ASH FALL

News Letter of the Volcanology Division
Geological Association of Canada

May, 1979

CHAIRMAN'S REMARKS

L.D. Ayres

I would like to comment on several points that might be considered at the forthcoming meeting in Quebec City. I hope to see many of you there.

In the first place I would like to congratulate the organizers of the Canary Islands field trip, particularly Bob Baragar. This was a very successful and enjoyable trip, and hopefully the trip will be only the first of many to follow.

In the past newsletters I have flogged the possibility of an Iceland field trip in conjunction with the Halifax annual meeting in 1980. This culminated with the questionnaire that formed part of the last newsletter. Response to this questionnaire has been disappointing, with only seven written and several verbal responses being received to date. The concensus favours the trip, but some problems with the timing were raised by several members.

Several possible field trip participants have indicated that they will be attending the I.G.C., which also meets in 1980, and cannot afford to make a trip to Iceland. If the trip were postponed to another year they would be interested in participating.

The second problem is the possibility of adverse weather and road conditions in Iceland during May. The best time for an Iceland trip is July or August, but conflict with field work would rule out participation by many government survey people. When I proposed the May date, I was aware of the weather and road problems, but considered that the focus of a national meeting for drawing participants outweighed the potential problems. I may have been wrong in this assumption, considering the success of the independent trip to Canary Islands.

Considering the low response rate and timing problems, I propose that we postpone the Iceland field trip until 1981 or later. In the interim we can reconsider the timing. Would a late August or early September date be possible for survey members? I will have more information for the next Newsletter.

The final point that I would like to raise is the annual review of volcanological research. The Division assumed responsibility for compiling this review in 1977 and three compilations have now been prepared. The most recent compilation prepared by Jon Scoates will be published shortly in the Canadian Geophysical Bulletin.

Each year the compilation is incomplete because many researchers do not respond. Members have complained about the usefulness of the compilation and the duplication of effort because research summaries are required by numerous organizations. Advantages of Canadian Geophysical Bulletin publications are rapid publication, free distribution, and concentration of all volcanology research projects in one chapter. The major alternative is Current Research in the Geological Sciences. The most recent publication (G.S.C. Paper 78-5) contains research for 1977-1978, but only nine projects are listed under volcanology. Other volcanology projects are dispersed among other categories, with most being listed under petrology.

Considering the poor response and the various complaints, we should re-evaluate our role in this compilation. Should we continue to produce the compilation or should we put our effort into making Current Research in the Geological Sciences more meaningful for volcanology? We have already had some influence in Current Research. Prior to 1976 volcanology was not a separate research category, and it was included in response to our request.

I would like to hear your comments on the compilation problem, either in writing or at the annual meeting, where the topic will be included on the agenda.

FIELD TRIP TO CANARY ISLANDS

Mikkel Schau

The first field seminar of the Volcanology Division of the Geological Association of Canada convened on the islands of La Palma and Gran Canaria, April 9-22, 1979, under the leadership of H.-U. Schmincke of Ruhr University, Bochum, West Germany. The 22 attendees were treated to an intensive course in volcanological processes, as illustrated by the volcanic products exposed on these Miocene or younger islands so nicely situated just west of African shores near the Tropic of Cancer.

The itinerary was planned to show us various stages in the history of a volcanic island. On La Palma we were guided through the submarine stage by H. Staudigel and H.-U. Schmincke, as well as noting the surface morphology of the latest eruptions on the isles (1949, 1971) and on Gran Canaria we explored the shield stage and subsequent periods of caldera formation and fill, under the guidance of H.-U. Schmincke.

The precipitous verdant island of La Palma is the westernmost and youngest of the islands. It is composed of a tilted slab of submarine alkali basalts overlain by flat-lying subaerial basalts and epiclastic volcanic rocks. The submarine sequence is composed of pillowed basalts and pillow breccias and, surprisingly, near the base is found a white keratophyre breccia. A remarkable feature is the large number of relatively fresh sills which intrude each other so as to form 98% of the section near the base. The concept of a sheeted sill-complex, as well as the grandeur of the erosional Caldera de Taburiente at the end of the traverse, amazed us as we chatted breathlessly returning along a narrow irrigation aquaduct perched high on the vertical cliffs.

High winds, fog and sleet precluded a proper examination of the 1949 eruption centre on the top of the island, but porphyritic hauyne phonolites from earlier vents gladdened the hearts of collectors. Tenequia, which erupted in 1971, was a still-fuming cinder cone breached by a blocky flow. Its products overlay those of an earlier cone, San Antonio, from which cognate blocks and xenoliths were collected.

On Gran Canaria the deeply eroded aspect of the island allowed us glimpses into the innards of this volcanic complex. A basaltic shield volcano about 10 km in radius rose from the sea about 12 Ma ago and eventually a central caldera formed from which a series of distinctive rhyolitic to pantelleritic ash flows emanated. A second caldera overlapping the first to the northeast, was the centre of eruption of phonolitic ash flows and lava flows, and into which alkalic syenite stocks and later a cone sheet complex were emplaced. Later

the dormant volcano was deeply eroded and a few nephelinite flows were erupted. A new centre, somewhat to the northeast of the old complex, then erupted large volumes of phonolitic materials, first as lavas which filled the old valleys, and then a large variety of pyroclastic and debris flows. A late feldsparphyric debris flow appears to have covered the island and is now in part preserved in Roque Nublo, a scenic landmark. New valleys were incised, often along the edge of the old valley wall and the lava fill. Nephelinites, commonly crowded with olivine and pyroxene nodules flowed from a new centre to the northeast. New valleys were again cut and melilite flow erupted at the current high point of the island. Later, maars and basanite cinder cones have developed to the northeast of the older centres. In one cinder cone a pine tree covered by the tephra yielded an ^{14}C date of 3500 BP, marking the most recent eruption known on the island.

