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The Professional GEOLOGIST

PEER-REVIEWED ARTICLE

Of Sandstones and Civilizations
John W. Jengo, CPG-08139

Optional Field Trips and Tour after the AIPG Annual Meeting

Competitive Benefits in Certification

Hugh K. Webster

FRONT COVER - View across Cliff Canyon of the famed Cliff Palace, built circa A.D. 1209 through the early 1270s, in Mesa Verde National Park, Colorado. Percolating groundwater and seasonal freezing and thawing opened fissures in the Cretaceous-age Cliff House Sandstone, resulting in the undercutting of the massive sandstone via exfoliation and mass wasting, and provided both the stone and architectural space for home building during the final occupation of the Northern San Juan Anasazi at Mesa Verde. Photograph by John W. Jengo, CPG-08139

INSIDE and BACK COVER - Photographs/Slides were provided courtesy of the Anchorage Convention and Visitor’s Bureau, Glee Anderson, Representative (ACVB), and Evelyn’s Focus Photography, Evelyn S. Erickson, Photographer (EFP, ESE).

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The 19th Annual Meeting of the European Federation of Geologists took place in Budapest, Hungary 18-20 June. AIPG was represented by President-Elect Dennis Pennington, Vice President Robert Font, and myself. Executive Director Bill Siok was scheduled to attend as AIPG’s official representative but had to cancel due to illness. Siok would have been AIPG’s only subsidized attendee at this meeting; the rest of us attended at our own expense.

The EFG was founded in 1980 and is still experiencing growing pains. The Federation’s organization parallels that of AIPG to a degree, with the various professional geologist organizations of, at present, 20 countries being the “Sections.” EFG “membership” is thus large (about 70,000), but many do not participate in EFG affairs. Participation is especially difficult for geologists in the eastern European countries under Communist control until about 1990. Life at the western European standard is still impossible for them. The number of European Geologists, EFG’s equivalent of CPG, is still below 200, and includes six Americans. Their membership mix is similar to AIPG’s, and their problems are similar as well. EFG’s principal goal is to establish free movement of European Geologists in Europe, or at least within the fifteen European Union countries: a rough equivalent of comity for CPGs within the US. They thus seek official recognition by the EU bureaucracy in Brussels and the financial support that would come with it. If EFG is successful in this effort they will potentially advance the fortunes of all European geologists. Originally rather inexperienced in political relations activities, some European Geologists are learning fast. (I’ve tried to help by giving them 25 copies of AIPG’s Government Relations Manual.) Marianne Nielsen, the Danish representative, did some very effective contact work in Brussels this spring that resulted in a meeting being scheduled for later this year that will be the most important ever in EFG’s existence if official recognition is obtained. As in the US, effective political relations efforts can obtain big results in the EU as well.

The 2000 EFG meeting is a very ambitious, very important event that deserves strong support by AIPG and significant attendance and participation by CPGs and Members. EFG IS SPONSORING THE FIRST INTERNATIONAL CONGRESS OF PROFESSIONAL GEOLOGY AS ITS 20TH ANNUAL MEETING AT ALICANTE, SPAIN 11-14 JULY 2000. The objectives of this International Congress were defined in the First Call for Papers as: “Professional geology has definitively taken a place in society. Geological hazards, geotechnical engineering, hydrogeology, environment, exploration and exploitation of mineral resources, waste disposal, etc., are geological disciplines that have brought geology into the first rank of socially-important occupations. The recent natural disasters all over the world enhance the need for geological knowledge in everyday life. This new view of geology as a social service requires knowledge of the real situations of geology in society.” This First Conference on Professional Geology will be a forum for debate of all aspects of professional activities in the Earth Sciences and a suitable place to exchange experiences and ideas among participants. The meeting also aims to be the seed for a World Professional Geology Organization.”

There will be eight General Sessions:

- Ethics in Professional Practice
- Professional Profile of Geologists
- Free Movement of Geologists
- Professional Liability
- Professional Title vs Academic Title
- Geological Education
- Continuing Professional Development
- Geology and Society

Geology and the Environment, Geology in Planning, Geological Non Government Organizations - Helping the World Develop

And eight Round Tables:

- Working Opportunities for Geologists: The Global Village
- Geology and the Internet
- Geologists in Public Administration in Europe
- Engineering Geology in Public Works
- Geological Resources Management
- World Geological Heritage
- Towards a World Geological Professional Organization
- Geology, Environment and Land Planning

Plus eight Short Courses:

- Multidisciplinary Professional Teams: Why and How They Make Money
- Geological Legislation and Standardization in Europe
- Geological Application of Georadar - Soil Contamination Management
- New Geological Technologies
- Location and Management of Industrial and Urban Solid Wastes
- Erosion and Desertification
- Public Education in Natural Disasters Prevention

A very ambitious program, with something for everyone. Although some of the Sessions, Round Tables, and Short Courses are European-oriented, many are broadly focused and of interest to North Americans as well.

AIPG, as an Associate organization of EFG, is officially involved in the International Conference. We have been asked to supply:

- At least two papers for the General Sessions. At present, AIPG has offered three: Font on Natural Geologic Hazards, Fails on Continuing Professional Development and Bill Siok on either Continuing Professional Development or for the Round Table on Working Opportunities for Geologists. Fails may Chair the Continuing Professional Development Session as well.
- Names of two relevant professionals to participate in the Round Tables. Dennis Pennington will participate in the Geology, Environment and Land Planning Round Table, while Siok is a potential Round Table participant.
- One Short Course Specialist. Robert Font will present his Geologic Hazards short course.

This is the first official notice to the AIPG membership of the International Conference. The opportunities for additional members to participate meaningfully as speakers, panelists, or short course presenters are great—participation by North American geologists is welcomed by the organizers. Look for additional articles in the TPG during the coming months regarding opportunities for AIPG membership participation in the International Conference. If you wish to participate but are not certain whether your proposed participation would fit into the somewhat broadly-expressed agendas above, please contact Vice President Font or me, and we will contact the organizers in Spain. Or you can contact Manuel directly. They seek strong AIPG participation and may be flexible.

