Newsletter

of the

International Association of Geochemistry and Cosmochemistry

Number 38, October 2002

Gunter Faure, Newsletter Editor

The International Association of Geochemistry and Cosmochemistry is a Nonprofit Organization

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News from the Association

The Past is the Key to the Future

Gunter Faure

The past ten years have brought many changes to the IAGC which prepare it to play an increasingly important role as the scientific society of Applied Geochemists. Our Association is able to make this claim because the journal we sponsor: APPLIED GEOCHEMISTRY has grown in size and in quality under the guidance of Ron Fuge, our untiring Executive Editor. The spectacular growth of our journal is providing increasing royalties based on a contract we signed with Elsevier Science Ltd on March 5, 1996. I can foresee no reason why our journal will not continue to grow and become truly the sister to GCA, as the founder of AG originally intended.

When the IAGC was founded in May of 1967 during the first International Symposium of Geochemistry and Cosmochemistry (NL #33, August, 2000), the founders organized Working Groups and charged them with promoting research in several important subject areas of Geochemistry:

1. Geochemical Prospecting, L.F. Tauson, Chair
2. Water-Rock Interactions, H. Sakai, Chair,
3. Protection of Natural Waters from Pollution, A.M. Nikanarov, Chair,
4. Extraterrestrial Geochemistry, H. Wänke, Chair,
5. Weathering, Sedimentary, and Diagenetic Processes, Y. Tardy, Chair,
6. Thermodynamics of Natural Processes, I.L. Khodakovsky, Chair,
7. Cooperation in Applied Geochemistry, J. Goni, Chair,
8. Geochemistry of Health and Disease, I. Thornton, chair, and
9. Applied Isotope Geochemistry. A. Råheim, Chair.

Almost all of these Working Groups have not only survived to the present time, but have prospered under the strong leadership of their Chairpersons and their Advisory Committees. Our Working Groups have been fulfilling their mission by organizing international symposia at regular intervals in different parts of the world. In fact, several of these Working Groups have developed a life of their own to such an extent that participants may not be aware that they are attending a function sponsored and financially supported by the IAGC.

The Working Groups of the IAGC will undoubtedly continue to carry on their mission. However, the time has come for the mothership to organize International Symposia of Geochemistry and Cosmochemistry in which all of our Working Groups can participate.

There are many other actions I could point to that prepare the IAGC to play an increasing role on the stage of international geochemistry and its applications. I mention here only the establishment of a permanent administrative office of the IAGC in Pinawa, Manitoba under the leadership of Mel Gascoyne. I predict that the existence of this office will strengthen the IAGC in the future by responding in a timely manner to the needs of our members. The late Woody Hayes, notorious football coach of The Ohio State University, knew the secret for success: You win with people!

Join the IAGC

If you are not yet a Member or if your Membership has lapsed, contact our Secretary Mel Gascoyne at <gascoyne @granite.mb.ca>. Annual dues are only $15.00 US. For that you get two Newsletters per year and a low-cost subscription to APPLIED GEOCHEMISTRY.

Establishment of a Permanent Secretariat of the IAGC in Pinawa, Manitoba.

After lengthy deliberations by Council extending over several years, the IAGC has now established a permanent Secretariat under the supervision of Mel Gascoyne. The address of our Secretariat is:

Dr. Mel Gascoyne
6 Tupper Place, Box 141
Pinawa, Manitoba
Canada, ROE 1L0
Tel.: 1-204-753-8879
Fax: 1-204-753-2292

The secretariat will collect Membership Dues for 2003 as well as Renewals of Subscriptions to APPLIED GEOCHEMISTRY. The combined invoices have already been mailed to members who are urged to respond promptly.

The Secretariat will also interact directly with Elsevier Science to assure that all members receive issues of AG on a regular basis.

These two functions will solve the most common problems of our members. Therefore, the existence of a permanent Secretariat is a major step forward in the administration of the Association.

The Secretariat will receive financial support from the IAGC to cover the salary of a part-time person, as well as postage, office supplies, and other expenses. These expenditures are justified by the benefits our members will derive from this arrangement which has become possible because of the improvement in the financial resources of the IAGC.

Council Meeting in Davos, Switzerland, August 18, 2002

The Council Meeting was attended by E. Galimov (President), J. Ludden (Vice President), A. Demeny (Secretary), and by Hoefs and J. Kramers (Councillors). In addition, Mr. Friso Veenstra of Elsevier Science Ltd. attended as an observer.

