



# THE ANTARCTICAN SOCIETY

90S NORTH JACKSONVILLE STREET  
ARLINGTON, VIRGINIA 22205

Dr. Albert Paddock Crary  
First at Both Poles, "My Dubious Honor"  
25 July 1911 - 29 October 1987

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Dr. Paul A. Siple, 1961-62  
Mr. Gordon D. Cartwright, 1962-63  
RADM David M. Tyree (Ret.), 1963-64  
Mr. George R. Toney, 1964-65  
Mr. Morton J. Rubin, 1965-66  
Dr. Albert P. Crary, 1966-68  
Dr. Henry M. Dater, 1968-70  
Mr. George A. Doumani, 1970-71  
Dr. William J. L. Sladen, 1971-73  
Mr. Peter F. Berrnel, 1973-75  
Dr. Kenneth J. Bertrand, 1975-77  
Mrs. Paul A. Siple, 1977-78  
Dr. Paul C. Dalrymple, 1978-80  
Dr. Meredith F. Burrill, 1980-82  
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Dr. Edward P. Todd, 1984-86  
Mr. Robert H. T. Dodson, 1986-88

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Dr. Laurence McKinley Gould  
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#### Paul C. Daniels

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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 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  
Dr. Mark F. Meier, 1985  
Dr. Claude Lorius, 1986

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No. 2

A Pre-Christmas Present, An Eminent Polar Scientist!

**LAKE HOARE, ANTARCTICA**  
**A Laboratory for Future Frontiers**

by

Dr. George M. Simmons, Jr.  
Professor of Zoology

Virginia Polytechnic Institute and State University  
Blacksburg, Virginia

on

*Tuesday evening, 1 December 1987*

*8PM*

National Science Foundation  
18th and G Streets NW  
*Room 543*

Dr. George Simmons is currently spending his tenth season in the Dry Valleys of southern Victoria Land studying Lake Hoare, and will return to the States in late November. Dr. Simmons and other researchers have been using Lake Hoare as a model to understand Precambrian ecosystems, as well as to help scientists prepare for the future collection of samples from ancient lake beds on Mars. They are currently unravelling a story that relates climate changes in the thick ice cover on Lake Hoare to regional climatic shifts in the Dry Valley area. Dr. Simmons and Dr. Robert A. Wharton, Jr., Desert Research Institute in Reno, Nevada, and Mr. Mark Jenkins, Executive Director for Innerspace Foundation, Inc., have produced a documentary on the research being done at Lake Hoare. One of the themes of the documentary is to demonstrate that frontiers still exist and await those who are prepared to be the explorers. Dr. Simmons is an electrifying speaker with a great sense of humor. It should not only be a great evening, but a fun evening. This program should be an inspiration to young people with a scientific bent and/or with an interest in the environment. *Come with youngsters!*

*We still have some 1988 New Zealand Antarctic calendars at \$7.50.*

**If you move. PLEASE send us your new address!**

Writing this Newsletter seems sort of meaningless and empty, as our heart is full of sadness over Bert Cray's death. But having known Bert closely for over thirty years, I realize he would not want us to mourn his passing but to remember the good times we had with him. So this Newsletter may come out sounding like an Irish wake on paper. Bert was one of the founders of our Society, and I am sure when he gets upstairs he will reunite with Ambassador Paul Daniels, Carl Eklund, and Paul Siple - three other planks. It is too bad he couldn't have taken a couple of bottles along so they could all celebrate Bert's arrival; besides, all three of them would probably appreciate a good drink about now! To those of you who knew Bert, you have been rewarded by his friendship; to those of you who never had the pleasure of his company, all I can say is they threw away the mold when they made him, so you will never meet any one just like him. And as for you Bert, you better watch your language up there, as they are pretty straightlaced in Heaven, and you wouldn't want to go to that other place, it's not polar!

**WHO ARE WE?** It is always good to periodically sit back and see what we look like, as our Society has an ever-changing face. As we go to press, we number 579, which is a new all-time high, and within that number are fifty-two husband-wife memberships. There was a time, not very long ago, when we were basically a Washington group; now only 28.4% (163) of our Society lives within fifty miles of the Charles Wilkes memorial tablet on Capital Hill. One would think with a local membership of 163 we could sustain good attendance at all of our meetings, but we have to fight to get out forty. Once we had members from all the States except Idaho. We really didn't mourn not having anyone from Idaho, as you never hear of anyone coming from or going to Idaho, which means it must be some sort of an enigma lost somewhere in the northwest. But with people moving, we are now memberless in Arkansas, Louisiana, North Dakota, and West Virginia, as well as Idaho.

