Refuge (ANWR; 12-5-01)
- Energy Policy Overview (12-7-01)
- National Science Education Acts of 2001 (12-4-01)


Geologist Licensing Deadline Approaches

June 30th marks end of no-exam requirement for Washington state

Since July 2001, people practicing geology or advertising geologist services in Washington state are required to get a license form the Department of Licensing. This includes geologists working for businesses, state and local governments, non-profit organizations, and those who are self-employed.

Through the end of June, people with a minimum of five years experience in geology or geologist specialty field may apply for a Washington state geologist license without talking the national ASBOG exam or the state-specific engineering geologist and hydro-geologist specialty exams.

All completed applications must be postmarked by June 30, 2002 to the mailing address below. Applications also may be delivered in person to the DOL offices located at 405 Black Lake Boulevard in Olympia by Friday June 28. Please note that June 30 is a Sunday, and the office will be closed.

Complete applications must include:
- Application
- Application fees (first year initial license can be submitted at the same time)
- Sealed college transcripts or documentation of completion of educational equivalents
- Signed “Employment and Experience Verification” forms

Click on the Initial Application for Geologist and Specialty licensing to obtain the application and instructions.

Mail application to: Geologist Licensing Program, P.O. Box 9045, Olympia, WA 98507-9045.
New Ethics Committee Chairman Appointed

A detailed examination of the functioning of AIPG’s Ethics Committee took place over the past 15 months. One of the conclusions of that review was that a reorganization of the ethics committee was desirable. President Larry Cerrillo appointed Travis H. Hughes, CPG and a past president, to the chairmanship of the Ethics Committee. Hughes is an excellent choice and I look forward to assisting him in his new position. President Cerrillo asked me to continue writing this column and to continue as a member of the Ethics Committee. This change frees me from the responsibilities of administering the Disciplinary Procedures, which are delegated to the Ethics Committee Chairman by the Bylaws. Administering the Disciplinary Procedures is not the fun part of the job, but it is a vital and at times a very time-consuming one. The amount of work involved varies greatly from year to year as reflected in the disciplinary summary posted on AIPG’s web site. I will continue compiling this column, which I enjoy doing.

Should You Be Required to Obtain a Written Consent to Quote from a Consultant’s Report?

This discussion arises from a provision of the Valmin Code, an Australian code covering the valuation of mineral and petroleum assets (if you’re interested, you can get a copy from www.ausimm.com.au/codes. The Valmin consists of a Code, Definitions, and Guidelines). Paragraph G155 (from the Guidelines part of Valmin) states:

G155. A Report should not include a report or quotation which is the work of another person without the written (and not subsequently withdrawn) consent of that person, but, except as may otherwise be required by law, no such consents are required where the report or quotation is within the public domain. Published papers are excluded from this requirement. A Report should include a statement that such a report or quotation is an accurate reflection of that person’s view and that that person has consented in writing to the inclusion of that report or quotation in the form and context in which it is included in the Report and, at the date of the Report, has not withdrawn that consent.

When one is writing consulting reports, one often reviews and quotes from or incorporates documents from the work of others, giving appropriate citation as to source. The foregoing paragraph requires one to obtain the consent of the author(s) of those reports for such use if the cited report is not published or otherwise in the public domain.

I asked a number of people for their reactions to this requirement and received the following arguments in favor.

Steve Kulinski expressed concern about the fairness of putting one’s own “stamp” of approval on someone else’s work and notes that an author may no longer hold the view expressed in the report. There also are problems with taking information out of context, a view endorsed by Mike Lawrence.

Lawrence also noted that the rule as written applied only to filings made pursuant to Australia’s Corporations Laws, where exposure to the general public and potential liabilities are much higher than is true of most private reports. This is an important point. The guideline does not apply to all professional reports. But suppose that it did? Is the guideline a rule that should be more generally applicable?

While I agree that having such a review ensures that misquotations or taking something out of context does not occur, I’ve not aware of seeing this done. During my years at the U.S. Securities & Exchange Commission investigating mining and oil and gas frauds, I never ran across an instance where a professional misrepresented another’s work. I did see cases where a client did so, as have many others. This is the reason the SEC required consent letters from named experts, which was a backdoor method of making sure the experts knew their work was being used and did not object to the client’s summaries of their conclusions. But again, I am unaware of one professional misrepresenting the work of another. (If you have examples, please share them.)

I’m concerned about this guideline because of potential conflicts with some other ethical principles. What about client confidentiality? Does my client necessarily want others to know that I’ve been asked to report on something? Do I want other consultants commenting on drafts of my work?

