

#### Presidents:

Dr. Carl R. Ekiund, 1959-61
Dr. Paul A. Siple, 1961-2
Mr. Gordon D. Cartwright, 1962-3
RADM David M. Tyree (Ret.) 1963-4
Mr. George R. Toney, 1964-5
Mr. Morton J. Rubin, 1965-6
Dr. Albert P. Crary, 1966-8
Dr. Henry M. Dater, 1968-70
Mr. George A. Doumani, 1970-1
Dr. William J. L. Sladen, 1971-3
Mr. Peter F. Bermel, 1973-5
Dr. Kenneth J. Bertrand, 1975-7
Mrs. Paul A. Sipie, 1977-8
Dr. Paul C. Dalrymple, 1978-80
Dr. Meredith F. Burrill, 1980-82
Dr. Mort D. Turner, 1982-84
Dr. Edward P. Todd, 1984-86

Honorary Members: Ambassador Paul C. Daniels Dr. Laurence McKinley Gould Count Emilio Pucci Sir Charles S. Wright Mr. Hugh Blackwell Evans Dr. Henry M. Dater Mr. August Howard

### Memorial Lecturers:

Dr. William J. L. Sladen. 1964 RADM David M. Tyree (Ret.). 1965 Dr. Roger Tory Peterson, 1966 Dr. J. Campbell Craddock, 1967 Mr. James Pranke, 1968 Dr. Henry M. Dater, 1970 Sir Peter M. Scott, 1971 Dr. Frank T. Davies, 1972 Mr. Scott McVay, 1973 Mr. Joseph O. Fletcher, 1974 Mr. Herman R. Friis, 1975 Dr. Kenneth J. Bertrand, 1976 Dr. William J. L. Sladen, 1977 Dr. J. Murray Mitchell, Jr. 1978 Dr. Laurence McKinley Gould, 1979 Dr. Charles R. Bentley, 1980 Dr. Robert L. Nichols, 1981 Dr. Robert H. Rutford, 1982 Mr. R. Tucker Scully, 1983 Dr. Richard P. Goldthwait, 1984

# THE ANTARCTICAN SOCIETY

905 NORTH JACKSONVILLE STREET ARLINGTON, VIRGINIA 22205

#### HONORARY PRESIDENT — AMBASSADOR PAUL C. DANIELS

Vol. 84-85 September

No. 1

# Orientation Week Special

EXPLORATION OF THE QUEEN MAUD MOUNTAINS: The Reach to the Southernmost Rocks

by

Dr. Edmund Stump Department of Geology Arizona State University Tempe, Arizona

on

Wednesday, 12 September

1984 8 PM

National Science Foundation 18th and G Streets NW Room 543

- Light Refreshments -

Ed Stump is one-half of a well-known husband and wife Antarctic scientific team. He is a PhD out of The Ohio State University, and for the past fifteen years has been a frequent researcher in Antarctica. In 1970 he went to the McGregor and Amundsen Glaciers, in 1974 to the Duncan Mountains, and in 1977-78-79-80-81 to the Scott and Leverett Glaciers. He was the Chief Scientist on the North Victoria Land Project in 1981-82. In 1982-83 he and his wife, Harriet Maccracken, worked in the McMurdo Sound area. He joined the faculty at Arizona State University in the fall of 1976, and was on sabbatical leave in 1983-84 at Victoria University in Wellington, New Zealand. An outcrop by the name of Simon was born to Ed and Harriet on 28 March 1984, — no doubt another budding Antarctic geologist.

Let's get the year off to a great start! Support our fine Lecture Series!

BONUS - Dr. Stephen J. Boyer, former medical officer at the South Pole, will speak at the 1984 USARP Orientation on "Antarctic Environmental Hazards" at the Twin Bridges Marriott on Tuesday evening, 11 September at 7:30 PM. Come, y'all, and learn about hazards beyond the Beltway.

on Friday, 14 September 1984 to hear Dr. Arnold Gordon, Lamont-Doherty Geological Observatory, speak on "Ocean-Atmosphere Exchange Processes in the Southern Ocean."

Late tragic news - Admiral Tyree died 25 August (see page 6)

# BERGY BITS

Here we go again, another year of some facts, some half-truths, and some fiction. It's up to you as astute Antarcticans to decide which is which. We only try to make it readably enjoyable. For example, last spring when we said that septuagenarian Alice Dater, who was dumped by LINDBLAD into McMurdo Sound, couldn't swim, dear Alice came back with validation (Red Cross Lifesaving Course, Quinibeck, Ely, Vermont) that she had passed some dog-paddling test as an infant. Well, Bergy Bits' version was much more interesting and exciting — we didn't let the truth get in the way of a better story. This same good old-boy philosophy will be continued this year. Just remember that what you read here is not the Voice of the Antarctican Society, it is just the ramblings of an old Antarctican who takes the time and effort to put something together for members to read, and then he sits comatose for a weekend stuffing newsletters into envelopes.

WE'RE HEALTHY, WE'RE GROWING. Our membership reached a new all-time high of 461 this past summer, and it is expected we will hit 500 within two years. Local members (within 50 miles of Washington) constitute only a third of our total membership; this is a radical change from seven years ago when it was close to two-thirds. In numbers, though, local membership has remained steady at about 150. It's just that our out-of-town membership growth has been fantastic. We will be sending dues notices in a couple of weeks. Over a hundred members have already paid for this year, so if you don't get a bill, you are in good standing. Dues will remain the same as they have been for the past several years - \$7 local and \$6 out-of-town. The treasury is in good shape, so we hope to keep the same dues for many more years.

DR. EDWARD PAYSON TODD ASSUMES PRESIDENCY OF THE SOCIETY. We had hoped to find a stouthearted son from the Pine Tree State to replace Mort Turner as President, but no luck. However, we did find a close approximation in Ed Todd who hails from nearby Newburyport, Massachusetts and has sailed extensively in Maine waters. It seems that he was almost unemployed, being a gentleman carpenter, gardener, errand boy, and prospective consultant living in nearby Falls Church, Virginia. Another plus in his selection is his most personable wife, a Mt. Holyoke College graduate. I have a well-founded fixation about Mt. Holyoke girls dating back to the late 40's. So there was no question about Dr. Todd's personal credentials. Then we looked at his professional credentials. He was a graduate of M.I.T. where he received his B.S. in physics in 1942, and as far as we could find out M.I.T. is an accreditable institution located down Massachusetts Avenue from the august, prestigious Harvard University. It seems that some sort of an international period of ill will was going on at the time Ed graduated from M.I.T., so he spent the next four years as a commissioned officer in the Signal Corps. Then he returned to the Bay State to accept a position as research physicist with the United Shoe Machinery Corporation in Beverly. Ed then did something unusual for a provincial New Englander - he forsook the Citadel of Advanced Learning in Cambridge to go to the University of Colorado where he obtained his PhD in physics in 1954. But he did come "home" in 1954 when he accepted a position of Supervisor of Applied Research with Pitney-Bowes in Stamford, Connecticut. However, he must have missed that Rocky Mountain High, as he headed back to the University of Colorado in 1957 to take over as Technical Director of their laboratory for Atmospheric and Space Physics. Ed stayed there until 1960 when he went to Washington to seek peace, happiness, and great wealth from the