Virginia	85	Oregon	9	North Carolina	4
Maryland	61	Alaska	8	Wisconsin	4
California	57	Minnesota	8	Indiana	3
District of Columbia	33	New Hampshire	8	Kentucky	3
New York	28	Illinois	6	New Mexico	3
Colorado	24	Kansas	6	Alabama	2
Massachusetts	22	Rhode Island	6	Delaware	2
Arizona	17	Missouri	5	Iowa	2
Ohio	17	Nebraska	5	Nevada	2
Texas	17	Oklahoma	5	South Carolina	2
Washington	17	Vermont	5	Utah	2
Florida	14	Connecticut	4	Wyoming	2
Pennsylvania	14	Georgia	4	Montana	1
Maine	11	Hawaii	4	South Dakota	1
Michigan	10	Mississippi	4	Tennessee	1
New Jersey	9				

Can you imagine fourteen Antarcticans living in Florida? Disgusting. We sort of downgrade all members living in Florida, because with their background they should be up north shovelling snow and savoring the four seasons. We also have members

in Canada, England, Belgium, West Germany, Austria, Chile, New Zealand, Australia, and Korea.

**A MESSAGE TO THE 94 DELINQUENTS.** Eighty-four per cent of our members are now in good standing, and we want to especially thank the renewers who paid-up for multiple years; this helps our bookkeeping and we can forget you for a year or more. In fact, nearly three-fourths of those renewing heeded our plea for sending multiple-year dues. THANKS! We also appreciate those who wrote saying they were dropping out, which means we don't have to waste time sending out unwanted Newsletters. So if you do wish to drop out, please let us know now, as our Society is essentially a two-person operation, both of us having less time and less efficiency (?). So those of you getting your second notice with this Newsletter, pay up or ship out!

**ANTARCTIC CALENDARS.** First of all, there are no more USARP calendars for sale; we got only 144 of them and they sold out. As we feel the 1988 calendars are below standard, we won't be placing a supplemental order. However, we did purchase 200 New Zealand Antarctic calendars, and as we go to print, we still have 53 left. They are excellent, with good pictures, except for December. They also come in a firm mailing folder, so will go through the mail in good shape. After these are sold, we are closing up the ship's store for the season, so get your order in early. We were most sorry to hear from one member that his calendar(s) for last year were received in bad shape. If that happened to you, please let us know. It could be that in the future we won't order calendars which don't come in heavy mailing envelopes.

- 1988 New Zealand Antarctic Calendar - \$7.50 -

**SOCIETY PLANKS.** A Society membership list prepared by the efficient Ken Moulton shows that, as of 21 January 1960, the organization had 47 stouthearted men, of whom Admiral Dick Black, Capt. John Cadwalader, Gordon Cartwright, Larry Gould, Bill Littlewood, Herbert Nichols, Phil Smith, and Mort Turner remain on the rolls. We also have six widow members of original planks - Mildred Crary, Teddy Daniels, Alice Dater, Harriet Eklund, Jackie Ronne, and Ruth Siple. Say one thing for those planks, they had an eye for beauty and personality - none of them are deadbeats. Our records show that an additional ten actives joined the following year: Fred Alberts, Len Dykes, Laurence Eklund, Herman Friis, Herb Hansen, George Llano, William Radlinski, Walt Seelig, Bill Sladen, and George Toney. We have been accused of not being responsive to these forefathers, and we have also been accused of being old-explorer oriented. The first accusation is ill-founded, as we have maintained a pretty good relationship with most of the planks; have seen that those who wanted to serve have served; have maintained correspondence with many of those out-of-town. The old-explorer image is more difficult to defend, outside the fact that we continually beseech the newer generations to send us material. While we honor and respect the past, we recognize the fact that things have changed tremendously within the Society since its inception, and that we have an obligation to our out-of-town members to try to be more responsive to them.

