ASH FALL

Newsletter of the Volcanology Division
Geological Association of Canada

April 1986 #15

VOLCANOLOGY DIVISION MEETING

WEDNESDAY 21 MAY 1986, 1700-1900 hours, CARLETON UNIVERSITY, OTTAWA, ONTARIO.

Meeting includes a slide show of Mexican, New Zealand and Hawaiian volcanoes. The meeting agenda is given below, and the list of nominations to the executive is on page 2. If you cannot attend, please return the proxy as soon as possible to: J. Dostal, Department of Geology, Saint Mary's University, Halifax, Nova Scotia B3H 3C3.

PROPOSED AGENDA FOR VOLCANOLOGY DIVISION ANNUAL BUSINESS MEETING
MAY 1986, OTTAWA, ONTARIO

1. Call to order
2. Minutes from last meeting
3. Business arising from the minutes
4. Comments and Approval of Agenda
5. Report from the Chairman
6. Report of the Treasurer
7. Report of the Secretary
8. Report on Publications
9. Report on Field Trips
10. Scheduled Activities -- Saskatoon '87
    -- IUGG'87 activities
    -- Field Conferences
11. Election of Officers
12. New Business
13. Remarks of the Incoming Chairman
14. Motion of Adjournment

I.....(PLEASE PRINT)
a member of the Volcanology Division of the Geological Association of Canada, do hereby appoint J. Dostal, Chairman, as my proxy to vote for me and on my behalf at the Annual Meeting of the Volcanology Division to be held at Ottawa during the GAC-MAC meeting being held there, and at any adjournment thereof.

Date.....1986, ...
Signature of Member

(IF PRESENTED IN PERSON AT THE BUSINESS MEETING, GOOD FOR **BUBBLY** LIBATION)

NOTICE

The following includes a number of new nominations (*) proposed for confirmation at the meeting.

B. Neil Church	Past Chairman	(1986-88)
*Jaroslav Dostal	Chairman	(1986-88)
*Roger Laurent	Vice-Chairman	(1986-88)
Monica Gaiswinkler Easton	Secretary	(1985-88)
Glen W. Johns	Treasurer	(1985-88)
Nancy Van Wagoner	Councillor East	(1984-87)
*Walter Gibbins	Councillor West	(1986-89)
*Mike Higgins	Councillor Centre	(1986-89)
Tark Hamilton	Representative to the CNC/IUGG	(1985-88)
Roy Y. Watanabe	Economic Councillor	(1984-87)
*Ray J. Goldie	Special Councillor on Research	(1986-89)

For further information please contact Prof. Jaroslav Dostal, Dept. of Geology, Saint Mary's University, Halifax, Nova Scotia B3H 3C3 (902-429-9780), or B. Neil Church, c/o B.C. Ministry of Energy, Mines and Petroleum Resources, Parliament Buildings, Victoria, BC V8V 1X4 (604-387-5068).

Financial Statement, March 1985

Amount transfered from previous treasurer.....1879.00 Note 1

Income

Membership Dues 1985.....	346.00	
Interest Jan-April 1985.....		
Interest May-Dec 1985.....	61.94	Note 2
	407.94	

Expenditures

Production of Ash Fall (Sept 85)..... 196.05 Note 3

Present Balance.....1744.89

Note 1: This amount includes Membership dues for 1985 and the interest accrued for Jan-April 1985.

Note 2: Interest on these 3 months not reported separately by the previous treasurer. See Ash Fall Sept 1985.

Note 3: Cost of Ash Fall includes GAC mailing labels, postage and printing costs.

Glen W. Johns, Treasurer

Chairman's Report

It was with mixed feelings that I initially took over the position of Chairman of the Volcanology Division a year ago. On the one hand, I was honoured to be asked to act as Chairman but, on the other hand, I regretted that it had to be under the sad circumstances of the death of Léopold Gélinas. Since that time, things have moved forward, as they tend to do, and the Volcanology Division has once again been involved in a number of interesting projects and is looking ahead to some exciting events which are being planned for future years.