The Organizing Committee in Spain includes Chairman Luis Suarez and Secretary Manuel Regueiro, Immediate Past-President of EFG and the moving force behind the International Conference. As President of AIPG, I have been drafted as First Vice Chairman and Gordon Williams of the Canadian Council of Professional Geoscientists is Second Vice Chairman. Robert Font is a Member of the Organizing Committee. Web page for the Conference is http://www.ua.es/1IPGC ing.htm. Regueiro’s e-mail address is MREGUEIR@santandersupernet.com.
Introduction
Archaeologists have long been intrigued by the ancestral Pueblo (or Anasazi - the “ancient ones”) civilizations that rose up and thrived in the Colorado Plateau region of the American Southwest, particularly those societies associated with two of the greatest Anasazi sites, Chaco Canyon in New Mexico and Mesa Verde in Colorado. Closer examination of the geological setting of these two locales reveals fascinating examples of architectural innovation and agricultural adaptation using sandstone derived from the same stratigraphic unit, the Cretaceous-age Cliffhouse Sandstone. While there has been appreciable acclaim of the architectural and construction engineering achievements of the Anasazi, the role of geology in fostering suitable microenvironments, creating living space, and providing the building materials for their astonishing structures deserves consideration.

Chaco Canyon
The magnificent ruins of Chaco Canyon are located in the middle of the Chaco Plateau near the center of the 25,000-sq. mile San Juan Basin in northwestern New Mexico. Essentially treeless, lacking perennial surface water, and receiving less than eight inches of annual precipitation, the craggy plateau is split by a small, northwest-southwest trending canyon 15 miles long and up to a mile wide. In the midst of this desolation, there stand nine monumental, multi-storied communal pueblos that are strewn like eroded sand castles along the alluvial plain between the 300-foot high cliffs of the northern plain and southern mesas that enclose the canyon. These great pueblos were the home of a unique regional branch of the Anasazi that were located south of the San Juan River called the Chacoans, a complex agricultural society that endured here for hundreds of years prior to commencing their pueblo-building phase between the mid 800s through mid 1100s. Starting around A.D. 1000 to about A.D. 1120 in what is termed the “Chaco Phenomenon,” the Chacoans advanced beyond their Colorado Plateau contemporaries by building the grandest pueblo towns in North America; several hundred other smaller villages; irrigation systems; over 400 miles of road, some extending over 40 miles away; and visual signaling stations that allowed rapid communication throughout their world, a 90,000-sq. mile region that encompassed as many as 150 separate communities.

The challenge for the geologist at the Chaco Canyon site is assimilating the impressive utilization of the native sandstone and the engineering skill and immense effort that was necessary to build these exceptionally large pueblos, all constructed without metal tools or precision instruments. Pueblo Bonito is the most famous, largest, and best preserved great pueblo in Chaco Canyon. Arranged in a D-shaped arc that enclosed a central plaza, the pueblo reached a height of four stories and contained more than 650 rooms (Figure 1). It has been estimated that 50 million pieces of sandstone were used to construct a single great Chaco pueblo and that building an average-size room required approximately 100,000 pounds of stone and 35,000 pounds of clay, all of it quarried, gathered, or mined locally by hand.

The Rock Resource
The geology of Chaco Canyon is largely comprised of the Cretaceous-age Cliffhouse Sandstone, a near-shore marine deposit. The two principal types of rock used in pueblo construction were a (1) dark brown, very hard, thin-bedded sandstone and (2) light tan, blocky, massive sandstone. The thin-bedded sandstone was quarried from the Intermediate unit of the Cliffhouse Sandstone, which forms the gentle slopes and benches in the upper elevations of the south side mesas and the northern Chaco Plain. It appears that there was relatively easy access to this thin-bedded sandstone, given the
low slope of the exposures, and some of the rock could have simply been pried loose and collected. The massive sandstone was derived from the Lower Sandstone unit that forms the prominent 100-foot high escarpment above the ruins on the north side of the Canyon (Figure 2), as evidenced by the sandstone blocks in Pueblo Bonito that contain fossilized burrows, one of the characteristic features of the Lower Sandstone unit. Because of the northeast dip of the formation, the base of the Lower Sandstone lies at or below the floor of the canyon on the north side but is 50 to 100 feet above the canyon floor and underlain by the less-resistant siltstones, mudstones, and shale/coal beds of the Menefee Formation on the south side. Consequently, the cliffs on the south side have been extensively undermined and the fall of immense blocks of the massive sandstone has been abetted by the slight inclination of the formation northeastward toward the canyon. The massive sandstone building stones were either obtained by quarrying the cliff face or by harvesting freestone from the huge angular blocks on the talus slopes. Use of the massive sandstone increased dramatically in the early 12th century in pueblos like Kin Kletso possibly because the benches may have been virtually stripped of the preferred thin-bedded sandstone.

Whether the Anasazi quarried any farther back on the Chaco Plain, accessing the Middle Sandstone, White Sandstone and Upper Sandstone units of the Cliffhouse Sandstone or the overlying Picture Cliffs Sandstone has not been fully investigated. However, without the use of the wheel or beasts of burden, most of the rock used in the construction of the great pueblos was probably quarried or gathered from the cliffs and talus slopes of Chaco Canyon proper, and the close proximity of these source areas to suitable building sites had a definitive influence on pueblo location (although there is compelling evidence that solar, lunar, and celestial orientation dictated the actual cardinal alignment of the pueblos at Chaco).

The thin-bedded sandstone from the Intermediate unit appears to have been the preferred building material because of its hardness and the ease with which it broke at right angles to the bedding plane. Millions of these stones were individually dressed and shaped by masons and laid down with extreme care and precision in double, horizontally aligned “veneer” courses separated by a load-bearing core of rubble or mortar that provided support for multi-storied rooms, a construction method rarely used by the other variant branches of the Anasazi. Archaeologists have deciphered the chronology of the varied masonry styles at Chaco and the period-specific use of single-width, spalled sandstone slabs laid in abundant quantities of mud mortar (Type I) and the three subsequent types of masonry that are the hallmark of great pueblo construction: blocks of dressed, massive sandstone slabs chinked with chips of thin-bedded sandstone (Type II); uniformly cut and dressed, massive sandstone blocks alternating with tables of inch-thick thin-bedded sandstone (Type III) and uniformly cut and dressed, thin-bedded sandstone laid in symmetrical patterns with virtually no mortar between (Type IV) that is perhaps the most elegant and striking of the Anasazi masonry styles (Figure 3).

