



Herbert E. Wright Jr.
1917–2015

BIOGRAPHICAL

Memoirs

*A Biographical Memoir by
H. John B. Birks*

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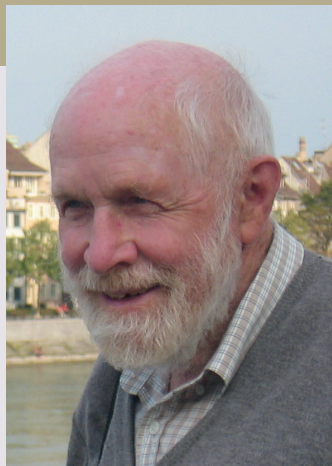
NATIONAL ACADEMY OF SCIENCES

HERBERT EDGAR WRIGHT JR

September 13, 1917–November 12, 2015

Elected to the NAS, 1977

Herbert Edgar (Herb) Wright Jr. was one of the world's most distinguished Quaternary scientists. A scientific polymath and an intellectual giant, Herb had an immense impact on many aspects of Quaternary research, both in North America and world-wide. He contributed greatly to our understanding of landscape history and environmental changes in many parts of the world over the past 100,000 years. He started in the areas of arid-region geomorphology and landscape evolution, shifting when he moved to Minnesota to glacial geology and climate history. The study of these topics led him to the study of vegetation development and environmental history and allowed him to define the timing and mechanisms of climate-driven vegetational shifts in North America during the last 18,000 years and to recognize the role of natural fire in the dynamics of northern forests. He later applied insights from this work to problems in wilderness conservation and landscape management.



A handwritten signature in black ink, appearing to read 'H. E. Wright Jr.', written on a white background.

By H. John B. Birks^{1,2}

His endless curiosity expanded to cover many other aspects of paleoecology including lake development and paleolimnology, and the history and development of the vast patterned peatlands of the Northern Hemisphere. His work was concentrated in Minnesota, with its complex glacial, landscape, vegetational, climatic, and environmental history, but his broader vision led him to be involved in a major synthesis of global paleoclimatology. Beyond Minnesota and the Great Lakes region, Herb worked on a wide range of questions elsewhere in North America and in the Near East, Europe, Asia, Latin America, and Antarctica. His multi-disciplinary approach and powers of synthesis uncovered how the Earth's landscapes and biota have been transformed at a wide range of spatial and temporal scales through the interactions between climate, flora, fauna, landform, and human activity.

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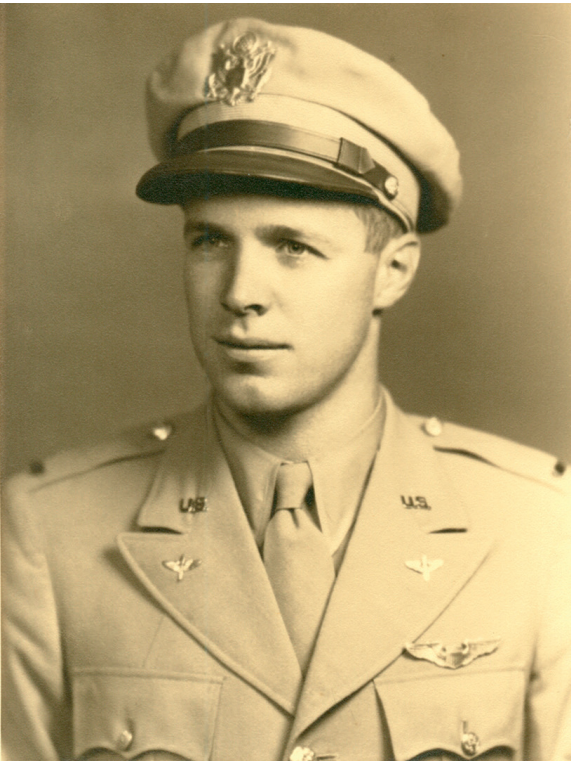
2. Environmental Change Research Centre, University College London, London, WC1E 6BT, UK.