One highlight of the past year was the field trip to the Trans-Mexican Volcanic Belt in January, 1986. The trip was organized as a seminar with Mexican as well as Canadian participants so that, through interaction in the field, the members were able to get to know local geologists. Much of the success for the trip can be attributed to its organizer, Walter Gibbins, who is currently editing a field guide written by Dr. G. Sanchez-Rubio of the National University of Mexico and Dr. S. Nelson of Tulane University, the trip leaders. We were fortunate to obtain seed money for the guide from the Canadian Geoscience Foundation and a preliminary version was available during the field trip. The final version should be ready before the Ottawa GAC-MAC Annual Meeting in May, 1986. Three companies, Falconbridge, Lacana and Highwood Resources have contributed funds to bring the field trip leaders to the Ottawa Meeting, where a slide show on the trip will be held after the Volcanology Division Business Meeting on Wednesday 21 May.

The Volcanology Division has been involved with some publications during the past year. The reactivation of Ashfall was particularly welcome since it has rekindled interest in the Division keeping members informed of activities and events. The Field Guide from the Volcanology Division trip to Hawaii in 1983, our best seller, is being updated and will be available in late 1986. This guide, by Monica Gaiswinkler Easton and Mike Easton is an excellent comprehensive field guide to the geology of the Hawaiian Islands. In addition, the research activities of the members of the Volcanology Division are summarized in a report compiled by Ray Goldie to be published in the Canadian Geophysical Bulletin. Thirty-five reports on volcanological research programs for 1985 were submitted from sixteen institutions including one provincial and two federal government agencies, eleven universities and two consulting firms.

This year for the first time, the Volcanology Division will be presenting an award at the 1986 Annual Meeting for the best thesis on volcanology. Due mainly to the efforts of the Regional Councillors, a number of theses have been submitted and are currently being evaluated by the past and present Chairmen. The award, named in honour of Léopold Gélinas, is a fitting tribute to a dedicated scientist and member of the Volcanology Division.

Some very interesting projects are being considered for the next couple of years and, in some cases, plans are already underway. Some members are currently investigating possibilities for the 1988 field trip and will present their findings at the 1986 Volcanology Division Business Meeting. At this point, a trip to southern Italy looks particularly promising. Preparations have already begun for a special session on trace elements and volcanic rocks to be sponsored by the Volcanology Division at the GAC/MAC Annual Meeting in

Saskatoon in 1987. In addition, the Volcanology Division has been represented in the organization of the XIX IUGG General Assembly to be held in Vancouver in August, 1987. Seven symposia and two field trips on volcanology will be of particular interest to Division members. Last, but not least, the Volcanology Division is seriously considering producing a series of field-manual type articles on volcanology for Geoscience Canada.

It has been very heartening to see a resurgence in activity within the Volcanology Division after a rather quiet year. But the success of these projects and future plans depend upon the enthusiasm and degree of involvement of the individual members and I sincerely hope that next year will see an increase in the number of active members. I realize that many of the members are extremely busy but even a small commitment of time to the various tasks or the contribution of ideas could help to make the Volcanology Division even more productive and rewarding.

Finally, I would like to take this opportunity to thank the members of the Volcanology Division for their efforts in making this a successful year. I would particularly like to thank the members of the executive who have contributed so much time and energy to the activities of the organization. With the groundwork which has been laid this year, I am sure that next year will be even more successful.

J. Dostal

Thesis Award Update

In the fall of 1985, the Volcanology Division Regional Councillors contacted all Canadian Universities with graduate programs in geology to solicit nominations for the Léopold Gélinas Award for the Best Thesis for 1984 and 1985. According to the selection criteria, the submission could be either a MSc or PhD thesis, defended in the past two years, of which volcanology must comprise at least 50% of the subject matter. The topic or author could be non-Canadian but the thesis must have been written at a Canadian university or by a Canadian student.

To date, seven theses have been selected by the Regional Councillors. Unfortunately only one of the theses was written in 1984 and therefore serious consideration is being given to dropping the award for that year. The theses are being evaluated on the basis of originality, validity of concepts, organization, understanding of volcanology and depth of research. The final judging will be done by the current and past Chairmen of the Volcanology Division. The $100.00 award(s) and certificate(s) will be presented at the Ottawa GAC/MAC Annual Business Meeting in May, 1986.