Geomorphological Innovations

One of the most inspired exploitations of the geomorphological setting at Chaco Canyon was the capture and diversion of surface water runoff produced off the mesas and plain during infrequent summer storms. The Chacoans recognized the expanse of bare, flat slickrock present in short side canyons (rincons) between the cliffs of Chaco Canyon proper and next series of cliffs farther back formed a vast natural catchment area. They devised a means to control and channel the runoff in this intercliff bench zone by constructing check dams across the mouths of the rincons. This sophisticated system of diversion dams lead to controlled flood gates/waterfalls that were then channeled into stone-lined irrigation ditches at the base of the cliffs that were subsequently directed, via a series of headgates, to various planted fields and an estimated 10,000 individual garden plots.

Mesa Verde

The natural occurrence of alcoves at Mesa Verde in southwestern Colorado allowed another major regional variant of the Anasazi located here and in southeastern Utah, the Northern San Juan Anasazi, to build and live in easily defendable, sheltered communities beginning in A.D. 1150 through the late 1280s, continuing the occupation of this area that had begun about A.D. 550. From the crest of Mesa Verde at Far View, theuesta gradually slopes southward and is divided into 15 long, parallel, steep-sided canyons with intervening slender, finger-like linear mesas. There are more than 600 cliff dwellings on Mesa Verde, although 75 percent of them contain only 1 to 5 rooms; these were individual or small family units, and given some of the precipitous locations, were probably used for food storage. Most of the larger cliff dwellings such as Cliff Palace, Long House, and Spruce Tree House were built in alcoves that faced south-southwest. This allowed cooling shade within the alcoves during the summer when the sun was nearly overhead, and warmth provided by the low sun in winter when even the back of the alcove received sunlight.
Alcove Formation and Utilization

The geology of Mesa Verde in southwestern Colorado is also dominated by the same rocks exposed 80 miles to the south in Chaco Canyon, the Cretaceous-age Cliff House Sandstone. While this sandstone was exposed at Chaco by relatively recent fluvial erosion, structural uplift in Tertiary time elevated the Mesa Verde cuesta several thousand feet above the Montezuma and Mancos Valleys, bringing it into the range where prevailing storm patterns provided increased rainfall. Groundwater percolating through the permeable, fine-grained, cross-bedded sandstone migrated laterally along the contact with interbedded impervious shale beds and discharged/seeped out the canyon walls. The percolating groundwater weakened the cement along joints and fractures, and seasonal freezing and thawing opened fissures in the rock, resulting in the eventual undercutting of the massive sandstone via exfoliation and mass wasting. It is likely that the cooler, more humid climates of Pleistocene time were the primary agent in accelerating the development and deepening of the alcoves (at the same time the increased runoff was also downcutting Chaco Canyon). As the alcoves were formed and enlarged, collapsed blocks of sandstone were used by the Anasazi to construct both their aboveground pueblos on the mesa (beginning in the mid 700s) and the larger cliff dwellings (around A.D. 1200) when there was a major shift of the population into the alcoves. As such, geology had a doubly profound influence by providing both the stone and architectural space for home building during the final century of occupation at Mesa Verde (Front Cover).

The Northern San Juan Anasazi achieved their own excellence in masonry by painstakingly chiseling and pecking the hard sandstone into nearly perfect square or rectangular blocks of equal size; these characteristic “dimpled” stones were then carefully mortared into vertically plumb, single- or double-course masonry walls and sharp corners. Unlike the extensive application of astronomical orientation at Chaco Canyon, the cliff buildings at Mesa Verde conform to the natural irregularities of the alcoves and often incorporated-in-situ rock falls that were too large to be dislodged. The smooth-faced masonry walls, some of which were meticulously shaped to form subterranean circular ceremonial enclosures called kivas, were either dry laid or mortared with mud and chinked, an innovation that further stabilized the masonry. Construction of large courtyard plazas entailed additional engineering skill because the base slope of these natural alcoves is fairly steep. Therefore, retaining walls had to be built near the front of the dwelling and the gaping space behind it subsequently backfilled with tons of rock and soil to level the floor. This surface was compacted and stabilized in lifts before quarrying, dressing, matching, and ultimately setting the plaza stones, a monumental effort in a dwelling such as Spruce Tree House where the alcove measures 216 ft wide and 89 feet deep.

Conclusion

The beauty of the intricate stone work and masonry styles at Chaco Canyon and Mesa Verde has resulted in the Chacoan and Northern San Juan Anasazi being crowned as the apex of Southwestern Indian culture. While they are certainly deserving of our wonder and appreciation, there is value in discerning how the type of available geological materials may be influencing our evaluation and judgement of the level of sophistication of these and other pre-Columbian civilizations. For example, the contemporary masonry of the third distinct major regional variant of the Anasazi, the Kayenta branch located in northeastern Arizona, appears crudely shaped and primitive, yet this is because the Navajo Sandstone and other soft sandstones available to the Kayenta would fracture before they could be fashioned into square or rectangular blocks; as a result, the stone work at sites like Betatakin and Keet Seel in Tsegi Canyon appears irregular and unfinished. Furthermore, while it is true that the Anasazi abandoned the meticulously refined masonry techniques in the 13th century, it may be due to their migration into areas with different geological materials. As such, the imperfect aesthetics of subsequent pueblos like Tyuonyi in Frijoles Canyon and cave dwellings at locations like the Puye Cliffs in the 13th through 16th centuries, which followed the flowering of Chaco Canyon and Mesa Verde, should not necessarily symbolize failure or regression. On the contrary, these subsequent structures indicate how the Anasazi adapted to new geological settings, utilized less-workable local stone, or depended solely on adobe when suitable stones were unavailable, just as the modern Pueblo Indians do today. Accounting for the site-specific geological resources should allow archaeologists and geologists to recognize the achievements of the hundreds of other pre-Columbian peoples who established vibrant civilizations but used less enduring, rough-hewn, or unrefined materials for future generations to study and appreciate.

