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IN MEMORIAM

Melvin G. Marcus, 1929–1997

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On Sunday, March 2, 1997, Melvin G. Marcus, geographer, climatologist, and glacial geomorphologist, died of a heart attack under the clear skies, in the dazzling snows of the San Juan Mountains of Colorado at 11,000 feet. Mel died with his snowshoes on; he was found lying in the snow with his dog, Sushi, curled up beside him.

At 6’6”, Melvin Marcus was a big man, and he lived a big life. He climbed mountains, studied glaciers, flew airplanes, and roamed the world. He kept the fires of physical geography burning at a time when studies of human use of the landscape dominated the field, was instrumental in the formation of AAG specialty groups, attracted hordes of field-oriented students to the discipline of geography, was a beacon for geographic education and outreach, and lived life with gusto and élan. Never one to separate his work from family, friends, and personal interests, Mel lived a multidimensional life in which his wife and children were intimately engaged in his research and teaching, his students became lifelong friends, and his personal interests in exploration, sport, literature, art, food, and music were intertwined into a broad, all-encompassing view of geography.

A Life History

Early Life and Education

Mel often observed that he was a product of his neighborhood, his city, and his time. Born in Seattle on April 13, 1929, he was raised by his paternal grandfather, who came from Liverpool to America at age 12, and had several years experience in the Yukon gold fields. With neighborhood friends, Mel was active in the Seattle boy scouts and joined the Seattle Mountaineers. Mountain-eering was just starting to blossom at that time in Seattle. As a teenager, Mel spent almost every weekend climbing in the Cascade and Olympic Mountains. By age 19, he had achieved fifty-two first ascents and was the youngest member ever elected to the American Alpine Club.

In 1947 Mel went east on a scholarship to Yale University, where he played on the basketball team and studied geology under the tutelage of Richard Foster Flint. At the end of his freshman year, Maynard Miller of Harvard University recruited Mel to work on a Harvard expedition to the Juneau Icefields in Alaska. At the time, glaciology as a field hardly existed outside of Scandinavia and England, so the expedition involved a great deal of on-the-job training. Mel eventually spent three summers on the Juneau Icefield, working his way up from packhorse to field assistant to scientist. Stunned to learn that it was possible to make a living doing what he thought people did only on vacations and holidays, Mel committed himself to a career in high-altitude glacial geomorphology, and the rest, as they say, is history.

Leaving Yale after his junior year, Mel joined the Air Force in 1951 and flew B-26 bombers in Korea and Japan. Before leaving for Korea in 1953, he married the former Mary Ann Allen. In Mary Ann, Mel found the mother of his four children (Andrew, born in 1955, Annette in 1961, Alison in 1963, and Benjamin in 1970), soul mate in exploring the glaciers of the world, and partner in bringing together geographers for work and play. It was with Mary Ann that Mel first discussed his pivotal decision to leave geology and align himself with geography upon completion of his four-year stint in the Air Force. Reflecting upon his career aspirations, he viewed geology as too limiting. In geography, he saw the possibility of combining interests in glaciology and travel with a more all-encompassing view of the environment.

Mel finished his bachelor’s degree in geography at the University of Miami (Florida) in 1956 and set off for graduate work at the University of Colorado in Boulder. Reflecting the dearth of stand-alone physical geography at the time and his genuine desire to broaden the study of alpine environments, Mel’s master’s thesis in 1957 was an economic geography of the Steamboat Springs Re-
region in Colorado. The thesis, a traditional 1950s regional geography, integrated aspects of climate, physiography, soils, land use, economy, and local culture. The thesis concludes that Steamboat Springs had a stronger, more diversified economy because of “wise adjustments made by the people of the region, thus giving the region its distinctive personality” (Marcus 1957, 101).

