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ASH FALL

News Letter of the Volcanology Division
Geological Association of Canada

GENERAL MEETING AT WINNIPEG, G.A.C. 1982

WEDNESDAY, MAY 19, 5:00 P.M., ROOM 204, ARMES LECTURE BUILDING

PLAN TO BE THERE

OR GET YOUR PROXIES THERE

HAVE YOU PAID YOUR DUES?

OFFICERS

*PAST CHAIRMAN - J. NICHOLLS, UNIVERSITY OF CALGARY, CALGARY	
*CHAIRMAN - NEIL CHURCH, B.C. DEPT. OF MINES, VICTORIA	1982-84
*VICE CHAIRMAN - LEOPOLD GELINAS, ECOLE POLYTECHNIQUE, MONTREAL	1982-84
*SECRETARY TREASURER - MIKKEL SCHAU, G.S.C., OTTAWA	1982-84
*COUNCILLOR WEST - CHRIS SCARFE, U. OF ALBERTA, EDMONTON	1982-85
*COUNCILLOR GEOPHYSICS-OCEANOGRAPHY - TREVOR LEWIS, EARTH PHYSICS, PATRICIA BAY	1982-85
COUNCILLOR CENTRAL - P.C. THURSTON, O.G.S., TORONTO	1980-83
COUNCILLOR EAST - SANDRA BARR, ACADIA UNIVERSITY, WOLFVILLE	1981-84
COUNCILLOR ECONOMIC GEOLOGY - PETER MONEY, TEXAS GULF INC., TORONTO	1981-84
EX-OFFICIO CNC-IUGG REPRESENTATIVE - MAURICE LAMBERT, G.S.C., OTTAWA	1979-83

*NOMINATED FOR ELECTION AT THIS GENERAL MEETING.

FIELD TRIPS COMING UP: (1) SNAKE RIVER PLAIN - CRATERS OF THE MOON, IDAHO

(2) SAN JUAN MOUNTAINS (3) CASCADES, INCLUDING MOUNT ST. HELENS

(4) HAWAII

MINUTES OF ANNUAL MEETING AT CALGARY, 1981

16 PRESENT - 8 PROXIES

(1) COUNCILLORS BARR AND MONEY ELECTED.

(2) COLEMAN REPORTED ON SUCCESSFUL MARTINIQUE TRIP.

(3) TREASURER INDICATED WE ARE SOLVENT.

(4) CHRIS SCARFE TO JAPAN. ACTED IN PART AS DELEGATE FOR VOLCANOLOGY DIVISION.

(5) AYRES MOVED, SECONDED BY SCARFE, THAT 1985 INTERNATIONAL MEETING BE DELAYED UNTIL 1987 MEETING. CARRIED.

(6) FIELD TRIP COMMITTEE:

A) ALTERNATE EXPENSIVE WITH CHEAP TRIPS

B) LORNE AYRES AND RIO GRANDE RIFT, DLRS 30-40/DAY.

C) MIKE EASTON CHAIRMAN, AYRES A MEMBER OF COMMITTEE. SCHAU TO BE ASSOCIATED.

D) HAWAII TRIP BY EASTON

E) LUDDEN WANTS TO KNOW WHO WANTS TO GO TO ICELAND.

F) MT.ST.HELENS IN CONJUNCTION WITH VICTORIA MEETING.

(7) WINNIPEG MEETING:

SHORT COURSE PYROCLASTIC VOLCANICS IN STRATOVOLCANOES OF ISLAND ARC TYPE. PARTIALLY ORGANIZED. PERHAPS SHORT COURSE PUBLICATION. SEE AYRES.

FIELD TRIPS TO FLIN FLON SEE BAILES.

(8) MOVED BY THURSTON, SECONDED BY AYRES, MEETING ADJOURNED.

MINUTES TAKEN BY W.R.A.BARAGAR, TO WHOM WE OWE THANKS.

The Clay Minerals Society is sponsoring a meeting in Hawaii, 1982.

Field trips to Kilauea, Hamakua Coast. Symposia include the chemistry of iron in soils and sediments.

August 8-14 at Hilo. Contact Dr. R.C. Jones, Chairman, CMS, Hawaii, '82, Department of Agronomy and Soil Science, 3190 Maile Way, Honolulu, Hawaii 96822.

FIELD TRIP TO ST. VINCENT AND MARTINIQUE

About a year ago the Division sponsored its second "Field Trip" to study Caribbean volcanism of the last several million years. We were well led by Al Smith of the University of Puerto Rico who showed us the intricate interleaving of exposive volcanic deposits on St. Vincent and Martinique.