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EXECUTIVE DIRECTOR’S COLUMN

AIPG WEBSITE

William J. Siok, CPG-04773

Unfinished Business

Before getting to the main subject of this article, I would like to add some information pertinent to the May TPG column. In that column, I listed AIPG Members who participated in the April, 1999 Washington, D.C. Fly-In. A participant who was not listed, Bill Poupis, is an employee of Aquifer Drilling & Testing, Inc. of Long Island City, New York. The company owner and Northeast Section President, Len Rexrode, CPG 07204, actually encouraged Bill’s participation in the Fly-In by paying Bill’s expenses. As Executive Director and an AIPG member, I commend Len for his generous contribution to his employee’s professional development, to AIPG’s overall advocacy efforts, and for the additional support accorded to AIPG by Bill’s participation.

Website

There is new and important information to pass along regarding the AIPG website. Some members may not realize that our website is managed, and regularly updated, by Publications Manager Wendy Davidson, AS 0007. Those who routinely access the site appreciate the effort required to build an ever more useful information base. Wendy periodically revises the contents of the website in response to requests from members, and it is her growing expertise in website construction that enables AIPG headquarters to improve the quality and quantity of information on our site.

AIPG members who travel the Internet are able to access our membership directory, an on-line version of The Professional Geologist (TPG), a directory of State licensure boards, hot links to some AIPG Sections, and an Employment Opportunities section. The membership has been insistent that AIPG should provide assistance in the search for employment opportunities, particularly by acting as a clearinghouse for known openings.

Recently, in response to an increasing number of requests, headquarters has begun to post positions on the website, categorized by state. Although the service is fledgling, recent developments have caused us to begin formulation of some guidelines for those wishing to use the website’s Employment Opportunities section.

Employment Page Access

• The AIPG website Employment Page(s) is only accessible to AIPG members.

Source of Employment Opportunities

• Employment Opportunities from all legitimate private and governmental sources will be posted.

• AIPG will install hot links to other related employment opportunity listings and placement services.

Member Prerogatives

• Members of AIPG are able to access the Employment section of the AIPG website in the members-only portion of the site. Access requires the use of a Login name (the member’s name) and a unique password (actually a number) available from contacting headquarters.

Business Considerations

• All position openings posted on the website will automatically be removed from the site after three months unless the subscriber requests the announcement be removed earlier or wishes to purchase an extension.

• The listing of employment opportunities on the website will be free of charge for AIPG Members who own the firm with positions to fill.

• Organizations not owned by AIPG members will be charged a modest fee to advertise on the website.

• All employment opportunities published in TPG will automatically be placed on the website as long as the announcement runs in TPG.

• AIPG will solicit advertising for placement on the website.

As you use the Employment Opportunities website, you will notice a gradual increase in the amount of information residing there. We are planning to run an advertisement for a recruitment firm specializing in environmental opportunities and to include at least two hot links to other sources of employment opportunity listings. Since the Employment Opportunities section of our website is a relatively new endeavor for AIPG, much adjustment to the site will be necessary as we gain experience. As you use the site, please send us information about your overall impressions, problems you recognize (with constructive solutions if you have them), and additional recommendations and ideas which will enable us to improve the appeal and usefulness of the site to members.

Another service we are now equipped to provide on the AIPG website is placement of a hot link to a member’s business related website. If you would like to avail yourself of this service, simply advise headquarters and provide your site address. In addition, please indicate under which of the following categories (select as many as are applicable) your site should be listed: Employment Opportunities, Geologic Services, Educational Services, Technical Services, or Products.

Please log on to the AIPG website, evaluate the information assembled there, and let us know what you think.

SENIOR GEOLOGIST

Tarmac America, a $500 million company with a leading presence in the construction materials industry, has an excellent opportunity for a Senior Geologist, based in Petersburg (Richmond), Virginia. Position will develop existing minerals reserves, organize exploration projects and quarry mine development plans and provide technical assistance to mine operations management. Qualifications: Bachelor’s Degree in Geology or related field, plus 5–7 years job-related experience; experience in project management; good supervisory, interpersonal, and computer service skills; strong knowledge of geological and mining principles and terminology. Qualified individuals should mail or fax a cover letter, resume, and salary requirements to: Tarmac America (RP), 1151 Azalea Garden Road, Norfolk, VA 23502, or Fax # (757) 853-3756. EOE-M/F. All qualified applicants will receive consideration for employment without regard to race, color, religion, physical or mental handicap, sex, or national origin.
Monthly update prepared by David Applegate and AGI/AIPG Geoscience Policy Interns
Althea Cawley-Murphree, Scott Broadwell, and Sarah Robinson

FY 2000 Appropriations Move Ahead in Congress

With neither Congress nor the Administration willing to remove budgetary caps for spending in Fiscal Year (FY) 2000, appropriations bills have little new money to spend. The Interior and Related Agencies bill, which funds the U.S. Geological Survey (USGS), was reported out of the Senate Appropriations Committee on June 24th (S. 1292; S. Rpt. 106-99). The House version passed subcommittee markup on June 29th with a full committee markup scheduled for July 1st. The Senate bill totals $15.1 billion, $0.8 billion over FY 1999, and the House bill totals only $14.1 billion. Even that figure is a big step up for the House bill, which originally was allocated only $11.3 billion, far below FY 1999 levels.

In the Senate bill, the USGS would receive $813 million, an increase of $15 million over FY 1999 but $25 million below the Administration's request. Increases are primarily for uncontrollable costs (e.g. cost-of-living increases for salary), not for Administration initiatives. In the Geologic Division, the only requested increase granted was $1.2 million to purchase and install modern seismographs for pilot projects in San Francisco, Salt Lake City, and Seattle. The bill also restores cuts proposed by the Administration for the coastal and minerals programs. In the Water Resources Division, funds are restored to the Federal-State Cooperative Water program and for hydrologic networks and analysis. The budget restructuring proposed in the Administration's request — expanding bureau-wide line items for facilities, science support, and integrated science — was denied pending “more thoughtful and broader dialogs than appear to have been held to date” with affected stakeholders.

Funding for DOE's Office of Fossil Energy would increase over the President's request by $30 million to $391 million, $6.9 million over the FY 1999 level. Within that total, the natural gas research program was given $7.9 million more than the President's request (mostly for advanced turbine system research), and the oil technology program received $6 million more than the President's request. Overall funding for land management agencies was similar to FY 1999 levels and well below the President's FY 2000 request for a massive Lands Legacy Initiative. A National Park Service request for a $0.7 million increase for the geologic resource program was rejected.