National Science Foundation. He served in many positions at NSF, including Associate Program Director for Atmospheric Sciences and as Acting Assistant Director for Astronomical, Atmospheric, Earth, and Ocean Sciences. Dr. Robert Rutford was Director of the Division of Polar Programs at NSF in 1977 when an academic offer came which was too good for Bob to turn down - at least in Bob's opinion. Dr. Todd volunteered for the position, assuming command on 19 August 1977. He never regretted it in spite of all the work involved, saying it was the most exciting job in all of NSF. It became obvious during the winter of 1982-83 that NSF had the right name with the right job when the New Yorker showed a cartoon of a parka-clad explorer trodding down a city street in a snowstorm. Around his neck was a placard reading "Ed Todd." There was no greater fame Ed could achieve after being immortalized for life by the cartoonist, so he sought out retirement papers. He told his peers at a brown-bag lunch at NSF - over a year ago - that they should start looking for his replacement. Dr. Todd was retired regally in late June, while folks at NSF wonder if they ever will find his replacement.

BRAVO'S MASTER, JACK TUCK, DIES MUCH TOO YOUNG. Jack Tuck, probably the first American to winter over two consecutive years in Antarctica, and the only U.S. Naval officer to winter over two consecutive years, died at age 51 on 14 August 1984 after a gun accident at his home three days earlier. Jack was cleaning a family collection of rifles and pistols, prior to disposing of the collection, working under the assumption that none were loaded since the ammunition supply had been disposed of many years ago. However, one pistol had a bullet in it, and it discharged. He put up a good fight for two days after surgery in the University of Massachusetts Hospital in Worcester, but then died from a massive stroke.

Jack was one of the best known Antarcticans during the IGY, and accompanied the late Dr. Paul Siple to the South Pole in 1956, remaining at the station as the Navy commander in 1957. Both were geographers and a strong bond grew between the two during that year. It was anything but normal, as it was the first year the U.S. was at the South Pole. There was a tremendous amount of work to be done after the construction party left camp, and no one really knew what kind of weather could be expected during the winter. If you could have read Siple's diary in the National Archives, you would know that Jack arrived at the South Pole pretty much "Defectized." However, Tuck was enough of a man to realize that it was a golden opportunity for him to be at the Pole with Siple, and soon they became united in purpose and in dedication. One well-documented incident that helped seal their relationship was when no one informed either Siple or Tuck that VIPs at McMurdo had dedicated the South Pole station. They were not told until several weeks later when the last of the wintering-over scientists were flown to the Pole. The Siple-Tuck relationship remained a strong one after the IGY. Tuck's son, Jonathan, was given the middle name of Paul and became Paul's godson. In fact, Jonathan spent several days with Ruth earlier this summer.

Jack was in charge of dogs at McMurdo during 1956, and in '57 took Bravo with him to the Pole. Bravo was an ill-tempered character, but at least he fulfilled some sort of a role as camp mascot. He was pictured in the National Geographic and in newspapers with Jack. Bravo was Jack's dog, that is, until they all got back to the States. Through some quirk of ill fortune Bravo ended up with the Siples - until it became overbearingly evident that Bravo was never meant to be a Virginia squire, and he was sent to kennels in New Hampshire.

Jack came back from the South Pole with ideas of continuing his geography training, having received his bachelor's degree from Dartmouth College. He went to the University of Wisconsin at Madison, which then was considered the top geography school in the nation, where he earned his master's degree; then went to Cambridge, England to further his education and to be near the Scott Polar Research Institute. Upon returning to the States, he followed his Wisconsin advisor, Dr. Kirk Stone, to the University of Georgia at Athens. But Jack must have decided that geography was less

exciting in Georgia than it was at the South Pole, so he moved to Massachusetts, and lived there the rest of his life. He became sort of a professional do-gooder, devoting most of his time to volunteer efforts with the Deerfield Rescue Squad and the Deerfield Volunteer Fire Department. He also worked as an educational consultant, as an investment manager, and was on the Board of Trustees at Hoosac School in New York.

Jack is survived by his wife, Margaret (Peg), a daughter, Kathleen (Kathy) who is a freshman at Denison University in Ohio, and son, Jonathan who is a senior at Bates College in Lewiston, Maine. Deerfield Academy plans on establishing a lecture series in Jack's honor, with the first speaker to be a geographer. Jack had signed a living will to donate his eyes and his kidneys, so within hours after his death, he was again helping people. Our condolences to Peg, Jonathan and Kathy. (Mrs. John Tuck, Jr., "Overhill", Lower Road, Deerfield, Massachusetts 01342.

ED ROOS SUCCUMBS AT AGE 76 (ON 15 MAY 1984). Sven Edward Roos, seaman on the CITY OF NEW YORK, BAE I, and chief of oceanographic surveyors on the BEAR OF OAKLAND, BAE II, was born in Guthenberg, Sweden on 19 August 1907. He was only 18 when he enlisted as a seaman on the First Byrd Antarctic Expedition. After returning from the two Antarctic trips, he joined the Merchant Marines, and in 1938 went to work for Standard Oil on its oil tankers. During World War II, Captain Roos was on two oil tankers torpedoed by Nazi submarines, but escaped without any injuries. He became a naturalized American citizen in 1943. One of the highlights of his career was being presented the Tradition of the Sea Award for his heroics in 1956 when his ship, the S.S. MOORE-MCCORMACK ELM saved the crew members of a Brazilian fishing boat that had broken up in a severe storm. Ed retired in 1970 and had been living in Cocoa Beach, Florida. He is survived by his wife, Anne and his son, David. We used to hear from Ed occasionally, and apparently his health was such that he didn't do much travelling. Bud Waite knew him quite well, and according to Bud the two of them took soundings every five minutes for four months in 1933 when they were on their way to the Antarctic. Our condolences to the family. (Mrs. Anne Roos, 4700 Ocean Beach Blvd., #220, Cocoa Beach, Florida 32931.)

MORE BAD NEWS - ED O'CONNOR IS DEAD. The National Science Foundation learned on 27 August that a young Antarctican who has been to the continent several times in recent years lost his life at sea off the coast of California. It's ironical that a person who spent the last austral summer diving with John Oliver in the McMurdo area would lose his life to the sea.

SOMETHING NEW - PLEASE READ. I have always been a big admirer of the New Zealand Antarctic calendar — the pictures are fantastic, the paper of high quality, and it is clean (without historical or geographical facts/trivia). We are going to try to sell some this year, although we'll also be selling the Navy-USARP calendar. We expect to have the New Zealand calendar some time in November, ready for your Christmas giving,, We think there must be a few of you who might welcome a calendar without a Hercules sitting on the runway at McMurdo; the New Zealand calendar is a good one for those more interested in artistic beauty than in Antarctic trivia. We mark calendars up one dollar, as it is our only money-making effort for the whole year. The price on the limited edition of the New Zealand calendar will be \$5 local pickup and \$6 for mailing.