**BERT CRARY, A GIANT AMONG MEN.** Bert Crary is gone, but he will never leave us, as he is immortal polarwise. When polar men get together, they will always talk about Bert, as he was truly a legend in his time. No one ever said a harsh word about Bert; he was a man's man, one whose demeanor brought respect from those who came in contact with him. Physically he was like the village blacksmith, but inside he was a pussycat. He was kind, he was considerate, he was warm. It was difficult to see Bert go through this last ordeal; he suffered so greatly. About a month ago when I was visiting at his bedside, I asked him if the pain was real bad, knowing that it must be, and he looked at me and said, "It's terrible!" Although Bert put up a terrific fight, he was no

match for cancer, and I think he realized it. Once, when he could communicate, I asked him if there was anything I could do for him, and he replied weakly, "Just feel sorry for me." His last three weeks were spent battling overwhelming odds.

Since his mid-September operation (tumors on his spinal column were threatening paralysis at the time), he had gone downhill and was in a lot of pain. Any other person but Bert would have cashed in the chips several weeks earlier, but he told Mildred that as long as she was willing to fight, he was, too. His son came home from college, and Bert was able to recognize him. Tom Jones came in, and he recognized him. A letter from Bill Field brought a faint smile. It is my personal feeling that he was mentally prepared for death. Two days before he passed away, Bert's condition deteriorated drastically, and the writing was on the wall. They were able to make him fairly comfortable, and nurses said he wasn't experiencing any pain. Mildred was with Bert at the end. Although she denies it, she was a pillar of strength throughout the ordeal.

There will always be funny stories about Bert; one of the last ones had to be about a fortnight before he died when a very attractive, diminutive blonde nurse came in to give him a liquid concoction of pills (including flutamide which Mildred had been able to obtain). As she was trying to empty the contents of the cup into Bert's mouth, he was uttering gutturally a quick succession of a popular earthy word (most normally associated with a barnyard, but heard most anywhere under stress). She asked, "What is he trying to say?", and Mildred told her what he was saying!

If Bert had a dying wish, it had to be that his book on his activities in the Arctic and Antarctic be published. The Ohio State University Press has expressed an interest in the book, but they wanted to see some changes made in the draft. When he was in the recovery room following his mid-September operation, it was said that he asked for the manuscript so that he could go to work on it!

Bert is survived by his devoted wife Mildred\*who maintained a constant, faithful, loving vigil at his bedside during her waking hours, and his son Frank, a brilliant, mathematically-oriented student at the University of California at Berkeley.

**CRARY THE SCIENTIST.** Bert was born in Pierrepont, New York, and was a classmate in high school of former Secretary of State Rogers, who only grunted when Bert approached him to renew acquaintances at the issuing ceremonies of the Antarctic Treaty stamp. Bert graduated magna cum laude from St. Lawrence University with a B.S. in chemistry. He was a lineman on the football team, opening up holes for running back Hal Schumacher who went on to become a Hall of Fame baseball pitcher for the New York Giants. When approached in spring training a couple of years ago, Prince Hal recalled fondly his associations with Bert at St. Lawrence. Bert then went to Lehigh where he picked up his master's degree in physics in 1933. "That same year, he began geophysical research with Maurice Ewing, with whom he published papers on various topics in seismology, electrical resistivity of rocks, and submarine geophysics, including the first of the landmark series of papers on 'Geophysical Investigations in the Emerged and Submerged Atlantic Coastal Plain.' "

"From 1935 to 1945 Crary worked in geophysical oil prospecting in Colombia, Venezuela, and England, with interruptions for antisubmarine research during 1941-42 at Woods Hole Oceanographic Institution, and for a short period of oil exploration on the Persian Gulf. His research on upper air acoustics for the U.S. Air Force resulted in a series of papers on upper atmosphere winds and temperatures.

"He joined the USAF Cambridge Research Center in 1946, and worked as a geophysicist for them until 1960. From 1951 to 1955 he worked on an assortment of problems dealing with sea ice, ice islands and the ocean. When ice island T-3 ("Fletcher's Ice Island") in the Arctic Ocean was occupied in 1952, Crary became chief scientist for Air Force work on the island, continuing until T-3 was abandoned in 1955. It was

\*Mrs. Mildred Rodgers Crary, 8301 Beech Tree Road, Bethesda, Maryland 20817.

while working on T-3 that he discovered and explained 'Crary waves', an unusual type of guided, elastic-plate wave, and also flew to, and landed at, the North Pole.