J. Dostal

FIELD TRIP REPORT

Trans-Mexican Volcanic Belt: 5-17 January, 1986

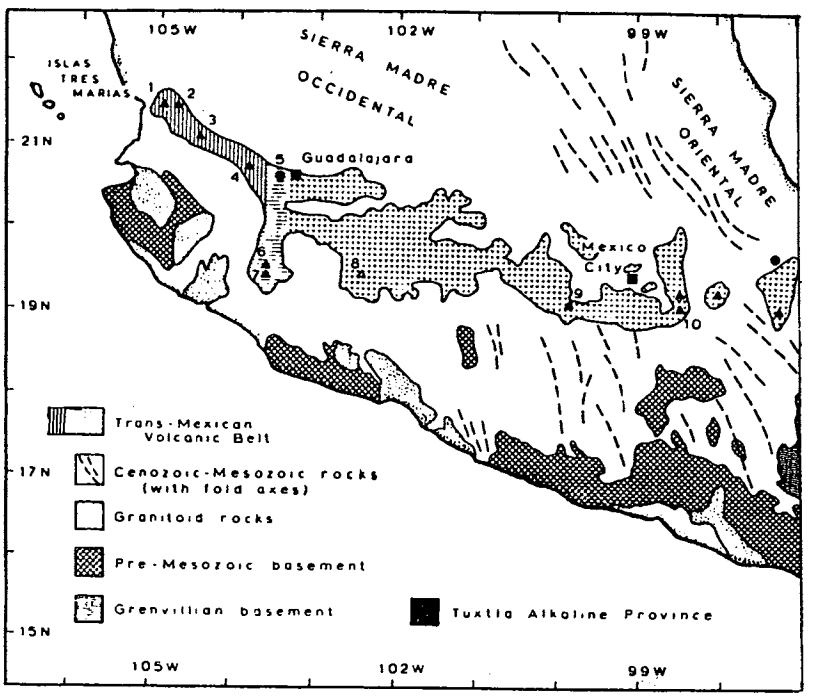
It was a very diverse group that set forth this January to visit some of the volcanoes of central Mexico. The 25 of us were about equally split between 2 nationalities, 3 languages and many different types of employment.

The trip started in Mexico City on 5 January, where we were welcomed by Walter Gibbins, DIAND, the trip organizer, and our guides, Steve Nelson of Tulane University, New Orleans, and Gerardo Sanchez-Rubio of the Universidad Nacional Autonoma de Mexico (UNAM), Guanajuato, Mexico.

Mexico City was still showing the effects of the recent earthquake, but the most precarious buildings had already been demolished. I was impressed by the immense variations in destruction over very short distances.

Over the next 12 days we meandered our way westward along the TMVB, with Gerardo Sanchez-Rubio in the central part and Steve Nelson as our guide in the western portion. We first visited Popocatapetl, a large (5,490m) volcano southeast of Mexico City. Our lack of acclimatisation prevented us from climbing to the top, but a few of the Mexicans and one brave Canadian did attempt it. The following day we visited local volcanic features and ended up at the Institute of Geology, Universidad Nacional Autonoma de Mexico, where we were invited to participate in the festival of the three kings. We drank hot chocolate and ate a special bread, that has a plastic baby in it. Three Canadians got the slices with the baby and hence should have given a party for us all on 2 February. However, I did not receive any invitations from Timmins, Victoria or Yellowknife.

We started westward the next day with a visit to Nevada de Toluca, a drive-in volcano. It was last active about 12,000 years ago, and today bears a great resemblance to Mt. St. Helens; it is similar in size, has voluminous quantities of pyroclastic deposits and lahars, and has a plug at the centre of the crater. That afternoon we took some time off to visit the pyramids of Teotenango, which are situated on the top of a thick sequence (100m) of basaltic andesite flows. The pyramids themselves are made from blocks of this material. It was interesting to see how the shape of the pyramids duplicates the outlines of the ash-cones that are so common in this area.