Early life

Herb was born on 13 September 1917 in Malden, Massachusetts. His father, Herbert Edgar Wright Sr. was an osteopath who died during the ‘Spanish flu’ pandemic of 1919–20. His mother, Annie Mabel Richardson (1878–1964), was a nurse. Herb had an elder sister, Helena (1915–2010) who studied biology. He attended high school in Malden. An essay written on 14 November 1932 by the 15-year-old Herb on “Thoughts and Achievements” (Wright 1932) for his College English 3 class provides details about Herb’s early life, and his thoughts, achievements, and ambitions. Herb started school when he was six and wrote “I did not dislike school. I always took an interest in and tried to get all I could out of it” (Wright 1932). He described how he supplemented his meagre pocket money by cutting grass, selling papers, delivering and selling doughnuts made by his mother on Saturday mornings, and singing in local choirs. In the concluding outlook in his essay, Herb wrote:

If finances and other difficulties permit, I will continue to college, one of the best, I hope, and study as exclusively as I can in some subject that interests me....Whenever I hear anyone speak about history from the fall of Rome to 1700, I am immediately interested. Why, I don't know. Whenever anyone speaks of the creation of the world, or of ancient man before the first signs of cultivation, or of psychology, I am enthusiastic. Maybe I shall be a doctor or a college professor, for these two professions interest me a little, but whatever my occupation may be, it will take plenty of study and hard work. I am determined to go through college, though I haven't planned on any certain one yet, although Harvard, Dartmouth, and West Point interest me. The selection, however, is not for me to decide now. I must wait until I finish my present course before I look too far ahead.

The 15-year-old Herb’s ambition of studying at Harvard came to fruition as he graduated with a BA magna cum laude from Harvard College in 1939 and received his MA and PhD in geology from Harvard University in 1941 and 1943, respectively. His other ambition of becoming a college professor materialized in 1947. Herb started out as a Harvard biology student, with some thoughts of reading history or biology, but after a trip to all the national parks west of the Mississippi River with their spectacular landscapes, Herb’s interests shifted to geology, in particular arid-region geomorphology, landscapes, and their patterns and evolution.



Herb Wright, 95th Bombardment Group of the Army Air Corps, 1944.

(Photo courtesy of Jim Almendinger.)

When America entered World War II, Herb enlisted in 1942 as an air-cadet and became a B-17 Flying Fortress bomber pilot in the Army Air Corps. Based in Britain, he made two tours of combat duty and flew 48 missions in 1944–1945 including runs over Germany during D-Day, over Berlin after D-Day, and at the Battle of the Bulge. He served as a pilot, command pilot, and group operations officer, reaching the rank of major (Schwartz 1972). He was awarded the Air Medal six times, the Distinguished Flying Cross twice, and the Croix de Guerre from Charles de Gaulle.

In May 1945, Herb flew important aid-drops to The Netherlands. Sacks containing potatoes, flour, chocolate, etc. were dropped into marked fields bordered by cheering local residents. One young Dutch boy from near Arnhem collected some of the sacks – his name was C. Roel Janssen (1930–2015). Janssen became a palynologist who worked closely with Herb in Minnesota from 1962 to 1964 and during many short visits in subsequent decades.

Herb's first paper (Wright 1943) was on the petrology, formation, and age of Cerro Colorado, an isolated non-basaltic volcano in central New Mexico. This was his introduction to the geology and geomorphology of semi-arid landscapes. He continued in such landscapes for his PhD on the Tertiary and Quaternary geology and geomorphology of the arid Lower Rio Puerco valley in western New Mexico (Wright 1946). During this work he developed his long-lasting fascination with landscape history. He quickly realized, however, that landscape history could not be quantified without a chronology, and he puzzled about how to obtain such a chronology. He recognized the potential of

lakes as they contained organic material that might be suitable not only for paleoecological and paleoenvironmental investigations such as pollen analysis but also, perhaps in the future, for some form of absolute dating. Such dating became available in the early 1950s with the development of radiocarbon dating by W. F. Libby (1908–1980).