"In 1955 he set up the Glaciological Headquarters for the U.S. National Committee for the International Geophysical Year, and organized the U.S. Antarctic work in glaciology including oversnow traverses. In 1957 he went to Antarctica as Deputy Leader of the U.S. scientific efforts, and was scientific leader at the Little America Station. He remained in Antarctica until 1959, leading the summer traverses on the Ross Ice Shelf and Victoria Land. In 1960-61 he returned to lead the McMurdo-South Pole traverse. When he arrived at the South Pole he became the first person to have set foot on both Poles. In 1966 he returned to the Antarctic again aboard the research vessel "Eltanin"

"Although he ceased active work in Antarctica thereafter, he continued to play a vital role in the organization, direction, and support of Antarctic research through his successive positions in the National Science Foundation as Chief Scientist of the U.S. Antarctic Research Program, and Deputy Director and then Director of the Division of Environmental Sciences. At the same time, he continued to publish the results and analyses of his own Antarctic work. He retired in 1976.

"His output of research work is as versatile as it is large, and he is regarded as one of the outstanding scientists in his field. Recognition of his work has come in the form of many awards: the U.S. Department of Defense Distinguished Civilian Service Award, the Cullum Geographical Medal of the American Geographical Society, the Patron's Medal of the Royal Geographical Society, the U.S. Department of Navy Distinguished Public Service Award, the Vega Medal of the Swedish Society of Anthropology and Geography, a medal from the Soviet Academy of Sciences commemorating 100 years of international geophysics, and an Honorary D.Sc. degree from St. Lawrence University."

#### **COLLEAGUES' TRIBUTES TO BERT CRARY.**

At the time of Bert's death, *Dr. Frank Press*, President of the National Academy of Sciences, signified to Charlie Bentley that Bert's passing marked the end of an era. Mildred thought she would like to include other tributes to Bert in an obituary which she was preparing for various newspapers, and many excellent ones came in as soon as the scientific community learned of his death. With her permission, we would like to share some of them with you. First, we should start with the Grand Patriarch of the Antarctic, *Larry Gould*, who said, "If I have ever known an indispensable man, it was Bert Crary. When I was helping to organize the IGY expedition to Antarctica, Bert Crary was the first man I picked." - Then the consummate Arctic scientist, *A. Lincoln Washburn*, Commissioner of the Arctic Research Commission, wired, "Tahoe and I grieve at the passing of a heroic figure, but we are grateful that suffering is over. We shall always cherish his warm friendship and his many contributions to the world. His accomplishments will stand as a magnificent memorial to him." - *Gentleman Jim Zumberge*, the immediate Past President of the Scientific Committee on Antarctic Research, and occasionally-at-home President of the University of Southern California, called in with "Bert Crary was an exceptional man because of his ability to combine his genius as a scientific explorer with his qualities as a human being. For this he will be remembered by those of us who were his compatriots in science and friends in life." - Before he rushed off on an overseas mission, *Walter Sullivan*, Science Editor of the New York Times expressed himself, "To me, Bert Crary represented the finest in polar explorers and scientists. In contrast to so many, he was not driven by vanity or ego but by the advancement of knowledge. And he was a wonderful human being." - The erudite *Mark Meier*, Director of the Institute of Arctic and Alpine Research, responded, "Bert Crary, perhaps more than any other person, brought modern geophysics to the study of ice and the land in the polar regions." - *Charlie Bentley*, who sits very comfortably in the Albert P. Crary Chair of Geophysics at the University of Wisconsin, said of his very close friend and long-time associate, "Bert Crary was the man who, more than any other, was responsible for the

introduction of solid geophysical techniques into both north and south polar studies. Both by his leadership and by his personality, he was an inspiration to two generations of polar scientists." — *Gordon de Q. Robin*, retired Director of the Scott Polar Institute at Cambridge University, passed along the following, "Bert Crary was the leading light in glaciology in Antarctica during the IGY. In the post-IGY era, as Chief Scientist of the U.S. Antarctic Research Program at the National Science Foundation, he provided vigorous national and international leadership, including support for the U.S.-U.K. Program to use airborne radio-echo sounding to determine the thickness of the ice sheet in Antarctica. He was an outstanding scientist and a great friend." — Representing the American Geographical Society, the termini glacier man, *Bill Field*, said, "A great scientist, a great companion, and a great friend. I'm proud to have been associated with him." — The founder and first Director of the Institute of Polar Studies at the Ohio State University, *Dick Goldthwait* interrupted his morning walk along the sands of a Florida beach to say, "He was a great man at the end of an era of getting into the Antarctic and learning about it. We mourn the loss of a great friend, a friend who would listen to everybody."

