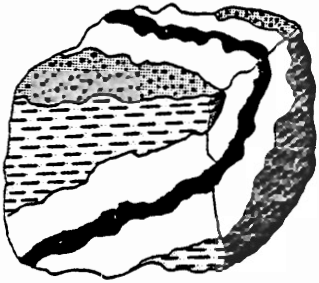


THE GANGUE

Mineral Deposits Division Geological Association of Canada No. 16 May 1983



WELCOME TO THE GAC/MAC/CGU ANNUAL MEETING!

UNIVERSITY OF VICTORIA, MAY 11-13, 1983

VICTORIA '83 PROMISES TO BE A MEMORABLE MEETING FOR ECONOMIC GEOLOGISTS. THE SCENIC CHARM AND BALMY SPRING WEATHER OF VICTORIA WILL PROVIDE A SETTING FOR A PROGRAM FILLED WITH OUTSTANDING PAPERS, SPECIAL SESSIONS, SHORT COURSES AND FIELD TRIPS OF DIRECT INTEREST TO THE MINERAL DEPOSITS GEOLOGIST.

THE MDD LUNCHEON WILL BE HELD ON FRIDAY, MAY 13 IN THE COMMONS DINING ROOM FROM 12:00 TO 13:00, TO BE FOLLOWED IMMEDIATELY BY THE MDD ANNUAL MEETING FROM 13:00 TO 14:00. THE AGENDA INCLUDES REPORTS BY THE CHAIRMAN, SECRETARY, TREASURER AND CHAIRMAN-ELECT. IT IS RUMORED THAT A MOTION TO INCREASE MDD DUES MAY BE PRESENTED. NEW BUSINESS AND DISCUSSION FROM THE FLOOR IS WELCOME.

INCOMING AND OUTGOING EXECUTIVE AND DIRECTORS OF THE MDD ARE REMINDED OF AN EXECUTIVE MEETING ON WEDNESDAY, MAY 11 AT 17:30 IN THE CORNETT BUILDING, ROOM B344.

OF PARTICULAR INTEREST TO THE EXPLORATION GEOLOGIST ARE THE TWO MDD-SPONSORED SPECIAL SESSIONS: 'TIN AND TUNGSTEN DEPOSITS OF THE CANADIAN CORDILLERA', ORGANIZED BY K.M. DAWSON AND J.A. COOPE; AND 'PRECIOUS METALS IN THE CANADIAN CORDILLERA', ORGANIZED BY A. PANTELEYEV. EACH SESSION OFFERS A FULL DAY OF 15 OR 16 PAPERS, ON THURSDAY, MAY 12 AND FRIDAY, MAY 13, RESPECTIVELY.

MAC SPECIAL SESSIONS ON 'DEEP OCEAN MINERAL DEPOSITS' WILL BE HELD ALL DAY MAY 11, AND A RELATED SYMPOSIUM ON THE CYPRUS PROJECT WILL BE HELD THURSDAY AFTERNOON. SPECIAL SESSIONS ON Pb ISOTOPES AND STABLE ISOTOPES ARE ALSO OF INTEREST. THE MAC IS HOLDING PRE-MEETING SHORT COURSES ON SEDIMENT-HOSTED STRATIFORM Pb-Zn DEPOSITS AND COAL PETROGRAPHY.

IN ADDITION, FOUR GENERAL SESSIONS ON ECONOMIC GEOLOGY AND MANY OTHER SESSIONS AND PAPERS WILL ATTRACT THE DELEGATES. FIELD TRIPS OF NOTE INCLUDE Mo, Cu AND Ag DEPOSITS OF NORTH CENTRAL B.C., Au DEPOSITS IN THE WESTERN CORDILLERA, MINERAL DEPOSITS OF VANCOUVER ISLAND, PORPHYRY DEPOSITS OF SOUTHERN B.C. AND STRATABOUND DEPOSITS IN SOUTHEASTERN B.C. AND MONTANA.

R.W. HUTCHISON WINS DERRY MEDAL

THE DUNCAN R. DERRY SELECTION COMMITTEE IS PLEASED TO ANNOUNCE THAT DR. R.W. HUTCHISON HAS BEEN NAMED THE FOURTH RECIPIENT OF THE AWARD FOR OUTSTANDING ACHIEVEMENT IN THE FIELD OF ECONOMIC GEOLOGY. THE PRESENTATION WILL BE MADE AT THE GAC LUNCHEON ON MAY 11 AT VICTORIA '83.

DICK HUTCHISON HAS BEEN SELECTED BECAUSE OF HIS OUTSTANDING ACHIEVEMENTS BOTH IN ANALYZING ENVIRONMENTS OF MINERAL DEPOSITION AND IN COMMUNICATING HIS RESEARCH TO THE CANADIAN GEOLOGICAL FRATERNITY.

MESSAGE FROM THE CHAIRMAN

THOSE OF YOU WHO HAVE HELD OFFICE IN ONE OF OUR GEOSCIENCE ASSOCIATIONS WILL APPRECIATE THAT ONE YEAR IS A VERY SHORT TIME TO FULFILL THE OBJECTIVES AND ACHIEVE THE IMPROVEMENTS ON BEHALF OF THE MEMBERSHIP THAT THE OPPORTUNITY OF OFFICE PROVIDES. BY THE TIME THIS ISSUE OF THE GANGUE HITS YOUR DESK, THE FOURTH YEAR OF THE MINERAL DEPOSITS DIVISION WILL BE ALMOST OVER, THE FOURTH RECIPIENT OF THE DUNCAN R. DERRY MEDAL WILL BE NAMED AND YOUR FIFTH EXECUTIVE WILL BE PREPARING TO LEAD THE DIVISION THROUGH ANOTHER TWELVE MONTHS.

WHERE DO WE STAND?

