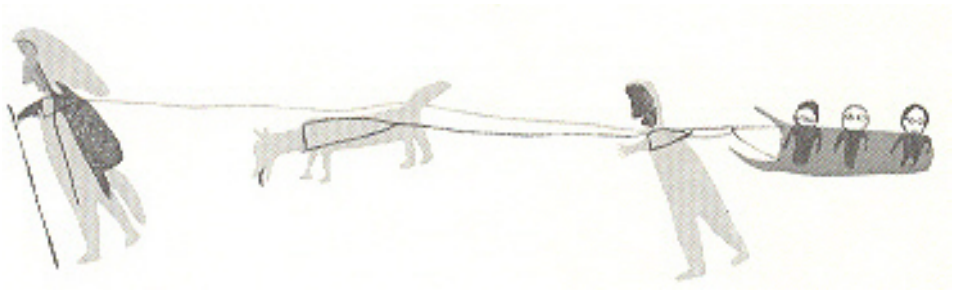

Cold Trail

Newsletter of the Cryosphere Specialty Group

Association of American Geographers

New Series
Issue 4, March 2007 **Allan Frei, Editor**

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Message from the Chair

It is a pleasure to greet you all again for the second (and final) time as the Chair of the Cryosphere Specialty Group. The public visibility of cryospheric studies continues to increase with recent scientific results and the publication of the Summary for Policy Makers of the Fourth Assessment Report of the Intergovernmental Panel for Climate Change (IPCC-AR4) (the full report is due out in May). Cryospheric observations played a key role in elevating the level of confidence in the human influence on climate change expressed by IPCC-AR4, although large uncertainties in many particulars, such as the changing rates of ice flow on Greenland for example, will no doubt keep cryospheric scientists on their toes for many years. All this is perhaps fitting, for as you all know, this year is the International Polar Year (IPY), which comes on the 50th anniversary of the International Geophysical year (IGY) of 1957 (see the March, 2006 issue of *Cold Trail* for more information in IPY).

I would like to bring your attention to another 50th anniversary that we are celebrating this year: Dr. Roger G. Barry's involvement in Cryospheric Science! While you all know Dr. Barry in his role as director of the National Snow and Ice Data Center (NSIDC) (nsidc.org/about/director.html), and that he has been a major force in cryospheric studies for many years, you may not be aware that he began his career during the 1957 IGY.

Dr. Barry's research, publishing, and teaching careers have been incredibly productive and influential. He has published over 20 books; over 200 articles and book chapters; and numerous other reports, proceedings, etc. Dr. Barry has advised over 50 Masters and Doctoral students in his career. Furthermore, through his work at NSIDC, he has influenced the field in numerous other ways, including the supervision of researchers, visiting scientists, and fellowship recipients; as well as through his tireless efforts at making cryospheric data available to the research community and to the public in general.

Dr. Barry has been the recipient of numerous awards and honors (far too many to list in full here), including the Guggenheim Fellow (1982-83); Honors

Award from the AAG (1986); AGU Fellow (1999); Fulbright Teaching Fellow (2001); Foreign Member of the Russian Academy of Natural Sciences (2001); Distinguished Professor at the University of Colorado (2004); and numerous visiting professorships worldwide.

It is no exaggeration to say that the field of cryospheric science would be very different, and far poorer, if Dr. Barry had not chosen it for his career. Therefore, it is fitting that the first Cryosphere Specialty Group *Francois Emile Matthes Award* has been awarded to Roger G. Barry. The presentation will be made at this year's business meeting. (See the section below about F.M. Matthes.)

Furthermore, on a personal note, I can attest to something that is well-known by anyone who has worked with Dr. Barry: he is a true gentleman in every sense of the word. He is extremely generous with his time, always willing to give advice, and always has a kind and constructive word to say. He has keen interests in many fields other than his specialty, including classical music and opera. I personally feel lucky and honored to have worked for Dr. Barry at NSIDC. I am also grateful to Dr. Barry for agreeing to write the following special invited essay for *Cold Trail*, which is about his life in the cryospheric sciences.