In other geoscience-related appropriations news, the Agriculture bill is through the Senate (S. 1233) and awaiting House floor action (H.R. 1905), the Commerce bill (which funds NOAA) is on the Senate floor (S. 1217), and the Energy and Water bill passed the Senate (S. 1186). Neither the Labor/HHS bill (which funds education programs) or the VA/HUD bill (which funds NSF, NASA, and EPA) have made any progress. For more on all of these bills, see http://www.agiweb.org/gap/legis.html#approps.

Mineral Law Debate Erupts Over Interior Solicitor Opinion


Oil Loan Guarantee Passes Senate

Sen. Pete Domenici (R-NM) continues his efforts to pass legislation that would establish a federally guaranteed $500 million emergency oil and gas loan program to help small independent oil and gas producers and service companies make it through the current downturn. Individual companies would be allowed to borrow up to $10 million. Although Domenici was forced to drop this proposal from an earlier supplemental spending bill for Kosovo, he did so with agreement that he could attach it to a second supplemental bill. His efforts are tied to those of Sen. Robert Byrd (D-WV) to establish a similar loan program for the domestic steel industry. The two measures survived a filibuster by a 71-28 vote on June 15th. The measure must still survive a conference with the House. For more on oil and gas tax incentive bills, see http://www.agiweb.org/gap/legis106/gastax106.html.

Public Meeting on Fossils on Public Lands, Comments Sought

In order to meet a request made last year by the Senate Appropriations Committee, the Department of the Interior is developing a report assessing the need for a unified federal policy on the collection, storage, and preservation of fossils. As part of that process, the department held a public meeting on June 21st at USGS headquarters in Reston, Virginia, to receive input on federal policies and specifically on a background document entitled “Collection, Storage, Preservation and Geologic Mapping Act

House Hearing on Geologic Mapping Act

As reported in a special AGI update, the House Subcommittee on Energy and Mineral Resources held a June 17th hearing on H.R. 1528, the National Geologic Mapping Reauthorization Act of 1999. The hearing was chaired by the bill's sponsor and former geologist Rep. Jim Gibbons (R-NV), sitting in for former sponsor and subcommittee chairman Barbara Cubin (R-WY). Witnesses included USGS Chief Geologist, Patrick Leahy; Association of American State Geologists President Larry Woodfork; state geologist of West Virginia; and American Geological Institute Treasurer William A. Thomas, geoscience professor at the University of Kentucky. All three witnesses expressed their support for the bill and for the partnerships that it represents between the USGS, state surveys, and universities. In his testimony, Thomas expressed AGI's support for the bill and then focused on the EDMAP component of the National Cooperative Geologic Mapping Program, which provides matching funds for universities to train student geologists in geologic mapping projects jointly undertaken with state geologic surveys or USGS. H.R. 1528 passed the House Resources Committee on June 30th. Sen. Larry Craig (R-ID) is lead sponsor of the Senate companion bill, S. 607, which was reported out of the Senate Energy and Natural Resources Committee in May. Both bills now await floor votes. More at http://www.agiweb.org/gap/legis106/geomap99.html

Senate Hearing on Earthquake Program

The Senate took its first steps toward reauthorizing the National Earthquake Hazard Reduction Program (NEHRP) on June 29th, when the Senate Subcommittee on Science, Technology, and Space held a hearing to look at the program and the Administration’s budget request.

Subcommittee Chair Bill Frist (R-TN) and Sen. Ted Stevens (R-AK) attended and heard testimony from the four federal agencies cooperating under NEHRP: the USGS, National Science Foundation, Federal Emergency Management Agency, and National Institute of Standards and Technology. The panelists explained their separate roles under NEHRP and outlined programs such as the National Seismic Network and the IRIS consortium. In his opening remarks, Frist acknowledged the importance of the program and focused primarily on public safety. Stevens’ opening statement outlined his concern with the large costs of disasters, and he announced plans to re-introduce legislation regarding earthquake insurance issued by the private sector. Under a general feeling of good will towards NEHRP, there were a few questions from Frist for the panelists dealing with partnerships under NEHRP between cooperating agencies, state and local governments, and the private sector as well as more scientific subjects such as the current shortcomings of seismic prediction. A NEHRP reauthorization bill (H.R. 1184) has already passed the House. More at http://www.agiweb.org/gap/legis106/nehrp.html

Yucca Mountain Legislation Overhauled in Senate

On June 16th, the Senate Energy and Natural Resources Committee passed Chairman Frank Murkowski’s (R-AK) high-level nuclear waste disposal bill, which abandons five years of congressional efforts to establish an interim storage facility adjacent to the proposed permanent repository site at Yucca Mountain, Nevada. Interim storage—designed to speed the removal of commercial spent fuel from B reactor sites around the country—has been the focus of bills that failed to pass the last two Congresses in the face of veto threats from the Administration. The committee-passed bill embraces a proposal made by Energy Secretary Bill Richardson by which the Department of Energy (DOE) would take title of spent nuclear fuel and pay utilities for on-site storage at commercial nuclear power plants until a permanent repository was ready. In return, the utilities would have to drop their lawsuits against DOE for failing to meet its obligation (dictated by the Nuclear Waste Policy Act of 1982) to remove waste from individual sites by 1998. Some Democrats voted against the bill, because of a provision that gives authority to determine radiation standards for ground water around the Yucca Mountain site to the U.S. Nuclear Regulatory Commission, taking it away from EPA. An interim storage bill (H.R. 45) is on tap for a vote of the full House, but H.R. 45 sponsors say they will wait to see what happens to Murkowski’s bill. More at http://www.agiweb.org/gap/legis106/yucca106.html

Forest Service Scientists’ Study

The U.S. Forest Service assembled an interdisciplinary Committee of Scientists in 1997 to “develop a set of concepts and principles toward which land and resource planning could work.” This March, the committee submitted its report, entitled “Sustaining the People’s Lands.” The report stresses the environmental, social, and economic importance of scientifically based planning strategies and urges cooperation between local, state, and federal government agencies, Native American tribes, private interests, and community members. It emphasizes the need to consider the “larger landscape” and favors regional planning that considers broad geographic, political, economic, and social variations across property lines and bears in mind global effects and long-term goals. The report encourages scientists to summarize the state of knowledge and integrate information from different disciplines to foster educated decision-making, while continuing tradition-
al research. The Committee also "recommends that the Forest Service create a national science and technology advisory board to provide highly qualified and independent scientific advice" in order to help "collaborative planning become a reality." The report also calls for increased funding for Forest Service Research and National Forest System technical staff. The report is available in full at http://www.fs.fed.us/news/science/.