The Council nominated Attila Demeny to succeed Mel Gascoyne as Secretary who asked to be relieved of this responsibility.

Council also approved the revised Statutes of the Association which had previously been distributed to Council at its Meeting at Oxford University in 2000 and were also included in Newsletter #36 in December 2001 that was sent to all members of the IAGC. Consequently, these statutes are now in force and are the standard to which Council and the Officers of the Association must adhere.

The next Council Meeting has been scheduled for March 12, 2003, in Moscow at the time of the annual V.I. Vernadsky session.

Following the Council Meeting, Eric Galimov was injured in an accident and required orthopedic surgery. He is expected to make a full recovery.

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IAGC Secretary - A Retrospective

I became Secretary to the IAGC, 10 years ago, in 1992, at the IAGC General Assembly in Kyoto, Japan. My background was firmly in geochemistry, and I was working for Atomic Energy of Canada Limited on groundwater chemistry and rock-water interactions for Canada's nuclear waste disposal program. My predecessor in the IAGC, Brian Hitchon, had contacted me some months before the Kyoto meeting to ask if I was interested in the position and, if so, he would nominate me in advance of the meeting. He warned me that the position was not one which allowed you to sit back and bask in the glory of being a member of the Executive, it required that you must often be contacting others in the Executive, Council and Working Groups, on a day-to-day basis, and you may even have to "take charge" in order to get things done!

The job of the Secretary has generally included the following:

1. Handle all membership applications and prepare "Welcome Letters" and packages of information.

2. Respond to individual member requests for information, dues payments, etc.

3. Handle day-to-day accounting transactions and maintain correspondence and information flow with the Treasurer.

4. Maintain communications and information exchange with Elsevier Science staff, IAGC Executive, Council, Working Groups, and other organisations such as the parent body, the International Union of Geological Sciences.

5. Circulate all requests for support of scientific meetings to Council for approval and arrange transfer of funds and IAGC membership application forms for the registrants.

6. Organise the annual Council meeting, obtain reports from officers and prepare and distribute minutes, agendas, and other communications with Council, Working Groups, etc.

An additional responsibility was to prepare an annual Newsletter. Between 1993 and 1998 I put together issues 26 to 31 of the Newsletter. This was a time-consuming task and I am grateful to Gunter Faure for offering to take over as Newsletter Editor for the period 1999 to the present.

The Working Groups represent the main activity of the IAGC and many of these have shown tremendous success over the last 10 years. The Working Groups on Water-Rock Interaction, Geochemistry of the Earth's Surface, and Applied Isotope Geochemistry are three of the most successful, holding regular well-attended conferences at exciting locations around the world. I have enjoyed working with them.

Another important activity of the IAGC is to oversee the production of its journal *Applied Geochemistry*. The IAGC has little to manage here, largely because of the excellent work that is done by the Executive Editor, Ron Fuge. However, there is often a need to contact the publisher, Elsevier Science, to determine the status of individual member's subscriptions and this is one area where I hope I have been able to contribute, to enhance the image of IAGC in our members' eyes. It is important to realise that members can be quickly disillusioned when issues of *Applied Geochemistry* do not arrive or they are invoiced two or even three times for a subscription they paid at the time of the first invoice! Our membership has fluctuated between 300 and 700 over the last ten years, and the numbers are most readily influenced by the ease and smoothness with which people can join the IAGC and renew their membership and subscription. I believe that the IAGC should establish a permanent business office that would stabilise these procedures and act as a resource centre and help desk for our membership.

One aspect of running the IAGC which I have always felt to be important is to maintain our identity as an *International* organisation and not just one whose policies and activities are dominated by the western nations. This sets us apart from similar but much larger organisations such as the Geochemical Society and the European Association of Geochemistry, whose membership and meetings are centred in the United States and Europe, respectively. To foster IAGC activities in other parts of the world we have been able to sponsor short courses, workshops and meetings in Africa, India and China. Under Gunter Faure's guidance, we have recently been able to offer free subscriptions of *Applied Geochemistry* to scientific groups in countries such as Romania, Morocco and Vietnam.

I believe the IAGC will continue as a viable and growing organisation and I am proud to have had a part in its history.