FRAM: THE JOURNAL OF POLAR STUDIES. We are anxiously awaiting the second issue of JPS, although we seriously doubt if the editor, Stephen Carter Jackson, will send us a complimentary copy this time. It is unfortunate that Jackson appears to be a very headstrong man who does not easily take suggestions or recommendations. I don't think there's anyone in the polar community who wouldn't like to see his publication flourish. He came onto the scene at a very advantageous time.

I encouraged him early on to come to Washington to meet some of the people he didn't know and whom he distrusted. But he never did, even though these were the people who could have helped him in many ways. Jackson entered into publishing JPS as a virtual unknown in this country. I made extensive inquiries throughout the polar community to find out who he was, and the only person who had ever even heard of him was Ron McGregor, and he knew very little about him. So I wrote Jackson and we did carry on a correspondence last year, one that I had hoped would be beneficial to both of us. I highly recommended the establishment of an editorial board, suggested some names, and am glad to see that one of them, Peter Anderson of The Ohio State University, is on the Advisory Board - although to date Peter has served more or less in a perfunctory role, and has not yet been consulted.

Ruth Siple read every word in the first issue of JPS, and even went to the Library of Congress and the National Geographic Society Library to research index material. I dare say that no one else has done that. One reviewer in another newsletter admitted that he had read only three of the articles before he wrote his "review"! Ruth found close to 500 mistakes in the first issue, and had doubts about many more. These were typed out and sent to Jackson, as well as to two members of the Advisory Board. If anyone knows anything at all about Ruth Siple, they know she is the kindest soul on earth with not one drop of vindictiveness in her system. She wants JPS to be a great success, and she felt that pointing out the vast number of errors would convince Jackson that he badly needed an editor. I feel the same way, except more strongly, as I am of Scotch ancestry and couldn't let go of fifty greenbacks a year to get two issues of an errorfilled journal. Jackson has blamed Ruth and me for three papers being withdrawn, and for thirty anti-letters from Society members. I seriously question the latter, as I pretty well know our membership, and I doubt there are thirty people in our Society who would bother to write a letter to him. I wish Jackson would learn from Ruth's efforts, take it from there and come forth with, something which the polar community would want to read. We would then be most happy to lead the cheering and advocate our members subscribing.

CAN YOU BELIEVE THIS? I CAN'T. The Arlington Journal had a story in its 19 July 1984 issue which I could not believe. Peary High School in Rockville, Maryland had a very large U.S. flag and a dogsled which Admiral Robert E. Peary had with him on his trek to the North Pole. These items were on loan from the Peary family, and had to be returned when the school closed this past spring. The Admiral's grandson, Edward Stafford, got in touch with an auctioneer (Richard Opfer) and both items were sold for only \$3,190 to an antique dealer, George Theofiles of New Freedom, Pennsylvania. What kind of a grandson would sell such precious memorabilia?

READ ABOUT THE NEWEST BOY SCOUT - HE WALKS ON WATER (I THINK). The Boy Scouts of America asked us if we knew of a good man to be one of the judges to help select the 1984-85 Boy Scout to go to Antarctica. We recommended one of my favorite Antarcticans of all time, one of my ex-employees, Tom Frostman, who was considerate enough of his family and me not to die when he was unconscious for several hours at Plateau Station in 1967, overcome by carbon monoxide poisoning. He now is director of an outstanding summer camp in Durango, Colorado, and we would like to share parts of his letter to us about his feelings about the Eagle Scouts.

I am grateful indeed to both of you for submitting my name to serve on the panel of judges to choose the Eagle Scout who'll get to go to the Antarctic later this year. It was truly enlightening to be with such a great bunch of young men (ages 17-19) each of whom had accomplished more to date than most adults I know.... Presidential scholars, EMT's, paramedics, founders of clubs and periodicals, nationally ranked chess players . . . and more important, well-mannered, articulate and personable people.

The winner is Doug Barnhart, a nineteen-year old Eagle Scout from McMurray, PA

(the Alleghany Trails Council). He's a certified EMT and paramedic, is an assistant chief of the Johns Hopkins First Aid Squad, an active member of the Presbyterian Church, a member of the National Honor Society, a musician, a freshman at Johns Hopkins (chemistry major), has attended the Pennsylvania Governor's School for the Sciences, a potential MD down the road.

The decision was really a tough one, and it took several rounds of balloting and several hours of discussion to come up with the "winner." The hard part was that they were all winners, and they became good friends instantly. And I think because they realized that they were in competition WITH each other instead of AGAINST each other, that as "losers" they could still take pride and joy in one of their brother scouts winning ... and the winner sensed a greater degree of humility knowing that the others were equally qualified and deserving.

In the long run, it was we, the judges, who truly benefited from having shared some really quality time with some of our nation's finest young ambassadors.

Five of the six judges, by the way, had been to the Antarctic and represented some five decades of research and exploration on the continent. Capt David Gershowitz, USCG (Ret) was part of Operation Highjump with Adm. Byrd in 1946-47; Dr. Richard Chappell (chairman of the committee) had the honor of wintering over with BERGY BITS in the 50s; Frosty was there in the 60s; Mark Leinmiller (the last Eagle Scout to be chosen under this program) was there in the 70s; and CMDR David Humphreys, USCG, is still active with the Antarctic programs and may be on the POLAR STAR with Doug later this year.

The other finalists were: Eric Jensen, Mercer Island, WA; Steven Sherrod, Anchorage, AK; Vince Hougo, Los Angeles, CA; Nathaniel (Bucky) Trumbull, Woods Hole, MA; and Bryce Quayle, Bethesda, MD.

And deserving much credit for putting all this together, Mr. Ilmar Pleer, Associate National Director of Activities, Boy Scouts of America National Office, Irving, Texas.

ICE CHIPS. There is a new and exciting map of the McMurdo Sound area being completed this fall by Dee Molenaar. It will be 24" x 36" in size, and will provide a full color, oblique-view pictorial rendition of the area (about 30,000 sq. mi.) including Ross Island, parts of the Ross Ice Shelf, a segment of the Transantarctic Mountains (between Cape Teall on the south and the Fry Glacier on the north) and the eastern part of the Polar Plateau. The perspective chosen is obliquely to the south, looking into the continent. As we go to press, we are in communication with Dee, and hope to be able to offer it to Society members by mid-November. We have seen some of Dee's other map products, and they are beautiful. Tentatively we hope to be able to offer it at \$5 local, \$6 mailed . . . . Jim Caffin, nonpareil editor of Antarctic, the outstanding quarterly news bulletin of the New Zealand Antarctic Society, recently received high and exalted recognition for his work from the Queen of England. Our congratulations to Jim for this richly deserved honor!

Rear Admiral David Merrill Tyree, former commander of the Naval Support Force, Antarctica, 1959-1962, died on 25 August at age 80 in the Portsmouth Naval Hospital, Virginia. Admiral Tyree was the fourth president of our Society. An obituary on Admiral Tyree, one of the most popular of all Antarctic commanders, will be in our next Newsletter. He is survived by his wife, Eleanor, of Port Haywood, Virginia, and son, David of Islip, New York. Interment was to be in Annapolis on 29 August.