**Job Opportunity at AGI's Government Affairs Program**

AGI is accepting applications for a professional staff position in its government affairs program. Major duties and responsibilities include monitoring and analyzing geoscience legislation and policy developments, writing updates and maintaining current policy information on the AGI website, handling logistics for internship and fellowship programs, and fostering information flow between the geoscience community and policymakers. The preferred candidate will have a background in the geosciences; outstanding writing, verbal, and organizational skills; experience in public policy; and familiarity with Web publishing. Salary range is mid to upper $20's plus benefits. Candidates should submit a resume, including the names of three references, with cover letter to David Applegate, AGI, 4220 King Street, Alexandria VA 22302-1502. Applications will be considered on a rolling basis with a cutoff date of August 15, 1999. Questions only to govt@agiweb.org.

**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/gaphome.html) since the last monthly update:

- FY 2000 Geoscience Appropriations Update (6-30-99)
- The Geoscience Role in Forest Service Committee of Scientists' Report “Sustaining the People's Lands” (6-30-99)
- Fossils on Public Lands Update (6-29-99)
- Science Authorization Bills Update (6-28-99)
- Electricity Deregulation Update (6-28-99)
- Summary of Electricity Deregulation Hearings (6-28-99)
- Update on Crown Jewel Mining Decision Hearing (6-28-99)
- Domestic Oil and Gas Incentives Legislation Update (6-27-99)
- Oil Royalty and Valuation Update (6-27-99)
- Caspian Sea Oil and Gas Exploration Update and Hearing Summary (6-27-99)
- Climate Change Policy Update (6-27-99)
- Summaries of Oil Royalty and Valuation Hearings (6-24-99)
- Update on Provision to Apply FOIA to Federal Grants (6-24-99)
- High-Level Nuclear Waste Update (6-22-99)
- Science Education Policy Update (6-22-99)
- Summary of Science Education Hearings (6-21-99)
- Climate Change Hearing Summaries (6-20-99)
- Special Update: AGI Testifies on Geologic Mapping Legislation (6-20-99)
- National Geologic Mapping Act Reauthorization Update (6-20-99)
- Update on Database Protection Legislation (6-20-99)
- Arctic National Wildlife Refuge (ANWR) Update (6-19-99)
- Summary of Hearings on High-Level Nuclear Waste Disposal (6-14-99)
- House Hearing on Kansas Ad Valorem Tax Refund (6-8-99)
- EPA Proposed Vehicle Emission and Sulfur Standards Update (6-1-99)
- Geotimes Political Scene: Does SPR Spell Relief for the Domestic Oil Industry? (by AGI Congressional Science Fellow David Wunsch; 6/99)

This monthly update goes out to members of the AGI Government Affairs Program (GAP) Advisory Committee, the leadership of AGI's member societies, and other interested geoscientists as part of a continuing effort to improve communications between GAP and the geoscience community that it serves. Prior updates can be found on the AGI website under "Government Affairs" <http://www.agiweb.org>. For additional information on specific policy issues, please visit the web site or contact us at <govt@agiweb.org> or (703) 379-2480.

**Optional Field Trips and Tour After the AIGP Annual Meeting**

Friday, Oct. 8 - Kenai Fjords and Whittier Tunnel Cruise/Tour - 7:30 A.M. to 6 P.M. Cost: $139.00

Travel to historic Seward and board a marine wildlife cruise to sail the waters of the Kenai Fjords National Park and wildlife preserve. Unbelievable views of glaciers, marine, and bird habitats with an almost guaranteed sighting of local visiting whales! Return to Alyeska Resort with a visit to the world-renowned Whittier Railroad Tunnel, now under construction, to add a road for passage from Portage to Whittier by car! A cruise tour loved by all Alaskans and one that visitors should not miss!!!

Saturday or Sunday, Oct. 9 or 10

Flightseeing Tour of Mt. McKinley - 8 A.M. to 2 P.M. (End tour in Anchorage) Cost: $210.00

Travel in an original DC-3 prop plane with flight attendants attired in the fashion of the era. Enjoy a nostalgic flight to North America's highest mountain peak, and drink in to magnificent views of the Alaska Range as you fly along our glacier-rich landscape back to Cook Inlet and Anchorage. If weather is not optimal at Mt. McKinley, the flight diverts to a viewing of Columbia Glacier, the huge tidewater glacier which feeds picturesque Prince William Sound. No one comes back dissatisfied! You will witness more than one of the great wonders of the world in style!

Note: Separate spouse registration is not necessary. Spouse must register for individual events, including Opening Night Event and Awards’ Banquet (called City Tour and Banquet on registration form).

**Contact: Alaska Destination Specialists**
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555 W. Northern Lights Blvd., #213
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Potpourri on Column 42

Robert M. Colpitts, J.r., CPG-07702, sent in the following comments on various topics in column 42 (May ’99).

“Regarding personal business at work and conflicts of interest: if you are doing personal things at work while being paid to do company work or if you are trying to set up your own business from your cubicle without specific written permission from your employer, you deserve to get fired. Doing so is stealing, which is both immoral and unethical. In addition, taking office supplies with you is stealing. Period. ‘If it ain’t yours or you didn’t bring it with you, leave it in the office.’

“Regarding publishing on company time: many companies hold publishing in high esteem. Why? It demonstrates you have enough ‘Moxxie on the Ball’ to care about your personal development and to bring attention to the company and their professional staff as well as yourself. It is good marketing on the cheap.

“The other issue involving publication of a book based on papers published with the help of in-house staff is interesting. I guess the next question should be ‘To whom does the copyright for the papers belong? (i.e., is the material in the public domain or is the public availability of the material restricted)?’ Assuming proper credit is given for the work and the company is thanked and acknowledged for its contribution, there should be no problem. It is more free advertising.