Mel Gascoyne

Pinawa,
Manitoba,
Canada

New Editor for the Newsletter

The present Newsletter (#38) is the last to be prepared by Gunter Faure who has stepped down to devote his time to the writing of textbooks. In the future, the Newsletter will be edited by Mel Gascoyne, provided that appropriate financial arrangements are made by the Executive and Council of the IAGC.

The Newsletter plays an important role in the life of the Association because it provides information to members on the activities of the Officers and Working Groups of the Association and on the status of APPLIED GEOCHEMISTRY.

Technical Session No. 131 at the GSA Meeting, Denver, 2002

Once again, the IAGC sponsored a Technical Session at the Annual GSA Meeting under the heading of: Sources, Transport, Fate, and Toxicology of Trace Elements in the Environment. (A tribute to Gunter Faure).

The session was organized by David Long and Berry Lyons but, when the latter was unable to be present, Anne Carey took his place and co-chaired the Session expertly. A total of 23 presentations were made on Monday and Tuesday of October 29 and 30 on a wide range of topics in Applied Geochemistry.

All of the participants at this year's IAGC Tech. Session were invited to submit their papers for publication in one of next year's issues of APPLIED GEOCHEMISTRY. Manuscripts must be submitted to either David Long or Berry Lyons by February 1, 2003. Revised manuscripts are due on August 15, 2003.

This year's Technical Session sponsored by the IAGC attracted hundreds of listeners and generated a great deal of interest, especially because of the clear indication that environmental geochemistry is closely linked to medical epidemiology and also affects plants and animals of the biosphere.

The success of our Technical Session at our Annual GSA Meetings has helped us to recognize that Applied Geochemistry is not only the name of our journal, but that it has also become the primary focus of the IAGC.

Activities of the Working Groups

Two of our Working Groups organized symposia in 2002 with financial support from the IAGC.

Working Group on Meteoritics and Cosmochemistry

Herbert Palme, Chair

This Working Group invited Dr. Rudolf Marcus to present a lecture at the Goldschmidt Conference in Davos, August 18 to 23, 2002. Dr. Marcus is a faculty member at the Noyes Laboratory of Chemical Physics of the California Institute of Technology and is one of the 1997 winners of a Nobel Prize. The topic of his lecture was:

"Mass-independent isotope effects"

Working Group on the Geochemistry of the Earth's Surface

Robert Berner, Chair

The Sixth International symposium on the Geochemistry of the Earth's Surface took place in Honolulu, Hawaii, from May 20 to 24. During this Symposium Dr. Blair Jones presented the International Ingerson Lecture of the IAGC.

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Presentations by Members of the IAGC at the 12th Annual Goldschmidt Conference, Davos, Switzerland

Several members of the IAGC participated in the most recent Goldschmidt Conference by presenting reports of their research. The list of participants includes, but is not limited to, the following individuals in alphabtical order. The names of IAGC members are in bold-face type.

Demeny, A., T.W. Venneman, E. Hegner, A. Embey-Isztin, Z. Homonnay, and J.A. Milton, 2002. Trace element and isotopic evidence for subduction-related carbonate-silicate melts in mantle xenoliths from the Pannonian Basin, Hungary. GCA, 66 (15A): A176.

Frisia, S., A. Borsato, **F.T. Mackenzie,** and R. Tomasoni, 2002. Dissolution experiments and natural weathering of carbonates. GCA, 66 (15A):A247.

Galimov, E.M., 2002. ATP is a key molecule of prebiotic evolution. GCA, 66 (15A):A258.

Gao, Y., **J. Hoefs,** and J.E. Snow, 2002. Oxygen isotope profile of the lower ocean crust: an in-situ study by UV-laser-ablation oxygen isotope microprobe. GCA, 66 (15A):A262.

Hoefs, J., 2002. Isotope variations of heavy elements: a perspective from light isotopes. GCA, 66 (15A):A334.

Holzheid, A. and **H. Palme,** 2002. The formation of meteoritic basalts: constraints from metal-silicate partition coefficients. GCA, 66 (15a): A339.

Kleine, T., C. Münker, K. Mezger, **H. Palme,** and A. Bischoff, 2002. Revised Hf-W ages for core formation in planetary bodies. GCA, 66 (15a):A404.