**CRARY MOUNTAINS AND CRARY ICE RISE.** There are two geographical features in Antarctica which honor Bert — the Crary Mountains at 76°48'S, 117°40'W, and Crary Ice Rise at 82°56'S, 172°30'W. The mountains are ice-covered, 35 miles long, have peaks of more than 3,500 meters, and are located 50 miles southwest of Toney Mountains. They were probably seen first on the U.S. Antarctic Service Expedition by Admiral Byrd on flights from the BEAR on February 24-25, 1940, but were never mapped until the 1957-58 traverse from Byrd Station to the Sentinel Range led by Charlie Bentley. The ice rise is in the south-central part of the Ross Ice Shelf, and was the subject of study by various researchers of the Ross Ice Shelf Project in the 1970's. Bert had conducted studies near the ice rise while on traverses in the 1957-58 season.

**FATHER DAN, WIHWK (HARD WORKING KATHOLIC), GOES TO HEAVEN.** One of the kindest and gentlest persons ever to go to the Antarctic, Father Daniel Linehan, died in Glover Memorial Hospital in Needham, Massachusetts after a short illness on 27 September 1987. Father Dan, as he was popularly called, was a Jesuit priest for over fifty-one years, and was internationally renowned in seismology and geophysics. He served as Director of Boston College's Weston Observatory for thirty-two years, and resided in Campion Center, a home for Jesuits a stone's throw away from the Observatory. Fortunately for this writer, he visited with Father Dan for several hours less than a year ago (see *Bergy Bits*, December 1986); it was a most rewarding and exhilarating experience to sit with him and listen to him talk about his Antarctic memories.

Father Dan's introduction to the Antarctic was at the invitation of his friend, the late Admiral Richard E. Byrd, who called and invited him to go to the Antarctic. Father Dan was born with a large amount of travel dust between his toes, and immediately said he would go. That evening he realized the Admiral had asked him to meet the ship in New Zealand, but had not promised any travel support funds. But everything turned out well in the end, and Father Dan did go with Byrd. Father Dan told me he took the geophysical measurements/observations at McMurdo which determined that it was the proper place in that area to build a U.S. facility. So you see, even Catholic Jesuits are not beyond making mistakes! He also took geophysical measurements at Marble Point. He was better known for his activities during the IGY when he was flown all over Antarctica by the late Admiral Dufek. One of the flights on December 6, 1957 went to the South Pole where he took the first seismic shot at that station. We remember it well, as this soul arrived on an R4D flight later that day, and was there when Father Dan set off the seismic charge in the hole created where a Caterpillar tractor had streamed in about thirty feet when its chute never opened.

Father Dan was more proud of his ministerial functions in Antarctica than he was of his many scientific endeavors. He was the first person to hold mass on the continent of Antarctica, although another Catholic priest (Rev. William J. Menster) who was on shipboard during Operation Highjump celebrated mass in Antarctic waters (see his book Strong Men South). Father Dan was also the first priest to celebrate mass at the South Pole, and, according to the obituaries in the Boston papers, he performed the first baptism in Antarctica. We don't know who that person is/was, but maybe some of you members do. Father Dan was made an Honorary Seabee when he was in the Antarctic, probably the only Seabee who had a clean tongue! Father Dan was bipolar, as he went on the Dow Expedition to the Arctic in 1950, although my notes show that he was there in 1954. Regardless, he made the first magnetic studies on the ground to determine the new location of the elusive North Magnetic Pole while on the Dow Expedition.

Among his non-polar accomplishments was introducing seismic techniques to the field of archaeology in locating buried tombs and walls during excavations under St. Peter's Basilica in Rome. He was on many UNESCO seismological missions in Africa, Asia, and South America, and was truly a dynamic, if not dynamite, travelling priest with a charge and impact! He touched many, as, besides being Director of the Weston Observatory, he taught physics and geophysics at Holy Cross, Weston, and Boston College, and served as Chairman of the Geophysics Department at Boston College from 1948 to 1956. This was one Antarctic who went directly to Heaven (without being degaussed enroute), and we hope there are others there, as Father Dan would only enrich those with whom he comes in contact. What a nice guy!