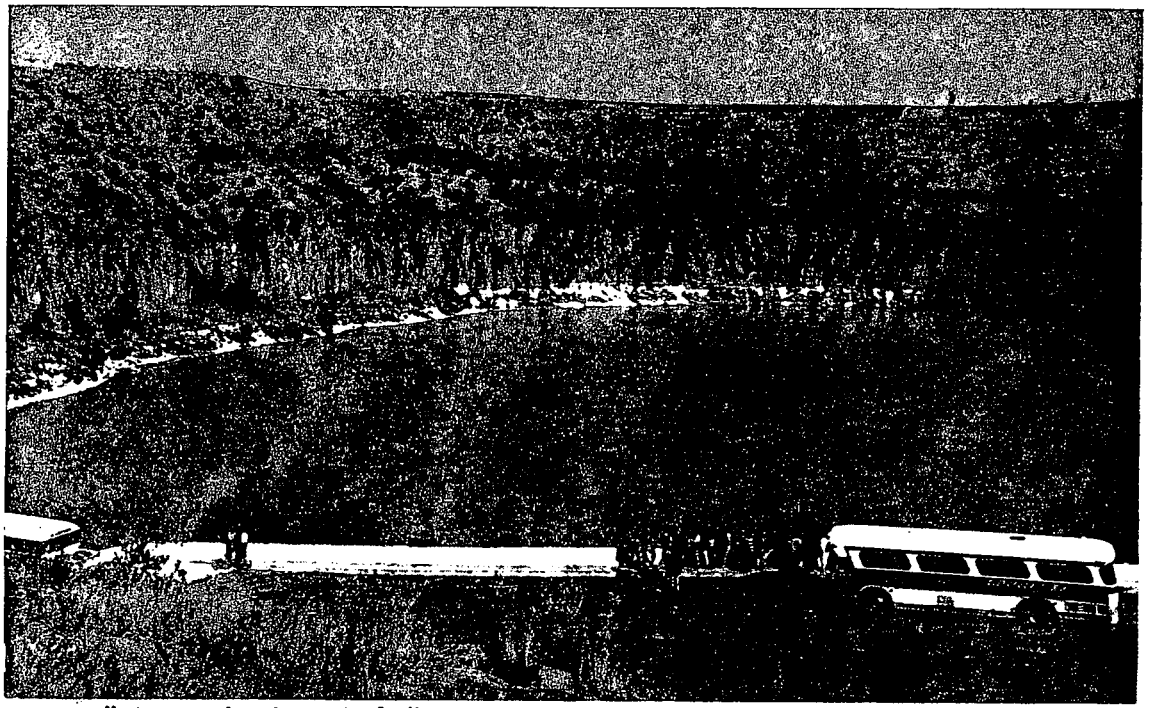


Map indicating stops on the GAC Volcanology Division Trans-Mexican Volcanic Belt Field Seminar 4-18 January 1986. Generalized tectonic map of Mexico (from paper by G.T. Nixon, 1982 (GSA Bulletin, v. 93, p. 515)). Numbers indicate stops at caldera complexes: 1-San Juan; 2 Sanganguey; 3-Ceboruco; 4-Tequila; 5-Sierra La Primavera; 6-Nevado de Colima; 7-Volcan Colima; 8-Paricutin; 9-Nevado de Toluca; and, 10-Popocatepetl.

The following day we visited the Valle de Santiago volcanic field. Alberca ("swimming pool") crater certainly lives up to its name; round, blue and deep (bottomless, of course)(see photo below). A road cut through the walls of the crater has exposed Surtsey-type ash deposits. They range in particle size, and the lack of sorting in these rocks is striking. If a similar material of Archean age was found in Canada it might be mistakenly classified as a tillite. Later we climbed La Batea, a typical maar, to view the huge number of nearby maars that are visible in this area. It is thought that most of the activity in this area occurred simultaneously, when basaltic magma migrating laterally under a lava cap-rock encountered zones of weakness and was able to break through to the surface.