His PhD advisor and mentor, Kirk Bryan Sr. (1888–1950), made a major impact on Herb's career and research interests. Bryan was interested in many aspects of environmental history, especially climate change (Whittlesey 1951). His graduate students translated current papers by German scientists who were reconstructing ice-age conditions in Europe. In his early career as a faculty member at the University of Minnesota, Herb continued this tradition and distributed to colleagues translations of papers by, for example, Hans Poser (1907-1998), Julius Büdel (1903-1983), and Carl Troll (1899-1975), mainly about the periglacial record in central Europe and periglacial processes globally. Kirk Bryan was also interested in European vegetational and climatic history and late-glacial chronology and in the linkage between archaeology and geology. Both interests were followed by Herb throughout his career. Another Kirk Bryan tradition that Herb followed was to hold weekly seminars in the Wright home in St Anthony Park, St. Paul. These weekly seminars started in the 1950s and continue to this day in the same house, now hosted by Vania Stefanova.

Professional career and retirement

After his war service, Herb was appointed in 1945 a teaching instructor at Brown College (now Brown University) in Providence, Rhode Island, then a liberal-arts college. He moved to the University of Minnesota in September 1947 as an assistant professor in the Department of Geology (in 1962 it became the Department of Geology and Geophysics and is now the Department of Earth Sciences). The search procedure in 1947 consisted of a short informal interview with George A. Thiel (1892-1979), the Chair of the Department. Thiel was attending a Geological Society of America meeting in New York. He telephoned Herb and asked to meet him in New York. The 'interview' was in the lobby of Thiel's hotel. At the end of their meeting, Thiel told Herb that he was hired – quite a contrast to today's procedures of search committees, trial lectures, counting publication citations, h-indices, etc. Once installed in Pillsbury Hall where the University of Minnesota's Department of Earth Sciences is currently housed, Herb remained there for over 60 years. He was promoted to Associate Professor of Geology in 1951 and to Professor of Geology in 1959. He was also appointed Professor of Botany in 1965 and of Ecology in 1970 within the newly-formed Department of Ecology and Evolution and Behavioral Biology (now Department of Ecology, Evolution, and Behavior). He was

named Regents' Professor of Geology, Ecology, and Botany in 1974 and became Regents' Professor Emeritus in 1988.

After his PhD work in New Mexico and his visits to Europe and the Near East in the early 1950s, Herb became interested in the potential of pollen analysis as a tool for reconstructing environmental change and landscape history. Thanks to a grant from the Hill Family Foundation in 1956, he was able to establish in 1958 a pollen laboratory in Minnesota. Herb invited experienced European pollen analysts and paleoecologists to help develop the laboratory and to advise students. Magnus Fries (1917–1987; Sweden) was the first to come in 1958, starting a tradition of distinguished visiting European paleoecologists (16 in all from 1959 to 1990), including Bill Watts (1930–2010; Ireland), Rick Battarbee (UK), Roel Janssen (The Netherlands), Willem van Zeist (1924–2016; The Netherlands), Krystyna Wasilikowa (Poland), Maj-Britt Florin (1905–1993; Sweden), and Svante Björck (Sweden). With a separate grant from the Hill Family Foundation, the Limnological Research Center (LRC) was established in 1959. The pollen laboratory was incorporated within the LRC in 1963 when Herb became the LRC Director. The LRC rapidly developed expertise not only in paleoecology but also in paleolimnology and neolimnology with faculty members such as Joe Shapiro, Bob Megard, and Eville Gorham. The LRC attracted many foreign visitors for short (1–3 month) visits and its multi-national flavor was supplemented by graduate students and post-doctoral fellows from around the world. At least 18 countries were represented in the LRC between 1963 and 1990. The LRC under Herb's leadership



Herb Wright, 1959.

(Photo courtesy of Jim Almendinger.)

became a major international center for paleoecological, paleolimnological, and neolimnological research. Herb retired from being LRC director in 1990.

In addition to his always-large teaching load, both in the lecture room and in the field (Schwartz 1972), Herb published more than 200 international scientific papers, edited 21 books or special issues of journals (Jenks & Birks 2016), and supervised at least 36 PhD dissertations and 38 MSc or MA theses. He was involved as an advisor for countless more graduate students and post-doctoral visitors. Many of his students and post-doctoral visitors are now leading scholars and are making outstanding contributions to many different aspects of Quaternary research as well as to teaching, supervision, and mentoring.