The remaining pages are devoted to the first-ever listing of Society members and addresses. We did it by states and zip codes, so you can invite your nearest Antarctic neighbor to your next pemmican meal.

...... Next meeting - 18 October .......

### DIRECTORY OF ANTARCTICAN SOCIETY MEMBERS

# BY STATES / ZIP CODES

### 1 September 1984

#### MAINE

Marc A. Levesque Robert L. Dale

Dann V. Hall

P. 0. Box 470

Dr. Harold W. Borns, Jr.

304A Boardman Hall, U. of Maine

Dr. Hugh H. DeWitt

Dept. of Zoology, U. of Maine

Orono, ME 04469

Dr. Thomas Kellogg

17 Island Avenue

Orono, ME 04473

Dr. Davida Kellogg

17 Island Avenue

Orono, ME 04473

Marc A. Levesque

Box 1055

Robert L. Dale Hockomock Island

Dover Foxcroft, ME 04426 Woolwich, ME 04579

#### NEW HAMPSHIRE

John N. Dyer

Dr. Stephen Ackley
Dr. Jerry Brown
William B. Durant, Jr.
Stephen L. Den Hartog
Anthony J. Gow

P. O. Box 266
CRREL, P. O. Box 282
P. O. Box 345
1 Heneage Lane
Route 1, Box 429
Route 1 Dr. Richard P. Goldthwait R.F.D. Turtle ID. Road

Anthony J. Gow Route 1 Lepanon, NH U3/04
Paul A. Mayewski Dept. Earth Sciences, U. of N.H. Durham, NH 03824

Center Sandwich, NH 03227 Hanover, NH 03755 Hanover, NH 03755 Hanover, NH 03755 Lebanon, NH 03766 West Lebanon, NH 03784 Wolfeboro, NH 03894

# VERMONT

Charles J. V. Mulph,
Robert D. Yoder 884 Brockway P.O. Box 136 Charles J. V. Murphy Pickle Street Leland L. Barter

884 Brockway Mills Road

Grafton, VT 05146 Springfield, VT 05156 West Townshend, VT 05359 Mount Holly, VT 05758

### MASSACHUSETTS

Joel H. Mumford, M.D. 1 Bittersweet Lane

Dr. William O. Field, Jr. P. O. Box 583

Joel H. Mumford, M.D.

Dr. Warren M. Zapol
Mrs. Lenora Kundla
Stevenson Corey
William Meserve
Mrs. Constance T. Swan
Miss Dorothy A. Brown

1 Bittersweet Lane
182 Holden Wood Road
733 Highland Street
16 Pilgrim Drive
11 Cabot Street
11 Cabot Street
11 Granite Street
11 Boston Place 1 Boston Place Dr. Chester M. Pierce 17 Prince Street Jamaica Plain, MA 02
Edward L. Fireman Smithsonian Astrophysical Observ. Cambridge, MA 02138
60 Garden Street Scott E. Miller

Museum Comp. Zoology, Harvard U.

Rachel S. Weiss

108 Winthrop Road, #1

Brookline, MA 02146

Mack K. Greenberg

Ms. Ann Rothberg

Antonio I. Malva-Gomes

David Belknap

William E. Westermeyer

Edwin A. MacDonald

Museum Comp. Zoology, Harvard U.

Cambridge, MA 02138

Brookline, MA 02146

Auburndale, MA 02146

Watertown, MA 02172

Arlington, MA 02174

Boston, MA 02205 Wo

Granby, MA 01033 Concord, MA 01742 Holliston, MA 01746 Winchester, MA 01890 Winchester, MA 01890 Rockport, MA 01966 Boston, MA 02106

> Great Barrington, MA 02130 Jamaica Plain, MA 02130

Auburndale, MA 02166 Boston, MA 02205 Woods

### RHODE ISLAND

Donald F. Cady

William H. Munson 139 Seabreeze Drive North Kingstown, RI Dr. James P. Kennett Grad. School Oceanography, U. of RI Kingston, RI 02881 Paul A. Berkman Grad. School Oceanography, U. of RI Kingston, RI 02882 Donald F. Cady 77 Rockcrest Drive Cranston, RI 02920

North Kingstown, RI 02852

### CONNECTICUT

Ambassador Paul C. Daniels P.O. Box 346 Lakeville, CT 06039
Richard J. Wolak 4 Huntington Lane Norwich, CT 06360
Walter S. Sullivan, Jr. 66 Indian Head Road Riverside, CT 06878
Lindblad Travel, Inc. 8 Wright Street Westport, CT 06880
Robert H.T. Dodson 154 Belden Hill Road Wilton, CT 06897

### NEW YORK

Douglas C. Hengel American Embassy Rome APO New York 09794
Dr. Richard L. Chappell 103 East 75th Street, #8FW 19 New York, NY 10021
Richard Gilder, Jr. East 80th Street New York, NY 10021
George P. Kramer 151 East 79th Street New York, NY 10021
Ms. Katherine E. Bouton 324 West 83rd Street, #7W New York, NY 10024
Michael H. Schuman 198 Douglas Road, Emerson Hill Staten Island, NY 10304
Mrs. Arnold H. Clark P.O. Box 142
August Howard 98-20 62nd Drive, #7H Rego Park, NY 11374
Ronald E. Chaikin 70-47 Juno Street Forest Hills, NY 11375
Daniel T. Smith 35 Cooper Street Babylon, NY 11702
Ms. Judith Lee Hallock P.O. Box 296
Eric R. Siefka 3515 Brigham Street Binghamton, NY 13903
Dr. Chester C. Langway Jr. 4240 Ridge Lea Rd., SUNY-Buffalo
Dr. Duwayne N, Anderson Clemens Hall, Rm. 732, SUNY Buffalo, NY 14260
Pittsford, NY 14534 Dr. Duwayne N, Anderson Clemens Hall, Rm. 732, SUNY Mrs. Dotte Larsen 6 Woodstock Lane

Pittsford, NY 14534

# NEW JERSEY

Arthur Jorgensen

Herbert P. Tinning

601 Gregory Avenue

Mrs. Susan E. Richards

Dr. Louis J. Lanzerotti

Hal Vogel

Mrs. Janice Harvis

George M. Baney

Charles Neider

Rev. Bruce J. Lieske

335 Wayne Terrace

Union, NJ 07083

Weehawken, NJ 07087

Oceanport, NJ 07757

Morristown, NJ 07757

Morristown, NJ 07960

Willingboro, NJ 08046

Cinnaminson, NJ 08077

East Windsor, NJ 08520

Princeton, NJ 08540

Lebanon, NJ 08833

### PENNSYLVANIA

Dr. William A. Cassidy
Joseph L. Lynch, Jr.

Adib H. Barsoum, M.D.

James E. Stoner

Jonathan Roland

Mrs. Viola R. Fischer

Harold W<sub>0</sub> Helfrich, Jr.

