



ASH FALL

Newsletter of the Volcanology Division
Geological Association of Canada

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MESSAGE FROM THE CHAIRMAN

I fear that I must start this message on a sombre note. I was greatly saddened to learn that Richard Lambert, of the University of Alberta, died after a battle with cancer, on December 6th 1992. Richard had contributed to Canadian geology and to Western Canada for many years; we all share this loss. Our sincerest condolences go to his family. On the heels of this came the tragedy at Galeras, in southern Colombia, with the loss of nine lives (six of these were volcanologists) during an unexpected eruption.

To our members all over Canada and in the world outside, I wish, somewhat belatedly, a prosperous New Year. Out on the West Coast, we're just starting to dust off our field equipment and to wonder when the snow is going to melt. Elsewhere in Canada, that is.

I am pleased to announce that GAC National has accepted our proposed *Career Achievement Award*. Through the generous donation of Jerome Rémiick we will be able to strike this medal and award it for the first time at our annual general meeting; Edmonton '93 (Wednesday, May 19th 12:15-13:30, Room V-106). We will be awarding both the Leopold Gelinas Student Medal(s) and the Career Achievement Medal during the meeting, so please try to attend, to honour the deserving recipients of these awards.

The change in name for the *Career Achievement Award* was the result of an unfortunate oversight. The Volcanology, Geochemistry and Petrology Division of the American Geophysical Union awards an N.L. Bowen prize for career achievement. We considered that the overlap between our award and that of AGU was too great, so have been seeking an alternate name. Constrained by a number of factors, such as naming it after a deceased person, led us to choose "career achievement". I feel this most clearly and accurately represents what we, as a Division, are honouring this person for. I hope that you agree with this decision and concur that *Career Achievement Award* is a satisfactory title for our award.

Cathie Hickson

RICHARD ST. JOHN LAMBERT
1928-1992

Richard Lambert died on December 6th, 1992, in the home of one of his children, after a battle with cancer. His courage and dedication to research were manifest in his decision to volunteer as the first male subject to test a new treatment involving the immune system. This courage and his welcoming charm to friends and colleagues was an example to all. Richard was a well known teacher and researcher in geology, with a wide range of interests in the areas of mineralogy, geochemistry, tectonics and evolution of the Earth and Solar System.

Richard was born in Trowbridge, England on the 11th November, 1928. He attended Dauntsey's school (1940-1947) and then the University of Cambridge for both B.Sc. and Ph.D. (1949-1955). He was a scholar of Queen's College, receiving the Wiltshire and Lake prizes (1951). His activities at Cambridge included playing of the flute, singing in the chapel choir and representing his college at field hockey. Upon leaving Cambridge, Richard took a job as an assistant lecturer at the University of Leeds for a year before becoming a university lecturer at the University of Oxford, in 1956.

At Oxford, Richard was deeply involved in college life and college administration, being a Lecturer in Geology at Oriel College (1957-1970) and New College (1966-1967), a Fellow of Iffney College (1965-1966) and Wolfson College (1966-1970) and Secretary to the Governing Body, Executive Committee and Building Committee of Iffney and Wolfson Colleges (1965-1970). His involvement with the University of Alberta began with a sabbatical leave in 1963, when he was appointed as a temporary Associate Professor. He was appointed to the Chair of the Department of Geology at the University of Alberta in 1970.

Richard's achievements as Chairman included the hiring of top quality staff, increasing the size of the department and introducing new fields of teaching (including planetary geology and tectonics) and research (including hydrogeology, environmental geology, clay mineralogy and experimental petrology). He increased the size of the department's paleontological collections by accepting the research collections of a number of oil companies. He improved the analytical facilities of the department, presiding over the acquisition of equipment and of a new clean lab for isotopic analysis. He is remembered at the department for his charm, fairness, support of faculty and non-academic staff and experience in university committees (at least 21 from 1970 to 1992). His hard work for the scientific community extended outside the university and beyond his tenure as Chairman, including service on the Canadian Geoscience Council (for the MAC), on several award committees, including the Miller Award Committee for the Royal Society of Canada and as an external reviewer for grant proposals, for no less than seven different agencies.