Upon completion of the master's degree, Mel headed to the University of Chicago for doctoral work. Not known for expertise in glaciology or physical geography, Chicago attracted Mel by the breadth of its faculty and the flexibility of its curriculum. Not bounded by a rigid set of requirements and comprehensive subjects, the Chicago Ph.D. program offered the aspiring young natural scientist the opportunity to chart his own course. Mel characterized his Ph.D. program as “self-education with occasional council.” He took courses from the geology and meteorology departments and formed strong attachments to visiting faculty members C. Warren Thornthwaite and John Russell Mather from the Laboratory of Climatology in New Jersey. Mather served as Mel’s dissertation advisor, overseeing his work on the influence of weather and climate on the regime of the Lemon Creek Glacier in the Juneau Icefield of southeastern Alaska (Marcus 1964). Mel produced a dissertation of pure natural science with no human component. He said later that he always intended to focus on physical geography exclusively during the early years of his career and then broaden his interests to add a human dimension later.

Academic Career and Professional Affiliations

Mel left Chicago in 1960 as a Ph.D. candidate to work with Thornthwaite at the Laboratory of Climatology in Centerton, New Jersey. One year later, he was offered an instructorship at Rutgers at the grand sum of $5,000 per year. At Rutgers, he revamped the physical geography sequence, making it more scientific, and worked feverishly to write his dissertation. Guido Weigend, then chair of the Rutgers Geography Department, recalls Mel lugging heavy boxes of computer cards, then the medium for digital data, around the department after long nights in the computer center. Computer time was rationed by the University, and new faculty members were allocated times between 2:00 am and 4:00 am. In the aftermath of a gigantic winter snowstorm that shut down most of the state of New Jersey, Mel skied to work fifteen miles over empty roads to meet his class. Nobody showed up—a fact he never let his students forget.

Mel moved to the University of Michigan as an assistant professor in 1964, taking with him several of his Rutgers students. There he attracted a cadre of undergraduate and graduate students and began his lifelong research into snow and ice processes. In 1966, in conjunction with the Arctic Institute of North America's Icefield Ranges Research Project (IRRP) in Canada's Yukon Territory, he carried out a reconnaissance of the St. Elias, Wrangell, and Chugach Mountains of the Yukon and Alaska. One year later, Mel (with Tom Detwyler, a colleague at the University of Michigan) formed the High Mountain Environment Project to study the climatology, glaciology, geomorphology, meteorology, and botany of high-altitude regions under a grant by the U.S. Army Research Office. Study sites included areas in Alaska's Wrangell Mountains.

Through these summer-long field excursions, Mel shared with students and colleagues an insatiable curiosity about the natural world and a deep spirituality with the outdoors. Ray Lougeay, now a faculty member in geography at SUNY-Genesee, remembers the summer of 1964, when he participated in a field expedition in a remote, mountainous region of the Yukon. As the summer season came to a close and academic schedules required a return to classes, the engine blew on the airplane scheduled to evacuate students and professors. There was neither sufficient food nor sufficient fuel to sustain the group for two weeks until a new airplane engine could be delivered. Stranded on an icefield, ninety miles from the nearest point on the Alaska Highway, Mel organized a five-day hike to safety over glaciated terrain through some of the highest mountains in North America for ten students and his eight-year-old son. In Ray Lougeay's (2000) words:

There was never the thought of a survival hike, although this forced march was certainly that, because there were few options. Mel took charge, and "suggested" a walking "field trip" to get ourselves out of this predicament and to learn more about this environment. Our route would take us across the St. Elias Icefield and down the Kaskawulsh Glacier. The Kaskawulsh Glacier is nearly 75 km (46.6 miles) in length, and terminates just 19 km (11.8 miles) from the Alaska Highway. Our equipment for such a trip was barely adequate. We were plagued with whiteout early in the trip. The first two days and nights involved pulling a large sledge over the snow of the accumulation zones. Warmer snow at lower elevations dictated abandoning the sledge for backpacks as we approached the slush several miles above the firn line . . . (Subsequent days involved dangerous hikes over rugged glacial topography and bushwhacking though prime grizzly bear habitat.) Mel's concern for safety, and his recognition of the responsibility that he'd acquired, never diminished. Yet, faced with a potentially serious emergency, he was able to turn the situation in to a very valuable learning field experience. Several of us returned repeatedly, acquired advanced degrees in physical geography, and now
some of our own students are following Mel’s tradition of field observation and the academic exploration of blank spots on the map.