Allan Frei
Chair, CrSG
Hunter College & Graduate Program in Earth and Environmental Sciences
City University of New York

Invited Essay:

A CAREER IN CRYOSPHERIC SCIENCE

Roger G. Barry

My earliest cryospheric work was during the IGY year 1957-58 whilst I was a graduate student at the McGill Subarctic Research Laboratory in Schefferville, Quebec. It consisted of measuring lake ice thickness – black and white ice – on Knob Lake. The data were later worked-up by John Andrews. In 1966-67 I spent a year on leave working at the Geographical Branch, Department of Energy, Mines, and Re sources, Ottawa. I focused on the climate of Baffin Island and during summer 1967 I visited the base camp of the Geographical Branch at Ekalugad Fiord. I arrived there by flying to Cape Christian and traveling on a skidoo-powered sled with local Inuit over the sea ice to Clyde River, from where I was collected by helicopter. Another trip was made by helicopter over the Barnes Ice Cap. In October 1968 I moved from the University of Southampton, UK, to the Institute of Arctic and Alpine Research (INSTAAR), University of Colorado at Boulder, joining Jack Ives and John Andrews who had relocated from Ottawa with the demise of the Geographical Branch in September 1967. In summer 1970 John and I and a group of graduate students worked on the climate and mass balance the Boas Glacier, Baffin Island. In spring 1971, John Jacobs and I undertook aircraft measurements of sea ice albedo in Davis Strait using a NCAR Queenair.

Subsequently, John and Ron Weaver, who had both been on the Boas expedition, studied the energy regime of landfast sea ice at Broughton Island. We also carried out initial studies with remote sensing data from ERTS (Landsat 1). Attention then turned to landfast ice in the Beaufort – Chukchi seas under the Offshore Continental Assessment Program (OCSEAP) in work performed by Dick Moritz and Jeff Rogers. Our results have recently been compared with modern data by Andy Mahoney in his PhD dissertation at University of Alaska, Fairbanks.

Much of my work at INSTAAR addressed the paleoclimatology of the Last Glacial Maximum (LGM) and glacial onset conditions, working with Ives and Andrews. A notable achievement was the 1974 PhD of Jill Williams (later Jill Jaeger) who with Warren Washington and I performed the first simulation of Ice Age climate with the NCAR general circulation model using boundary conditions for the LGM, two years before the CLIMAP group did the same.

In October 1976 the World Data Center (WDC) for Glaciology was transferred from the US Geological Survey in Tacoma, WA, where Mark Meier had directed it, to the University of Colorado. There was funding for two staff from NOAA's Environmental Data and Information Service (EDIS) through Dr. Allen Shapley, Director of the National Geophysical Data Center (NGDC), The WDC comprised a collection of glacier photographs and a library. The center grew slowly into the 1980s, taking on inventories of snow cover and sea ice charts, and ice core data sets, then Dr. Stan Wilson of NASA's Polar Oceans Program funded a study of passive microwave data that was undertaken by graduate students Rob Crane and Mark Anderson in 1982-3. This lead to the archiving ESMR and SMMR sea ice data, and to plans for NASA to generate SSM/I data products from the DMSP satellites at NSIDC. The National Snow and Ice Data Center (NSIDC) title was awarded by NOAA-NESDIS in 1981. The initial plan was for a turnkey operation on a VAX-750 computer, using software developed by NASA Pilot Ocean Data System (PODS) at the Jet Propulsion Laboratory. However, the software was ultimately developed at NSIDC. NSIDC competed for work on polar oceans, climate and sea ice under EOSDIS and Barry and Jeff Key were made team members of Drew Rothrock's POLES project. More significantly, NSIDC was invited to submit a proposal to become the Snow and Ice Distributed Active Archive Center (DAAC) for EOS products. This has come to fruition with the launch of Terra, Aqua and ICEsat and the archiving and distribution of snow and ice products from MODIS, ASTER, GLAS and AMSR-E, as well as the continuing SSM/I time series. In October 2005, the WDC celebrated 30 years of operation in Boulder with a day-long workshop (http://nsidc.org. events/30anniversary/).