Kodina, L.A. and **E.M. Galimov,** 2002. Authigenic carbonate mineral ikaite originated from biogenic methane in the Kara Sea sediments. GCA, 66(15A):A408.

Lerman, A., L.M.B. Ver, and **F.T. MacKenzie,** 2002. Biogeochemical limits on greening of the Earth. GCA, 66(15A):A449.

Palme, H. and H. St. C. O'Neill, 2002. Meteorites and the composition of the Earth. GCA, 66(15A):A578.

Preslier, A.H., A.D. Brandon, D. Francis, and **J. Ludden,** 2002. Melt-rock reaction in Canadian Cordillera mantle xenoliths. GCA, 66(15A):A594.

Rouxel, O. and **J. Ludden,** 2002. Abiotic or biotic iron isotope fractionation during oceanic crust alteration. GCA, 66(15A):A652.

Wiechert, U., A.N. Halliday, **H. Palme,** and D. Rumble III, 2002. Oxygen isotopic heterogeneity among eucrites. GCA, 66(15A):A834.

Xiao, Y., **J. Hoefs,** Z. Zhang, and van den Kerkhof, 2002. Fluid/rock interactions in UHP metamorphic rocks from drill holes in Donghai, Sulu, China: Preliminary results. GCA, 66(15A):A849.

Zaitsev, A.N., **A. Demeny,** F. Wall, S. Snidern, M.A. Sitnikova, and P.I. Karchevsky, 2002. Carbon and oxygen isotope compositions of carbonatite complexes from the Kola Peninsula, Russia. GCA, 66(15A):A868.

NEW BOOKS IN PRINT

Davidson, K., 1999. Carl Sagan: a life. Wiley, New York, 540 p., $30.00

Davies, J., 2001. Beyond Pluto: exploring the outer limits of the solar system. Cambridge Un. Press, 233 p., $24.95.

Dyson, G., 2002. Project Orion: the true story of the atomic spaceship. H. Holt & Co., 345 p., $26.00.

*Ehlen, J. and R.S. Harmon, 2000. The environmental legacy of military operations. Rev. Engin. Geol., 14. Geol. Soc. Amer. Boulder, CO, 219 p., $125.00.

Flavin, C., H. French, and G. Gardner, 2002. State of the world 2002. Norton, 265 p., $15.95.

Gallant, R.A., 2002. Meteorite hunter: the search for Siberian meteorite craters, McGraw, 231 p., $24.95.

Gordon, A.J., 2000. Geologic guide to Grand Canyon National Park, Kendall/Hunt Pub. Co., 82 p., $20.95.

Gould, S.J., 2002. I have landed: the end of a beginning in Natural history. Harmony, 418 p., $25.95.

Harris, A.G., E. Tuttle, and S.D. Tuttle, 1997. Geology of National Parks. Kendall/Hunt Pub. Co., 760 p., $52.95.

Hawking, S., 2001. Universe in a nutshell. Bantam Books, $39.95.

Katz, J.I., 2002. The biggest bangs: the mystery of gamma-ray bursts, the most violent explosions in the universe. OUP, 218 p., $28.00.

Lederer, R. and R. Dowis, 1999. Sleeping dogs don't lay: practical advice for the grammatically challenged. St. Martin Griffin, 212 p., $12.95.

Lewis, J.S., 2000. Comet and asteroid impact hazards in a populated Earth: computer modeling. Academic Press, New York, 200 p., $49.95.

Lindsay, H., 2001. Tracking Apollo to the Moon. Springer Verlag, 440 p., $31.95.

Mulvaney, K., 2001. At the ends of the Earth. Island Press, 286 p., $24.95.

Odenwald, S.F., 2002. Patterns in the void: why nothing is important. Westview, $27.00.

Oreskes, N., ed., 2001. Plate tectonics: an insider's history of the modern theory of the Earth. Westview Press, 424 p., $35.00.

Pimm, S.L., 2001. The world according to Pimm: a scientist audits the Earth. McGraw, 285 p., $24.95.

Rees, M., 2000. Just six numbers: the deep forces that shape the universe. Basic Books, New York, 173 p., $22.00.

Scarth, A., 1999. Vulcan's fury: man against the volcano. Yale Un. Press, 299 p., $29.95.

Walawender, M.J., 2000. The Peninsular Ranges. Kendall/Hunt, Pub. Co., 160 p., $26.95.