1. Perhaps a new Rule 4.1.3 should be added to the AIPG Code of Ethics stating that members will accurately quote or summarize information obtained from other reports and shall not use data or conclusions outside of the context in which they were intended to be used. Comments on this suggestion are welcomed.
Then there are some practical issues. Obtaining these approvals requires time and effort and increases the number of billable hours that a client pays for. Should the client also pay for the time required for the review by the consultants quoted as well? Can I “hold up” another’s report and client for a fee before granting my approval? One easy way around this is simply not to quote from other’s work. But this approach violates Standard 4.1 of the AIPG Ethics Code whose Rules require that we give credit to others for the work that they did, that is cite them as the authors, and prohibits plagiarizing others’ work.

Other practical issues involve older reports whose authors are either known to be dead or who cannot be found. The latter can be a real problem with even fairly recent reports because so many of us have changed jobs in locations with more frequency than we’d like and have not or cannot maintain membership in national societies with readily available membership directories.

The other issue raised in favor of the requirement involves changed opinions. In 1995 interpretation “A” was true. Now in 2002 “A” is no longer tenable or is untrue or must be substantially modified. Clearly, the older a report is, the more likely it is that newer data will require modification of some or all of the conclusions. But this does not negate the value of the older report as an historical document of what was known at the time. Nor does it necessarily mean that all the data and observations in an older report are invalid. Such data and observations may continue to be very valid. Some of the conclusions may remain true as well.

In a recent report I cited a 1995 study by another consultant, as well as more recent work by a third consultant and work that I had done as all reaching the same conclusion. The two more recent studies, mine and the third consultant’s, had more data to examine with than the consultant in 1995. Nevertheless, we had all looked at the same question and had arrived at the same conclusion. The first consultant’s work had been the supporting basis for a major working hypothesis for a mining operation’s reserve estimation. The more recent studies continued to support that working hypothesis. It is important to periodically check this working hypothesis. The fact that several independent studies have and continue to support it is an important point.

Suppose however that more recent data changed a major interpretation. This happens as well. While the changed interpretation should be supported and reported, it does not invalidate the earlier interpretation if that interpretation had a valid basis at the time it was made. This is why it is so important that reports be dated. When I state that Smith’s 1995 conclusion was “X” I am not stating that Smith’s conclusion would be “X” today nor do I think that others, including reasonable members of the general public, would conclude that “X” is necessarily Smith’s current conclusion. But perhaps I’m being naive here.

What do you think about this discussion? Should we request that our citations or quotations of others be checked by the original authors on a more routine basis? Do you have examples where a professional has misquoted or misstated the results of another? Please contribute your thoughts.

Topical Index to the Professional Ethics and Practices Columns

I have prepared a topical index covering columns 1 through 73 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.

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Licensing of Geologists in Utah Passes Utah Legislature

Utah House Bill 96 - for the licensure of geologists in the State of Utah - has passed and will be written into law. The bill passed Thursday (March 7) night at 10:42 pm, 73 minutes before the legislature adjourned for the year.

Utah now will require geologists practicing for the public to be registered. A proposed amendment to delete a grandfathering clause failed.

For more information about Utah HB 96, including a copy of the bill as passed, see http://www.le.state.ut.us/~2002/htmldoc/hbillhtm/hb0096.htm. Also, the Utah Council of Professional Geologists, the volunteers leading the effort, have a web page: http://www.utahpg.org.
Cataclysm that Resurfaced the Earth and Inner Solar System 3.9 Billion Years Ago Was Caused by Asteroids, Not Comets, Researchers Say

WASHINGTON - The bombardment that resurfaced the Earth 3.9 billion years ago was produced by asteroids, not comets, according to David Kring of the University of Arizona Lunar and Planetary Laboratory and Barbara Cohen, formerly at the UA and now with the University of Hawaii. Their findings appear today in the Journal of Geophysical Research—Planets, published by the American Geophysical Union.

The significance of this conclusion is that the bombardment was so severe that it destroyed older rocks on Earth. This, Kring says, is the reason that the oldest rocks ever found are less than 3.9 billion years old. Additionally, the researchers argue, hydrothermal systems generated by the impacts would have been excellent incubators for pre-biotic chemistry and the early evolution of life, consistent with previous work that suggests life originated in hot water systems around 3.85 billion years ago.

This same bombardment, according to Kring and Cohen, affected the entire inner solar system, producing thousands of impact craters on Mercury, Venus, the Moon and Mars. Most of the craters in the southern hemisphere of Mars were produced during this event.