Our visit to Paracutin was disappointing as our bus was unable to cope with the dust on the local roads, and hence we had to transfer to UNAM's 14-seat camionetta (van) and shuttle to the base of the volcano. This and our late start meant that there was not enough time to climb to the top of the volcano. However a few people did manage to visit the famous church that barely escaped burial. In the region around Paracutin there are an immense number of small ash cones, each apparently representing a small separate batch of magma. Since each cone appears to be active for only about 50 years, Paracutin is probably the safest place to be in Mexico, from the point of view of eruption hazards.

Steve Nelson took over as a guide for the rest of the trip. In the western part of the Belt both alkaline and calc-alkaline volcanics occur, commonly at the same centre. Luhr, Nelson et al. have suggested that an oceanic rift has migrated eastward to a position beneath the contineent leading to continental rifting and the alkaline volcanism. The calc-alkaline volcanism may then be a left-over from earlier subduction. However, some of the members of the group were unable to reconcile simultaneous compression and tension, and suggested that the distribution was not in fact bimodal.



Alberco, "the swimming hole", one of the numerous vents in the Valle de Santiago volcanic field, a few of the boys and their "econo-bus".

Our first volcano in this area was Colima which is dominated by alkaline magmas, including minettes and other potassic rocks. Unfortunately it was in steam eruption and the road to the summit had been washed out, so we were unable to visit the crater. However, we did have a magnificent view of the huge avalanche deposits and the steam eruption column.

Volcan Ceboruco is another drive-in volcano. It is the only volcano in the western part of the belt to have erupted in historical times; the last eruption was from 1870 to 1875. The compositions of the magmas are dominantly andesitic and dacitic. A good road leads to the top where lava flows, ash deposits and fumaroles may be visited in the numerous concentric craters.

Most days we finished late but this day was our record: 11 pm! Unfortunately the bus was unable to go off the main roads and hence we had to shuttle people to the top in two loads. Unplanned empty gas tanks and flat tires further disrupted our plans at critical times and more than once some of us found ourselves walking down the backroads of Mexico in the dark. Thereafter we rented a Volkswagen combi (van) and bug at Tepic. Anyone visiting this area is advised to use small vehicles, rather than a bus.

There is a fascinating collection of peralkaline rocks around Tepic. Ashes of these compositions can easily become welded, even if they are airfalls. It is commonly difficult to distinguish ash flows from lavas.

On our last day we visited Sanganguay volcano. Both calc-alkaline and alkaline rocks are present in this area. The former form the central volcano, whereas the latter are confined to small cinder cones on fractures. From

Aquacaientes geothermal steam vent. (Gee, we thought it was Jarda and Les escaping from Colima's steam eruption!)

Tepic we left Mexico spiritually and entered plastic Mexico at Puerto Vallarta, where the group broke up. Since we had not had the opportunity earlier, we must have bought half the souvenirs in town.

It was a fascinating trip, but very hard work. The presence of the Mexicans, and especially of Gerardo Sanchez-Rubio, really helped to make this trip a success. It was the unanimous consensus of the group to not deal with Falcon Travel of Vancouver ever again.

Plans are underway to publish a revised edition of our guidebook. This should be available in the near future. A sample of a stop description follows (this stop was, unfortunately, omitted by us).

Stop 9 (Figure 6)

In the village of Tequila, some participants may want to purchase a bottle of the soft drink of the same name directly from its source. This is the place where Tequila originated in the year 1600. The village of Tequila was founded in 1530 by the Spanish Captain, Cristobal de Oñate. Tequila is an indian word meaning "the rock that cuts". The village was thus named after the obsidians which occur in the area, which we will visit at Stop 10, and the drink was therefore named after a rock. Tequila is made by distilling the heart of the agave, better known as the maguey. Although some people call the agave a cactus, it is not a cactus in the strict sense.

Michael Denis Higgins

Photo stop on TMVB trip; Bill Padgham, Walter Gibbins, Les Coleman, Salvador Ulloa, Steve Nelson (co-leader), and Jaroslav Dostal.

Attached is copy of the Volcanology Division's Constitution. It is enclosed so that every member has a copy. This constitution has not been updated since the inception of the division, and the new executive may wish to consider the problem of constitution reforms so that the division may run more efficiently.