Richard's research was well funded and he received grants and contracts from provincial and federal government and from industry. His research career was productive and meritorious; he published over 100 refereed papers in scientific journals, alone or with colleagues and graduate students. During the course of his career, Richard supervised over 20 doctoral and 14 M.Sc. students. He was acknowledged as an expert in dating of the geologic time scale, the origin and age of metamorphic complexes in the Scottish highlands, tectonics of the Canadian Cordillera and the use of geochemistry and radiogenic isotopes in studies of the evolution of the subcrustal lithosphere. Richard was an innovative and courageous researcher, not afraid to pursue new and sometimes unpopular theories. He was elected a Fellow of the Royal Society of Arts, Manufactures and Commerce in 1979 and a Fellow of the Royal Society of Canada in 1984.

Richard is survived by his wife Valerie, his children Geoff, of Los Angeles; Tony, Tim and Sue, of Edmonton; Caroline of Palo Alto and their mother Pam (Baadsgaard). Richard's love for geology was shared by at least two of his children, Tony and Caroline, who completed honours degrees in geology at the University of Alberta. Richard is also survived by his twelve grandchildren, two stepdaughters, Melinda and Felicity (Chamberlain) and his brother, Hugh, of London, England.

Adapted, with our thanks to the author, from an obituary by B.D.E. Chatterton, Chair of Geology, U. of A.

GALERAS ERUPTION AND WORKSHOP

The following is adapted from an unpublished report by John Stix to the Canadian International Development Agency (CIDA)

Galeras is a 4200 m andesitic volcano in the Andes of southern Colombia near the Ecuadorian border. It forms part of a chain of active volcanoes in this part of the northern Andes. The volcano consists of an outer crater or caldera that is open to the west and an inner crater within which most of the recent eruptive activity has occurred. Galeras reawakened in 1988...[and]...Colombia established a volcano observatory in Pasto (pop. 300,000; 5 km east of the volcano) in 1989. The observatory is run and staffed by scientists from the geological survey of Colombia.

Large increases in seismicity and deformation began in late July, 1991 and continued through late September 1991. Emplacement and growth of an andesite lava dome within the inner crater of the volcano occurred in October-November 1991. The dome growth was accompanied by degassing of the lava at the surface of the dome, vulcanian eruptions and frequent long period earthquakes, which were probably related to degassing of the magma at shallow depth. On 16th July, 1992, the dome was destroyed by an explosive eruption.

Galeras has been designated a "Decade Volcano" by the International Association of Volcanology and the Chemistry of the Earth's Interior (IAVCEI), worthy of intensive research during the next ten years. In this context, Marta Calvache and Jaime Romero (Geological Survey of Colombia), Stan Williams (Arizona State University) and myself decided to convene an international workshop in order to plan this decade of research and to establish collaborative research programs between Colombian and foreign scientists. The workshop took place 11th -15th January, 1993.

Galeras erupted without warning on Thursday, January 14th, the day during which six field excursions were examining different parts and aspects of the volcano. One group had descended into the crater to sample gases emanating from the fumaroles, accompanied by several journalists and tourists. At 13:41, local time, the volcano erupted for three minutes, sending an ash column several thousand metres high and projecting incandescent blocks in all directions. Six volcanologists were killed and four injured; three tourists were also killed.

What happened and why were there no indications beforehand? There are usually precursory signs prior to a volcanic eruption, so the lack of such signs at Galeras was very disturbing. My preliminary analysis is the following. Since the July 16th [1992] eruption, gas pressure was building beneath the surface of the inner crater. This gas was trapped in the pore spaces of relatively impermeable rock, so overpressure was likely developed. After a certain point, the rock ruptured and the eruption ensued. It is also possible that the eruption was initiated phreatically.

What did we learn from this tragedy? Firstly, most people were not wearing helmets and people were probably killed mainly by head injuries from falling blocks. Those who took shelter behind boulders fared better than those who ran from the eruption. Clearly, it is essential that people wear helmets at all times in....any crater of an active volcano. Secondly, this eruption, as well as that of 16th July 1992 appears to be [of] a type not fully appreciated at Galeras, being extremely hazardous, due to lack of warning signs. Thirdly, it was clear after the eruption that the people and communities on the flanks of the volcano are not adequately prepared, physically or psychologically, for a larger eruption that could affect areas beyond the crater. Fourthly, the reporting of the event by journalists was abysmal; for example, the reports of casualties kept changing even *several days* after the eruption. It appears that journalists felt the need to report something even when that something was....inaccurate [*publish or perish?* - Ed.]. Finally, I believe we must expect more eruptions of this type to occur during the next year. This situation is very difficult for the scientists of the observatory who are monitoring the volcano. Galeras is an extremely dangerous volcano as of this moment, despite its seeming tranquility.