THE MDD IS DOING EXCEPTIONALLY WELL. WE NOW HAVE, BY FAR, THE MOST ACTIVE DIVISION WITHIN THE G.A.C. WE HAVE A GROWING AND WELL-DESERVED REPUTATION FOR ORGANIZING SOME OF THE MORE INFORMATIVE FIELD TRIPS AND SOME OF THE MORE STIMULATING TECHNICAL SESSIONS. OUR NEWSLETTER IS ONE OF THE BEST. WHAT IS MORE, THE MDD IS AWARE THAT ITS MEMBERSHIP WOULD ALSO BE VERY RECEPTIVE TO WELL PREPARED FIELD AND REFERENCE MANUALS COVERING OUR MINING CAMPS AND WELL CHOSEN SHORT COURSES LED BY LEADING EXPERTS FROM DIFFERENT PARTS OF THE WORLD. THESE INITIATIVES HAVE BEEN ESTABLISHED IN THE PAST YEAR AND THE BENEFITS WILL BEGIN TO FLOW IN THE MONTHS AHEAD. MINERAL DEPOSITS SYMPOSIA AND IMPORTANT COMMITTEE ACTIVITIES ARE ALSO BEING STUDIED OR PLANNED. FOR EXAMPLE THE MDD IS FORMING A COMMITTEE TO PRESENT A BRIEF TO THE CGC TASK FORCE ON "RESEARCH IN EXPLORATION FOR MINERAL DEPOSITS". SINCE RESEARCH IN MINERAL DEPOSITS IS A MAJOR CONCERN OF THE MDD, THIS SAME COMMITTEE WILL

CONTINUE TO MONITOR THE PROGRESS OF THIS RESEARCH AND, WHENEVER NECESSARY OR APPROPRIATE, WILL PUBLISH STATEMENTS, ARTICLES OR REPORTS TO INFLUENCE THIS PROGRESS. WHILE IT IS ACKNOWLEDGED THAT THERE IS SOME VERY GOOD MINERAL DEPOSITS RESEARCH BEING CONDUCTED IN CANADA, SEVERAL OF OUR MEMBERS HAVE INDICATED DISSATISFACTION WITH SOME ASPECTS OF THE RESEARCH PRODUCT, THE ESTABLISHMENT OF RESEARCH OBJECTIVES AND THE LEVELS OF, AND THE STANDARDS OBSERVED IN RESEARCH FINANCING. ONE OF THE LESSONS OF THE CURRENT RECESSION HAS BEEN THE APPRECIATION OF THE FUNDAMENTAL IMPORTANCE OF OBJECTIVE RESEARCH IN MINERAL DEPOSITS GEOLOGY TO THE MINERAL INDUSTRY'S FUTURE VIABILITY AND THE COUNTRY'S ECONOMY. THE MDD CAN, AND WILL, IMPROVE THIS AWARENESS.

PERHAPS THE BEST SIGN OF A HEALTHY ASSOCIATION IS THE CONTRIBUTION OF THE MEMBERSHIP. ALL THE NEW DEVELOPMENTS DESCRIBED IN THIS MESSAGE HAVE GROWN FROM IDEAS PUT FORWARD BY THE MORE ACTIVE AND IMAGINATIVE AMONG US. YOUR EXECUTIVE AND DIRECTORS HAVE WORKED HARD TO BRING THESE IDEAS TOWARDS REALITY AND THESE COMBINED EFFORTS AMOUNT TO SIGNIFICANT PROGRESS. I WOULD LIKE TO RECORD MY PERSONAL THANKS TO THE EXECUTIVE, THE DIRECTORS AND THE MEMBERSHIP FOR THE IMPORTANT ACHIEVEMENTS OF 1982-1983. AS A RESULT WE HAVE A MORE MATURE MINERAL DEPOSITS DIVISION AND WE SHOULD ACT ACCORDINGLY AND MAKE SURE WE DO AN EVEN BETTER JOB NEXT YEAR.

J. ALAN COOPE

MDD EXECUTIVE NOMINATIONS:

THE NOMINATIONS COMMITTEE OF THE MINERAL DEPOSITS DIVISION HAS PREPARED THE FOLLOWING LIST OF CANDIDATES WHICH HAVE BEEN NOMINATED FOR POSITIONS ON THE FOLLOWING LIST OF CANDIDATES WHICH HAVE BEEN NOMINATED FOR POSITIONS ON THE EXECUTIVE COMMITTEE AND THE BOARD OF DIRECTORS. THE POSITIONS FOR THE 1983-84 YEAR WILL BE FILLED AT THE ANNUAL GENERAL MEETING DEPOSITS DIVISION ON FRIDAY, MAY 13, 1983 IN VICTORIA BRITISH COLUMBIA.

EXECUTIVE COMMITTEE

CHAIRMAN	J.A. MACDONALD	VANCOUVER
PAST CHAIRMAN	J.A. COOPE	TORONTO
VICE CHAIRMAN	R.S. HEWTON	VANCOUVER
SECRETARY	J. FRANZEN	VANCOUVER
TREASURER	A.J. SINCLAIR	VANCOUVER
PROGRAM CHAIRMAN	R.W. HODDER	LONDON
PUBLICATIONS	A.L. BARKER	TORONTO
EDITOR, THE GANGUE	K.M. DAWSON	VANCOUVER

DIRECTORS

1983-86	J.R. FRASER	WINNIPEG
	A.C. COLVINE	TORONTO
	H.S. SWINDEN	ST. JOHN'S
1983-85	M. MARCHAND	CALGARY
	I.A. PATERSON	VANCOUVER
	G.R. PEATFIELD	TORONTO
1983-84	J.M. FRANKLIN	OTTAWA
	A.L. SANGSTER	TORONTO
	T.J. BOTTRILL	TORONTO

PUBLICATIONS

FIELD AND REFERENCE MANUAL SERIES

PUBLICATIONS CHAIRMAN A. LEE BARKER REPORTS THAT THE HIGHLAND VALLEY, B.C. GUIDEBOOK MANUSCRIPT HAS BEEN EDITED BY MEMBERS OF THE MDD EXECUTIVE, AND IS CURRENTLY UNDER REVISION BY THE AUTHOR W.J. McMILLAN. COSTS OF PRODUCTION ARE BEING INVESTIGATED FOLLOWING INPUT BY THE GUIDEBOOK EDITOR OF THE GAC WINNIPEG 1982 MEETING. THE HIGHLAND VALLEY REFERENCE MANUAL IS A COMPREHENSIVE VOLUME THAT PROMISES TO BE A VERY USEFUL REFERENCE. THE PUBLICATION DATE HAS NOT YET BEEN ANNOUNCED.