Mel put a human face on scientific research, even in the most dramatic and rigorous of physical environments. Carol Harden (2000), now head of the Department of Geography at the University of Tennessee, remembers her experience in one of Mel’s field camps.

I met Mel Marcus in the summer of 1970 on Mt. Logan, Canada’s highest peak. Mel, then professor and chair of geography at the University of Michigan, was installing a temporary meteorological station and micrometeorological monitoring equipment on Logan’s high (17,600 ft) plateau and I, a recent B.A. in my second season as a support team member, was one of the group who created the research camp and read his instruments morning and evening. Except for us, the high plateau on Logan was a lifeless spot—our small camp on the Logan Glacier, a spectacularly beautiful place about 100 miles from the nearest human habitation. The Logan high camp, linked by radio, when everything worked properly, to the Arctic Institute of North America’s Yukon Territory base camp at Kluane Lake, was a unique and wonderful place of deep sky, thin air, white ice, and shared endeavor. Mel’s climate observations filled an enormous regional gap and were unique because clouds were more often “undercast” than “overcast.” When the eight of us on the support team weren’t helping with Mel’s climatological research, we were engaged in other projects: studying high altitude human physiology, surveying, and extracting cores from the glacier, sampling ice particles, or fixing the radio. For entertainment, we made up bad verse, wrote and sang songs, told lies, and climbed the neighboring peaks. I have a wonderful memory of climbing Prospector’s Peak (18,000 ft) one sunny day with Mel.

At the end of the 1971 field season, Harden redirected her course of study toward geography, took up temporary lodging in the Marcus basement (as so many colleagues and students did over the years), and began graduate work at the University of Michigan.

With the support and enthusiasm of Mary Ann, Mel involved his family in his many field expeditions. Harden (2000) remembers the entire Marcus family at the Kluane Lake base camp B: “Andrew as a teenager, Ben as a babe in arms, Annette and Alison in between and Mary Ann, seemingly as at home and gracious in the wilds of the Yukon as in the lobby of the Hilton.” Mary Ann (2000) tells of their family camping on a glacier at the base of Mt. Logan in the Yukon. As she tucked in the young Alison, her daughter said: “Mommy, why don’t we ever have adventures like the kids in books do?” To the Marcus children, a summer in the Yukon was commonplace (Figure 1); a trip to Disneyland was one of life’s real adventures.

Mel moved quickly through the ranks at Michigan, being promoted to associate professor in 1966 and professor in 1969. Between 1968 and 1971, he served as departmental chair. Also during his tenure at Michigan, he published extensively on climate-glacier interactions, supervised ten Ph.D. dissertations, chaired the Commission on College Geography’s Panel on Physical Geography, and served on its Panel on Environmental Studies. His research and educational activities were continuously funded by such agencies as the National Geographic Society, the U.S. Army Research Office, the National Science Foundation, the Arctic Institute of North America, the Canadian Institute of Aviation Medicine, Canada Department of Indian Affairs and Arctic Development, and the U.S. National Institute of Health.

Mel’s Michigan years also saw the heyday of the “Flood Plain Five Minus Two,” an infamous trio consisting of two Ph.D. students, Peter Van Dusen on the piano.
and Tony Brael on the gut bucket (an inverted wash tub with a hole in the bottom, a "g" string, and a broom handle), and Mel on the drums. Van Dusen (2000) remembers their first gig at a geography party in the Marcus living room: "There he was, this immense man... hunkering over a set of sparkling drums making them look like toys. There he was... flailing sticks, dripping perspiration, hair growing wilder and wilder, and the smile on that wonderful man's face so wide that one would think Mel had just received all the truths to Plate Tectonics!" Years later, at Arizona State, the group metaphorized into the "Salt River Flats."