Herb formally ‘retired’ from his Regents’ Professorship in 1988 at the mandatory (at that time) age of 70 and from being director of the LRC in 1990. He continued to teach and to advise graduate students for many years thereafter. In his retirement he participated in numerous sediment-coring expeditions to remote parts of the globe, including the high Peruvian Andes, Glacier Bay in Alaska, the Azores, the Bulgarian Pirin mountains, the Caucasus of Georgia, and the Siberian Altai. He was visiting Hilary and John Birks in Bergen in December 1988 when he decided to stay an extra day or two in Norway before returning to the USA. Fortunately, he was able to change his reservation that was for PanAm flight 103 on 21 December 1988, the flight that was blown up over Lockerbie in Scotland, to a later flight with a different carrier. He received the Lifetime Achievement Award from the International Paleolimnology Association in 2009 at its meeting in Guadalajara, Mexico (Wright 2010).

Family life

Herb Wright met his wife-to-be Rhea Jane Hahn (1921–1988) in church choirs at Harvard University and Radcliffe College in the early 1940s. They married on 27 June 1943. Herb was at the time an air cadet in the Army Air Corps and Rhea was a nursing student at Yale College of Nursing. They had six sons: Richard (1944–), Peter (1948–1955), John (1950–), Rex (1953–1988), Andy (1955–), and Jeffrey (1959–).

Herb loved classical music, particularly from the Classical and Early Romantic periods (e.g. Mozart, Beethoven, Schubert, Brahms), and he regularly attended concerts of the Minnesota Orchestra (formerly known as the Minneapolis Symphony Orchestra), the St. Paul Chamber Orchestra, and Music in the Park. The latter group, now called the Schubert Club dedicated their 25 September 2016 concert of Schubert and Beethoven to Herb.

Herb died peacefully at his St Anthony Park home in St. Paul on November 12, 2015, after a long illness. Rhea predeceased him on January 21, 1988 as did sons Peter and Rex. His sons Dick, John, Andy, and Jeffrey survive him along with his grandchildren Patrick, Christopher, Thierry, and Theora, and great-grandson Adrian, as do daughter-in-law Sylvie (widow of Rex), Vibeke, Christa, and Maria, partners of Dick, John, and Jeffrey, respectively, and Marianne Wright. For the last 14 years of his life, Herb was lovingly cared for by his dear friend and colleague Vania Stefanova.

Scientific research activities and their impact

The overarching aim of Herb's activities during his scientific career was to reconstruct the late-Quaternary history of individual areas and of the world and to use these reconstructions to improve our understanding of the present and the future (Shane & Cushing 1991; Wright 1973a). To Herb, the term history had a broad meaning including geological, geomorphological, climatic, biotic, and anthropological change over a wide range of temporal and spatial scales (Shane & Cushing 1991). Herb was one of the first American scientists to realize that understanding environmental history required continuous sedimentary sequences extending back in time—the most informative being lake sediments—and he became an expert in coring lake sediments.

His research interests and contributions fall into ten broad topics:

1. Developing geo-archaeological studies in the Near East (Lebanon, Iraq, Iran, Turkey, Kurdistan) and presenting important and challenging hypotheses linking early domestication and cultural events with climate change. In contrast to the long-standing hypothesis of environmental determinism in cultural history presented by Gordon Childe in the 1920s, Wright's hypotheses (Wright 1968a, 1976a, 1977a; Wright & Thorpe 2003) were based on the results of detailed paleoecological studies which he had initiated at Lake Zeribar and elsewhere in Iran (van Zeist & Wright 1963) showing that climate in southwestern Asia changed from dry to moist in the earliest Holocene. Childe had assumed the opposite, namely a moist-temperate period in the glacial period had changed to the semi-arid climate of today, thereby forcing animals, plants, and humans to congregate at oases where domestication had begun.