In the mid 1980s NSIDC won a 5 year grant from the Office of Naval research, jointly with Dartmouth College, School of Engineering, for an assessment of the Arctic Ocean Ice-Climate System; my co-PIs were Fred McLaren - who had completed a PhD with me comparing sea ice draft data from the "Nautilus" and "Queenfish" submarine transects of the Arctic in August 1958 and August 1970

- and Russ Schnell of NOAA. This grant wholly or partly supported graduate students Mark Serreze, Jim Maslanik, Jeff Key and Martin Miles, leading to many co-authored papers and starting them on careers in polar science.

In 1988 I attended my first International Permafrost Conference in Trondheim , Norway, giving the first ever paper on permafrost data. This lead to the formation of a Working Group on Data and in 1998 to the Standing Committee on Data, Information and Communication (SCDIC) that I co-chair with Sharon Smith of Canada. This activity lead to the production of 4-year bibliographies of permafrost literature, the Circumpolar Active Layer Permafrost System (CAPS) CDs in 1998 and 2003, and the Frozen Ground Data Center with support from the International Arctic Research Center (IARC). Other data centers within NSIDC address NOAA data, and NSF Arctic System Science (ARCSS) data, Antarctic metadata and Antarctic glaciological data.

During the 1990s I became associated with the World Climate Research Program's Arctic Climate System (ACSYS) project as a member of the Science Steering Group (SSG). Ian Allison and I were charged with plans for a cryospheric program that evolved into the Climate and Cryosphere (CliC) project (Allison, Barry and Goodison, 2001). My term as co-Vice Chair of the CliC SSG ended in December 2005. Also, during the 1990s I was active in data rescue projects with colleagues in Russia that involved data on snow cover, sea ice, glaciers and frozen ground. The data sets are all available at NSIDC.

I spent September-December 1994 on research leave at the Alfred Wegener Institute for Polar and Marine Research in Bremerhaven, Germany and produced a paper on snow and sea ice albedo (Barry, 1996). My sabbatical in spring 1998 was spent at the Climatic Research Unit, University of East Anglia and at the Department of Geography, ETH, Zurich working on "Synoptic and Dynamic Climatology (Barry and Carleton, 2001) and teaching a course at ETH on snow and ice. I spent April-June 2004 on sabbatical leave at the Laboratoire de Glaciologie et Geophysique (LGGE) of CNRS in Grenoble, France. The outcome was a paper on global glacier recession (Barry, 2006).

CIRES Visiting Fellowships and Fulbright Fellowships were another source of Cryospheric scientists. These included Scott Munro from Canada, Ann Nolin, Allan Frei, Ute Herzfeld, and Tom Painter in the first caregory and Alexander Krenke, Olga Solomina, Tatiana Khromova and Igor Zotikof in the second category. Svetlana Chudinova won a NATO-NSF Fellowship. Joint glaciological papers with Alexander, Olga, Tatiana and Svetlana were one outcome of these visits.

My career has evolved from teaching and research on Arctic and mountain climates and on snow and ice to cryospheric data management and review papers and textbooks. NSIDC is planning data management activities for the International Polar Year (IPY), March 2007- March 2009 and the Arctic Observing Network and is currently awaiting word on funding from NSF.

About Francois Emile Matthes

Dr. Matthes was one of the founders of the AAG, served as its treasurer between 1913 and 1919, and was the AAG president in 1933. He chaired the AGU Committee on Existing Glaciers for 16 years, and served as secretary and acting-president of the IUGG's Commission on Snow and Glaciers. He worked for the US Geological Survey for 51 years until his retirement in 1947. He was a renowned expert in topographic mapping, glaciers, and climate change, and as part of his work for the USGS he mapped Glacier National Park, the Grand Canyon, Yosemite Valley, and Mt. Ranier National Park. Perhaps nearest to Dr. Barry's heart may be his activity over two decades assembling a collection of photographs of American glaciers (now housed with the USGS). For more information about Dr. Matthes, see the appendix containing his obituary from the Annals.