“There should probably be some guidelines in the company’s employee handbook on these situations. However, given the conditions stated in your article, that absent a specific policy, it would be at least proper, appropriate, moral, ethical, and professional to split the royalty with the company regardless if the book was put together on personal or company time. Your co-authors are a different matter. Did they contribute materially to the papers involved or were their co-authorships simply a courtesy? If the former, you should split the royalty with them and they should be listed as co-authors of the book. That is the only course of action to take.

“Regarding student Interviews: companies who mislead students or trick students into an interview by saying there are jobs when none exist (Gosh! This NEVER happened to me!) deserve the bad reputation they get. But consider the following: an oil company was interviewing students for full-time positions. Several were hired, moved down to the city where their job assignment was to be, and were laid off after 6 months work as a result of a planned ‘Reduction in Force.’ All had purchased houses and set up housekeeping. They received minimal severance and there were no other jobs available locally. Needless to say, when the subject company tried to re-staff several years later during an upswing in the industry, they received ‘It’ll be a cold day in hell before anyone works for you guys’ in response to offers of employment. People should remember: ‘Good news travels far. Bad news travels farther.’ Find out who these bums are and tell them to stick it when they come looking for quality, qualified people.

“Regarding the thug with the knife: this bozo has no right to know anything especially if he wants to kill someone.

This is an absurd example of an ethical dilemma and a good case for permits for carrying concealed firearms. Shove the bum out of the window when his back is turned and run for your life. He deserves neither our compassion nor sympathy.”

Ethics and Professional Practices in Other Countries

George D. Klein’s, CPG-01487, article in the June 1999 TPG, “Navigating through an international enhanced oil recovery project: a cross cultural odyssey,” provides an excellent example of consequences of cultural differences and concludes with some practical suggestions on how to reduce the conflicts between American and Latin American cultural values. Although Klein’s specific example comes from the oil patch, the conflicting cultural values described would have equal impact on any type of geological work or for other cultures. Indeed, there may be cases where conflicting value systems of various stakeholder groups in the U.S. creates the same sort of conflicts.

If you skipped Klein’s paper, dig it out. If you misplaced your TPG (surely you never throw a copy away), electronic copies of all 1999 issues are available on AIPG’s web site.

Whistle Blowing

The topic of whistle blowing has come up in several previous columns (23, 32, 36, and 41). I return to it because blowing the whistle involves a cultural clash within our own society. Henrik Ibsen’s play, Enemy of the People, provides a concrete, thoughtful, and disturbing example of whistle-blowing. Although the specifics of the play deal with water pollution from a mill as the source of the problem, I think the issue goes beyond the environmental example. Likewise, although the whistle blower in the play is a medical doctor, it could easily be a hydrologist, etc.

A very basic point in my consideration of whistle blowing is that even in the U.S., which has not had a secret police tradition, “whistle blowing” is a polite term for “snitch” and “tattle tale.” Along with other lessons we learned in kindergarten was the lesson that one should not be a snitch. Furthermore, in my personal experience, those who attempted “whistle blowing” were often malcontents of one sort or another seeking to deflect attention from their own faults by pointing out the faults of others. This does not, of course, mean that they were necessarily wrong about the other issues, but it certainly impeded their effectiveness. (And in the two cases I know best, they were wrong.)

Increasingly, society is demanding that those who know “blow the whistle,” but at the same time it is not dealing effectively with the consequences suffered by those who do. Rule 2.1.3 of the AIPG Code of Ethics states, “If a Member becomes aware of a decision or action by an employer, client, or colleague which violates any law or regulation, the Member shall advise against such action, and when such violation appears to materially affect the public health, safety, or welfare, shall advise the appropriate public officials responsible for the
enforcement of such law or regulation.” Furthermore, Standards 3.3 and 3.5 of the Code of Ethics make clear that Rule 2.1.3 overrides the confidentiality obligation to one’s employer or client if there is a conflict between the ethical principles.

Citations to the Code of Ethics are all well and good, but where is the practicality of it all? Ibsen’s Enemy of the People is an excellent starting point. Your comments and experiences are always welcome as well.

**Honesty and Its Practical Consequences**

Discussions regarding honesty and the absoluteness of “truth” have run through several recent columns (38, 40, 42, and Bob Colpitts’ comments on “the thug with the knife” earlier in this column). A geologist I know provides a thought-provoking example of honesty and its practical consequences. He is going through the unpleasant experience of the breakup of his marriage. A few months ago, an altercation with his spouse resulted in a late night visit from the police and his overnight incarceration for alleged physical abuse. He readily admits that things got “a bit out of hand” and current Colorado law gives the police little latitude. If a domestic disturbance occurs and there is the least suspicion that physical assault did or might occur, the party committing or threatening the assault goes to jail overnight. Following his night in jail, his spouse declined to press charges and considered the incident over. But a zealous prosecutor refused to let the matter go. The result was that this geologist pleaded guilty to a misdemeanor, which will be erased from his record if he does not commit another offense in the next two years.

Along with other difficulties in this geologist’s life, he recently lost his job and is therefore actively seeking employment. He informs me that employment applications frequently have yes/no check boxes asking about convictions. He fears that checking a box “yes” is equivalent to throwing the application away, that it will be used as sufficient reason for not offering him a job. He notes that his attorney and his probation officer refused to let the matter go. The result was that this geologist pleaded guilty to a misdemeanor, which will be erased from his record if he does not commit another offense in the next two years.

Adverse Conflicts of Interest

Two related examples of geologists involved in adverse conflicts of interest recently came to my attention. In the first case, a geologist, whom I’ll call Thom, had served as an expert witness in several cases opposing Company A. Subsequently, Thom agreed to perform the technical due diligence on Company A for Company X, which was considering buying Company A. During the initial meeting of Company X’s due diligence team with the technical staff of Company A, Company A’s chief geologist took the head of the Company X team aside and explained that Thom would not be allowed on Company A’s property nor allowed to examine any files. In learning the reason why, Thom was dismissed from Company X’s due diligence team.

In the second case, a geologist, whom I’ll call Dick, again was part of a team assigned to perform the due diligence on an major mining property. The mining property’s owner objected to Dick’s participation on the team because Dick had recently been involved in staking mining claims for another company in the immediate vicinity of the mining property.