Monroeville, PA 15146

Pittsburgh, PA 15235

R.D. 1, Box 69A

McVeytown, PA 17051

Emmaus, PA 18049

Media, PA 18040

Media, PA 19063

Media, PA 19063

Chadds Ford, PA 19317

Blue Bell, PA 19422

Monroeville, PA 15146 Chadds Ford, PA 19317 Blue Bell, PA 19422

### MARYLAND

Dr. Ronald C. Taylor

Donald W. Bowyer

Simon J. Roman

Charles T. Gadsden, Jr.

Laurence C. Eklund

Gerald S. Schatz Dr.

Eugene P. Campbell

Dr. Reba Campbell

6100 Westchester Park Dr., #1218

6100 Westchester Park Dr., #1218

College Park, MD 20740

Ft. Washington, MD 20747

Ft. Washington, MD 20747

Forestville, MD 20747

Bethesda, MD 20814

Bethesda, MD 20814

Chevy Chase, MD 20815

Chevy Chase, MD 20815

Ft. Washington, MD 20744 Ft. Washington, MD 20744

# MARYLAND (cont.)

Merle R. Dawson 15 Newman Street F. Phillips Williamson P. 0. Box 715

Cambridge, MD 21613

WASHINGTON, DC

Ronald K. McGregor 721 Massachusetts Ave. NE Washington, DC 20002 Ms. Lisa Heinz 233.5 Ninth Street SE Washington, DC 20003

# WASHINGTON, DC (cont.)

 WASHINGTON, DC (cont.)

 Richard Y. Dow
 5112 Connecticut Ave. NW
 Washington, DC 20008

 RADM S. Mandarich
 2755 Ordway St. NW, #112
 Washington, DC 20008

 Dr. Ned A. Ostenso
 2871 Audubon Terrace NW
 Washington, DC 20008

 Morace D. Porter
 2940 Garfield Terrace NW
 Washington, DC 20008

 Miss Veryl Schult
 2401 Calvert Street NW
 Washington, DC 20008

 Ms. Deborah Shapley
 2236 Que Street NW
 Washington, DC 20008

 Ms. Deborah Shapley
 2236 Que Street NW
 Washington, DC 20008

 Mr. Albert S. Chapman
 1870 Wyoming Ave. NW, #504
 Washington, DC 20009

 Arbur S. Knox
 2006 Columbia Road NW, #33
 Washington, DC 20009

 Albert M. Armstrong
 1440 Rock Creek Ford Rd. NW, #305
 Washington, DC 20009

 Mrs. Liselotte Beach
 5719 Chevy Chase Pkwy. NW
 Washington, DC 20015

 Frank Mahncke
 5724 Nebraska Avenue NW
 Washington, DC 20015

 Mrs. Henry M. Dater
 3315 Wisconsin Ave. NW, #804
 Washington, DC 20016

 Mrs. Henry M. Dater
 3315 Alton Place NW
 Washington, DC 20016

 Mrs. Henry M. Dater
 3324 Street SW
 Washington, DC 2

### VIRGINIA

Kendall N. Moulton George 4419 Chase Park Court Annandale, VA 22003
L. Ruecroft William J. 7233 Vellex Lane Burke, VA 22003
Stuart, Jr. Glen N. 10101 Chestnut Wood Lane Burke, VA 22015
Drummond, Jr. Carl P. 10206 Rodgers Road Fairfax, VA 22030
Kessler 3545 Chain Bridge Rd., Suite 6
Herbert P. Nickens Alfred 9676 Lindenbrook Street Fairfax, VA 22030
N. Fowler 8945 Glenbrook Road Fairfax, VA 22030
Rupert B. Southard Robert 4203 Burke Station Road Fairfax, VA 22031
E. Strange 6429 Lakeview Drive Fails Church, VA 22041
Dr. Louis O. Quam 300 Forest Drive Falls Church, VA 22046
Dr. Edward P. Todd Peter F. 1000 Wilhelm Drive Great Falls, VA 22066
John R. Bird 840 Leigh Mill Road Great Falls, VA 22066
Mrs. Jane G. Ferrigno Tony K. Meunier 109 Morningwood Lane Great Falls, VA 22066
John A. Kelmelis 410 Maple Court Herndon, VA 22070
William J. Kosco 12825 Tewksbury Drive Herndon, VA 22070
Melvin Y. Ellis 12857 Tewksbury Drive Herndon, VA 22071
Ronald W. Podmilsak William A. Radlinski 2712 Calkins Road Herndon, VA 22071
Herman R. Friis P.O. Box 187 Lovettsville, VA 22080
Robert J. Allen 1622 Greenbrier Court Reston, VA 22090
Robert W. Rowland P.O. Box 2625

# VIRGINIA (cont.)

Robert H. Lyddan	2427 Silver Fox Lane	Reston, VA 22091
James C. Storey	2311 Ravensdon Court,	Reston, VA 22091
Dr. Richard W. Williams, Jr	11403 Purple Beech Drive	Reston, VA 22091
Dr. Bruce B. Hanshaw	USGS, 104 National Center	Reston, VA 22092
Guy G. Guthridge	6519 Hitt Avenue	McLean, VA 22101
Dr. J. Murray Mitchell	1106 Dogwood Drive	McLean, VA 22101
Roy G. Shults	1345 MacBeth Street	McLean, VA 22101
John R. Twiss, Jr.	901 Turkey Run Road	McLean, VA 22101
Harry Darlington	Chilly Bleak Farm	Marshall, VA 22115
Mrs. Luella D. Murri	5426 Lehigh Lane	Springfield, VA 22151
Luther W. Wheat	6907 Huntsman Blvd.	Springfield, VA 22153
James B. Fletcher	317 East Staunton Avenue	Sterling, VA 22170
Richard A. Pearsall	113 Evergreen Street	Sterling, VA 22170
Harry L. Zohn, Jr.	241 Meadowland Lane	Sterling, VA 22170
Charles E. Morrison	704 Plum Street SW	Vienna, VA 22180
Eberhard G. Schirmacher	2323 Trott Avenue	Vienna, VA 22180
Donald R. Wiesnet	601 McKinley Street NE	Vienna, VA 22180
Lewis E. Mills	86 Rappahannock Street	Warrenton, VA 22186
Donald C. Barnett	1105 Seaview Avenue	Woodbridge, VA 22191
RADM Richard B. Black	Rippon Lodge	Woodbridge, VA 22191
Mrs. Aviza Black	Rippon Lodge	Woodbridge, VA 22191
Edward K. Mann	1432 Deerfield Lane	Woodbridge, VA 22191
Paul Adams	813 S. Walter Reed Drive, #152B	Arlington, VA 22204
Dr. Christopher C. Joyner	4229 South 16th Street	Arlington, VA 22204
Ms. Nadene G. Kennedy	1313 South Thomas Street, #22	Arlington, VA 22204
William C. Kinsey	4612 South 7th Street	Arlington, VA 22204
Mrs. Ruth J. Siple	905 N. Jacksonville Street	Arlington, VA 22205
Ms. Susan Drake	2300 South 24th Road, #1021	Arlington, VA 22206
Louis DeGoes	4727 North 38th Street	Arlington, VA 22200
Laszlo Dosa	4312 North 40th Street	Arlington, VA 22207 Arlington, VA 22207
William J. Tobin		
	4343 Lee Highway, #503	Arlington, VA 22207
Jerry Huffman	3806 Towanda Road	Alexandria, VA 22303
Miss E. Vernice Anderson	417 Monticello Blvd.	Alexandria, VA 22305
Dr. Paul C. Dalrymple	3336 Lockheed Blvd., #204	Alexandria, VA 22306
Ms. Karen L. narrower	2685 Arlington Drive, #303	Alexandria, VA 22306
Palle Mogensen	6919 Elm Drive	Alexandria, VA 22306
Peter Barretta, Jr.	1209 Croton Drive	Alexandria, VA 22308
Mrs. Edna Barretta	1209 Croton Drive	Alexandria, VA 22308
J. Ronald Leslie	5019 Burke Drive	Alexandria, VA 22309
Rudolf A. Honkala	Box 1270	Kilmarnock, VA 22482
Leo G. Loftus	P. 0. Box 601	White Stone, VA 22578
Irving Williams	P. 0. Box 87	White Stone, VA 22578
Charles E. Jenkins	109 Hopkins Bluff East	Front Royal, VA 22630
Charles R. Henkle	Route 1	White Post, VA 22663
Carl W. Fisher	P.O. Box 63	Hood, VA 22723-0063
Leonard H. Dykes	Rt. 6, Box 140	Charlottesville, VA 22901
Ernest F. Dukes, Jr.	Rt. 3, Box 453	Palmyra, VA 22963
RADM David M. Tyree	Box 117	Port Haywood, VA 23138
Mrs. David M. Tyree	Box 117	Port Haywood, VA 23138
Harry S. Holcomb III, M.D.		Nassawadox, VA 23413
Mrs. Katherine A. Petrin	1884 Wolfsnare Road	Virginia Beach, VA 23454
LCDR Richard T. Crane	5220 Windsor Lane	<del>-</del>
		Virginia Beach, VA 23454
H. Daniel Story	101 Azalea Drive	Yorktown, VA 23692