I believe that CIDA can help in three ways. First and foremost, a COSPEC to measure SO₂ must be purchased for the observatory in Pasto. The COSPEC that they have is on loan from the Escuela Polytecnica in Quito, Ecuador; had Galeras not erupted, it is probable that the Ecuadorians at the Workshop would have taken the instrument back to Quito with them. Secondly, CIDA can encourage development of e-mail facilities in Colombia, as an inexpensive, rapid and reliable alternative to mail, telephone and fax communication in Colombia and with specific reference to communications between the two volcano observatories and the two seismic arrays. Lastly, CIDA can help finance postgraduate training of Colombians, to alleviate the crucial shortage of trained personnel in the volcano observatories. These observatories will be capable of serving as regional training centres in volcanology....for all of Latin America.

John Stix, Université de Montréal

GAC VOLCANOLOGY DIVISION AWARD

We've encountered a minor problem with the naming of the new Volcanology Division Award. The name "N.L. Bowen Award" is already in use by the AGU. After (somewhat frantic) consideration among the executive and members of the Division, we have decided to use the name *Career Achievement Award*. [It seems more appropriate to have the award reflect one's own success, rather than someone else's - Ed.]

Thanks to a further (and extremely generous) donation by Jerry Rémick, production of several copies of the award is imminent. Our sincere thanks go, once more, to Jerry for making this award possible. The design is undergoing revision; we will show it in the next issue.

IAVCEI 1993; CANBERRA, AUSTRALIA

The deadline for abstracts for the 1993 IAVCEI conference in Canberra, Australia (September 25th-October 1st) is April 30th. Cathie (604-666-3955) may know where to find abstract forms. The address to which abstracts must be sent is:

**IAVCEI General Assembly, C/-ACTS
GPO Box 2200, Canberra, ACT, 2601
Australia.**

(Fax no. 61-6-2573256)

IAVCEI 1994; ANKARA, TURKEY

The first circular and call for papers is out for the 1994 IAVCEI conference, to be held September 12th-16th in Ankara, Turkey. Conference themes include: volcanic activity in relation to tectonic setting; subduction-related magmas; magmatism within plates; pyroclastic flows and falls; tephrochronology and geochronology; submarine volcanism; volcanic hazards; volcano - geophysics; experimental petrology; ore deposits related to volcanism; Tethyan ophiolites. All correspondence to:

**Dr. Ayla Tankut, Organizing Secretary
International Volcanological Congress
IAVCEI Ankara 1994
Dept. of Geol. Eng., Middle East Technical Univ.
06531 Ankara, Turkey**

EDMONTON REMINDER AND A.G.M.

Just a reminder for Edmonton; the conference starts on 16th May and ends [horrid word] on May 19th. Spring in Edmonton; a chance to meet old friends and new, wind up old projects and start some new ones. And, of course, a chance to express your views at the *Annual General Meeting of the Volcanology Division*. This to be held on *Wednesday, May 19th (12:15-1:15 p.m.) in Room 106, "V" wing of Chemistry, off the Central Academic Building*. The font change is just a subtle hint..... Volcanological Division awards (Leopold Gelinas and Career Achievement Awards) are to be presented at the meeting.

GAC MAY FIELD TRIP REMINDER:

VOLCANOES OF THE WELLS GRAY-CLEARWATER AREA, B.C.

Organizers: Cathie Hickson (G.S.C. Vancouver); Paul Metcalfe (M.D.R.U.-U.B.C.)

Definitely an *Ash Fall* for reminders; the Wells Gray - Clearwater volcanoes are waiting for you! Cost of the trip will be \$350; leaving from the Chuk on Friday, May 14th at 8.00 a.m., returning in time for - *ahem* - refreshments on the evening of the 16th.

VSAAC CALENDARS

For those laggards who did not order or beg for the 1993 Volcanological Society of SACramento calendars, it's not quite too late..... \$5 American from:

**Brian Hausback
Geology Dept., California State University
6000 J Street, Sacramento, CA
95819-6043**

ERRATUM

I am afraid I screwed up last issue with the postal codes of two of the committee members; my own (Paul Metcalfe - yeah, I know; I don't even know where I live) and Kelly Russell's. The correct postal code for the Department of Geological Sciences at U.B.C. is **V6T 1Z4**.