Herb maintained an active interest in multidisciplinary archaeological projects (Anfinson 2016; Anfinson & Stein 2016) and worked on such projects later in, for example, southern Greece (Wright 1984a), Labrador (Wright 1985), and Peru and Bolivia (Wright 1980a; Wright et al. 1989). These geo-archaeological studies ranging over 50 years of

Herb's scientific career showed how the landscape and environment influenced, in different ways and in different settings, human development and societies (Farrand et al. 1990). He pioneered geo-archaeology with his early studies of the Ksar Akil Upper Paleolithic rock shelter near Beirut, and of Jarmo (the earliest city in the world) and Karim Shahir of the middle Paleolithic site at Barba Ballea in Iraqi Kurdistan.

2. *Deciphering the complex glacial history and resulting geomorphology of Minnesota and adjacent states with their multiple ice-lobes, glacial surges, tunnel valleys, drumlins, eskers, pro-glacial lakes and their shorelines, and complex ice-advances and ice-retreats* (Wright 1972a, 1972b, 1973b; Wright et al. 1973). Herb also worked on many aspects of glacial history and geomorphology and landscape evolution elsewhere in areas as diverse as Alaska, the Yukon Territory (Wright 1980b), the Rockies, New Mexico (Wright 1946, 1964), the high Andes of Peru and Bolivia (Wright 1984b), northern Greenland, Siberian Altai (Wright 2005), the Near East (Wright 1961a; Watson & Wright 1969), and Antarctica.

3. *Synthesizing the late-Quaternary vegetation and climate history of Minnesota and adjacent states primarily based on the results of detailed pollen-analytical and plant-macrofossil studies of lake and peat sediments* (e.g. Wright 1968b; Wright et al. 1963; Wright & Watts 1969; Amundson & Wright 1979). He also facilitated innovative studies on the vegetational and environmental history of Labrador, the Yukon Territory, Alaska, the southeastern United States, New Mexico, Mexico, Ecuador, Peru, Bolivia, Switzerland, Czech Republic, Bulgaria, Iran, and the Siberian Altai. He had a passion for adventurous fieldwork and sediment coring especially in remote areas and under difficult conditions (see 8 below). Besides his early palynological graduate students such as Ed Cushing, Bob Bright, Jock McAndrews, Lou Maher, Tom Winter, Harvey Pattern, and Barbara Hansen, many of Herb's visitors, particularly Bill Watts, Krystyna Wasylkowska, Willem van Zeist, Roel Janssen, Johanna Grüger, Eberhard Grüger, Svante Björck, and Hilary Birks, made major contributions to vegetational and environmental history of areas where Herb had identified key questions.

4. *Creating a center (the LRC) for North American paleolimnology and neolimnology where questions on recent and prehistoric impact on lake ecosystems, past lake-levels, hydrological changes, patterns of lake ontogeny in recently deglaciated areas, and long-term lake development could be studied intensively* (e.g. Wright 1966, 1981a, 1992, 2010; Winter & Wright 1977). Herb's policy of encouraging distinguished European scientists to work in the LRC was very rewarding with major contributions from Maj-Britt Florin, Elizabeth

Haworth (UK); Rick Battarbee, and Ingemar Renberg (Sweden). The LRC attracted many talented post-doctoral paleolimnologists and neolimnologists including Bob Megard, Platt Bradbury, Dick Brugam, Val Smith, Ed Swain, and Michael Lynch and recruited graduate students such as Sheri Fritz and Dan Engstrom who have gone on to be leading paleolimnologists.

5. *Co-directing the multi-institutional Co-operative Holocene Mapping Project (COHMAP) research consortium with John Kutzbach, Tom Webb, Pat Bartlein, and others.* The basic idea was to simulate past climates at 18, 15, 12, 9, 6, 3, and 0 ka using general circulation models and to compare the climate-model simulations with available paleoclimatic data. COHMAP led to a major paradigm shift in Holocene climate research and Herb was a key contributor to this breakthrough (Wright & Bartlein 1993; Wright et al. 1993).