# NORTH CAROLINA

Dr. Allen J. Riordan 721 Ravel Street

Raleigh, NC 27606

# NORTH CAROLINA (cont )

NORTH CAROLINA (cont.)		
Paul A. Humphrey Surry P. Roberts, M.D. Henry T. Harrison	618 West Aycock 1001 Navaho Drive, Suite 118 20 Woodcrest Road	Raleigh, NC 27608 Raleigh, NC 27609 Asheville, NC 28804
GEORGIA		
Louis P. Colombo	Wahsega Rd., Rt. 4, Box 635	Dahlonega, GA 30533
FLORIDA Billy A. Baker Martin H. Belsky James Lassiter RADM James R. Reedy Pat B. Unger, M.D. Warren J. Smith, Jr. Richard L. Urbanak Ms. Ailene R. Lotz Dr. Kirby Hanson Victoria Peterson Dr. Richard P. Goldthwait Dr. Robert L. Nichols Amory H. Waite, Jr. Walter H. Smith Herbert B. Nichols Dr. George A. Llano	10819 Berry Hill Road 2901 S.W. 1st Avenue 80 N.W. 70th Street 309 Wood Street 1281 South Hickory Street 1736 34th Avenue 2807 Harris Avenue 6950 S.W. 71st Court 13814 S.W. 107 Terrace 37 Yacht Club Drive, #102 P. O. Box 656 400 Freedom Sq. USA, 604 Jefferson 3248 Valencia Drive 4700 Nebraska Avenue 16365 Redington Drive 450 Palm Circle West	Pensacola, FL 32506-6201 Gainesville, FL 32607 Ocala, FL 32670 Lake Mary, FL 32746 Melbourne, FL 32901 Vero Beach, FL 32960 Key West, FL 33040 Miami, FL 33143 Miami, FL 33186 North Palm Beach, FL 33408 Anna Maria, FL 33501 Seminole, FL 33542 South Venice, FL 33595 Tampa, FL 33603 Redington Beach, FL 33708 Naples, FL 33940
ALABAMA		
RADM J. Lloyd Abbot, Jr.	4250 Wilkinson Way	Mobile, AL 36608
TENNESSEE		
Dr. Dean R. Freitag	Route 6, Box 79	Cookeville, TN 38501
MISSISSIPPI		
John C. Sullivan, Jr.	P. 0. Box 528	Jackson, MS 39205
KENTUCKY		
Henry R. Heyburn Mark W. Leinmiller C. Vernon Cooper, Jr.	3918 Leland Road 557 Wild Oak Court P. O. Box 59	Louisville, KY 40207 Louisville, KY 40222 Hazard, KY 41701
OHIO Dr. Kaye R. Everett Dr. James W. Collinson Dr. Lonnie G. Thompson Peter J. Anderson Dr. Colin B. Bull Gunter Faure Dr. Garry D. McKenzie Dr. Emanuel D. Rudolph Dr. Thomas N. Taylor Dr. Peter N. Webb Douglas V. Waugh Elliot L. Whitaker R. Eraser Myers Elmer J. Babin	3610 Johnstown-Utica Road 2706 lone Court 268 West Como Avenue Ohio State U., 125 South Oval Mall Ohio State U., 164 West 17th Ave. Dept. of Geology, Ohio State U. Ohio State U., 125 South Oval Mall Ohio State U., 1735 Neil Avenue Ohio State U., 1735 Neil Avenue Ohio State U., 1735 Neil Avenue Dept. of Geology, Ohio State U. 4991 Arbor Village Drive, #C-40 1619 Guilford Road 13492 Lake Avenue Hanna Bldg. Rm. 348, 1422 Euclid Ave.	Johnstown, OH 43031 Worthington, OH 43085 Columbus, OH 43202 Columbus, OH 43210 Columbus, OH 43211 Columbus, OH 43214 Columbus, OH 43221 Lakewood, OH 44107 Cleveland, OH 44115