W.A. PADGHAM HAS SUGGESTED THAT A MDD REFERENCE MANUAL BE PREPARED ON THE YELLOWKNIFE CAMP. HE HAS KINDLY OFFERED FINANCIAL ASSISTANCE FOR THE PROJECT FROM PROCEEDS OF THE 1979 YELLOWKNIFE GOLD WORKSHOP. THE MDD HAS WELCOMED THE PROPOSAL, AND IS INVESTIGATING THE EDITORSHIP AND CONTENT OF THE PROPOSED MANUAL.

TO ASSIST POTENTIAL AUTHORS AND EDITORS, J.A. COOPE HAS PROPOSED, IN THE GANGUE No.15, THE ADOPTION OF GENERAL CONTENT GUIDELINES FOR FUTURE VOLUMES IN THE FIELD REFERENCE MANUAL SERIES.

GEOSCIENCE CANADA ORE DEPOSITS MODELS SERIES

THE SEVENTH PAPER IN THE ORE DEPOSITS MODELS SERIES, "MAGMATIC SEGREGATION DEPOSITS OF CHROMITE" BY J.M. DUKE, WAS PUBLISHED IN THE MARCH 1983 ISSUE OF GEOSCIENCE CANADA. A. LEE BARKER REPORTS THAT AT LEAST TWO MORE PAPERS WILL APPEAR IN 1983: 'ARCHEAN GOLD DEPOSITS' BY R.G. ROBERTS AND 'UNCONFORMITY - RELATED URANIUM DEPOSITS' BY T. SIBBALD. SEVERAL MORE MANUSCRIPTS ARE IN PREPARATION.

ECONOMIC GEOLOGY CANADIAN ORE DEPOSITS VOLUME

CO-EDITORS OF THE MDD-SPONSORED ECONOMIC GEOLOGY No. 6, 1984 ON CANADIAN MINERAL DEPOSITS W.J. WOLFE AND A.J. SINCLAIR, ARE PLEASED TO ANNOUNCE THE ADDITION OF A THIRD EDITOR, D.F. STRONG. SIGNIFICANT PROGRESS HAS BEEN MADE WITH THE ACQUISITION OF THE FOLLOWING MANUSCRIPTS: 13 ON CORDILLERAN DEPOSITS, 7 ON APPALACHIAN DEPOSITS AND 2 FROM THE INTERIOR AND ARCTIC PLATFORMS. AS MENTIONED PREVIOUSLY IN THE GANGUE No. 14, IN THE OPINION OF THE EDITORS THE PUBLICATION OF GAC SPECIAL PAPER No. 25 ADEQUATELY COVERS IMPORTANT DEPOSITS OF PRECAMBRIAN AGE. THE EDITORS EXTEND AN APPEAL FOR MORE PAPERS, PARTICULARLY ON APPALACHIAN MINERAL DEPOSITS, BEFORE THE JULY 31 DEADLINE.

GAVE US A GOOD OVERVIEW OF THE GEOLOGY, AND MINING METHODS, AND SPLIT US INTO THREE GROUPS FOR THE UNDERGROUND VISIT.

THE FRESNILLO VEINS, HOSTED BY LOWER CRETACEOUS MARINE SEDIMENTARY ROCKS, OCCUPY AN AREA 5 X 2 KM AND ATTAIN DEPTHS IN EXCESS OF 1000 M. SILVER-RICH VEINS TEND TO BE SHALLOWER (150-200 M), WITH WIDTHS VARYING FROM 1 M TO 20 M DEPENDING UPON SPLAYING AND STOCKWORK DEVELOPMENT. WE OBSERVED SPECTACULAR STRUCTURES AND SILVER SULPHOSALT-RICH ZONES ON THE SANTO NIÑO AND SANTA ELENA VEINS. ORE MINERALS IN THE SULPHIDE ZONE INCLUDE SPHALERITE GALENA, CHALCOPYRITE AND RUBY SILVERS IN A QUARTZ-CARBONATE-PYRITE-AXINITE-GRAPHITE GANGUE. PROVEN RESERVES STAND AT 1.6 MILLION TONNES OF 530 GM/T AG, 0.3 GM/T AU, 1.7% ZN, 0.9% PB AND 0.05% CU. A LARGE BLOCK OF OPEN PIT-TABLE OXIDE ORE CONSTITUTES 11 MILLION TONNES OF 80 GM/T AG AND 0.2 GM/T AU.

THE LUNCHEON PUT ON BY THE FRESNILLO STAFF WAS A HIGHLIGHT OF THE TRIP. IN THE WARM SUNNY AFTERNOON, WE ENJOYED A SPECTACULAR OUTDOOR FEAST OF AUTHENTIC MEXICAN DISHES, PARTIALLY SHADED BY THE PALM TREES IN THE CLUBHOUSE GROUNDS. A MARIACHI BAND PROVIDED ADDITIONAL MEXICAN AMBIANCE AND SERENADED US BACK TO THE BUS WITH THE SENTIMENTAL MEXICAN MELODY OF FAREWELL "LA GOLONDRINA".

WE STAYED OVERNIGHT IN AGUASCALIENTES, AND CROSSED THE FERTILE BAJÍO AREA NEXT MORNING, ENROUTE SOUTH TO GUANAJUATO. OUR FIRST ACTIVITY AT GUANAJUATO WAS A VISIT TO THE PRESTIGIOUS OLD SCHOOL OF MINES, WHERE WE WERE WELCOMED BY ING. A. NIETO ATUÑEZ AND HIS STAFF. DR. WILLIAM GROSS OF LACANA GAVE A LECTURE ON THE GEOLOGY OF THE DISTRICT, AND THE EXPLORATION CONCEPTS AND METHODS USED BY Cfa. MINERA LAS TORRES IN EXPLORING THE CAMP.