On Earth, at least 22,000 impact craters with diameters greater than 20 km [12 mi] were produced, including about 40 impact basins with diameters of approximately 1,000 km [600 mi] in diameter. Several impact craters of about 5,000 km [3,000 mi] were created as well, each one exceeding the dimensions of Australia, Europe, Antarctica or South America. The thousands of impacts occurred in a very short period of time, potentially producing globally significant environmental change at an average rate of once per 100 years.

Also, the event is recorded in the asteroid belt between Mars and Jupiter, as witnessed by the meteoritic fragments that have survived to fall to Earth today, the authors say.

Kring has been involved in the research and measurements of the Chicxulub impact crater located near Merida, Yucatan, Mexico. He has collaborated and led various international research teams which have drilled to unearth evidence of the Cretaceous-Tertiary (K/T) impact, which is thought to have led to mass extinctions on Earth, including that of the dinosaurs.

Earlier this month, he returned from a drilling operation at the impact site where crews worked around the clock to recover core samples in an effort to determine what caused the impact and other details of the catastrophic event that wiped out more than 75 percent of all plant and animal species on Earth.

The research leading to this paper was partially supported by a grant from NASA.

AGU Release No. 02-07, February 20, 2002

AIPG•AEG PREMEETING FIELD TRIP
ONE DAY TRIP TO YUCCA MOUNTAIN, NEVADA
MONDAY – SEPTEMBER 23, 2002
Led by John Peck, AEG and Bob Levich, AIPG

Participants in this field trip will travel by bus from Las Vegas, Nevada to the U.S. Department of Energy's (DOE) Yucca Mountain site, located ca. 150 km (90 mi) northwest of Las Vegas on and adjacent to the Nevada Test Site. On 10th January, 2002, the Secretary of Energy informed the Governor of Nevada that he intends to recommend the Yucca Mountain Site to President Bush for a mined geologic repository for spent nuclear fuel and high-level radioactive waste. The potential repository is located more than 200 m above the water table in unsaturated rhyolitic tuffs of Miocene age. Field trip participants will visit the underground Exploratory Studies Facility, which includes an 8 km main exploratory tunnel, a 3 km Cross Drift and a number of alcoves and niches for conducting tests. We will examine the welded tuff of the proposed repository horizon 200 – 350 m below the land surface and visit several locales where Project scientists conducted hydrologic, geochemical, and thermal tests.

The field trip also will visit the crest of Yucca Mountain where participants will view and discuss the surface geology of the site including the volcanic and pre-volcanic stratigraphy, the tectonic setting including several faults and nearby basaltic eruptive centers of Pliocene to Recent age. The field trip will emphasize the hydrogeology of the unsaturated and saturated zones and its effect on the ability of the potential repository to isolate radionuclides from the biosphere. A symposium on Yucca Mountain will be held in Reno during the annual meeting. This trip will acquaint participants with the regional and site geologic and hydrogeologic settings.

A major topic will be the engineering geology of tunnels and alcoves in the densely welded rhyolitic tuffs of Miocene age. The main tunnel was constructed using a 25-ft diameter tunnel-boring machine (TBM). A smaller (16.5 ft) TBM was used for the second exploratory tunnel, known as the Cross-Drift. The trip also will visit the sites of various surface investigations.

Participants should plan to arrive in Las Vegas on or before Sunday, September 22nd. The field trip will depart at ca. 6:00 am on the morning of Monday, September 23rd. The trip will last all day and will return to Las Vegas late on Monday afternoon. AEG-AIPG Annual Meetings participants should plan to fly to Reno on Monday evening or early Tuesday morning. Robust footwear, long pants and sleeved shirts are required for underground access. Hard hats, eye and ear protection, lamps and self-rescue gear will be provided at the tunnel entrance.

This trip is on a DOE restricted-access facility. Non-U.S. citizens are welcome on the trip, but must provide ALL requested information at least eight weeks prior to the trip for access approval. U.S. citizens need to provide a photo-ID, social security number, date and place of birth, and current address on the day of the trip.

For additional or clarifying information contact John Peck at peckj1@juno.com [phone: (702) 255-5285] or Bob Levich at bob_levich@ymc.gov [phone: (702) 794-5449]. More information on the Yucca Mountain site and the Yucca Mountain Project can be found on the web at http://www.ymc.gov www.ymc.gov
SPONSOR A STUDENT MEMBER

Lawrence A. Cerrillo, AIPG 2002 National President

“AIPG provides a forum for geologists with a broad range of specialties to come together. As professional geologists, we promote public awareness of the effects of geology and geologic processes on the quality of life.”

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.