CONSTITUTION AND BY-LAWS

VOLCANOLOGY DIVISION

OF THE

GEOLOGICAL ASSOCIATION OF CANADA

ARTICLE I

1. Name:

   Volcanology Division of the Geological Association of Canada.

2. Objectives:

   i To advance the study of the processes and products of volcanism.

   ii To insure Canadian representation in the international sphere (eg. I.U.G.G.) on matters concerning volcanology.

ARTICLE II

1. Membership:

   Members of the Division shall be members of any class in the Geological Association of Canada or of any of its constituent divisions.

   or

   Members of the Division shall be members of any class in the Geological Association of Canada.
   Associate members of the Division shall be those members of the Canadian Geophysical Union who are soley members of the Canadian Association of Physicists.

2. Application for Membership:

   Members of the G.A.C. or of the C.A.P. may become members or Associate members, respectively, of the Division by application to the Secretary-Treasurer of the Division and payment of the annual fee.

3. Eligibility to vote:

   Only members and associate members in good standing who have paid annual Division dues are eligible to vote on Division business.

ARTICLE III

1. Fees:

Annual Division membership fees shall be set each year at a general or annual meeting for membership in the Division. Student members shall be exempt from annual dues.

There shall be no Division initiation fees.

ARTICLE IV

1. Officers:

The officers of the Division shall be a Past Chairman, Chairman, Vice-Chairman, Secretary-Treasurer, three Councillors representing eastern, western, and central Canada, and one Councillor representing the oceanic regions and/or the geophysical disciplines. Insofar as is practical, the officers shall include representatives of government, university, and industry as well as the various regions of Canada and the various disciplines represented by the membership.

2. Terms of Office:

All officers shall serve for a term of two years commencing at the adjournment of the appropriate annual meeting with the exception of the three regional councillors who shall serve three-year, overlapping terms. No executive member except the Secretary-Treasurer may serve two consecutive terms in the same office.

3. Past Chairman:

In the event that the Past Chairman is unable to serve on the Executive, the newly-elected Executive may at its discretion select another member of the retiring executive to serve in his place.

4. Nomination of Officers:

At least sixty days before the Annual Meeting the executive shall prepare and mail to the members a list of nominations which shall comprise the slate of candidates for all elective offices that will become vacant at the time of the Annual Meeting. Any three members may provide additional nominations for one or more of the elective offices by mailing the names together with the names of the nominating members to the Secretary-Treasurer. All nominations that have been legally filed with the Secretary-Treasurer at least forty days before the Annual Meeting shall be mailed to members together with a ballot at least twenty five days before the Annual Meeting.

5. Teller Committee:

The Executive shall appoint a Teller Committee which will count the ballots and announce the results at the Annual Meeting.

6. Meetings:

The Annual Meeting of the Division shall be held at the G.A.C. Annual Meeting. Special meetings may be held from time to time during the remainder of the year. Special general meetings may be called at anytime for the consideration of any special matter by the executive or by a written petition signed by a quorum of the members of the Division.

7. Quorum:

A quorum shall be whichever is less of ten members or ten per cent of the members of the Division.

ARTICLE V

1. Executive:

The Executive shall comprise the Past Chairman, Chairman, Vice-Chairman Secretary-Treasurer, three regional Councillors, and the Oceanic/Geophysics Councillor.

2. Past Chairman:

The immediate Past-Chairman or a selected member of the retiring executive designated as outlined above (Article IV-3) shall serve on the current executive to provide continuity.

3. Chairman:

The Chairman or his designate in the absence of the Vice-Chairman shall preside at meetings of the Division.

4. Vice-Chairman:

The Vice-Chairman shall have and assume the powers and duties of the Chairman in the event of the absence or disability of the Chairman.

5. Secretary-Treasurer:

The Secretary-Treasurer shall keep the records of the proceedings of the Division and shall also act as the Secretary to the Executive and keep the records of its proceedings.

The Secretary-Treasurer shall issue notices of all meetings.
The Secretary-Treasurer shall keep a complete list of the members of the Division and their places of residence.

The Secretary-Treasurer shall collect and disburse all funds and shall have the custody of all funds of the Division. He shall deposit such funds in the name of the Division in a bank or trust company designated by the Executive.