Items To Be Discussed at This Year's Business Meeting

This business meeting at this year's annual meeting of the AAG will be held on Wednesday, April 18, from 8-9 PM (for the full schedule of CrSG-sponsored sessions, see the section below. Items to be discussed include the presentation of an award, the election of new officers, as well as successes, setbacks, and non-starters in areas of interest that we identified in previous years.

Presentation of the first Francois Emile Mathes award to Dr. Roger Barry for his contributions and achievements during his career.

Election of new officers This year marks the end of term for three of the five members of the CrSG Board of Directors. We will be voting on replacements for the current chair (Allan Frei), Secretary-Treasurer (Ken Hinkle), and one board member (Del Levia). Two other board members, Anna Klene and Andy Grundstein, have one year remaining in their terms.

Successes The CrSG has had success in reaching out to other groups. We continue to have ties with the Eastern Snow Conference (last year we co-sponsored a meeting with them). At this year's Annual Meeting we continue to increase the number of sessions that we co-sponsor with other specialty groups. We have a total of 17 sessions this year, of which at least 14 are co-sponsored! This is great news. Furthermore, two of the sessions focus on humans in cold environments, and are co-sponsored with human geography oriented specialty groups. We hope to continue to foster these ties.

Setbacks We have had some setbacks in membership, which for the first time in a few years has decreased to 124 (as of February 2007) from 133 (as of February 2006). Of the 124 current members, 68 are students and 56 are non-students. We hope to address and rectify this problem.

Non-starters Several items have been discussed during the last few years, but have had no action taken on them. (1) How should we spend our limited funds? Should we expand our awards from the

student presentation competition to include outstanding paper or careers in general, or to additional student funding for attendance at the annual meeting? (2) Should we make efforts to hold excursions at national meetings? (3) Should we make an effort to represent the CrSG at regional AAG meetings?

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Treasurer's Report

Ken Hinkel obtained the current CrSG financial statement from the AAG Central Office, valid through 31 Dec 2006. All finances appear to be in order. Currently, we have a balance of about $1700. Most of our funds are generated through dues.

Our current dues structure and membership should generate about $500 annually. This amount is insufficient to support speaker fees, field trips, or student travel. **Our group must rely, to some degree, on voluntary contributions. You can make a donation by sending a check to AAG (note that it is for the Cryosphere Specialty Group) and sending it to:**

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CrSG Activities at the San Francisco Meeting, April 2007

Business Meeting at 8PM on Wednesday, April 18. A number of important issues will be discussed or decided, including the presentation of the first Francois Emile Matthes award to Roger Barry, and the nomination of two board members (see previous section of this newsletter). *Please plan to attend! Participation by the membership is important to the health of the Specialty Group!*

Sponsored and Cosponsored Sessions Details about the speakers at each of these sessions can be obtained from website of either the AAG (www.aag.org/annualmeetings/SF2007/index.cfm) or our specialty group (www.geo.hunter.cuny.edu/AAG_CrSG). Sessions are listed below in order of session number (and date/time). In addition to our sponsored sessions, don't miss the *Past President's Address* by Richard Marston on environmental change in mountain environments!

1. 1426 Glaciers in Mountain Environments: Processes and Impacts I is scheduled on Tuesday, 4/17/07, from 2:00 PM - 3:40 PM

2. 1526 Glaciers in Mountain Environments: Processes and Impacts II is scheduled on Tuesday, 4/17/07, from 4:00 PM - 5:40 PM

3. 2124 Periglacial and Feeze/Thaw Processes is scheduled on Wednesday, 4/18/07, from 8:00 AM - 9:40 AM

4. 2144 Advances in Paleoclimatology I is scheduled on Wednesday, 4/18/07, from 8:00 AM - 9:40 AM

5. 2224 The Changing Arctic is scheduled on Wednesday, 4/18/07, from 10:00 AM - 11:40 AM

6. 2244 Advances in Paleoclimatology II is scheduled on Wednesday, 4/18/07, from 10:00 AM - 11:40 AM

7. 2424 Mountain Snowpack is scheduled on Wednesday, 4/18/07, from 1:00 PM - 2:40 PM