AIPG STUDENT SPONSOR APPLICATION

STUDENT

Name ________________________________
(If left blank a student will be assigned.)
University ________________________________________________
Dept. ________________________________
Address ________________________________________________
City, State, Zip ________________________________
Phone ________________________________
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E-mail ________________________________

SPONSOR

Name ________________________________
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President’s Awards

These awards recognize the best undergraduate and graduate posters presented by students at the AIPG • AEG Annual Meeting. Cash awards and associate memberships in AIPG will be given to deserving students in honor of an AIPG member. The award will be presented in honor of a member who has made significant contributions to the Institute, as chosen by the sitting President of AIPG.

Graduate category
1st place, $500 plus AIPG Associate Membership
2nd place, $100 plus AIPG Associate Membership
3rd place, AIPG Associate Membership

Undergraduate category
1st place, $250 plus AIPG Associate Membership
2nd place, $50 plus AIPG Associate Membership
3rd place, AIPG Associate Membership
This service is open to AIPG Members as well as non-members. The Professional Services Directory is a 10-month listing offering experience and expertise in all phases of geology. Prepayment required. Advertising rates are based on a 3 3/8” x 1 3/4” space.

12-MONTH LISTING FOR ONLY:

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<td>Non-member</td>
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Space can be increased vertically by doubling or tripling the size and also the rate.

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TPG accepts articles of modest length for publication. Articles may be technical or professional in nature. General topics include: mining, petroleum, hydrogeology, environmental geology, and geophysical/engineering. Articles containing news of importance to professional geologists also will be considered. Deadline date for submissions is the fifteenth of the month two months before date of issue. For example, the deadline for the November issue is September 15. Articles are reviewed by at least three associate editors before they are approved for printing.

Manuscripts should have the following sections: title, author(s) with CPG number and address, key words, abstract, text, tables if included, figures with captions if included, appendix(es) if included, acknowledgments, references cited, and a brief biography.

One original and three copies of each manuscript should be submitted. Whenever possible, text also should be submitted on diskette. Headquarters uses WordPerfect 9 for Windows '98, which is preferred, but Word, ASCII, RTF, or translatable files are acceptable. Articles also can be transmitted by e-mail.

Graphics should be clear, camera-ready, line drawings whenever possible. Photographs (color or black and white) also are encouraged.

TPG wants color slides and photographs. Slides and photographs alone may be submitted for the cover. They should have a geologic theme and an informational caption.

Authors are encouraged to communicate with Headquarters via mail, fax, or e-mail. Send your article and/or photographs or communicate questions to:

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e-mail: aipg@aipg.org.
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)

CERTIFICATION/REGISTRATION: None required

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

MEMBERS

EDUCATION: 30 semester or 45 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: No proof required

SPONSORS: 2 required from professional geologists, one of whom must be a CPG, Registered Member, or Member

CERTIFICATION/REGISTRATION: None required

SCREENING: National

APPLICATION FEE: $30

ANNUAL DUES: $70 plus Section dues; both pro-rated for remainder of year when accepted

REGISTERED MEMBER

EDUCATION: No proof required

EXPERIENCE: No proof required

SPONSORS: 2 required from professional geologists, one of whom must be a CPG, Registered Member, or Member; sponsor letters in state registration application may serve as sponsor statements if approved by Executive Committee

CERTIFICATION/REGISTRATION: Proof of current registration/licensure/certification must be submitted with application and with annual renewals and must include expiration date

SCREENING: National

APPLICATION FEE: $30

ANNUAL DUES: $70 plus Section dues; both pro-rated for remainder of year when accepted

STUDENT

EDUCATION: Currently enrolled in a geological science degree program*

EXPERIENCE: None required

SPONSOR: 1 letter from geological science faculty member

CERTIFICATION/REGISTRATION: None required

SCREENING: Headquarters can approve

APPLICATION FEE: $5

ANNUAL DUES: $15

ASSOCIATE

EDUCATION: None required

EXPERIENCE: None required

SPONSORS: 1 CPG, Registered Member, or Member

CERTIFICATION/REGISTRATION: None required

SCREENING: Headquarters can approve

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.
INTRODUCTION

The purpose of the National Association of State Boards of Geology (ASBOG) is an organization through which member boards may act and counsel together to better discharge their responsibilities. ASBOG provides a forum to promote, foster, and advance the common interests and purposes of the member boards. Currently ASBOG provides national examinations for registration, which includes conducting task analyses necessary for valid examinations. In addition to providing a forum for member boards, ASBOG also provides counsel to states seeking legislation for registration.