**CHLOROFLUOROCARBONS COULD BE ANTARCTICA'S ACHILLES.** The late winter-early spring ozone hole over much of Antarctica has created more scientific interest than any other single happening in the history of the continent. Twelve solo NASA Lockheed ER-2 high altitude flights and thirteen DC-8 flights supplemented another intensive ground program by six teams of atmospheric scientists at McMurdo. According to a press release from the National Science Foundation on 27 October, they said "evidence strongly supports the theory that chlorine derived from chlorofluorocarbons is at least part of the cause of the antarctic ozone 'hole'. Also, it corroborates information obtained by airborne experiments and satellite observations performed in September by NASA."

From accounts in Time Magazine for 19 October 1987, it must have been a real hairy experience for the three pilots who made the seven-hour solo missions over Antarctica. The pilots wore pressurized suits and had to breathe pure oxygen for an hour before takeoff in order to remove nitrogen from the blood and tissues, thus preventing bends which can result from rapid reductions in air pressure. The pilots, who were strapped in, found that the plane did not warm when it soared into the stratosphere, with temperatures plummeting to  $-130^{\circ}\text{F}$ , low enough to cause worries about fuel freeze-up. They also encountered winds up to 150 knots, although the most difficulty came from 40-knot winds that tossed the plane around during landings.

Meanwhile, a specially-outfitted DC-8 was flying parallel flights out of Presidente Ibanez Airport, twelve miles north of Punta Arenas with 40 odd scientists and support crews. They made thirteen twelve-hour round-trip flights at altitudes up to 40,000 feet, but at least they could get up and walk around in the plane. But if you think they were all getting great views of Antarctica, you are mistaken, because they were in clouds most of the time. Even the high-flying ER-2 encountered clouds at 61,000 feet. Pilot Ron Williams was quoted as saying, "I went into clouds at 61,000 feet and did not come out for the whole time." Both aircraft were part of a \$10 million scientific mission carried out by the United States under the combined sponsorship of NASA, NOAA, NSF, and the Chemical Manufacturers Association.

Meanwhile, back at that frontier mining town of McMurdo, six teams of scientists were confirming and expanding what they learned last year on the first National Ozone

Expedition. "Leader Susan Solomon and her associates from the NOAA Aeronomy Laboratory in Boulder, Colorado, collected visible and near ultraviolet light from the sun and moon and analyzed it for absorption by such atmospheric molecules as ozone, nitrogen dioxide, chlorine dioxide, and bromine oxide. The latter two are important because they are produced mostly by chlorofluorocarbons and bromocarbons. The chlorine dioxide levels observed in Antarctica were much greater than those measured at other latitudes, and were comparable to results obtained by the group last year at McMurdo. The instruments used this year were much more sensitive to chlorine dioxide than those used last year, and they could be used to detect bromine oxide, which was not measured last year.

"A research team from the State University of New York at Stony Brook, directed by Robert de Zafra and Philip Solomon, has again detected very high levels of chlorine monoxide (ClO) in the lower stratosphere—more than a hundred times the amount normally present at comparable altitudes outside Antarctica. Using an improved microwave emission spectrometer with twice the spectral range of that used last year, the group measured the daily cycle of ClO, as well as its long-term behavior, through September and early October. The team also collected data on nitrous oxide (N<sub>2</sub>O) and hydrogen cyanide (HCN) to estimate vertical and horizontal transport within the antarctic vortex.

"Bruce Morley of SRI International in Menlo Park, California, used a two-wavelength laser radar or lidar (light detection and ranging) system to monitor the vertical distribution of polar stratospheric clouds and aerosols over extended periods of time. Polar stratospheric clouds are believed to play an important role in the destruction of antarctic stratospheric ozone by providing the necessary surface area on which certain chemical reactions can take place. Such clouds, at altitudes ranging from 10 to 22 kilometers, were detected on 16 of 22 days that lidar measurements were made. Significant changes in the vertical distribution of the clouds were observed in time intervals as short as five minutes.