6. *Understanding the origin and maintenance of the spectacular surface patterns of northern Minnesotan peatlands* (Glaser et al. 1981; Wright et al. 1992), *and subsequently, of patterned peatlands in Labrador, Hudson Bay lowlands, Ireland, central Sweden, and northern Norway* (e.g. Foster et al. 1983; Foster & Wright 1990; Glaser et al. 2004). As a result of the research that Herb and his friend Miron 'Bud' Heinselman initiated on the vast northern Minnesotan peatlands, over 145,000 acres of state-owned land in the these peatlands were designated scientific and natural areas (Aaseng & Djupstrom 1992).

7. *Recognizing with Bud Heinselman the essential role of natural fires in determining the composition, structure, and dynamics of northern Minnesotan coniferous forests, particularly in the Boundary Waters Canoe Area (BWCA)* (Heinselman 1973, 1996; Heinselman & Wright 1973; Wright & Heinselman 1973). Herb and colleagues pioneered the detailed reconstruction of Holocene fire histories from charcoal fragments preserved in annually laminated lake sediments (Swain 1973). This early work showed the importance of fire in coniferous forest dynamics and had major implications for forest management and fire-suppression policies. Herb's synthesis of landscape development, forest fires, and management was one of the earliest studies where paleoecological results were used to propose management and conservation policies (Wright 1974). Bud, Herb, and others campaigned tirelessly in the 1970s to save an extensive area of virgin, unlogged old-growth forest in the BWCA of northernmost Minnesota as a wilderness area where snow-mobiles, outboard motors, and logging would be prohibited. They succeeded in 1978 when President Jimmy Carter signed the relevant legislative bill (Proescholdt et al. 1996). The pioneering studies by Herb and his colleagues on reconstructing detailed fire history from charcoal fragments preserved in lake sediment resulted in the reconstruction

of fire history and fire frequency becoming a major paleoecological research activity in the Americas, Europe, and elsewhere. After Herb retired he had an annual canoe-trip to the BWCA every fall, usually with Brigitta Ammann from Switzerland.

8. *Perfecting field-craft and lake-sediment coring.* Herb was as much at home in the field, even under difficult or sometimes atrocious conditions, as he was in his office or in his St. Paul home. He had a passion for coring sediments in lakes and he perfected coring from open-water using a variety of boats, canoes, home-made rafts, fallen logs, and even truck-tire inner-tubes as platforms from which to core (Wright et al. 1965, 1984; Wright 1967, 1980c, 1991, 2010). He continually improved lightweight piston corers and drive rods. His development of coring devices and lightweight coring rods enabled much of today's paleolimnological and paleoecological research. It is estimated that he provided more than 4000 meters of coring rods to colleagues worldwide (Engstrom et al. 2016). Fieldwork with Herb could often turn into an adventure, a serious adventure, or even a struggle to survive! He claimed never to remember any of these adventures, misadventures, or struggles! He loved all types of fieldwork, particularly in wild, remote, and challenging areas. His last lake coring expedition was in the Pirin Mountains in Bulgaria just before his 90th birthday.

9. *Writing concisely and editing manuscripts.* His publications, spanning 71 years, are models of simple and elegant scientific writing. He encouraged his students and colleagues to read, study, and follow Strunk & White's (1979) *The Elements of Style*, including the book as a text in several of his courses. Herb commented after his 80th birthday that he must enjoy editing and thought that perhaps it went back to his days editing his high-school newsletter in the early 1930s. Herb's generosity in editing (and often rewriting) manuscripts for friends and colleagues contributed not only to the quality of these manuscripts but also to invaluable scientific networking and long-standing international collaborations. He was particularly skilled at synthesis as well as at making novel connections and wrote valuable and insightful review papers (e.g. Wright 1961b, 1966, 1971, 1976b, 1977b, 1981b, 1984c, 1987, 1989; Watson & Wright 1980; Yu & Wright 2001). Several of the books he co-edited remain classic texts in Quaternary research (e.g. Wright & Frey 1965; Cushing & Wright 1967; Wright 1983; Velichko et al. 1984; Ruddiman & Wright 1987; Wright et al. 1993).