MEMBERSHIP

The supporting membership of ASBOG is its Member Boards. However, there are three other membership categories: Associate Member Board, Affiliate Organization Member, and a newly established International Organization Member. Member Boards are dues-paying State Boards or other legal entities constituted by states, territories and the District of Columbia of the United States of America to administer the licensure of geologists. Associate Member Boards are Boards that have enacted legislation to regulate the profession of geology and have provided a mechanism for that regulation. Associate status may be conferred only for a period of two years or until such time as 300 persons have been registered, at which time that Board must convert to Member Board status or petition the full membership of ASBOG to extend its associate member status. Associate Member Boards also pay dues, but do not have voting privilege, among other limitations. Affiliate Members are persons or organizations with a substantial interest in geology or registration, such as AIPG. Affiliate Members also are dues paying members, but also do not have voting privileges, among other limitations. A new membership category, namely International Members who are representatives of International Organization Members, was approved at ASBOG’s October 2001 annual meeting. Much like Affiliate Members, International Members do not have voting privileges.

Figure 1 shows the ASBOG Member Boards as well as other states with Title and/or Certification legislation. All Boards with practice acts are now members of ASBOG. Table 1 is a matrix showing geology registration standards of these Boards, as well as professional society certification, including AIPG. While examinations offer one means of measuring the competency levels of candidates, most jurisdictions also screen candidates on the basis of education and experience requirements set forth in state laws, rules, and regulations shown on Table 1.

EXAMINATIONS

One of ASBOG’s principal duties is to develop standardized written examinations for assessing qualifications of applicants seeking licensure as professional geologists. Boards of registration are provided with uniform examinations that are valid measures of competency related to the practice of the profession. Through the test development process, public protection is enhanced. Obtaining the ASBOG-developed examinations is cost effective for Boards. Development of valid examinations cost in the neighborhood of $100,000. Cost to an ASBOG Member Board for access to the ASBOG exams is currently a one-time fee of $18,000. To remain valid, the cost of yearly exam maintenance is around $20,000 for biannual examination workshops. Also, a Task Analyses Survey (TAS) is needed every five years, which cost up to about $100,000. Each ASBOG Member Board pays a yearly membership fee, currently $2,950, which is fundamentally a maintenance fee for the examinations.

ASBOG conducts two test development and validation workshops annually using the guidelines established in the Standards for Educational and Psychological Testing (1999) published by the American Educational Research Association, the American Psychological Association and the National Council on Measurement in Education. All workshops are intended to maximize the fairness and quality of the examinations as measures of competency. The workshops are conducted by professional testing specialists who possess the type of expertise required for developing procedures that reflect “state-of-the-art” testing techniques.

The examinations are the result of careful preparation and validation by a committee of professional geologists from throughout the nation, the Council of Examiners (COE). These geologists supply the expertise essential in developing fair and impartial examinations for measuring competency within the profession. By utilizing the expertise of individuals from
### Table 1. Geology registration standards.

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<th>State</th>
<th>BSBA Geoscience</th>
<th>BSBA Engineering</th>
<th>Minimum Credit Hours (Sem.)</th>
<th>Work Experience (years required) post BS/BS</th>
<th>Speciality Available/Required</th>
<th>Geophysics</th>
<th>Fundamentals Exam</th>
<th>Practice Exam</th>
<th>Continuing Education Requirements</th>
<th>Cooperative License</th>
<th>Temporary Registration</th>
<th>Practice Agreement (FE)</th>
<th>Waiver of Examination</th>
<th>State/Local Employees</th>
<th>Subordinates</th>
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**Non-member States with Registration**

- Alaska (AIPG)  Y Y 36 5 Y Y Y Y X X X X X
- Tennessee       Y 30 5 Y Y Y Y X X X X X
- Texas           Y Y 30 5 Y Y Y Y X X X X X
- Washington      Y Y

**Professional Society Certification**

- AIPG           Y Y 36 5 Y
- AAPG           Y Y 30 8 Y
- SIPES          Y Y 12 Y

**Suggested Geologist Practice Act**

- SGPA           Y Y 30 4 Y Y Y Y X X X X X

*Table 1. Geology registration standards.*
throughout the nation, ASBOG provides uniform examinations that will apply to a wide range of geographic regions and professional practice settings.

Examinations are administered simultaneously by all Member Boards in the spring and fall of each year. Currently, ASBOG provides Member Boards with two multiple-choice examinations – the Fundamentals of Geology (FG) and the Practice of Geology (PG). Each examination is up to four hours in length. The FG and PG examinations have been developed to assess common knowledge and skills related to the practice of geology throughout the nation. Individual states may require additional testing on local geology, statutes, rules and regulations that address state-specific issues.