"After preliminary analysis of data obtained by their lidar ozone measurement system, the NASA Goddard Space Flight Center team, headed by William S. Heaps, found that there is a considerable reduction in ozone over McMurdo, starting at about 12 kilometers, with a minimum at about 15 kilometers. They noted also that polar stratospheric clouds were considerably more common than expected.

"The University of Denver team, led by Frank J. Murcray, set up a solar infrared spectrometer system at Arrival Heights, above McMurdo Station, in early September. It was operated jointly with scientists from the New Zealand Division of Scientific and Industrial Research. Although cloudy weather hampered early data collection, preliminary results from on-site data processing indicate unusual chemistry in the atmosphere, with low values of hydrochloric acid, nitric acid, and nitrogen dioxide. The instrument records much of the infrared solar spectrum, and allows the measurement of the absorption of solar infrared radiation by many trace gases in the atmosphere. Further analysis, using large computers unavailable in Antarctica, will yield amounts of chlorofluorocarbon 11, chlorofluorocarbon 12, methane, nitrous oxide, ozone, chloronitrate, and other gases. Measurements will continue into November.

"A University of Wyoming group launched 35 balloons carrying sounding equipment to measure ozone and particle distribution as a function of altitude. The group, under the direction of David J. Hofmann, recorded some of the lowest ozone levels ever measured. Near 15 kilometers altitude, a layer of the stratosphere about three to four kilometers thick contained only about three percent of the amount of ozone considered normal."

Time Magazine said, "Scientists are still not completely sure why the hole remains centered on the Antarctic or why the depletion is so severe . . . . It is not clear whether ozone depletion in the Antarctic is an isolated phenomenon or whether it is



an ominous warning sign of more slowly progressing ozone destruction worldwide. Data indicates that the decline over the past eight years is 4% to 5%. Scientists estimate that natural destruction of the ozone could account for 2% of that figure. The Antarctic hole could explain an additional 1%. The remaining 1% to 2% could simply be the result of normal fluctuations." Murphy's Law?

**BAY OF WHALES, ALLES KAPUT, AGAIN.** According to the late Charles Thomas, ice is where you find it, and there is a big glob of it floating westward off the Ross Ice Shelf. If you are sailing in those waters, you can't very well miss seeing it, as it is 98 miles long, 25 miles wide, and about 750 feet thick. Where did it come from? Well, right off the end of the Ross Ice Shelf near Edward VII Peninsula. It wiped out the general area where all of the Little America stations once were, except they, too, had long since been gone to sea on previous calving. There is something like 2,450 square miles of ice surface floating westward. The berg would stretch from the Statue of Liberty to Independence Hall, and hopefully could bury much of that megalopolis corridor. Supposedly it represents two to three times the annual ice discharge of the continent. It's being called B-9 because of its original map coordinates. Its happening and subsequent movements are being documented by the NOAA-10 meteorological satellite, operated by the Department of Defense and NOAA. I suppose the Society should run a lottery on when this tremendous berg will be reduced to a bergy bit - ashes to ashes, dust to dust, so must go all bergs.

**NASA LOOKS TO THE ANTARCTIC.** Paul Humphrey, an aging Antarctic golfer in Raleigh, North Carolina sent us a clipping from the Raleigh Times of 3 October 1987 about how NASA is studying Antarctic camp life for ways to preserve astronaut harmony amid confinement, monotony. The article by Thomas H. Maugh II of the Los Angeles Times wrote that "psychologists are growing more concerned that the confinement, monotony, and prolonged close contact with other crew members will reduce astronaut efficiency and productivity. Such conditions might even lead to psychotic behavior that could endanger the crew or its mission." It seems that NASA psychologists are turning to what many consider the closest earthly analogy of a spaceship: the Antarctic camp where small groups of men and women spend seven to nine months. Supposedly psychologists have found that isolation and monotony take a big toll in the confined outposts, with productivity dropping, anxiety and hostility soaring, risk-taking and rule-breaking escalating, and bizarre and eccentric behavior becoming more common during the long winter night. If they wanted to study that kind of behavior, but more pronounced, they should take a sampling of Boston drivers. Now there is a large group of real neurotic who are out there on the highways endangering lives every day.