In January 1974, Mel accepted an offer of a faculty position in geography and the directorship of the Center for Environmental Studies at Arizona State University in Tempe. In describing his move, Mel spoke of being pulled to Arizona rather than being pushed from Michigan. A Westerner by birth, he had long harbored a desire to return to the clear skies and majestic mountains of the West. And, having just returned from sabbatical leave in New Zealand, he saw first-hand the advantages of living near to his field sites. Years later, he recalled: "Arizona doesn't put you next to the New Zealand Alps, but it does put you next to a fascinating desert and not that far from the Colorado Mountains. The outdoor lifestyle and all kinds of field work opportunities appealed to us" (quoted in Browning 1982, 79). Equally important was his interest in applied work and in the community and region. As director of ASU's Center for Environmental Studies, he spearheaded research on local environmental problems, including dust storms on local highways, lake sedimentation, disposal of sludge, urban climatology, and the microclimatology of Grand Canyon/Colorado River riparian environments.

Mel applied the same flexibility to graduate education at Arizona State that he had so appreciated during his Chicago experience. Karl Birkland (1996), now a U.S. Forest Service avalanche forecaster, noted that Mel allowed "his students the latitude to explore subjects that interested them." And Mel's broad view of the discipline is revealed in University of Illinois geographer Bruce Rhoads' (1996) observation: "Mel is the consummate physical geographer, weaving together the physical and social in a rich tapestry of research that epitomizes the greater human-environmental tradition of our discipline."

At some time in their graduate careers, most Arizona State geography students—be they in human or in physical geography—participated in Mel's Arctic and Alpine Environments course. The high point of the course was a two-week field camp in the mountains near Silverton, Colorado. Each March, Mel and company would take over the Teller House, French Bakery, and Pickle Barrel in downtown Silverton and use them as a base camp from which to dig snow pits and take meteorological measurements in the surrounding San Juan Mountains. The rigors and satisfactions of shared endeavor are firmly embedded in the minds of several generations of Arizona State graduate students. In the words of George Hepner (1996), chair of the Geography Department at the University of Utah:

Mel included a diverse group of individuals in these field camps that encouraged a broad participatory learning experience for all. Along with formal education, many shared experiences of field science added to our education and life experiences. I remember Mel sharing a huge pot of curry as a snow and sleet storm hit us on a trek at 12,000 feet on the Continental Divide. After my tent was history and I was wet and cold, that curry was a culinary memory of a lifetime.

While at Arizona State, Mel served as the nucleus for an emerging graduate faculty in physical geography organized around the notion of water in the environment (Comeaux 1987). From an original group of two physical geographers upon Mel's arrival in 1974, the group had grown to seven (four climatologists, two geomorphologists, and one biogeographer) by the time of his death in 1997. Mel set the tone for the group's activities—its field orientation, concern for real world, policy-based research questions, regard for interdisciplinary collaboration, outreach to national and international colleagues, and genuine respect for and interest in human geography. Due in large part to Mel's leadership, physical geographers at Arizona State always functioned as a cooperative team in hiring new faculty, planning course schedules, dealing with graduate students, and plotting the department's future. Group breakfasts at a local restaurant, with Mel at the head of the table ordering chicken fried steak, became legendary.

Reflecting his heartfelt interest in human geography and seeking greater collaboration between human and physical geographers, Mel joined the Council of the American Geographic Society in 1980. In 1986, he was elected vice president and a member of the Executive Committee. Mary Lynne Bird (1996) noted Mel's "gift for bringing about consensus and seeking creative solutions." As a lecturer in the AGS's educational travel program, he was "able to explain disciplinary concepts to a lay audience in a way that create[d] enthusiasm for the subject of geography and respect for the geographic community."