The FG examination emphasizes knowledge and skills that are typically acquired in an academic setting and lead to a baccalaureate degree. Currently the FG exam is based on 35 tasks and has 110 questions. The PG examination emphasizes skills and knowledge that are acquired or expanded in a practice or job setting. Currently the PG exam is based on 45 tasks and has 80 questions.

**EXAMINATION DEVELOPMENT**

To ensure valid examinations, ASBOG conducts task analysis surveys (TAS) of the profession every five years. Testing standards require that the questions on a licensing examination represent the important tasks needed for competent practice in the profession. The TAS is used to verify those tasks performed by the profession that are related to public protection and the underlying knowledge and skills needed to perform those tasks. This information is then used to develop test blueprints (content outlines) that guide the development of questions. The content of the ASBOG examinations, both the FG and FG has been determined by a comprehensive task analysis of the work performed by licensed geologists across the nation. This ensured that the examinations reflect competencies related to public protection. The current TAS was distributed to 5,756 registered geologists through 21 states and nine Canadian provinces and territories during 1999. The surveys represented professional geologists in 48 states and 12 provinces/territories with a 44 percent return rate. The resulting blueprints were first used in 2000.

Based on the results of the TAS, the COE develops the test blueprints that list the geologic tasks and the number of questions for each geologic task to be included in both the FG and PG exams. The COE reviews examination questions to verify each question is valid for use in the examination and that it accurately reflects one or more of the tasks listed in the test blueprint. The blueprints specify the domains/content areas for each examination. The relative importance of different content areas can be determined by examining the blueprints shown in Table 2. The construction of the questions differs between the FG and PG exams. FG questions are primarily to recall factual information, and the PG questions are focused on candidates’ competencies to apply the basic principles of geology. Each examination question is subjected to a minimum of four peer reviews.

ASBOG conducts two test-development and review workshops annually. The COE carefully reviews each question before and after it is used to ensure the quality and fairness of the examinations. These geologists represent the profession in terms of geography, ethnicity, gender, and area of practice. The review process ensures that the questions remain current with changes in the profession. The content, format, and statistical performance of the questions are carefully reviewed to maintain the accuracy of the questions across time.
USE OF FG EXAM FOR ACADEMIC PROGRAM ASSESSMENT

ASBOG endorses the use of the FG exam as exit exams for academic programs. Because the purpose of the FG exam is registration through Member Boards, any academic program using the FG exam must do so through a Member Board. Currently all the geology degree programs in Mississippi and several in Kentucky are using the FG exam as an exit exam in an effort to assess their programs, typically a requirement by regional accreditation organizations.

The reason using an FG exam to test basic academic preparedness is even necessary in the U.S. is because there is no required accreditation specifically for geology programs. The lack of such accreditation results in a lack of standardization in requirements and quality from program to program across the country. Thus, in addition to requiring a degree and a minimum amount of course work, as most registration laws do, the FG exam can be used to test minimum academic training for those areas within geology which when practiced can have an impact on the health, safety, and welfare of the public. It should be kept in mind that not all areas of geology are determined (by the TAS) to have such an impact.

BOARDS FORUM

Another important function of ASBOG is to provide a forum for the Member Boards to address various issues normally through committee work. Topics include criteria for registration, such as formal education and work experience; testing; examination waivers; and grandfathering. The goal of encouraging uniform procedures among states is to enhance cooperative licensure (reciprocity/comity). Other ongoing topics include continuing education and ethics issues. One of the

Table 2

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<tr>
<th>CONTENT DOMAINS</th>
<th>FG#</th>
<th>FG%</th>
<th>PG#</th>
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<tr>
<td>A. Field Methods And Remote Sensing</td>
<td>32</td>
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<td>13.6</td>
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<td>C. Sedimentology, Statigraphy, Paleontology</td>
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<td>10.0</td>
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<td>D. Geomorphology</td>
<td>7</td>
<td>6.4</td>
<td>5</td>
<td>6.3</td>
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<td>E. Structural Geology &amp; Tectonics</td>
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<td>9.1</td>
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<td>3.6</td>
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<td>27</td>
<td>24.5</td>
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<td>9</td>
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Figure 2. Flow chart showing the areas being studied.
recent topics is an international initiative that has resulted in a signed agreement between ASBOG and the Canadian Council of Professional Geoscientists (CCPG). As with the idea of uniform procedures among the states, ASBOG and the CCPG are beginning to compare registration requirements in Canada and the U.S. to facilitate potential international mobility among practicing geologists. Figure 2 contains a flow chart showing the areas being studied. Also shown in Figure 2 is a link to AIPG. ASBOG recognizes that AIPG's existing structure allows for political lobbying and that AIPG's international efforts are important to all geologists, including those registered by registration boards. ASBOG also encourages and supports AIPG in these areas as well as any other efforts where ASBOG cannot participate such as continuing education.