Watson, J.D., 2001. Genes, girls, and Gamow: after the double helix. Knopf, 304 p., $26.00.

Zanda, B. and Rotaru, eds., 2002. Meteorites: their impact on science and history. Cambridge Un. Press, $18.95.

6th International Symposium on Environmental Geochemistry (ISEG), Edinburgh, Scotland, 7-11 September, 2003

The 6th International Symposium on Environmental Geochemistry will follow on from previous symposia held every three years, the most recent being at Krakow, Poland (1994), Vail, Colorado, USA (1997) and Cape Town, South Africa (2000).

The Edinburgh Symposium will bring together geochemists, environmental chemists, biologists, soil scientists, aquatic scientists and medical specialists. The main themes for the scientific programme will be:

- Archives of Environmental Contamination
- Geochemical Surveys
- Mining
- Contamination and Cleanup
- Geochemistry and Health
- Analytical Geochemistry

Emerging details of the scientific programme structure, pre- and post-symposium field trips, workshops, social programme, registration procedures etc. will be posted on the Symposium website, www.iseg2003.com, during the first half of 2002 and the Call for Papers will be distributed in the early summer of 2002. To register your interest in receiving further information about the conference, please use the online form on our website.

We look forward to welcoming you to Edinburgh in 2003.

Symposium Chairman: Dr. John G. Farmer (J.G.Farmer@ed.ac.uk), Department of Chemistry, University of Edinburgh, West Mains Road, Edinburgh, EH9 3JJ, UK.

For further details contact: Janet Beard (janet@in-conference.org.uk), In Conference Ltd, 10b Broughton Street Lane, Edinburgh EH1 3LY, Scotland, UK. Tel: +44 (0)131 556 9245; Fax: +44 (0)131 556 9638

Coming Events

Dec. 18-20, 2002. **Hydrology and Watershed Management.** Centre for Water Resources, Jawaharlal Nehru Technological University, Hyderabad 28, India. Contact: Dr. U. Aswathanarayana, e-mail: <anarayana01 @sify.com>, website: <www.jntu.ac.in>.

May 20-23, 2003. **GERM 4,** Lyon France. Contact: Janne Blichert-Toft, Laboratoire de Sciences de la Terre (CNRS UMR 5570), Ecole Normale Supérieure de Lyon, 46, Allée d'Italie, 69364 Lyon Cedex 7, France; Phone: +33-(0)472-72-84-88; Fax: +33-(0)472-72-86-77; <jblicher@ enslyon.fr>.

May 26-30, 2003. **Fifth International Conference of Applied Isotope Geochemistry (AIG-5),** Working Group of the IAGC, Heron Island, Australia. Contact: Dr. Barry Batts, e-mail: <bbatts@alchemist.chem.mq.edu.au>.

March 23-27, 2003. Nat. Meeting, Amer. Chem. Soc., New Orleans, LA, USA. Geochem. Division Sessions: Organic geochemistry of contemporary environments; Ancient sediments and laboratory simulations; Ancient biomolecules: new perspectives in archeology and paleobiology. Web: http://membership.acs.org/g/geoc/upcoming.html

March 29 - April 2, 2003. International Limnology Congress. Presidio Plaza Hotel, Tucson, AZ, USA. Contact: Andrew Cohen, Dept. Geosciences, U of Arizona, Tucson, AZ, 85721, USA. Phone: 520-621-4691, e-mail: acohen@geo.arizona.edu

April 6-11, 2003: EGS-AGU-EUG Joint Assembly, Nice, France. Web: http://www.copernicus.org/egsagueug

April 13-17, 2003: European Union of Geosciences (EUG XII), Strasbourg, France. Contact: eug@eost.u-strasbg.fr. Web: http://eost.u-strasbg.fr/EUG

April 14-17, 2003: Uranium Geochemistry-2003-Ore Deposits - Natural Analogy - Rehabilitation, in Nancy, France. Contact e-mail: Michel.Cuney@g2r.uhp-nancy.fr. Web: http://www.gl.rhbnc.ac.uk/geode/Registration.html.

May 5-8, 2003. JGOFS Open Science Conference. Washington, DC. Contact: Roger Hanson, JGOFS International Project Office, SMR, University of Bergen, P.O. Box 7800, 5020 Bergen, Norway. Phone: 47-555-84244; Fax: 47-555-89687.