THE GUANAJUATO CAMP, DISCOVERED IN 1548, HAS BEEN ONE OF THE MOST IMPORTANT SILVER PRODUCING CENTERS IN THE WORLD. TO DATE, APPROXIMATELY ONE BILLION OUNCES OF SILVER HAVE BEEN PRODUCED FROM THREE MAIN VEIN SYSTEMS WITHIN MESOZOIC AND TERTIARY SEDIMENTARY, VOLCANIC AND INTRUSIVE ROCKS.

REPORTED 1982 RESERVES FROM THE GUANAJUATO GROUP OF MINES ARE 2.5 MILLION TONNES OF 273 G/T AG AND 2.2 G/T AU. THE SURFACE TOUR OF THE MANY OLD MINES AND SEVERAL NEW MINES IN THE DISTRICT ENABLED US TO SEE A COMPLETE SECTION OF THE ROCKS FROM THE TRIASSIC BASEMENT TO THE POST-MINERAL LATE TERTIARY RHYOLITE.

IN THE EVENING, WE EXCHANGED GREETING WITH THE GOVERNOR OF THE STATE OF GUANAJUATO, Lic. ENRIQUE VELASCO I., WHO HOSTED US TO A WALKING TOUR OF THE NARROW PICTURESQUE STREETS IN THE COMPANY OF A GROUP OF "ESTUDIANTINAS", OR STROLLING STUDENT MINSTRELS. AS THE EVENING PROGRESSED THE GROUP BECAME MORE ANIMATED, ESPECIALLY SINCE THE GOVERNOR HAD PROVIDED AN AMPLE SUPPLY OF LOS REYES VINOTINTO.

THE FOLLOWING MORNING, UNDERGROUND AT LAS TORRES MINE, WE EXAMINED THE EXTENSIVE DEVELOPMENT OF A 100 M X 30 M STOCKWORK ZONE IN THE HANGINGWALL OF THE VETA MADRE, ENTIRELY WITHIN THE LA BUFA RHYOLITE OF TERTIARY AGE. WE WERE ABLE TO HAVE AN UNDERGROUND VIEW OF THE IMPRESSIVE VETA MADRE FAULT ZONE, WITH THE FOOTWALL GUANAJUATO RED CONGLOMERATE OF EOCENE AGE. ALTHOUGH, THE ORE IN THIS AREA CONTAINS LESS THAN THREE PERCENT SULPHIDES, THE GRADE IS ABOUT 270 GM/T AG. THE SILVER OCCURS AS ARGENTITE, ACANTHITE, AGUILARITE AND NAUMANNITE AS WELL AS NATIVE GOLD AND ELECTRUM IN A GANGUE MADE UP OF VARYING AMOUNTS OF QUARTZ, CALCITE AND ADULARIA AND OCCASIONALLY AMETHYST.

FOLLOWING THE UNDERGROUND VISIT, ING. ALFREDO PEREZ AND HIS STAFF, INVITED US TO A LUNCHEON IN THE CAFETERIA OF THE MINE. WE TRAVELLED SOUTHWARD THAT AFTERNOON TO SAN JUAN DEL RIO, ENROUTE TO PACHUCA. AN INFORMAL DISCUSSION SESSION PROVIDED EVERYONE WITH THE OPPORTUNITY TO MAKE COMPARISONS WITH OTHER MINING CAMPS IN NORTH AMERICA, AND TO SUMMARIZE THE GEOLOGY SEEN IN THE LAST EIGHT DAYS.

ON THE LAST MORNING, MARCH 4, WE TRAVELLED TO PACHUCA WHERE ING. JOSE LEE MORENO OF THE CONSEJO DE RECURSOS MINERALES GAVE US AN OVERVIEW OF THE DISTRICT GEOLOGY AND OUTLINED HIS GROUP'S EXPLORATION ACTIVITIES. THE PACHUCA-REAL DEL MONTE MINES ARE NOW OPERATED BY A MEXICAN GOVERNMENT AGENCY TO WHICH THE CONSEJO PROVIDES TECHNICAL ASSISTANCE. SINCE 1522 THE CAMP HAS PRODUCED OVER 1.2 BILLION OUNCES OF SILVER, MAKING IT ONE OF THE WORLD'S LARGEST. THE HOST PACHUCA GROUP IS A 2.5 KM THICK PILE OF OIGOCENE TO PLIOCENE VOLCANIC ROCKS LYING UNCONFORMABLY ON FOLDED MARINE MESOZOIC SEDIMENTARY ROCKS. GENTLE TILTING AND FAULTING MAY HAVE ACCOMPANIED CALDERA FORMATION AND DYKE EMPLACEMENT. VEIN GANGUE MINERALOGY IS DOMINANTLY QUARTZ-PYRITE, CALCITE, RHODONITE-BUSTAMITE, ALBITE, EPIDOTE AND CHLORITE. ORE MINERALS INCLUDE SPHALERITE, GALENA, CHALCOPYRITE, RUBY SILVERS AND NATIVE SILVER. STRONG ALTERATION AFFECTS THE WALL ROCKS, INCLUDING PROPYLITIZATION, ALBITIZATION, SILICIFICATION, SERICITIZATION, AND CARBONATIZATION.

ING. ENRIQUE IBARRA, THE DIRECTOR GENERAL OF THE COMPANY, AND ING. LUIS NOLANO, AND HIS STAFF, INVITED US TO ENJOY AN EXCELLENT LUNCHEON IN THE COMPANY CLUB. AS IN TAXCO AND FRESNILLO BEFORE THIS, WE WERE AGAIN GIVEN THE PLEASURE OF A MARIACHI ORCHESTRA.