INDIANA		
Gene L. Barter Dr. Alton A. Lindsey	1242 Northlawn Drive 191 Drury Lane	Fort Wayne, IN 46805 West Lafayette, IN 47906
MICHIGAN		
Mrs. Harriet S. Eklund Jay Platt Dr. William S. Benninghoff Robert N. Baron Dr. Luciano B. Ronca Paul F. Jacobs, P.E. Dr. Edith L. Smoot	505 East Lincoln, #17 West Side Book Shop,113 W.Liberty 3315 Alton Court 24312 Ross Avenue Dept. of Geology, Wayne State U. 2322 Shevlin Avenue Dept. of Biology, Hope College	Birmingham, MI 48809 Ann Arbor, MI 48103 Ann Arbor, MI 48105 Dearborn, MI 48124 Detroit, MI 48202 Ferndale, MI 48220 Holland, MI 49423
IOWA		
Stephen J. Pyne	Dept. of History, U. of Iowa	Iowa City, IA 52242
WISCONSIN		
Dr. Donn K. Haglund	Dept. of Geography, P.O. Box 413 University of Wisconsin	Milwaukee, WI 53201
Arville Schaleben Dr. Charles R. Bentley Dr. J. Campbell Craddock	8254 North Grey Log Lane 5618 Lake Mendota Drive 1109 Winston Drive	Milwaukee, WI 53217 Madison, WI 53705 Madison, WI 53711
MINNESOTA		
Dr. Gerald F. Webers John F. Splettstoesser Dr. Donald B. Siniff	1757 North Albert MN Geological Survey,2642 Univ.Av. 109 Zoology Bldg., U.of Minnesota	St. Paul, MN 55113 St. Paul, MN 55114-1057 Minneapolis, MN 55455
ILLINOIS		
Mrs. Ruth S. Rogers Mrs. Samuel Rome Roy E. Cameron Irwin Hirsh Dr. William R. Hammer Dr. Arthur L. DeVries	161 Crest Road 1421 Forest Avenue 3433 Woodridge Drive 67 East Madison Street Dept. of Geology, Augustana College 524 Burrill Hall, U. of Illinois	Glen Ellyn, IL 60137 River Forest, IL 60305 Woodridge, IL 60517 Chicago, IL 60603 Rock Island, IL 61201 Urbana, IL 61801
MISSOURI		
Donald Finkel William H. Everett Mrs. Lyman Neel John R. House, Jr.	6943 Columbia Place 719 North East 98th Terrace 3211 1-70 Drive S.W. 1525 McCutchen	St. Louis, MO 63130 Kansas City, MO 64155 Columbia, MO 65201 Rolla, MO 65401
KANSAS		
Dr. George F. McCleary, Jr. Dr. Gisella Dreschhoff Dr. Edward J. Zeller Dr. Paul Tasch	2514 Harvard Road Space Tech. Ctr.,2291 Irving Lill Dr Space Tech. Ctr., U. of Kansas 346 North Parkwood Lane	Lawrence, KS 66044 Lawrence, KS 66045 Lawrence, KS 66045 Wichita, KS 67208
NEBRASKA		
Charles E. Troxel	1917 North 31st	Lincoln, NE 68503

Charles E. Troxel 1917 North 31st Lincoln, NE 68503
Dr. Karl C. Kuivinen 329 North 12th Street Lincoln, NE 68508
B. Lyle Hansen 530 Hazelwood Drive Lincoln, NE 68510
John R. Litwak 3931 Mason Drive Lincoln, NE 68521
Dr. Leendert Kersten PICO, 1320 Que St., U. of Nebraska Lincoln, NE 68588

#### LOUISIANA

Ambassador Paul C. Daniels 105 Green Oaks Drive Lafayette, LA 70503 Dr. Lyle D. McGinnis Dept. of Geology, Louisiana SU Baton Rouge, LA 70803-4101

### OKLAHOMA

Rodger A. Brown

2232 Crestmont Street

Dr. E. Nan Scott

2431 NW 42nd Street

Dr. Jay T. Shurley

P.O. Box 18526

Dr. Harold G. Muchmore

Dr. Alan J. Parkinson

2232 Crestmont Street

Oklahoma City, OK 73112

Oklahoma City, OK 73118

Oklahoma City, OK 73120

Oklahoma City, OK 73142

### **TEXAS**

Dr. Robert H. Rutford

Dr. Francis S. Johnson

13619 Sprucewood Drive

Frank H. Radspinner

816 Sylvan Drive

Joseph E. Hogan

John O. Annexstad

David W. Canham, Jr.

David W. Canham, Jr.

David W. Canham, Jr.

Dept. Oceanography, Texas ASM U.

Dr. Richard Adams

3907 Medical Pkwy #103

Richardson, TX 75080

Richardson, TX 75080

Richardson, TX 75080

Pallas, TX 75240

Fort Worth, TX 76112

Harker Heights, TX 76543

Dickinson, TX 77539

Dickinson, TX 77539

College Station, TX 77843

San Antonio, TX 77843 Mrs. Kenneth J. Bertrand

Dr. Richard Adams

Dr. Sankar Chatterjee

Bryan J. Small

Dr. Grover E. Murray

Mrs. F. Alton Wade

College Station, TX

San Antonio, TX 78

Austin, TX 78756

The Museum, Texas Tech U., Box 4499

Lubbock, TX 79409

Lubbock, TX 79409

Lubbock, TX 79409

Lubbock, TX 79416

Lubbock, TX 79416

Dr. Grover E. Murray

Mrs. F. Alton Wade

Charles F. Passel

College Station, TX

Austin, TX 78756

Lubbock, TX 79409

Lubbock, TX 79416

Lubbock, TX 79416

Abilene, TX 79604

Harker Heights, TX 76543

#### COLORADO

Marion E. Morris Thomas 0. Frostman

Robert.D. Grass 275 Garnet Street Broomfield, CO 80 John R. Ege 935 Pennsylvania, #12 Denver, CO 80203 Dr. David G. Murcray Physics Dept., U. of Denver Denver, CO 80208 Frank J. Murcray Physics Dept., U. of Denver Denver, CO 80208 Dept. Frank J. Murcray Physics Dept., U. of Denver Denver, CO 80208 Dept. Frank Franker 1355 Unbam Street Denver Denver, CO 80208 Prank J Murcray
Physics Dept., U. of Denver
Denver, CO 80208

Pat Kraker
Dr. John C. Behrendt
Dr. Peter D. Rowley
John J. Kosters
John J. Kosters
Edwin C. Flowers
Joseph W. Hirman
Joseph W. Hir Kenneth Barker 1300 Golden Circle, #304
DeeWitt M. Baulch 321 18th Street
Ms. Pamela J. Dailer P.O. Box 1334 9665 Florida Road

Broomfield, CO 80020 Golden, CO 80401 Breckenridge, CO 80401
Breckenridge, CO 80424
Colorado Springs, CO 80909
9665 Florida Road

Durango CO 01001 Golden, CO 80401

### WYOMING

Dr. John W. Clough Leroy L. Sanford

UTAH

Ronald D. Thoreson

751 Goodstein Drive Box 145

383 Park Avenue

Casper, WY 82602 Douglas, WY 82633

Moab, UT 84532

### ARIZONA

William S, McCormick
Dr. Edmund Stump
Dept. of Geology, Arizona State U.
Dr. Troy L. Pews
Scott G. Borg
William F. Johnson
Murray A. Wiener
Dr. Laurence M. Gould
RADM David F. Welch
William J. Breed
Dr. Donald P. Elston
Hugh Rieck
Clay W. Bailey

8413 E. Via De Los Libros
Scottsdale, AZ 85258
Scott G. Borg
Dept. of Geology, Arizona State U.
Tempe, AZ 85282
Tempe, AZ 85282
Tempe, AZ 85287
Tempe, AZ 85326
Green Valley, AZ 85326
Tucson, AZ 85710
Flagstaff, AZ 86001
Flagstaff, AZ 86001
Flagstaff, AZ 86001
Flagstaff, AZ 86001
West Sedona, AZ 86340

Green Valley, AZ 85614

### NEW MEXICO

Michael F. Pavlak

Katherine A. Green Hammond 13500 Sunset Canyon Drive NE Albuquerque, NM 87111 Dr. Philip R. Kyle Dept. of Geoscience, N M Tech Michael F. Pavlak P.O. Box 15115