May 12-17, 2003. GEOFLUIDS IV - on fluid evolution, migration and interaction in sedimentary basins and orogenic belts. University of Utrecht, Utrecht, The Netherlands. Contact: J.M. Verweij, e-mail: j.verweij@nitg.tno.nl; Web: http://www.nitg.tno.nl/eng/geofluid2.pdf

May 18-24, 2003. Forum on the Geology of Industrial Minerals. John Ascuaga's Nugget Hotel & Casino, Sparks, Nevada, USA. Contact: Terri Garside, phone: 775-784-6691, ext. 126; fax: 775-784-1709, e-mail: tgarside@unr.edu; Web: http://www.nbmg.unr.edu/ imf2003.htm.

Working Group on Applied Isotope Geochemistry

Arne Rauheim, Chair

The fifth International symposium on Applied Isotope Geochemistry is scheduled for May 26 to 30, 2003, on Heron Island on the Great Barrier Reef, Queensland, Australia. The chair of the Organizing Committee is Dr. Barry Batts, Department of Chemistry, Macquarie University, NSW2109, Australia.

Phone: 61-2-9850-6375

Fax: 61-2-9850-8313

e-mail: Barry.Batts@mq.edu.au

Working Group on Water-Rock Interactions

Yousif Kharaka, Chair

The Eleventh International Water-Rock Interaction Symposium being organized by Dr. Susan L. Brantley will take place in Saratoga Springs, New York, in 2004. More information is available from:

Denise Kowalski
Assistant Director, BRIE & CECG
The Pennsylvania State University
235 Deike Building
State College, PA

e-mail: dqk8@psu.edu

Century-Old Diamond Hoax Re-examined

by Henry Faul (Part 2)

Part 1 of this tale from the Wild West appeared in NL #37.

(Reprint Permission Courtesy of the American Geological Institute)

The undoing came from a totally unexpected source: the young government geologists engaged in a survey of the 40th Parallel. In 1872 the survey, led by Clarence King, was in its sixth and last field season exploring a strip of land about 100 miles wide roughly from Denver and Cheyenne to the California border.

Scattered out along the vast region, King's observant men began hearing about the diamonds. They had been thoroughly trained in mineralogy at Yale and Harvard and they knew that diamonds and rubies are not usually found together in nature. If the diamond field really was in their area, how could they have missed it?

By the end of September, Samuel Franklin Emmons, from Quincy, Mass., and James T. Gardner, from Newport, R.I., had finished their field work. On Oct. 5 they took the train from Battle Mountain, Nev., for San Francisco. Among their fellow passengers they noticed 'a rather suspicious-looking set of men whose rough clothes, top boots, and bronzed faces seemed somewhat at variance with a certain citified air, and decided that they must be returning diamond hunters.' When Henry Janin appeared at Alta Station, that clinched the matter: it was the diamond company's second exploring expedition returning to San Francisco.

Emmons was dying to talk to Janin, but when he got a chance Janin only complained that he couldn't go anywhere without being dogged every step of the way. Luckily, Janin said, he had been able to get a good surveyor, Malcolm G. King of Sacramento (not related to Clarence King) to do the job.

Meantime Gardner was making friends with Malcolm King. King, recognizing Gardner as an expert topographer, did his best to find what Gardner knew about the exact location of the point where the borders of Colorado, Wyoming and Utah come together. Gardner noted King's interest in that detail and filed it away in his mind.

Only a few days later another topographer of the 40th Parallel survey, Ada D. Wilson, returned from the field with the information that the diamond field could hardly be in Arizona because the diamond-company crews had been seen only on the Union Pacific Railroad between Green River and Rawlins. That was definitely not the way to go to Arizona.

Also, Janin had been gone only 3 weeks on his first trip. That meant that he could have covered 500 miles at most, not enough to take him to Arizona. Then Janin told Emmons that they had camped at the foot of a mountain with snow still on it in June, and Malcolm King told Gardner that the diamond camp was on a mesa on the northeast slope of a mountain and that from the camp no other mountains could be seen to the north and east.

That was enough for these boy wonders acquainted with the land and driven by curiosity: they marked an x on the map in the northwest corner of Colorado, only about 15 miles southeast of the point where the 3 states come together. That was the reason for the surveyor's great interest in the borders–he wasn't quite sure what Territory he had been in.