8. 2444 Advances in Paleoclimatology III is scheduled on Wednesday, 4/18/07, from 1:00 PM - 2:40 PM

9. 2544 Advances in Paleoclimatology IV is scheduled on Wednesday, 4/18/07, from 3:00 PM - 4:40 PM

10. 2848 Cryosphere Specialty Group Business Meeting is scheduled on Wednesday, 4/18/07, from 8:00 PM - 9:00 PM

11. 3136 Vulnerabilities and Adaptation to Climate Change in the Far North & Pacific Rim is scheduled on Thursday, 4/19/07, from 8:00 AM - 9:40 AM

12. 3236 Vulnerabilities and Adaptive Strategies in the Far North is scheduled on Thursday, 4/19/07, from 10:00 AM - 11:40 AM

13. 3436 Hydroclimatology I is scheduled on Thursday, 4/19/07, from 1:00 PM - 2:40 PM

14. 3536 Hydroclimatology II is scheduled on Thursday, 4/19/07, from 3:00 PM - 4:40 PM

15. 3636 Hydroclimatology III is scheduled on Thursday, 4/19/07, from 5:00 PM - 6:40 PM

16. 4125 Snow Cover Observations and Variability is scheduled on Friday, 4/20/07, from 8:00 AM - 9:40 AM

17. 4225 Antarctic Climate and Cryospheric Studies is scheduled on Friday, 4/20/07, from 10:00 AM - 11:40 AM

18. 4325 Regional-Scale Changes in Cryospheric Variables is scheduled on Friday, 4/20/07, from 12:00 PM - 1:40 PM

Physical Geography Reception:
This years Physical Geography Reception will be held on Friday, 4/20/07, from 8PM to midnight

IN ADDITION, DON'T MISS:

3804 Past President's Address Featuring Richard A. Marston: Land, Life, and Environmental Change in the Mountains, scheduled on Thursday, 4/19/07, from 8:30 PM - 10:00 PM

Francois Emile Matthes, 1874-1948

S. S. Visher

Annals of the Association of American Geographers, Vol. 38, No. 4. (Dec., 1948), pp. 301-304.

Stable URL:
http://links.jstor.org/sici?sici=0004-5608%28194812%2938%3A4%3C301%3AFEM1%3E2.0.CO%3B2-3

Annals of the Association of American Geographers is currently published by Association of American Geographers.

FRANCOIS EMILE MATTHES, 1874–1948

S. S. VISHER

DR. MATTHES, president of the Association of American Geographers in 1933, treasurer from 1913 to 1919, and one of its founders, died June 21, 1948 in his seventy-fifth year. He retired from the U. S. Geological Survey in June 1947 after 51 years of service.

Dr. Matthes was world-renowned as an expert in topographic mapping, glaciation, glaciers, and geologically recent climatic changes. His earlier work was as a topographer and he is credited with having contributed notably to the effectiveness of mapping rugged mountain areas. The method he first used, which involved multiple sights through the transit from exceptionally favorable outlook points and sketching of provisional form lines, has become standard procedure. His success in depicting with contour lines the sculptured relief left by glacial action in the Bighorn Mountains, Wyoming, led the Director of the Survey to assign him to map, 1900–1901, that portion of the Rocky Mountains which is now Glacier National Park. Next he mapped the Grand Canyon of the Colorado River, 1902–1904; this was so artistically and accurately done as to win plaudits from countless thousands who have seen the canyon better with the help of the map. Next he was assigned to map the Yosemite Valley area, 1905–1906, and Mt. Rainier National Park, 1910–1911. He was then promoted to geologist and assigned to make geological studies of the Yosemite and Sequoia National Parks and of other areas in the Sierra Nevada, 1913–1917. During World War I he described the geology of various army camp quadrangles in the middle Mississippi Valley and Southeast. In 1919 his attention returned to the Sierra Nevada for many years of further work.