Socorro, NM 87801 Las Cruces, NM 88004

### NEVADA

Dr. John R. Wilbanks Dept. of Geoscience, U. of Nevada Las Vegas, NV 89154 Joseph A. Warburton 20 Moore Lane Reno, NV 89509

### CALIFORNIA

Mrs. Robert G. Breyer 514 Lillian Way Los Angeles, CA 90004
Mrs. Willard E. Goodwin 254 Bronwood Avenue Los Angeles, CA 90049
Robert Byrd Breyer 340 S. Lafayette Park Pi., #309 Los Angeles, CA 90057
Dr. James H. Zumberge U. of S. California, University Park Dr. James H. Zumberge U. of S. California, University Park Dr. William D. Smythe 9029 Lucerne Avenue Culver City, CA 90230
Dr. Thomas F. Mulkey 400 East Regent Street Inglewood, CA 90301
Dr. Gilbert Dewart P. O. Box 331 Pasadena, CA 91102
Phillip Kazanjian 341 West Dryden Glendale, CA 91202
Dr. Osmund Holm-Hansen Scripps/Oceano., U. of Cal/San Diego
Dr. Jeanette A. Thomas Hubbs/Sea World, 1700 S. Shores Rd.
Dr. Jeanette A. Thomas Hubbs/Sea World, 1700 S. Shores Rd.
Dr. Frank S. Todd Sea World, 1720 S. Shores Road J. Michael Metzgar, Jr. 3001 Country Club Drive Costa Mesa, CA 92109
Dr. Frank S. Goden Sea World, 1720 S. Shores Road J. Michael Metzgar, Jr. 3001 Country Club Drive Costa Mesa, CA 92653
Robert de Violini P. O. Box 5025 Oxnard, CA 93031
Mrs. John W. Chapman 3860 Sunset Road Santa Barbara, CA 93110
Charles R. Greene BG Charles J. Adams 302 Wisteria Road Santa Barbara, CA 93110
Dr. Christopher N.K. Mooers Oceanography Dept., Naval Postgraduate School Dr. Christopher N.K. Mooers Oceanography Dept., Naval
Postgraduate School

Lewis Odell Smith
Joseph M. Detwiler

Mrs. Thomas C. Poulter

William J. Trabucco
Stephen L. Eittreim
Willis H. Nelson
Dr. John H. Roscoe
Dr. Arthur B. Ford
Dr. Albert Towle
Robert B. Flint, Jr.

Dr. Grew

Dr. Christopher N.K. Mooers

Oceanography Dept., Naval
Postgraduate School

Hillsborough, CA 94010
Los Altos, CA 94022
Los Altos, CA 94022
Los Altos Hills, CA 94022
Menlo Park, CA 94025
Menlo Park, CA 94026
Millbrae, CA 94030
Menlo Park, CA 94025
Menlo

350 McAllister Street

#### CALIFORNIA (cont.)

Dr. Richard G. Miller Ms. Fauno L. Cordes Rex A. Hanson Nicholas B. Clinch Dr. Robert A. Belliwell Robert R. Rofen Gordon Fountain Dr. Michele E. Raney John Katsufrakis David G. Ward Ms. Susan M. Patla Dr. Robert E. Feeney John Guerrero

Foresta Inst., 681 7th Avenue 355 Arballo Drive 29 Prescott Court, #4 2001 Bryant Street 2240 Page Mill Road Aquatic Res. Inst., 2242 Davis Ct. 5 Bowles Place 20990 Valley Green Drive, #677 152 Calle Larga P. O. Box 2459 443 West Spain Street 780 Elmwood Drive Route 3, Box 57

San Francisco, CA 94118 San Francisco, CA 94132 San Francisco, CA 94133 Palo Alto, CA 94301 Palo Alto, CA 94304 Hayward, CA 94545 Oakland, CA 94610 Cupertino, CA 95014 Los Gatos, CA 95051 Saratoga, CA 95070 Sonoma, CA 95476 Davis, CA 95616 Chico, CA 95926

# WASHINGTON

Howard F. Mason Dr. A. Lincoln Washburn Mrs. A. L. Washburn John Schutt J. Marcus Hermanson Dr. Mark E. Meier William Lokey Elmer Robinson David G. Coles Larry Flint

5724 36th Avenue NE Quaternary Res.Ctr, U.of Washington Seattle, WA 98195 c/o Quaternary Res., U of Washington Seattle, WA 98195 Box 767 4113 NW Gustafson Road USGS, 1201 Pacific Ave., Suite 850 3602 North 36th SW 834 Crestview Street Battelle, 324 Bldg, Tr.16, 300 Area Richland, WA 99352 153 MacArthur Street

Seattle, WA 9810 Ferndale, WA 98248 Silverdale, WA 98383 Tacoma, WA 98402 Tacoma, WA 98407 Pullman, WA 99163 Richland, WA 99352

### ALASKA

David M. Hickok Dr. Nolan B. Aughenbaugh Dr. Robert Eisner Dr. Joan Gosink Dr. Fred A. Milan Dr. Gunter Weller Charles R. Wilson Dr. Vera Alexander

1589 Sunrise Drive School-Mineral Engr, U.A. Fairbanks Inst. Marine Science, U.A Fairbanks Geophysical Institute, U. of Alaska 0.5 Mile Yankovich Rd., SR 20022 F. Fairbanks, AK 99701 Geophysical Inst., U.A. Fairbanks SR Box 20974 P.O. Box 80650, College Station

Anchorage, AK 99508 Fairbanks, AK 99701 Fairbanks, AK 99708

### FOREIGN

John Millard, 18-86 Broadway Avenue, Toronto, ON M4P 1T4, Canada

Richard A. Julian, Caterpillar Brasil, Caixa Postal 8329, 01000 Sao Paulo, Brazil

Dr. Oscar Gonzalez-Ferran, Casilla 16, Correo Miramonte, Santiago, Chile

Dr. Michael H. Kuhn, Rungges 2, A-6091 New-Gotzens, Austria

J.A. Van Bekhoven, Nijverheidslei 18/b.6, B-2070 Ekeren-Antwerp, Belgium

Dr. Edward S. Grew, Inst. Mineralogie, Ruhr Univ., Postfach 102148, D-4630 Bochum 1, FRG

M.J. De Wit, 51 Alma Road, Sandsworth, London SW 18, U.K.

F.G. Larminie, British Petroleum, Britannic House, Moor Lane, London EC2Y 9BU, U.K.

Ms. Francine L. Stone, The Boat House, Shillingford Ct., Shillingford, Oxon. 0X9 SEP, U.K.

Dr. Charles Swithinbank, 7 Home End, Fulbourn, Cambridge CBl 5BS, U.K.

Dr. Barrie McKelvey, Dept. Geology, U. of New England, Armidale, NSW 2351, Australia

James M. Caffin, 35 Chepstow Avenue, Christchurch 5, New Zealand T.W. Kirkpatrick, P.O. Box 237, Kerikeri, New Zealand