The general principle that "whatever man can survive to report is not very important, geologically" was illustrated yet again. On Soufrière we looked at the remains of the glowing avalanche eruptions of 1979 just before their last vestiges were washed into the sea and lush tropical vegetation was well on its way to covering the scars in the valleys. On Martinique we saw the very thin and insignificant deposits of Mt Pelée of both the 1902 and 1929 eruptions. When we consider the nature of the processes that led to the deposition of these meter thick deposits what leap of imagination is required to mentally encompass the truly awesome volcanic deposits of the Cenozoic of S.W. U.S. or the Archean of our Shield?

We were shown a working classification of pyroclastic deposits (Wright et al, 1980). I was, in particular, struck with the difficulty of distinguishing lahars from hot pyroclastic flows; the operational method in Recent units is to find a tree trunk and see whether it is fresh or charred. Again anyone working in old rocks would be at a loss. The controversy over Mt Pelée's mode of eruption has not stilled (Fisher et al., 1980, Roobol and Smith, 1976) and although Perret risked limb and life, it was not an ignimbrite that he saw forming before his eyes in 1929 – it was merely a hot pyroclastic flow (nuée ardente).

The unsettled weather allowed us to appreciate the effects of water both as mist around the peaks, as warm rain on the steep trails and in the form of raging floods. We were trapped up island by one such flood – I saw antidunes form before my eyes, understood what bed load transport meant as I emptied my boots after crossing and got to appreciate the erosive power of the raging water as we fought successfully to prevent our truck from tipping over in the river. At one stage cobbles (pineapple size) were being ejected from standing waves. Seaward of such flooded rivers thin sheets of mucky water covered the salt water; the coarser materials were dumped in narrow deltas and presumably redeposited below. Apparently the only record of a nuée ardente a few km from source and after a decade or so would be a few turbidite layers issued from a couple of river mouths, and perhaps a thin layer of mud. Turbidite sequences in the Archean could be hiding tales of gargantuan eruptions.

Martinique contains peculiar volcanic rocks such as "quartz phenocryst basalt" and cordierite and andalusite bearing "dacite". The deposits of Mt. Pelée are of various textural types of essentially the same andesite and they show a mix of phenocrysts such as two generations of plagioclase, orthopyroxene opx, Fe-Ti

oxide, corroded brown amphibole and olivine rimmed by pyroxene.

Apparently Mt. Pelée alternates its eruptive mode every millenium or so (Roobal and Smith, 1976): Andesitic nuée ardente deposits; (Peléan) pumice flow deposits and air fall ash deposits (Plinian) – alternate with mudflows and river deposits. Mt. Pelée's sequence of eruptive modes has been likened to that of the stratovolcanoes of the high Andes. Perhaps mixed magmas and eruptive cycles are waiting to be discovered in the Archean of Canada?

Our expulsion from BWIA on our homeward flight and our subsequent stay at a luxury hotel in Antiqua aroused consternation – fortunately the stay, though enforced, was pleasant and included dancing Strauss Waltzes under moonlight skies to a steel drum band. The extra time thus allotted us allowed us to ruminate on the sociological contrasts between St. Vincent (an ex-british colony), Martinique (a part of France) and Antiqua (with dutch rulers). This contrast is better experienced than discussed. Participants in the trip included W.R.A Baragar, André Simard, Dave Combo, Tom Muir, Jardah Dostal, Peter Delaney, Richard Moore, Mel Stauffer, Roger Laurent, Les Coleman, Barb Moore, Glen Johns, Hedy Rimsaite, our leader Al Smith, and your reporter Mikkel Schau.

Fisher, R.V., Smith, Al, and Roobol, M.J., 1980; Destruction of St. Pierre, Martinique, by ash-cloud surges, May 8 and 20, 1902 Geology, v. 8 p. 472-476.

Roobol, M.J. and Smith, Al, 1976; Mt Pelée, Martinique a pattern of alternating eruptive styles, Geology, v. 4, p. 521-524.

Wright, J.V., Smith, Al, and Self, S., 1980; A working terminology of pyroclastic deposits, Journal of Volcanology and Geothermal Research, v. 8, p. 315-335.

Cyprus

A scientific drilling project undertaken by the International Crustal Research Drilling Group (ICRDG) headed by Drs. J.M. Hall and Paul Robinson of Dalhousie University and involving a member of Canadian geologists will be commencing in April and is expected to extend through the summer. The object is to obtain a continious section through vertical segments of the Troodos ophiolite; the pillow lavas, the gabbro and part of the layered complex, and a representative section of sheeted dykes. In addition one drill hole is planned to pass through an ore body and the subjacent alteration pipe. This should present an ideal opportunity to study the genetic relationships between ore bodies and their oceanic hosts.