Also during this period, Mel served as president of the Association of American Geographers in 1978–79. Under his leadership, the AAG commissioned a long-range strategic plan from which, at the behest of John Adams, emerged today's AAG Specialty Groups. Worried that the national meeting lacked coherence and
that the specialties would be lured away from the AAG unless they were given greater voice in the association, Mel supported a plan to give specialties greater autonomy while remaining under the AAG umbrella.

**Strategic Interludes**

With wanderlust in his blood, Mel sought opportunities to study and work away from his formal university appointments. Chief among these were two sabbatical leaves as visiting professor at the University of Canterbury in Christchurch, New Zealand, the first from Michigan in 1971–72 and the second from Arizona State in 1981. Both leaves were funded by the Fulbright Foundation. In New Zealand he was a respected member of the New Zealand Alpine Club, author of climate-glacier research, and host extraordinaire. Stories abound of memorable parties where he made humorous awards to members of the Canterbury faculty.

Mel also spent several summers at the High Mountain Research Station above Nederland, Colorado, from which he traveled down the mountain to teach summer courses at the University of Colorado in Boulder. David Greenland, now a geography faculty member at the University of North Carolina, remembers these summers as times of productivity, family, and fun. Typical of the Marcus tradition of involving family in his field pursuits, Mel’s ten-year-old son Ben went along on one expedition and picked up a Rocky Mountain tick. Mel, ever interested in making difficult experiences serve the cause of science, mounted Ben’s tick in a sample tube displayed in the lobby of the laboratory.

The United States Military Academy at West Point was home to the Marcus family and site of another Marcus interlude for 18 months in 1985 and 1986. In addition to classroom teaching, Mel organized and led the first Military Academy glacial field expedition to Alaska, offering cadets the opportunity to participate in glacial field studies and research and mentoring the instructor corps in the fine art of teaching physical geography. In classic Marcus fashion, he also led “expeditions” to New York City to introduce the young officers to his special haunts for food and jazz and arranged an evening at the Explorers Club for the cadets who had been with him in Alaska.

**Research Contributions**

**Snow and Ice Research**

Over a forty-year period, Mel was principal investigator on many unique ice and snow research projects, often in areas rarely seen or visited before. His 1963 dissertation, published in 1964 in the University of Chicago Department of Geography’s Research Papers Series (Climate-Glacier Studies in the Juneau Icefield Region, Alaska), highlighted the integration of glaciological measurements with regional and local climatological and environmental conditions, focusing on the Lemon Creek Glacier. He was later to return in 1989–90 to the Juneau Icefield under the auspices of the National Geographical Society to resurvey the Lemon Creek Glacier and study its heat/mass balance and changes over time.

Particularly innovative about his dissertation work was the blend of glaciology, climatology, and environment. In the introduction, he (1964, 1–2) stated: “While the number of works focused on glacier physics, glacial geology, and climatology is larger, the number precisely concerned with the nature and mechanism of the glacier-climate interaction is relatively small. This holds particularly true for studies which attempt to integrate materials systematically gathered in one locality or region.”

Most of Mel’s research projects involved a team effort, with colleagues, students, family, or friends upon whom he depended and for whom he gave his full measure of talents, devotion, and friendship. It was not just the research that counted on these projects, but the sharing of it as an adventurous life and educational experience for all involved. Students were participants. As one of his closest colleagues, Duke Winters (2000), noted in ruminating on Mel’s scholarship, “. . . the result was a clear and satisfying demonstration of research and science that markedly elevated appreciation for geographical analysis. Mel enthusiastically involved young scholars in much of his research, and in doing so he unfailingly gave full recognition for their input.”