10. *Networking and international collaboration.* Beginning shortly after the end of World War II, Herb travelled widely in Europe and by the time he had established the Pollen Laboratory in Minnesota in 1958, he had visited all the main European pollen



Herb Wright in the living room of his house editing book chapters, 2004. (Photo courtesy of Brigitta Ammann.)

laboratories and met the leading palynologists of the time. The LRC was a hotspot of international activity and collaboration thanks to Herb's networking skills and his policy of inviting leading European scientists to work in the LRC. These visitors not only helped to develop the LRC and its facilities, but also helped to train a large number of graduate students, many of whom are now leading Quaternary scientists. After his retirement, he continued to be a regular visitor to Europe, visiting laboratories and friends, exploring new landscapes, attending field excursions, and helping to collect core sediments in lakes and mires in, for example, Norway, Ireland, Switzerland, the Czech Republic, Bulgaria, Georgia, and the Siberian Altai, and on the Azores and Madeira, as well as in Kenya, Bolivia, Peru, and Alaska.

Herb was a truly international scientist with extensive and effective trans-Atlantic scientific networks and collaborations that he diligently

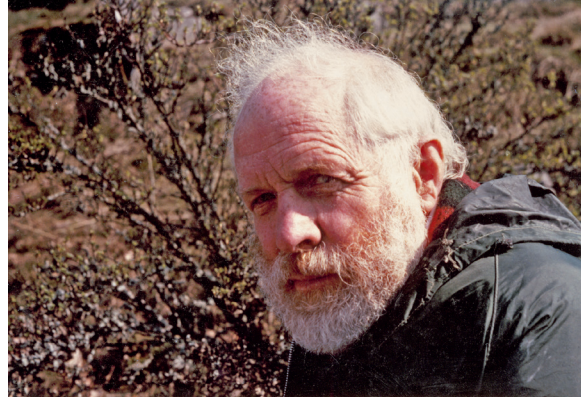
maintained for over 60 years. By being such a great polymath in his approach to science, and from his research interests and achievements, his network of former students, colleagues, friends, and visitors was vast.

Legacies

Herb Wright's contributions to our understanding of landscapes and environmental history are immense. His greatest legacy was, however, as a role model for all who knew him and worked with him. He was quietly spoken and was a remarkable combination of genuine modesty, scientific curiosity, generosity and kindness. He evinced quiet but effective leadership, a passionate love of adventure and wild places, intense loyalty, deep friendship, and strong devotion and service to his university, science, colleagues, friends, and family. By his example, he taught people to think independently and clearly, to design their projects carefully, to consider multiple working hypotheses, to read the literature, to attend seminars on topics not directly linked to one's particular project, and to interact effectively. He was a master of scientific synthesis (Engstrom et al. 2016; Whitlock et al. 2016) and he could see links between seemingly disparate topics (e.g.

Wright 1977a, 1977b, 1984c, 1989). He encouraged people to think logically and laterally, as he did and to discover new connections between different paleoecological, paleoclimatological, and ecological patterns and processes.

Herb's approach to science is well summarized by Shane and Cushing (1991) who wrote in their preface to the book *Quaternary Landscapes* that honored Wright on the occasion of his formal retirement from the University of Minnesota:



Herb Wright in Blekinge, 1979.
(Photo courtesy of Björn E. Berglund.)

He [Wright] has accomplished so much by carefully cultivating within the Limnological Research Center an atmosphere of cooperation, scholarly exchange, interdisciplinary research, and continuing international contacts.

Wright has modeled much of his teaching and research style on that of Kirk Bryan. For his students and colleagues this has meant friendship combined with independence of thought and work, wide-ranging discussions, stimulating seminars in Herb and Rhea's home, and fantastic field trips with varied hardships. We have learned from him again and again that new technology such as isotopic dating techniques and computerized data manipulation provides only tools, not final answers; that scientific research is clearly and specifically founded in the most basic disciplines of orderly thought, constant questioning, and being sure of what one understands before moving toward speculation. In his leadership of the LRC, Herbert E. Wright, Jr., has shown us that careful research based on the desire for cooperation and discovery, and not tied to traditional scholarly boundaries, has both scientific and human value.³

3. Reproduced with permission of the University of Minnesota Press.

Herb also taught many of his collaborators the importance of determinism, ingenuity, and perseverance in the field, particularly in the harsh conditions of a Minnesota or North Dakota winter or the trying conditions in wilderness areas with hordes of insects in the Yukon or Labrador. Through these hardships, strong bonds and friendships developed, many of which continue to the present (Björck 2016). Such long-lasting friendships are something that Herb must have been very proud of, as they symbolize so well the unique character of the LRC. Herb really was a great giant in so many ways.