For many the most spectacular outcrops were those seen in a steepsided valley on Gran Canaria where the first caldera wall was well exposed. Flat basaltic flows of the shield terminate abruptly in a zone of gouge 1/2 to 50 m in width. Inside the caldera, pyroclastic flows, airfall tuffs, agglutinate-flows and sills are seen to dip away from the wall, with dips up to 45^{o} nearest the wall and decreasing away from the wall and up sequence, indicating that continuing subsidence occurred throughout the eruptive phase. The tuff near the wall is leached and has been altered to a bright green tuff in which are set bright red oxidized fragments of basalt from the wall. This distinctive tuff is useful in the mapping of caldera edges.

We were amazed at the number of unconformities, the relative lack of marker beds (although some distinct flows could be so used, the majority of the flows are thin spaghetti strands filling valleys), the complexity of the intrusive plugs, dykes and sills, and the large variety of textures and structures in the multitude of volcanic breccias. Rhyolite flows showed primary structures such as low angle foliation or sheeting, minor drag folds and rotated boudinage. A composite pyroclastic flow was composed of mechanical mixtures of rhyolite and basalt and other flows also showed vertical or later zonation in composition.

A geologist specializing in mapping two-dimensional views of old rocks is likely to be overcome with the wealth of detail revealed by a face-to-face confrontation with the present. The beaches of Maspalomas or sandy river mouths provided some respite. Others visited Tenerife to see el Teide and its enveloping caldera Los Cañadas. The future visitor travelling to the "Fortunate Isles" is advised to see La Palma, Gran Canaria and Tenerife, in that order, in order to appreciate the development of a volcanic island. In drawing up schedules he should remember that Iberia has 50 years experience. Our lost bags were returned; when delayed in transit we were put up in a first class hotel and breakfast served in the rooms at 6 a.m.; when we were weather-bound and our "confirmed" bookings were changed to "waitlisted", we were given breakfast chits; when we complained of waiting in a line in front of work-to-rule attendants and recalcitrant computers, we were herded into the duty free area to wait there. The pace is not hectic: just enjoy your brandy and wait.

The participants included university professors, students, and practising geologists, mainly from government surveys, and interested travellers. It is hoped that on the next trip governments and exploration companies will support this pleasant form of professional development.

NOTICE OF ANNUAL BUSINESS MEETING

The Annual Meeting of the Volcanology Division of the Geological Association of Canada will be held at Laval University, Quebec, P.Q., at 5:30 p.m. on Thursday, May 24, 1979, in room 1271, Pavillon De Koninck.

Cocktails (cash bar in adjacent hall) 5:00 p.m. - 5:30 p.m.

Business meeting - 5:30 p.m. - 6:30 p.m.

Members who are unable, or doubtful, to attend, are requested to complete the Proxy form attached and return in the enclosed addressed envelope, immediately.

I ..... (PLEASE PRINT) a member of the Volcanology Division of the Geological Association of Canada, do hereby appoint L.D. Ayres, Chairman, or R.F.J. Scoates Vice-Chairman, and either of them as my proxy to vote for me and on my behalf at the Annual Meeting of the Volcanology Division, to be held on Thursday, May 24, 1979, in Quebec City, Quebec, and at any adjournment thereof.

Date.....1979 .....
(Signature of Member)

AGENDA

1. Call to order by the Chairman.
2. Introductory remarks by the Chairman.
3. Report of the Secretary-Treasurer.
4. Reports from Councillors and Executive Members.
5. Report on Field Trips.
6. Election of Officers.
7. New Business.

PROPOSED 1979-1980 COUNCIL

The Nominations Committee has prepared the following slate which shall comprise the Regular Ticket of Candidates for the officers and places on Council to be filled at the Annual Meeting on Thursday, May 24, 1979 in Quebec City, Quebec.

Councillor (west):	J. Nicolls	Calgary, Alberta
Councillor (Geophysics):	H.C. Palmer	London, Ontario

The following are Officers whose term has not expired:

Chairman:	L.D. Ayres	Winnipeg, Manitoba
Vice-Chairman:	R.F.J. Scoates	Winnipeg, Manitoba
Secretary-Treasurer:	M.B. Lambert	Ottawa, Ontario
Councillor (east):	S. Papezik	St. John's, Newfoundland
Councillor (central)	E. Dimroth	Chicoutimi, Quebec
Economic Geology Representative:	R. Ridler	Willowdale, Ontario.
CNC/IUGG representative (Ex-officio member of Council - term expires December, 1979)	W.R.A. Baragar -	Ottawa, Ontario

VOLCANOLOGY DIVISION
Geological Association of Canada

B A R V O U C H E R

This voucher permits each member of the Volcanology Division to receive one free beer at the Annual Meeting of the Division on May 24, 1979, in Pavillon De Koninck, Laval University, Quebec, P.Q.

NOT TRANSFERABLE