His list of publications on ice and snow processes is extensive and diverse, with contributions to the fields of glaciology, climatology, geomorphology, and hydrology (Marcus 1959; Marcus and Huesser 1964a, 1964b; Marcus and LaBelle 1970; Marcus and Ragle 1970; Marcus and Moore 1983; Marcus et al. 1995; Marcus and Brazel 1996). He is best known for analyses of glacier mass changes and their relationship to climatic adjustments, but many of his published contributions also explored the hydrologic aspects of glacial processes, with direct measurements of the critical connection between atmospheric and glacial systems—the fluxes of moisture and energy. Mel produced several critical summary reports of field projects on glaciers for the American Geographical Society, the National Geographic Society, the Arctic Institute of North America, and the U.S. Army, among others (Marcus and Huesser 1960; Marcus 1965; Marcus
1969; Marcus 1971; Bushnell and Marcus 1974; Marcus and Reynolds 1989; Marcus et al. 1995). The work stimulated similar investigations by others (Marcus and Marcus 1996).

One of Mel’s most extensive projects (with others) was the Icefield Ranges Research Project, supported by the American Geographical Society and the Arctic Institute of North America (Bushnell and Marcus 1974). Climatologist Roger Barry (1992, 331) noted this project’s importance: “Few mountain areas in high latitudes have received any study of their climatic characteristics. Consequently, the intensive investigations organized by the American Geographical Society and the Arctic Institute of North America in the St. Elias Mountains are of special significance.”

Dick Marston (1996), a close colleague in geography and on Juneau Icefield research, observed that “Mel’s cutting-edge work on ice-dammed lakes, glacier lake outburst floods, and glacier climatology has advanced our understanding on these topics more than the work of any other scholar in the field.”

Local Involvement and Problem-Solving

Mel was not an isolated, ivory-tower professor, but was directly involved in local research with important societal connections. In his years at Arizona State University, his scholarly productivity reflected his service to the state on various commissions and committees. He maintained an ethic of local and regional involvement in research and in problem solving, focusing on environmental issues, and he communicated this ethic to his students. Research sites ranged from the urban environment (Brazel and Marcus 1987; Lougeay, Brazel, and Marcus 1992) to the bottom of the Grand Canyon (Stanitski-Martin et al. 1999), the San Juan Mountains (Marcus and Marcus 1983), and the desert areas of southern Arizona (Marcus 1976). He was a major facilitator for the Arizona Governor’s Commission on the Environment and the State Climate Program at Arizona State University, the primary repository for meteorological data for the Arizona.

Mel led several projects involving local environmental problems, including investigations of hazardous dust storms along major highways of the state. In this project, sponsored by the Arizona Department of Transportation, he showed that storms had resulted in several traffic fatalities were products of naturally occurring wind conditions combined with surface conditions on poorly managed, abandoned agricultural fields. Publications from the project led to new land management practices to ameliorate the dust traffic hazard and to improved methods for warning motorists of blowing dust (Marcus and Brazel 1981; Marcus and Hyers 1981).

Mel also excelled as an expert witness in legal settings. He was an imposing figure in the courtroom and a genius at synthesizing complex scientific material and making it understandable to the lay audience of the jury. During his career as an expert witness, he testified in a wide array of cases. He served on behalf of a mining company in a case of the accidental draining of a high-altitude cirque lake through mine shafts under the lake and into local area river systems near Silverton, Colorado, for the Arizona State Attorney General’s Office on several cases involving traffic accidents in hazardous driving conditions, and for the state in a case of motorists stranded on snow-bound mountain roads.

Mel’s last major field project was a study funded by the National Geographical Society to investigate the microclimatology of the floor of the Grand Canyon. Access to the study sites, of course, required hair-raising rides on rafts on the Colorado River through world-class rapids, all in the company of an adventurous group of graduate students. His last scientific article, published posthumously in association with students and colleagues, outlined remarkable spatial and temporal changes in microclimate in America’s most famous canyon (Stanitski-Martin et al. 1999). His publishing career began on the heights of the earth, and finished in the depths of the earth.