The Secretary-Treasurer shall report in writing at the Annual Meeting of the Division and the Executive on his receipts and disbursements of funds and other financial transactions since his last previous report and the balance of money in his hands.

ARTICLE VI

1. By-Laws:

By-Laws of the Division may be adopted, amended or rescinded only by voting members. Votes on such constitutional changes shall be carried out by mailed ballots and proposed changes shall be approved only if a majority of the ballots received by the specified date are in agreement. Copies of the proposed by-laws and amendments and/or the nature of proposed rescission of by-laws shall be mailed by the Executive with the ballots to the voting members of the Division not less than twenty or more than forty days before the designated voting date.

2. Proposals of Amendments:

Any quorum of members may, by letters addressed to the Secretary-Treasurer, recommend to the Executive the adoption, amendment or rescission of a rule, and the Executive shall carry out a mailed ballot vote on the proposed amendment no later than the general mailing preceding the next annual meeting.

ARTICLE VII

The Constitution and By-Laws of the Division shall not be inconsistent with the Constitution, By-Laws, Rules and Regulations of the G.A.C.

UPDATE ON THE DIAMOND JUBILEE MEETING IN HAWAII

The following notice was sent to all those on the mailing list for information about the Hawaii Symposium on How Volcanoes Work, to be held in Hilo, Hawaii during January 1987.

Plans for the Symposium are moving along. Robert Decker, US Geological Survey; Joseph Halbig, University of Hawaii at Hilo; Reginald Okamura, US Geological Survey; and Thomas Wright, US Geological Survey are the conveners. Sponsors of the symposium are the US Geological Survey, University of Hawaii at Hilo, International Association of Volcanology and Chemistry of the Earth's Interior, Circum-Pacific Council for Energy and Mineral Resources, Hawaii Institute of Geophysics, American Geophysical Union, Geological Society of America, and World Organization of Volcano Observatories.

The meeting will be held in Hilo on the campus of the University of Hawaii at Hilo, and in the Naniloa Surf and Hilo Hawaiian Hotels. Papers will be presented on January 19, 21, 23 and 25, 1987, and field trips will be held on January 20, 22 and 24, 1987. The Hawaii Institute of Geophysics will lead additional field trips on other Hawaiian Islands before and after the meeting.

Lois Elms, a professional meeting manager, will be handling the logistics of the symposium. Attendance will be limited to the first 500 registrants (not counting non-professional guests). The call for papers and registration announcement will be sent in April, 1986 to all people on the Hawaii Symposium mailing list. If you have colleagues who did not receive this update but who wish to receive the registration announcement, they can be added to the mailing list by sending a request to Lois Elms, Western Experience, 2369 Carriage Circle, Oceanside CA 92054, USA.

It is planned that about half the papers will be presented in poster sessions with no conflicting schedules; the other half in oral sessions with no conflicting schedules. Everyone will be able to see and hear everyone else's ideas. The main theme of the meeting will be Conceptual Models of How Volcanoes Work with additional topics as follows: Internal and Deep Structure of Volcanoes; Dynamics of Magma Chambers; Dynamics of Intrusion and Eruption Processes; Exploration of Submarine Volcanoes; Earthquakes and Tremor Related to Volcanism; Monitoring Active Volcanoes; Forecasting Volcanic Eruptions; Assessing Volcanic Hazards; and Reducing Volcanic Risk.

It's not too soon to think about submitting a paper to this symposium. The deadline for abstracts will be 1 October 1986. Abstract forms will be sent with the registration announcements in April 1986. Keep 19-25 January 1987 clear for this important International Meeting. We'll see you there!

The Conveners

STATUS OF GAC VOLCANOLOGY PUBLICATIONS

SPECIAL PAPER 16, by Baragar, Coleman and Hall; Short Course Notes #2 edited by Ayres; and Short Course Notes #4 edited by Easton and Easton are all out of print.

Contributions to Ash Fall should be sent to (the):

Secretary, Volcanology Division
Geological Association of Canada
M. Easton
c/o Ontario Geological Survey
77 Grenville Street
Toronto, Ontario M7A 1W4