FOR A FORTUNATE FEW OF THE PARTICIPANTS THE PACHUCA VISIT WAS NOT THE LAST MINE TOUR. THOSE WHO WENT ON TO RECUPERATE AT PUERTO VALLARTA, WERE ABLE TO PROFIT FROM THE INVITATION OF CÍA MINERA FRESNILLO TO VISIT THEIR CUALE MASSIVE SULPHIDE DEPOSIT IN JALISCO.

ON THE WAY BACK TO MEXICO CITY, THE GROUP EXPRESSED THEIR APPRECIATION TO THE ORGANIZERS OF THE FIELD TRIP. SPECIAL THANKS WERE EXTENDED TO KEN DAWSON, DAVE COOLBAUGH, IAN PATTERSON AND MR. MARC ROMOFF OF THE CANADIAN EMBASSY. BESIDES THE OUTSTANDING QUALITY OF THE ORGANIZATION OF THE TOUR, IT SHOULD ALSO BE MENTIONED THAT WITHOUT THE ACTIVE AND ENTHUSIASTIC PARTICIPATION OF EVERYONE, IT COULD NOT HAVE BEEN SUCH A SUCCESS.

FRED FELDER

CONFERENCE REPORT

'MODELS OF GOLD DEPOSITS': CALGARY, FEB. 14-16, 1983

THE MINERAL DEPOSITS DIVISION OF THE GAC AND THE CALGARY MINERAL EXPLORATION GEOLOGISTS WERE CO-SPONSORS OF A WORKSHOP ON GOLD DEPOSITS THAT WAS HELD AT THE UNIVERSITY OF CALGARY IN FEBRUARY. THE WORKSHOP WAS PRESENTED BY THE FOLLOWING GEOLOGISTS FROM THE UNIVERSITY OF WESTERN ONTARIO: W.S. FYFE, R.W. HUTCHISON, R.W. HODDER, R. KERRICH AND R.L. BARNETT.

THE WORKSHOP PARTICIPANTS, WHO CAME FROM ACROSS CANADA AND THE UNITED STATES, NUMBERED ABOUT 275. THE FIRST DAY'S PROGRAM INCLUDED PRESENTATIONS ON GOLD GEOCHEMISTRY AND GOLD METALLOGENY, THE SECOND DAY WAS DEVOTED TO DESCRIPTIONS OF MAJOR DEPOSIT TYPES, AND THE THIRD DAY'S PROGRAM INCLUDED SPECIFIC DEPOSIT CASE-HISTORIES, A SUMMARY AND DISCUSSION PERIOD.

THE PARTICIPANTS EXPRESSED APPRECIATION FOR THE VALUABLE MIXTURE OF THEORETICAL AND PRACTICAL MATERIAL PRESENTED AT THE WORKSHOP. A LIVELY EXCHANGE OF VIEWS TOOK PLACE AT A CALGARY MEG SPONSORED BEER-AND-BULL SESSION THE FIRST EVENING.

BOTH SPONSORING ORGANIZATIONS, THE MEG AND THE MDD EXPRESS SINCERE THANKS TO THE UNIVERSITY OF WESTERN ONTARIO FACULTY FOR AN EXCELLENT WORKSHOP, TO THE UNIVERSITY OF CALGARY FOR THEIR VALUABLE SUPPORT,

AND TO ALL THOSE WHO GENEROUSLY SUPPLIED THEIR TIME AND SERVICES.

BINDERS OF WORKSHOP HANDOUT MATERIAL AND PUBLICATIONS BY THE WORKSHOP AUTHORS WILL BE AVAILABLE FOR VIEWING AT THE FOLLOWING LOCATIONS: GEOLOGY LIBRARY, DEPARTMENT OF GEOLOGY AND GEOPHYSICS, UNIVERSITY OF CALGARY; RESEARCH LIBRARY, GEOLOGICAL SURVEY OF CANADA, 5TH FLOOR, 100 W. PENDER ST., VANCOUVER.

MDD FIELD TRIP TO NEVADA Au-Ag DEPOSITS, OCTOBER/83

THE MDD IS CURRENTLY PLANNING A ONE-WEEK TRIP TO A VARIETY OF PRECIOUS METAL DEPOSITS IN NEVADA. THE PRELIMINARY ITINERARY INCLUDES DEPARTURE FROM RENO BY BUS OCTOBER 12, STAY TWO NIGHTS IN EACH OF ELKO AND TONOPAH, AND RETURN TO RENO OCTOBER 18. DEPOSITS CONFIRMED FOR VISITS ARE PINSON, JARRETT CANYON, CARLIN, MAGGIE AND ROUND MOUNTAIN. PROBABLE VISITS INCLUDE BOREALIS AND/OR CANDELARIA. COSTS AND ITINERARY ARE NOT YET FINALIZED.

A MAXIMUM OF 40 PARTICIPANTS WILL BE ACCEPTED ON A FIRST-COME BASIS. TO RESERVE A PLACE ON THE BUS, SEND \$CAN. 100.00 TO ROBERT S. HEWTON, USING THE FORM BELOW:

GAC MINERAL DEPOSITS DIVISION FIELD TRIP TO NEVADA Au-Ag DEPOSITS, OCTOBER, 1983

I ENCLOSE A CHEQUE OR MONEY ORDER IN THE AMOUNT OF \$CAN 100.00, PAYABLE TO GAC MINERAL DEPOSITS DIVISION, TO RESERVE ONE PLACE ON THE NEVADA FIELD TRIP:

NAME _____
AFFILIATION _____
ADDRESS _____

TELEPHONE _____

SEND TO: R.S. HEWTON, NEVADA FIELD TRIP, BRINCO MINING LTD., #704 - 602 W. HASTINGS ST., VANCOUVER, B.C., CANADA, V6B 1P2

CJES WANTS MINERAL DEPOSITS MANUSCRIPTS

W.G.E. CALDWELL, EDITOR OF CANADIAN JOURNAL OF EARTH SCIENCES, HAS EXPRESSED HIS INTEREST IN RECEIVING MORE MINERAL DEPOSITS PAPERS FOR PUBLICATION. THE MDD EXECUTIVE ENTHUSIASTICALLY SUPPORT THIS GOAL, AND CALL UPON THE MEMBERS TO SUPPORT OUR OFFICIAL GAC JOURNAL.