CLOSING

In closing it should be remembered that ASBOG is an organization of regulatory boards and its direction is provided by those boards. ASBOG's primary functions are to provide national examinations, to maintain their validity, and to provide a forum for common issues among the boards.

As ASBOG officers and AIPG members our recent efforts have been to have representatives at each other's executive committee meetings, to explore how we can cooperate with one another and not overlap. We applaud AIPG's efforts and encourage AIPG to take the lead in dealing with such issues as continuing education. We also pledge to continue to develop and maintain congenial relationships.

The Surveyor’s Corner

by Gregg Tuttle, RLS member, AZ-BTR

A thought provoking article sent to the Editor by Arizona CPG and National Advisory Board Representative Barbara Murphy.

Back in a previous issue of the AZ-BTR Newsletter (NOV/DEC/JAN 1999/2000), there was the article entitled: “Report of the AD HOC Subcommittee on Continuing Professional Competency.” The findings of that report were:

- That the overwhelming majority of AZ registrants already freely participate in Continuing Education on a regular basis on part of a prudent practice of their professional and business enterprises.

- Mandating continuing education for all registrants would introduce additional administrative and bureaucratic burdens of time and costs to the Board and its staff, to say nothing as to each individual registrant.

- It was therefore concluded that MANDATORY Continuing Education is BEST UTILIZED ON AN INDIVIDUAL, “CASE-BY-CASE” BASIS RELATIVE TO ENFORCEMENT MATTERS dealing with individual registrant’s ability to demonstrate continuing profession competency.

- The report recommended that the Board continue emphasis of VOLUNTARY responsibilities of individual registrants, (and their related professional societies and associations), in carrying on the responsibilities of continuing professional competency.

The use of MANDATED educational scenarios resulting from enforcement cases has been almost exclusively associated with registered land surveyors.

More and more, the volunteer enforcement advisory committees are recognizing mandated education ‘referrals’ as applicable, appropriate, and oftentimes a necessary tool in the overall resolution of complaints, especially those involving land surveyors.

When reviewing the situation and discussing the complaint with a registrant, often times if the registrant is able to show previous, AND current participation, in relevant professional continuing educational scenarios, then that is viewed as a mitigating factor in favor of the registrant. However, when it becomes obvious that a registrant has not been participating in, and/or stayed current with, continuing educational opportunities, then that may be viewed as an aggravating circumstance relative to the particulars of the complaint.

In that second instance, the advisory committee may well recommend to the Enforcement Staff, and, (with staff’s concurrence), to the full Board, that the registrant participate in some form of mandated educational experiences, requiring documented proof of successful completion, as part of an overall consent agreement negotiation process.

Finding one’s self thrust into the continuing education paradigm can be a arduous cultural shock for a registrant who either has never had such experiences, or who has very little familiarity.

Some registrants have not only not kept current with continuing educational opportunities, they may even profess not to know where to access acceptable continuing education resources!! (Aggravating indeed!)

Both BTR Enforcement Staff, and especially the AZ Professional Land Surveyors’ (APLS) Association, (http://www.azpls.org/), are excellent places in which to start one’s search for the sources of acceptable continuing education for surveyors.

Also, anyone (in this day and age) with access to the Internet, (now available free at most public libraries, among other options), can use a basic search engine, with the key words “land + surveying + education” to discover a veritable plethora of options.

A good example of such a source is the University of Wyoming’s “Distance Learning” options with many relevant
Representatives of AIPG, the Association of Engineering Geologists (AEG), the American Association of Petroleum Geologists (ASPG), and the Texas Association of Professional Geologists (TAPG) met at the Capitol in Austin, Texas last August for the official signing of the Texas Geoscientist Licensure Act. Those in the picture are from left, first row: Kelly Krenz (TAPG), Billy Clayton (AIPG’s lobbyist), Sen. J.E.”Buster” Brown (co-sponsor), Gov. Rick Perry, Rep. Tony Goolsby (co-sponsor), Mark Baker (TAPG), Andrea Stingley (legislative assistant to Rep. Goolsby), and Kevin Coleman (AIPG and AEG); second row: Tye Embry (legislative council), Bruce Darling (AIPG), Lynn Clark (TAPG), Dave Rensink (AIPG and AAPG), and Paul Heidgerd (TAPG).

THE SURVEYOR’S CORNER (continued)

video-based, teleconferenced courses dealing with the Public Land Survey System (PLSS).