Herb's name will also live on through his invention of the Wright square-rod piston corer (Wright 1967). He also has a peak named after him, Wright Peak (1510 m) 0.9 km south of Sutley Peak in the Jones Mountains, Antarctica (73° 40' S, 94° 32' W). It was mapped by the University of Minnesota Jones Mountains Party of 1960-61 who named it for Wright, an advisor to the Party. Wright visited Antarctica including Wright Peak in the 1961-62 season.

The obituaries and memorials by Almendinger and Jennings (2016), Anfinson (2016), Anfinson & Stein (2016), Birks and Birks (2016), Birks et al. (2016), Björck (2016), Engstrom et al. (2016), and Whitlock et al. (2016) discuss additional aspects of Herb's legacies, leadership, and mentoring.

An e-book, *Sedimental Journeys – The Life and Legacy of Herb Wright* (<http://www.eecrg.uib.no/SedimentalJourneys.htm>) has many articles about Herb, fieldwork and other adventures with Herb, and photo essays contributed by friends and colleagues, as well as notes and essays written by Herb.



Herb Wright in the Lost River peatland, northern Minnesota, 1982. A lifesize portrait by Rebne Karchefsky based on this photo hangs in Pillsbury Hall, University of Minnesota. (Photo courtesy of David Boldt and Dan Engstrom.)

AWARDS AND HONORS

- 1951, 1954–55 Wenner-Gren Fellow
- 1954–55 Guggenheim Fellow
- 1956–57 President of the Minnesota Chapter, Archaeological Institute of America
- 1957–61 Secretary, Geomorphological Division, Geological Society of America
- 1963–69 National Research Council Committee for International Quaternary Union
- 1966 DSc (Hon), Trinity College Dublin
- 1967–70 Chairman, Geomorphological Division, Geological Society of America
- 1971–73 President, American Quaternary Association
- 1974–88 Regents' Professor of Geology, Ecology, and Botany, University of Minnesota
- 1977 Member, National Academy of Sciences
- 1984 Pomerance Award, Archaeological Institute of America
- 1987 Philosophiae Doctor Honoris Causa, Lund University
- 1989 Archaeological Geology Division Award, Geological Society of America
- 1990 Science Achievement Award, Science Museum of Minnesota
- 1992 Distinguished Career Award, Quaternary Geology and Geomorphology Division, Geological Society of America
- 1993 Fryxell Award for Interdisciplinary Studies, Society of American Archaeology
- 1996 DSc (Hon), University of Minnesota
- 1996 Distinguished Career Award, American Quaternary Association
- 2003 Honorary President, International Quaternary Association 16th Congress
- 2009 Lifetime Achievement Award, International Paleolimnology Association
- 2010 Hall of Fame, Minnesota High-Tech Association

POSITIONS HELD

- 1946–1947 Instructor, Brown University
1947–1951 Assistant Professor of Geology, University of Minnesota
1951–1959 Associate Professor of Geology, University of Minnesota
1959–1974 Professor of Geology, University of Minnesota
1963–1990 Director, Limnological Research Center, University of Minnesota
1974–1988 Regents' Professor of Geology, Ecology, and Botany, University of Minnesota
1988–2015 Regents' Professor Emeritus, University of Minnesota

EDUCATION

- 1939 BA *Magna cum laude*, Geology, Harvard College
1941 MA, Geology, Harvard University
1943 PhD, Geology, Harvard University

MILITARY SERVICE

- 1942–1945 United States Army Air Corps

AUTHOR'S NOTE

This memoir is based on three other articles I have written: Herbert E Wright, Jr – a biography (Birks 2016); Herbert E Wright Jr (1917–2015) (Birks & Birks 2016); and In memoriam Herbert E Wright Jr 1917–2015 (Birks et al. 2016).

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