AUTHORS WHO PREPARE PAPERS FOR ORAL PRESENTATION AT ANNUAL MEETINGS AND OTHER GAC-SPONSORED EVENTS SHOULD GIVE FIRST CONSIDERATION TO PUBLISHING IN CJES. SYMPOSIUM AND SESSION ORGANIZERS SHOULD APPROACH THEIR AUTHORS TO PUBLISH THE PROCEEDINGS IN A SINGLE CJES ISSUE, AND BE PREPARED TO SERVE AS EDITOR.

AUTHORS WISHING EDITORIAL ASSISTANCE PRIOR TO SUBMITTING THEIR MANUSCRIPTS TO CJES SHOULD FEEL FREE TO CONTACT ANY MDD EXECUTIVE MEMBER FOR ADVICE. THE BACK PAGE OF EACH JANUARY CJES ISSUE CONTAINS INSTRUCTIONS TO AUTHORS. A GOOD GENERAL REFERENCE FOR PREPARATION OF GEOLOGICAL REPORTS IS GSC MISCELLANEOUS REPORT 29: 'GUIDE TO AUTHORS', 1979.

EPITHERMAL AU-AG DEPOSITS BY EIMON AND OTHERS

THE GAC CORDILLERAN SECTION HAS ACQUIRED AND REPRINTED THE FOLLOWING COLLECTION OF UNPUBLISHED PAPERS BY PAUL EIMON AND OTHERS:

1. CONCEPTUAL MODELS OF EPITHERMAL GOLD-SILVER DEPOSITS; B.R. BERGER AND P.I. EIMON.
2. THE EL INDIO GOLD-SILVER-COPPER DEPOSIT, REGION OF COQUIMBO, CHILE; T.N. WALTHIER, R. ARANEDA G. AND J.W. CRAWFORD.
3. EPITHERMAL PRECIOUS METAL DEPOSITS; P.I. EIMON AND R.J. ANCTIL.
4. EXPLORATION FOR EPITHERMAL GOLD AND SILVER DEPOSITS: THE EPITHERMAL MODEL; P.I. EIMON.
5. PRINCIPAL FEATURES OF EPITHERMAL LODGE GOLD DEPOSITS OF THE CIRCUM-PACIFIC RIM; D.L. GILES AND C.E. NELSON.

THOSE WISHING TO PURCHASE THE VOLUME SHOULD SEND A CHEQUE OR MONEY ORDER IN THE AMOUNT \$CAN. 10.00 PAYABLE TO THE RECEIVER GENERAL OF CANADA TO: GAC PUBLICATIONS, c/o GEOLOGICAL SURVEY OF CANADA, SALES OFFICE, 6TH FLOOR, 100 W. PENDER ST., VANCOUVER, BRITISH COLUMBIA, CANADA V6B 1R8.

FIELD TRIP REPORT

PRECIOUS METAL DEPOSITS OF CENTRAL MEXICO
FEB. 23-MAR. 4, 1983

ON ARRIVAL AT MEXICO CITY'S BENITO JUAREZ INTERNATIONAL AIRPORT, THE MDD GROUP FROM VANCOUVER WAS MET BY MARC ROMOFF OF THE CANADIAN EMBASSY AND EXPERTLY GUIDED THROUGH IMMIGRATION. EARLY THE NEXT MORNING THE GROUP JOINED EARLIER ARRIVALS TO CONSTITUTE 32 FROM WESTERN CANADA, 1 FROM ONTARIO, 4 FROM USA AND 3 FROM MEXICO. FROM MEXICO CITY, CONSULTANT DR. DAVE COOLBAUGH HAD BEEN VERY ACTIVE IN ORGANIZING THE MEXICAN PART OF THE TRIP, AND TOGETHER WITH MARC ROMOFF, WAS RESPONSIBLE FOR THE SUCCESSFUL SYNCHRONIZATION OF THE TOUR. JOSE, OUR BUS DRIVER, ARRIVED ON TIME, PERMITTING THE TIMELY DEPARTURE FOR TAXCO.

ONE OF THE FIRST POINTS OF GEOLOGICAL INTEREST WAS REACHED IN THE SOUTHERN SUBURBS OF MEXICO CITY WHERE THERE ARE ABUNDANT OUTCROPS OF QUATERNARY BASALTS OF THE TRANS MEXICAN NEOVOLCANIC BELT. THE FORMATION OF THE ESE-WNW MOUNTAIN RANGE IN THE LAST TWO HUNDRED THOUSAND YEARS AND THE RESULTANT CHANGE IN LOCAL DRAINAGE ALLOWED LARGE LAKES TO FORM THAT SUBSEQUENTLY SUPPORTED THE AGRICULTURALLY BASED, ADVANCED PRECOLUMBIAN CIVILIZATIONS OF CENTRAL MEXICO. VESTIGES OF THIS AGRICULTURAL PRACTICE WERE SEEN AT THE FLOATING GARDENS OF XOCHIMILCO, AS WE ASCENDED THE SLOPES OF CERRO DE CHICHINAUTZIN AND LOOKED EASTWARD TO THE IMPRESSIVE VOLCANO COUPLE IXLACIHUATL (5272 M) AND POPOCATEPETL (5439 M).

OVER THE DIVIDE, TO THE EAST OF THE CITY OF CUERNAVACA, TERTIARY LAHARS FORM ABRUPT HILLS, RESEMBLING THE "HOODOOS" OF THE SOUTHERN ROCKY MOUNTAIN TRENCH.

WE APPROACHED THE PICTURESQUE COLONIAL TOWN OF TAXCO WHOSE STEEP NARROW STREETS AND SILVERSMITH SHOPS ARE OVERSHADOWED BY SHEER CLIFFS OF TERTIARY RHYOLITE. ON ARRIVAL AT TAXCO, THE MINING ENGINEERS AND GEOLOGISTS OF INDUSTRIAL MINERA MEXICO S.A. (I.M.M.S.A.) BRIEFED US ON THE MINING METHODS, GEOLOGY AND EXPLORATION TECHNIQUES. AT TAXCO, AS AT THE OTHER MINES WE VISITED, THE STAFF LIBERALLY DIVULGED TECHNICAL AND COST FIGURES ABOUT THEIR OPERATIONS.