Teaching Science with Art

Mel’s interests in research were always balanced with a zest for teaching. His many graduate students enjoyed their associations with him in the field and laboratory, but thousands of undergraduate students encountered him in a different arena: the lecture hall. His booming voice reached the very last row in the largest auditoriums, and he never resorted to the microphone. In his famous introductory physical geography course, he paced up and down the stage, back and forth, usually speaking without notes. The words, images, and ideas rolled effortlessly along, and students found they had to write quickly to keep up. His photographic slides, acquired through many years of field experience, provided a window on the world that was all the more meaningful because of the personal anecdotes that accompanied the slides. It was a rare photograph that did not convey a meaningful scientific image as well as a funny story or insightful general observation. At Arizona State University, the most common weekday image of him in the department was of a large man pushing down the hall a wheeled cart piled high with projectors, slide trays, and wall maps. When
the lights dimmed in the classroom, a marvelous show emerged from the audiovisual chaos.

Many undergraduates remembered Mel for a different style of visualization, however. At the University of Michigan, he became famous among students for his amazing skill at drawing, a reputation that he quickly reprises at Arizona State. When the photographs, maps, and spoken word failed to convey the complexity he desired, he retreated to the chalkboard, pulled out a large box of colored chalk, and began to sketch on the board. Soon, from a cloud of multicolored chalk dust there emerged a wondrous array of block diagrams with delicately rendered lines, patterns, and shades. Extending across the board in a stately procession, the diagrams showed landscapes evolving and changing, rivers flowing, dunes migrating, and (of course) glaciers flowing. Air masses collided with each other, producing their torrents of blue chalk rain, all to the continuous narration of the instructor/artist.

Mel was known among his colleagues as a champion teacher, so that within the AAG he was often called upon for advice related to geographic instruction, especially in university settings. He chaired the AAG’s Commission on College Geography, which emerged in the period between 1969 and 1973. Under Mel’s leadership, the commission injected modern physical, chemical, and earth science into geographic instruction, ranging from geomorphology to climatology. The papers from the commission were used in classrooms to supplement textbooks by providing state-of-the-art accounts of topics likely to interest students.

Physical Geography in the Discipline

When Mel received his Ph.D. in 1963, physical geography was not particularly prominent as a part of the larger discipline of geography. Productive physical geographers were few in number, and they tended to pursue agendas that were quite separate from regional specialists who dominated the human geography side of the discipline. For example, the few geomorphologists, hydrologists, and glaciologists in geography often felt a stronger affinity with their counterparts in geology than they did with their geography colleagues. The association with geologists was difficult, though, because the geologists were unquestionably earth scientists, whereas it was perplexingly unclear what the geographers were.

When the scientific revolution swept through human geography in the 1960s, physical geographers seemed to fit better in their home discipline. Mel was a leader among physical geographers at that time because his work was unquestionably scientific and quantitative, and unquestionably geographic. He was a prototype of the many physical geographers who emerged in the discipline during the 1970s and 1980s. Trained in physical, chemical, and biological science, but also with an interest in the geographical dimensions of their subjects, these new physical geographers formed a distinct subculture within the larger discipline of geography.

The AAG Presidency and the Presidential Address

Along with a few colleagues in physical geography, Mel participated in a two-part effort to bring physical and human geographers closer together and to improve the perception of physical geography. First, he sought to give physical geographers more recognition; second, he worked to keep them within the discipline, rather than seeing them drift away. His enthusiastic support of AAG specialty groups was part of this effort. Mel’s service as president of the AAG during in 1978 positioned him as a speaker for physical geography, and he used his presidential address (“Coming Full Circle: Physical Geography in the Twentieth Century,” 1979) as a “bully pulpit” to outline the course of events underlying the position of physical geography in the discipline. In doing so, he followed the wishes of many of his associates in physical geography. Although human geographers advised him to relate some of his spectacularly well-illustrated research, he took a different path. “Physical geographers, on the other hand, were, to the person, vehement in their demand that I should address broader questions of geography, especially as they related to the various aspirations and tribulations of physical geography,” he (1979, 522) wrote. He began by making the case to his human geographer colleagues that physical geography was an integral part of the discipline and the AAG, and that although physical geography had once declined, it had returned with force. He argued that human geographers, intent on their own revolution, missed what was brewing on the physical side of the house. He then argued that the nature/society tradition was of great value to the discipline, but that the sharply defined human-physical dichotomy blunted the potential contributions that geographers could make. He pleaded the case for a fully integrative, rational geography in which practitioners would study the earth and society together.