In both cases, the geologist could claim that no conflict of interest existed because there was no ownership interest in or prior work for the company or property to be examined. However, the problem in both cases is the failure to recognize that a conflict of interest can result from association with an interest adverse to the company or property to be examined.

The relevant parts of the AIPG Code of Ethics state, “Standard 3.1: Members should disclose any actual or potential conflicts of interest which may affect their ability to serve an employer or client faithfully.”

“Rule 3.1.1 A Member shall disclose to a prospective employer or client the existence of any owned or controlled mineral or other interest which may, either directly or indirectly, have a pertinent bearing on such employment. ...”

“Rule 3.1.3 A Member employed or retained by one employer or client shall not accept, without that employer’s or client’s written consent, an engagement by another if the interests of the two are in any manner conflicting.”

Any comments? Although neither Thom nor Dick were AIPG members, assume one was. What would you regard as an appropriate ethical sanction?
This service is open to AIPG Members as well as non-members. The Professional Services Directory is a 12-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.

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Sep. 26-29. Association of Engineering Geologists’ 42nd Annual Meeting, Salt Lake City, UT. Contact: Jeffrey Keaton, Chair, Ph.: (520) 282-2706 or jkeaton@agraus.com.


Oct. 5. Geosynthetics in Waste Containment Systems, Philadelphia, PA. Contact: Marilyn Ashley, Geosynthetic Institute, 475 Kedron Ave., Folsom, PA 19033-1028, Ph.: (610) 522-8440, e-mail: marilyn.ashley@coe.drexel.edu.

Oct. 6. QA/QC for Geosynthetics in Waste Containment Systems, Philadelphia, PA. Contact: Marilyn Ashley, Geosynthetic Institute, 475 Kedron Ave., Folsom, PA 19033-1028, Ph.: (610) 522-8440, e-mail: marilyn.ashley@coe.drexel.edu.


Oct. 25-28. The AIPG Ethics Committee is sponsoring a session at the Geological Society of America’s Annual Meeting in Denver, CO. The title of the session is “Geoscience Ethics Guidelines: A Discussion of their Development, Utility and Implementation.” For more information, contact David Abbott, Ethics Committee Chair, at dmageol@aol.com or (303) 394-0321.


2000


Apr. 9-12. Amherst 2k: Specialty Conference on Performance Verification of Constructed Geotechnical Facilities, Amherst, MA. Sponsored by Geo-Institute of ASCE. Contact: Dr. Alan J. Lutenegger, Dept. of Civil and Environmental Engineering, 139 Marston Hall, Univ. of MA, Amherst, MA 01003. Ph.: (413) 545-2872, fax: (413) 545-4525, or e-mail: lutenegg@ecs.umass.edu.

Apr. 16-19. AAPG Annual Meeting & Exhibition, New Orleans, LA. Call for Abstracts. Contact: Sandy Hensley, AAPG, PO. Box 979, Tulsa, OK 74101. Ph.: (918) 560-2641, e-mail: shensley@aapg.org.

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**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:** None required

**SCREENING:** National

**APPLICATION FEE:** $30

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

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**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

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**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:** $50 plus Section dues; both pro-rated for remainder of year when accepted

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*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.
NEW APPLICANTS AND NEW MEMBERS - (06/29/99 - 07/12/99)

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

### Applicants for Certified Professional Geologist

**MI-Crockford, Graham**
1544 Jenifer, Madison Hgts. MI 48071.
Sponsors: Drew Diefendorf, Joe Aldern, John Wise.

**CA-Laton, William R.**
7832 Sailboat Circle, Huntington Bch CA 92648.
Sponsors: Thomas Straw, Bill Steinmann, Eldon Gath.

**AK-Swedell, Ralph M.**
P.O. Box 210511, Auke Bay, AK 99821.
Sponsors: Bill Slater, Douglas Swanston, George Franklet.

### New Certified Professional Geologists

**HK-Kong, Chi Seng**   CPG-10423
Flat D 10th Fl., Glen Haven, 117 Argyle St., Kowloon, Hong Kong, 852-2601-1000

**LA-Saxton, Deborah C.**   CPG-10424
8423 Myrtlelake Dr., Baton Rouge LA 70810, (225) 925-9506

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**Competitive Benefits in Certification**

Hugh K. Webster, Partner, Webster, Chamberlain and Bean

When initiating a new certification program, or evaluating an existing one, in terms of who benefits from these programs, the emphasis typically is on the certified individuals. That is, achieving certified status increases one’s knowledge, expertise, and stature, can help distinguish a person from his or her peers or competitors, and may be a basis for career advancement, and higher pay, etc.

But from a legal standpoint, at least in the antitrust area, the concern usually is more on the user of the services from a certified person. That is, certification programs are legally justified on the basis that they provide a clear benefit to the “consumer.” That benefit was summarized well by one court as follows:

“In practical terms, one hiring a [certified person] would have to spend hours to check on an unknown [professional] before hiring him or her, were it not for a certification process felt to be sufficiently reliable to substitute for individual investigation. Thus a trusted certification makes it cheaper, in terms of the cost of gathering information, to hire a stranger, so strangers can compete more effectively with those dominating a local market.”

“Other things being equal, this increased competition and reduced transaction cost will reduce prices. To the extent that prices of some are likely to be increased by certification, the increment reflects more knowledge by consumers of quality differences.”

This reasoning would apply whether the “consumer” is a client or an employer. The above justification for certification programs should not be lost sight of. It can be very useful when defending the validity of a program, whether to a court, the IRS, or skeptical Board members; because it shows that key, legally-recognized virtue of certification is directed not at the sponsoring association, or even its members who are becoming certified, but to the members’ customers and employers.

1. McDaniel v. Appraisal Institute, 1997-1 Trade Cases 71, 851 (9th Cir.).

Certification Communications Newsletter - April 1999, National Certification Commission, P.O. Box 15282, Chevy Chase, Maryland 20825, Richard C. Jaffeson, Executive Director, (301) 588-1212, e-mail: certusa@usa.net.

Editor’s note: This is the fourth in a proposal series of articles dealing with the role of AIPG in states that register geologists.