Dr. Matthes was born in Amsterdam, Netherlands; he attended schools in Netherlands, Switzerland, and Germany before coming to the United States in 1891. He graduated in civil engineering from the Massachusetts Institute of Technology in 1895. He was a Teaching Fellow at Harvard, 1904–1905. He served with the topographic branch of the U. S. Geological Survey, 1896–1912, and with the geologic branch, 1912–1947. From 1931 to 1947 he devoted much of his energy to gathering and analyzing current data on glaciers, especially on their fluctuations. He was chairman of the American Geophysical Union's Committee on Existing Glaciers and wrote comprehensive, almost annual reports which were published in the *Transactions* of the Union.

During World War II his special knowledge was valued so highly and his efforts to assist were so effective that, instead of being retired at the statutory age, he continued to serve for three additional years.

He served as Secretary 1939 to 1948 and in 1948 as Acting-President of the

Helpful suggestions concerning a preliminary edition of this memoir were received from Mrs. Matthes; from Dr. Matthes' identical twin brother, G. H. (see *Who's Who in America*); from Dr. L. L. Ray, his successor in the U. S. Geological Survey; and from Ronald L. Ives. The present writer was vice president of the Association of American Geographers in the year that Matthes was president and had frequent contact with him during three decades.

By Bachrach

Commission on Snow and Glaciers of the International Union of Geodetics and Geophysics. For months until his last brief illness, he was actively engaged in preparing the program of the Committee on Snow and Glaciers for the sessions of the International Scientific Congress to be held in Oslo, Norway in August 1948. Another activity of Dr. Matthes', chiefly developed in the period from 1931 to 1948, was the assembling of an extensive file of dated photographs of existing American glaciers, showing their progressive changes in extent and volume. This collection (now with the U.S.G.S.) already has considerable historical significance.

Dr. Matthes was an enthusiastic, energetic searcher-after-truth, a keen observer in the field, and a penetrating thinker. He was very cooperative with others who shared his interests. He was desirous of sharing his findings and gained a wide audience for his conclusions by presenting them in a manner understandable to any interested seeker after such knowledge. He took an active part in the meetings of the Geological Society of America, the Association of American Geographers, and several other scientific groups and associations. He presented fifteen papers before the Association of American Geographers. To the end of his life, Mrs. Matthes reports, "the interests of the Association were always very close to his heart."

Dr. Matthes' prolonged, devoted research and successful efforts to share his findings led to several honors. His studies of glacial sculpture and stream erosional features led to his being starred in American Men of Science in 1921, as a distinguished geologist. His *Geologic History of the Yosemite Valley*, published in 1930, incorporating many years of work, was characterized as a "geologic classic" by Kirk Bryan in a review in the *Journal of Geology* and by others. Soon after it appeared, Matthes was made president of the Geological Society of Washington and of the Association of American Geographers, and vice president of the Sierra Club and of the Washington Academy of Science. He was awarded the Silver Beaver Medal by the Council of the Boy Scouts of America in 1931, for "distinguished service to boyhood," rendered partly as a scout master and member of the Council and partly by an exceptionally successfully conducted tour of boy scouts about the Yosemite and certain other scenic western areas. His notable contributions to the understanding and appreciation of California scenery made by his professional studies of Yosemite, Sequoia, Mt. Whitney, and other areas, and numerous readable articles in the Sierra Club magazine and elsewhere paved the way for an honorary LL.D. degree from the University of California, conferred in 1947. An honor received only a few weeks before his death was the Distinguished Service Honor Award Gold Medal of the U. S. Department of Interior.

Of special interest among Dr. Matthes' publications are: "Glacial Sculpture of the Big Horn Mountains," 1900; *Mt. Rainier and Its Glaciers*, 1914, 1928; *Geologic History of the Yosemite Valley*, 1930; "Geologic History of Mt. Whitney," 1937; the chapter on Glaciers (70 pages) in Meinzer's *Hydrology*, 1942; and, in 1947, a fine summary of the geologic history of the entire range in Roderick Peattie's *The Sierra Nevada*. The following selected bibliography includes other items of interest to geographers. A fuller bibliography of his scientific publications pre-

sumably will appear in a memorial in the Proceedings of the Geological Society of America for 1948.

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