IN THE TAXCO CAMP MORE THAN 100 VEINS AND MANTOS OCCUR OVER AN AREA OF 100 KM² AND A VERTICAL RANGE OF 500 M. THE MESOTHERMAL BASE AND PRECIOUS METAL VEINS OCCUPY LARAMIDE FRACTURES IN FOLDED PALEOZOIC AND MESOZOIC SEDIMENTARY ROCKS. EL COBRE AND BABYLONIA VEINS WERE VISITED UNDERGROUND, AS WELL AS SOME MANTOS OF IMPRESSIVE SIZE AND GRADE. A LONG

PRODUCTION HISTORY STARTING IN 1522 INCLUDES ACQUISITION OF MOST OF THE MINES BY ASARCO IN 1942, AND FOLLOWING MEXICANIZATION, OPERATION AT PRESENT BY ITS AFFILIATE I.M.M.S.A. RESERVES ARE 16 MILLION TONNES OF 4% Pb, 4.5% Zn AND 140 gm/t Ag.

FOLLOWING THE UNDERGROUND VISIT, ING. JORGE URIBE, THE MANAGER, AND HIS STAFF INVITED US TO A MEMORABLE LUNCHEON IN TAXCO, AND ALSO PROVIDED A GROUP OF MARIACHIS TO FURTHER ANIMATE THE GATHERING. FOLLOWING THE LUNCHEON, KEN DAWSON PRESENTED ING. URIBE WITH A TOKEN OF OUR APPRECIATION FOR THE EXCELLENT VISIT. THESE PRESENTATIONS WERE REPEATED AT EACH OF THE MINE VISITS.

THAT EVENING DAVID WINFIELD AND MARC ROMOFF OF THE COMMERCIAL SECTION OF THE CANADIAN EMBASSY HOSTED A RECEPTION FOR US IN THEIR NEW EMBASSY IN MEXICO CITY TO ENABLE THE TOUR PARTICIPANTS TO MEET MEXICAN MINING COMPANY EXECUTIVES AND GOVERNMENT GEOLOGISTS. A FEW OF THE MANY GUESTS WERE ING. P. SANCHEZ MEJORADA (PENOLAS), ING. H. CALVA RUIZ (I.M.M.S.A.), ING. JORGE ORDONEZ C. (FRISCO), INGS. J. LEE MORENO AND A. BRIONES (CONSEJO DE RECURSOS MINERALES) AND ING. SALAS, ING. SOSAYA AND MANY OTHERS. THE EVENING WAS A TREMENDOUS SUCCESS, AS IT PROVIDED EVERYONE WITH THE OPPORTUNITY TO GET AN IN-DEPTH VIEW OF THE MINING INDUSTRY IN MEXICO.

SATURDAY WAS THE ONLY DAY FOR WHICH NO ACTIVITY HAD BEEN PLANNED, AND IT GAVE EVERYONE THE OPPORTUNITY TO DO SOME SIGHTSEEING IN AND AROUND MEXICO CITY. SOME OF THE GROUP WENT ON THE BUS TOUR OF TEOTIHUACAN PYRAMIDES, OTHERS VISITED THE ANTHROPOLOGICAL MUSEUM, OR UNDERTOOK OTHER VISITS IN THE CITY.

ON SUNDAY, THE 27TH OF FEBRUARY, WE HEADED NORTHWARD FOR SAN LUIS POTOSI. TO THE NORTHEAST OF QUERETARO, IN INCREASINGLY RUGGED TERTIARY VOLCANIC TERRANE, IS ONE OF MEXICO'S IMPORTANT FLUORITE DISTRICTS THAT INCLUDES NORANDA MINES' MEXICAN SUBSIDIARY, CIA MINERA LAS CUEVAS.

EARLY NEXT MORNING AT SAN LUIS POTOSI WE WERE JOINED BY ING. AMADOR OSORIA, THE ASSISTANT DIRECTOR OF EXPLORATION FOR I.M.M.S.A., ING. JOSE BRAVO N. CHIEF GEOLOGIST FOR CIA. MINERA REAL DE ANGELES, AND DR. D. McLEROY OF CIA. MINERA APOLO A SUBSIDIARY OF BETHLEHEM STEEL.

ENROUTE TO REAL DE ANGELES, WE STOPPED BRIEFLY AT THE OLD PINOS GOLD SILVER DISTRICT, WHERE MINERA APOLO IS EXPLORING NARROW GOLD-SILVER VEINS IN CRETACEOUS MARINE SEDIMENTARY ROCKS.

TO THE WEST OF SAN LUIS POTOSI WE ENTERED TYPICAL VALLEY AND RANGE PHYSIOGRAPHY, WHERE THE VALLEYS ARE FILLED BY TERTIARY VOLCANICS AND UNCONSOLIDATED QUATERNARY SEDIMENTS. THE MOUNTAIN RANGES, WHICH ARE USUALLY ONLY SEVERAL HUNDRED METERS HIGH, ARE FREQUENTLY FAULT-CONTROLLED BLOCKS COMPRISING FOLDED MESOZOIC MARINE SEDIMENTS, UNCONFORMABLY OVERLAIN BY SUBHORIZONTAL TERTIARY TERRIGINOUS CONGLOMERATES AND VOLCANICS. THIS TOPOGRAPHY, TYPICAL OF THE SIERRA MADRE ORIENTAL PHYSIOGRAPHIC PROVINCE, EXTENDS FROM CENTRAL MEXICO TO THE U.S. BORDER.