Finally, on Oct. 19, Clarence King returned to San Francisco and amazed his colleagues by presenting his suspicion that the diamond discovery must be in the northwestern corner of Colorado. That was all they needed. The next day Emmons, Gardner, and Wilson caught the eastbound train and King followed the day after. They picked up horses at Ft. Bridger, Wyo., where Wilson had left them only 2 weeks before, and on Oct. 29 they headed for the mountain they were later to name Diamond Peak.

On the fifth day they reached the spot where they thought the diamond field might be. Before long they found a water-claim notice signed by Henry Janin, climbed a wooded gulch to the top of the 'mesa to which all the various tracks converged', got down on their hands and knees, 'and while daylight lasted we continued in this position picking up precious

stones. We were perhaps a little disappointed at finding but on diamond each', but they blamed that on inexperience.

The next morning brought a sobering observation: the occurrence of gems appeared to be related to the occurrence of human footprints. Anthills with footprints around them had gems on their surfaces, anthills away from any footprints had none. Then they found that even when an anthill had diamonds at the surface, sieving the deeper layers produced no more. At places it looked as if someone had poked holes into an anthill with a stick and dropped small garnets into them. What's more, they found 'four distinct types of diamonds, a few oriental rubies, garnets, spinels, sapphires, emeralds, and amethysts–an association of minerals of impossible occurrence in nature.'

King arrived back in San Francisco late on Nov. 10. He went straight to Janin, talked to him until late that night, and presented his findings to some of the directors of the diamond company the next day. Nobody wanted to believe him. Harpending in particular was most difficult to convince and in the end it was decided to make no announcement until another expedition could be sent out to verify the sad news. Why was Harpending so insistent?

The diamond syndicate's third exploring expedition was led by Clarence King from Black Buttes. There was Henry Janin, Gen. David Colton, who was then the manager of the company, and 2 alumni of the second expedition. E.M. Fry and John W. Bost, former surveyor-general of California. They went, they saw, and they came back sober. Of all the expeditions this was the shortest.

The fraud was announced from Ralston's office on Nov. 25 and things began to happen. Within a fortnight, Rubery sailed for England. 2 days later, Lent sued Arnold for $350,000 in Louisville, KY., encountered tough going in Arnold's home territory, and finally settled for $150,000. Harpending liquidated his holdings posthaste and followed Arnold back to Kentucky. There was talk of a grand jury in San Francisco but nothing came of it; too many important people preferred silence. In London, for no reason obvious at the time, *The Times* fired the city editor.

It all began when Sampson slipped and used the phrase 'charged with piracy' in writing about Rubery's old trial for treason. In 1863, the California papers freely used the word 'piracy' but in London, 9 years later, *The Times* should have been more precise. Back home and having caught his wind, Rubery sued for libel.

The trial finally opened Dec. 17, 1874. It made monkeys not only of the defendants but, to his great surprise, the plaintiff as well. More than that, the trial produced evidence that the diamond affair was not just a simple fraud by 2 brazen prospectors, but that it was an organized performance masterminded by a skillful director who was never far from the scene.

Where did that first bag of diamonds come from? Leopold Keller, the diamond dealer mentioned in that letter from Pittar, Leverson & Co., testified that his firm and its correspondent in Paris had sold several large lots of stones to 2 Americans who gave their names as Aundle and Durcham, or something like that. He was shown photos of Arnold and Slack and identified them as the pair. Slack's middle name was Burchem. Who else was in town at the time? Alfred Rubery and Asbury Harpending. Hotel clerks and gentlemen's gentlemen testified to having seen them all together.

Where did Slack and Arnold go after they collected that $100,000 in New York? Why, right back to London to buy more salt, altogether more than $30,000 worth, and there again they met with Rubery and Harpending.

Why did Arnold ride ahead of the first exploring party just before they 'found' the diamond field? He had to prepare the ground. He expected Janin to be a lot harder to fool than he was.

Why did Harpending, commanding that same party, decide to leave the ground so soon even though Janin needed more time for his survey? Watching Arnold sprinkle the salt just a jump ahead of Janin for a week must have made Harpending more than a little edgy. Thinking about the consequences of a mistake would have been reason enough to put an early end to the performance.

And what was the real reason for leaving Rubery and Slack to 'guard' the prospect? With all those claim notices, it would have been unwise to leave so

much salt lying around and so theirs was the job of picking up at least the bigger stones.