Please remember, that the old excuse of “I can’t find anything” or “they don’t offer anything in my area” are seen as aggravating rejoinders, not mitigating responses.

I would be remiss if I left everyone with the impression that this is a widespread problem with AZ registered land surveyors. Not at all!! We are talking about only a relatively small number of enforcement cases per year where this applies.

To the vast majority of professional land surveyors who have been, and who are still maintaining their continuing professional competency, through educational reviews, and the acquisition of new knowledge—we salute you. Keep up the GOOD (mitigating) efforts!

I hope that all of our readers enjoyed a very marvelous Holiday Season, and the the New Year of 2002 finds you healthy, safe, sane, and a little bit wiser in the ways of the world and voluntary continuing education. THANK YOU!

Arizona Board of Technical Registration Newsletter Feb., March, April 2002—Page 15
NEW APPLICATIONS AND MEMBERS - (01/26/02-03/05/02)

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 applicant’s rejection may be called as a witness in any resulting appeal action.

Applications for
Certified Professional Geologist
GA-James R. Barnwell, IV Blackstone Consulting, 8 Brookside Ct., Cartersville GA 30120. Sponsors: Terrell Rippington, Kathryn Kretz, Mark Robertson.
MN-Linda J. Fluk 160 County Road 113, Santa Fe NM 87506. Sponsors: Tobin Walters, Catherine Goetz, Bill Laughlin, Merlin Wheeler, Don Hickmott, Sherry Miller, Bob Horning.
NJ-Donald W. Richardson 22 South Crescent, Maplewood NJ 07040. Sponsors: Nancy Van Dyke, Robert Zelley, Charles Butt.
Applicant Upgrading to CPG
Applicants for Registered Member
Applicants for Member
OH-Dustin J. Reed Metcalf & Eddy, Inc., 2800 Corporate Exchange Dr. #250, Columbus OH 43231. Sponsors: Barry Nelson, Becky Chavez.
MI-Matthew A. Vandereide 4054 Kentridge Dr. SE, Grand Rapids MI 49508. Sponsors: John Cuthbertson, Jeff Hawkins.

New Certified Professional Geologists
AK-Kerry M. Adler CPG-10634 On-Line Exploration Svcs., 11976 Wilderness Dr., Anchorage AK 99516-2238, (907) 345-4815
NY-David W. Lay CPG-10642 6723 Towpath Rd., PO. Box 66, Syracuse NY 13214-0066, (315) 446-9120
MD-Patrick R. Pieton CPG-10644 Lafarge Construction Materials, 10000 Beaver Dam Rd., Cokesville MD 21030, (410) 683-9020
LA-Alan F. Edwards CPG-10646 114 Somerset, La Place LA 70068, (504) 582-4168
MA-Sarah K. Faldetta CPG-10647 ESS, 888 Worcester St., Ste. 240, Wellesley MA 02182, 781-431-0500 x1115
IN-Erik B. Melchiorre CPG-10648 Geol/Geography Dept. DePauw Univ., 602 S. College, Johnson 211, Greencastle IN 46135, (765) 658-4667
VA-William J. Mikalik CPG-10649 Applied Envr., Inc., 11800 Sunrise Valley Dr. #1200, Reston VA 20191, (703) 648-0822
MI-Sara K. Pearson CPG-10650 10010 Eaglewood Ct., Sparta MI 49345, (616) 667-4000
OH-William J. Toomey CPG-10651 1578 Lois St., Belpre OH 45714, (304) 558-2981
NY-Douglas E. Paquette CPG-10652 6 East Street, Shoreham NY 11786, (631) 344-7046

New Members
MO-Mark T. Egley MEM-0123 Leggette, Brashears & Graham, Inc., 4175 Crescent Dr., Ste. C, St. Louis MO 63176, (314) 845-0535
NY-Lisa M. Rosi MEM-0126 306 Hudson Ave., Rensselaer NY 12144
MN-Sherry A. Malecha MEM-0127 American Petrographic Svcs., 650 Cleveland Ave., St. Paul MN 55114, (651) 659-1350

New Students Adjuncts
WA-Michael C. Wall SA-0234 P.O. Box 3006, Laramie WY 82071, (307) 766-3386

IN MEMORY

Birnie G. Hammock
CPG-02606
January 18, 2002
Albuquerque, New Mexico

Albert E. Lee, Jr.
CPG-04307
February 22, 2002
Midland, Texas

Frank E. Kottkowski
CPG-00056
Charter/Emeritus Member
Socorro, New Mexico

J. R. Wilson, Jr.
CPG-03151
Amarillo, Texas