THE REAL DE ANGELES CAMP WAS ACTIVE SINCE THE SIXTEENTH CENTURY, BUT ITS FULL POTENTIAL WAS NOT REALIZED UNTIL THE LATE SIXTIES, WHEN EXPLORATION BY NORANDA AND DEVELOPMENT BY PLACER DEFINED THE PRESENT KNOWN ORE BODY. THE DEPOSIT IS A LEAD-ZINC-SILVER STOCKWORK IN UPPER CRETACEOUS TURBIDITIC GREYWACKES AND SHALES. APPROXIMATELY EIGHTY-FIVE MILLION TONNES OF 1% Pb, 0.95% Zn AND 74 gm/t Ag OCCUR WITHIN THE SILICIFIED ELLIPTICAL OREBODY, OF WHICH 10% IS MADE UP OF TRANSITION ORE THAT IS SLIGHTLY ENRICHED IN SILVER. SPHALERITE, ARGENTIFEROUS GALENA AND FREIBERGITE MAKE UP THE MAIN ORE MINERALS, IN A GANGUE OF PYRRHOTITE, PYRITE, ARSENOPYRITE, MARCASITE AND CARBONATES AND MINOR SMOKY QUARTZ.

ING. OCTAVIO GONZALES AND HIS STAFF BRIEFED US ON THE GEOLOGY OF THE DEPOSIT, FOLLOWED BY A TOUR OF THE OPEN PIT. WE WERE ABLE TO OBSERVE BOTH THE OXIDE AND SULPHIDE ORES, AS WELL AS EVIDENCE OF LOCAL POST OXIDATION, THRUST FAULTING. PRONOUNCED STOCKWORK FEATURES, SUCH AS BEDDING PLANE REPLACEMENTS, PSEUDO-BRECCIAS AND VEIN AND LADDER STRUCTURES WERE SEEN, AND THE PREFERENCE OF THE VEINS FOR THE SANDSTONE BEDS WAS VERY EVIDENT. THE GEOLOGICAL STAFF FAVOUR AN EXHALATIVE SYNGENETIC ORIGIN OF PROTORE, WITH SUBSEQUENT HYDROTHERMAL REMOBILIZATION.

MINE MANAGER ING. JORGE VILLASENOR AND HIS STAFF INVITED US FOR LUNCH IN THE CAFETERIA OF THE MINE, FOLLOWING WHICH WE MADE A BRIEF TOUR OF THE 10,000 TPD MILL.

THAT NIGHT WE STOPPED AT THE HISTORIC CITY OF ZACATECAS ENROUTE TO FRESNILLO. THE PROLIFERATION OF WORKINGS ALONG THE MORE THAN ONE HUNDRED VEINS ATTESTS TO ESSENTIALLY CONTINUOUS MINING SINCE 1516.

BY COMPARISON THE SURFACE EXPRESSION OF THE FRESNILLO VEINS IS RATHER ANTICLIMACTIC, BEING RESTRICTED TO A VERY SMALL AREA AROUND THE CERRO DE PROAÑA HILL. ING. RAOUL TRUJILLO AND HIS STAFF MET US AT THE MINE OFFICE, IN THE MORNING OF MARCH 1ST,

ANNOUNCEMENT

CCSS SYMPOSIUM SEPT. 15-17, 1983 IN OTTAWA

THE 8TH INTERNATIONAL WORKING GROUP SYMPOSIUM OF THE CORRELATION OF CALEDONIAN STRATABOUND SULPHIDES WILL BE HELD AT THE SKYLINE HOTEL, OTTAWA, CANADA, SEPT. 16 AND 17, 1983. PAPERS WILL REPORT ON RESEARCH ON STRATABOUND SULPHIDE DEPOSITS AND HOSTROCKS IN THE CALEDONIAN APPALACHIAN OROGEN.

A PRE-SYMPOSIUM FIELD TRIP TO THE BATHURST, NEW BRUNSWICK DEPOSITS HEATH STEELE, CARIBOU, BRUNSWICK NO. 6 AND HUSDIN BROOK WILL ASSEMBLE IN FREDERICTON SEPT. 11. A POST-MEETING TRIP TO THE VERMONT COPPER BELT FEATURING THE ELIZABETH MINE, GREEN MOUNTAIN ANTICLINORIUM, HAWLEY MINERAL BELT, DAVIS COPPER MINE, BETTS MANYONISE MINE AND HAWLEY IRON MINE LEAVES OTTAWA, SEPT. 18 AND ENDS IN ALBANY, N.Y. SEPT. 22. AN UNDERGROUND TOUR OF BALMAT, N.Y. Pb-Zn MINE WILL DEPART FROM ALBANY SEPT. 23. FIELD TRIP REGISTRATION IS ON A FIRST-COME BASIS, WITH PREFERENCE BEING GIVEN TO NON-NORTH AMERICAN PARTICIPANTS.

DELEGATES SHOULD MAKE THEIR OWN ACCOMODATION ARRANGEMENTS, BUT ARE ADVISED THAT ROOMS AT LOW RATES HAVE BEEN BLOCKED AT THE SKYLINE HOTEL, OTTAWA. THOSE INTERESTED SHOULD PRE-REGISTER WITH THE FORM BELOW:

1983 CCSS SYMPOSIUM AND FIELD TRIPS

NAME: _____

COMPANY/INSTITUTE: _____

ADDRESS: _____

TELEPHONE: _____

SYMPOSIUM REGISTRATION:	\$ 10.00	<input type="checkbox"/>
FIELD TRIP #1:	430.00	<input type="checkbox"/>
FIELD TRIP #2:	500.00	<input type="checkbox"/>
CLOSING BANQUET:	18.00	<input type="checkbox"/>
TOTAL ENCLOSED:		<input type="checkbox"/>

PLEASE MAKE PAYMENT BY MONEY ORDER OR BANK DRAFT (PLEASE, NO PERSONAL CHEQUES) PAYABLE TO 1983 CCSS SYMPOSIUM. RETURN TO: D.F. SANGSTER, 1983 CCSS SYMPOSIUM, GEOLOGICAL SURVEY OF CANADA, 601 BOOTH STREET, OTTAWA, ONTARIO, CANADA K1A 0E8. PHONE (613) 995-5500.