The article said that a Russian scientist axed a colleague who beat him in chess; that an Australian cook chased a mechanic with a meat cleaver for three hours before both got tired, got drunk and got reconciled; that another Australian crew built stocks outside, locked an unpopular mate in them for four hours and showered him with garbage. To wit we say, "So what?" One can hear the same kind of news any night of the week on the six o'clock evening news in any major city, except what happens back here is more gory. This writer takes strong exception to comments from a Patrick Cornelius, an astronautical engineer with Boeing Aerospace Corporation who has wintered over in Antarctica twice as part of a support crew, and anthropologist Jeanne Williams of the University of Texas, who wintered over as a satellite ground-station technician. They painted a pretty dim picture of mid-winter camp life, full of tension and stress, and low productivity. On the other hand, psychologist Sybil Carrere of the University of California, Irvine, who wintered over at Palmer Station with her husband, seems to have conducted some very valid psychological and physiological studies on nine of the twelve men at the station.

This person feels that NASA has too much contract money, that they will study anything any time. It would seem that there should be a world of difference between those selected to go into space and those chosen to winter over in Antarctica. There never could be a Sam Wilson in space, as there's not enough room out there, but the Antarctic is full of Sam Wilsons. The article suggests that it might be useful to send potential crews on some type of high-risk adventure like the Outward Bound program, where operation and resourcefulness are emphasized. Probably the best advocacy in the whole article.

**ANTARCTICA FOR SALE.** If you have the bucks, Mountain Travel of Albany, California has an Antarctic deal for you. They start at a paltry \$2,845 and go up to \$69,500, so they have something for everyone. They will put you on an Argentine polar research/supply ship, the A.R.A. BAHIA PARISO which carries up to sixty passengers, which will make six cruises to the Antarctic between December 6th and January 31st. Some are slightly longer than others, but most average fifteen days. They have up to four multi-lingual guides who speak English, German, French, Spanish, Portuguese, and Japanese. Mountain Travel puts their own guide aboard if they book fifteen or more passengers. If you want to spend additional time in Antarctica, the Argentines will drop you off at Esperanza Base for two weeks (for which you will have to pay an additional \$2,750). Cabins on the ship start at \$2,845 per person and go up to \$6,530.

If your will is to climb Mt. Vinson, Mountain Travel offers 30-day junkets commencing November 19th which start at \$19,000. However, if you are loaded with money and want a nice, little easy ski to the South Pole, they will drop you over the horizon at the Thiel Mountains (85°15'S) and get you to the Pole for \$69,500. But you have to find nine companions, as they won't start up the supporting snowmobiles until they have a total of ten payees. You will have a very casual ski to the Pole, carrying a light pack, as four support personnel will be driving the vehicles hauling your food and supplies. They will do about fifteen miles per day, and drag it out for about forty days. If you are a woman and have the bucks, you will go down in history -- as the first of your sex to ski to the South Pole. It all sounds rather disgusting to this soul. Has Antarctica just become a big playground for the rich? We think it would be beautiful if the South Pole closed up their ship store and post office (for inventory purposes) when adventurers arrive, forcing them to leave without T-shirts and mailing post cards.

John Yost of Sobek Expeditions was quoted in the Dallas Morning News of 4 October as saying that there will be about a thousand tourists in Antarctica this austral summer, and this figure does not include three-day trippers out of Chile. Sobek is offering a small boat trip down the peninsula on the CAPTAIN ACAZAR, one which includes hiking, skiing, wildlife viewing, and optional overnight camping near some of the whaling and scientific bases along the coast. The price of this trip is \$3,595, plus airfare from South America. Karen Ronne Tupek, pack your skis, and go back to where you were just a twinkle in the old man's eyes!

A three-day excursion to a Chilean seasonal base is yours for only \$1,500. This includes airfare from the mainland, accommodations (a full hotel staff is flown in for each season), food and sightseeing. It's all like a weekend in New York City, but without theater tickets. John Rasmus, a United Press syndicate writer, speculated that in a couple of years Super-MaxSavers may be available if you're willing to stay over a Saturday. Antarctica, what is happening to you?

**ICE CHIPS.** *Norman Vaughan*, 81-year old veteran of the Byrd Antarctic Expedition, 1928-30, survivor of three busted marriages, must have done something right on the 1987 Iditarod race, as his travelling companion on the 1,157-mile race, *Carolyn Muegge*, married him afterwards. It's not whether you win or lose, but how you run the race! To the newlyweds, our heartiest congratulations and a sled full of good luck.