Finally, why did Harpending absolutely refuse to have the fraud announced when Clarence King presented the evidence to the directors? Why was he so anxious to delay until after the third expedition? Under cross-examination, *The Times* attorneys dragged out of Rubery the fact that Harpending had sent him to Kentucky to see Arnold as soon as he got wind that Clarence King was looking at the diamond field. It seems that much of the payment to Arnold had been in drafts that now had to be cashed in a hurry before word of the fraud got out and the banks could stop payment. With everything converted to cash, Rubery returned to San Francisco with $200,000 and handed it over to Harpending, he testified, about a week before the fraud was announced.

Then *The Times'* attorney produced a receipt for Alfred Rubery from a Louisville hotel. Was he in Louisville on Nov. 13? He had to admit it. How long did he stay? He finally agreed that it was about a week. How long does it take by train from Louisville via Chicago to San Francisco? Another week. Nov. 13 plus 2 weeks comes out about No. 28 and the fraud was announced Nov. 25. So did he or did he not know about the fraud when he handed the money to Harpending? It made little difference what Rubery said. Now he contradicted his earlier testimony, that the sole purpose of his trip to Kentucky was to see Mammoth Cave.

It was also revealed that Harpending had concocted several previous mining-stock swindles, that Arnold was right there with him, and that salting was implied. One of the deals collapsed after *The Times* had printed some adverse comments written by Sampson and supplied by Grant. Furthermore, it was made clear that Grant had bribed Sampson on several occasions, but not necessarily in connection with Rubery. So the jury let Grant go but only after Rubery's lawyer had ruined his stockmarket career.

As for Sampson's article the jury agreed that it was libelous and awarded Rubery £500 ($2,500 at the time) in damages. That was the only honest money any of them made on the Great Diamond Hoax.

And Now We Say Goodbye

by Gunter Faure

Before I head for the exit, I thank our members for their support which has kept our ship afloat while I was at the helm. I recognize increasingly that most of us practice Applied Geochemistry in the broadest meaning of the term. If you agree, Applied Geochemistry can become the center of gravity of our Association, especially because we already sponsor the leading scientific journal in this field. Therefore, I suggest that we should recognize who we really are and gather strength from that knowledge. Instead of competing with other societies, we have our own mandate to represent the Applied Geochemists of the world.

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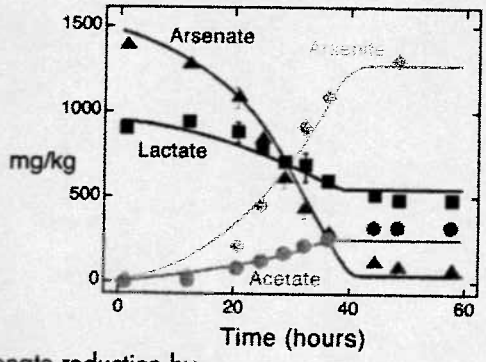

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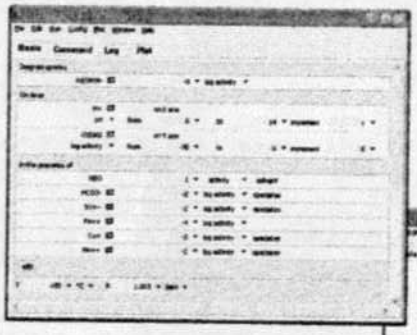

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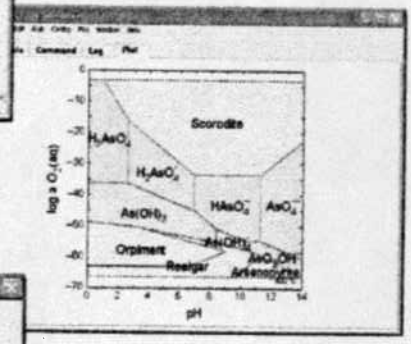

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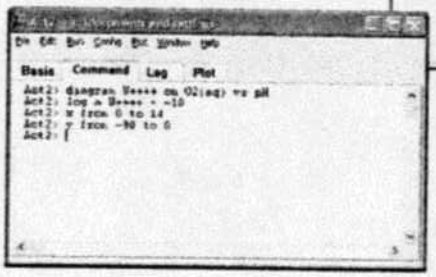

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