In this address and resulting article (Marcus 1979), Mel surprised many human geographers with the force of his conviction that physical geography had been overlooked by a rapidly developing discipline, but his physical geography colleagues saw many of their own opinions and feelings expressed in a prominent place by
a prominent person. Throughout the 1980s and early 1990s, physical geography grew in importance in the discipline and the AAG, with Mel as one of its most forceful advocates. When Gary Gaile and Cort Wilmott produced the first edition of their seminal work, *Geography in America* (1989), physical geography, human geography, and geographical techniques appeared in balanced proportions.

**Geography's Inner Worlds**

At about the same time that *Geography in America* appeared, an edited volume with one chapter devoted to each subdiscipline, the AAG created an alternative perspective on the field, *Geography's Inner Worlds* (Abler, Marcus, and Olson 1992). This book resulted from the recommendation of a task force in the Survey and Synthesis Project of the AAG in 1985. Physical geographers on the task force preferred a review of the discipline along lines defined by traditional labels, while the human geographers of the task force preferred to highlight common, cross-cutting themes. As editors of *Geography in America*, Gaile and Wilmott met with the task force and received the imprinture of the Association. The AAG Council decided that Gaile and Wilmott’s work served specialty groups well, but it also desired a cross-cutting approach. The task force appointed Mel, Ron Abler, and Judy Olson as editors of this complementary source. Rather than exhaustively explore all the topical components of the discipline, their book emphasized the commonalities that formed the threads woven throughout geography, without respect to the object of study. With chapters by a variety of authors on such overarching themes as scale, the local-to-global continuum, visualization, and paradigms ranging from humanism to classical science, the volume gave a new vision of geography as a discipline defined by, not what it studied, but rather how it studied.

Editing *Geography's Inner Worlds* to organize the work of the many diverse, strong personalities who were the authors proved to be a formidable challenge. Finally, Abler, Olson, and Mel (along with Mary Ann) retreated to a beach house in Florida in early 1991. Amid frequent updates from Mary Ann on the progress of the Gulf War, and occasional breaks to feed shrimp to the local sea gulls on the wing, the editors finished their tasks. The book appeared in 1992 as planned, and it was the AAG contribution to the 1992 Washington, DC International Geographical Congress, representing the state of geography in the host country. The epic nature of the volume’s idealistic goals prompted Mel to dub the book *Gone with the Wind*.

**Geography's Outer Worlds: The National Research Council and the Yosemite Institute**

Mel was fascinated with the way geographers viewed themselves and their work, but he was also interested in presenting geography to a wider world. He served as a technical consultant for the producers of an IMAX movie, “The Greatest Places,” partly sponsored by the National Science Foundation, reflected Mel's large-scale view of the geographic world, a view so expansive that it required a projection screen six stories high.

For many years before Mel was chair of the U.S. National Committee of the International Geographical Union (IGU), that group’s primary function had been to dispense funds for travel by American geographers to attend IGU meetings in other countries. Mel was dissatisfied with such a limited agenda. When he became chair of the committee in 1988, he called an informal meeting of several of the committee members, including Bill Turner, Tom Wilbanks, and Tony deSouza, at a run-down New York hotel. During the meetings to define a larger role for the committee, they searched the fine print of the committee’s charter and found a mandate for representing the discipline of geography to the National Research Council (NRC) and the National Academies of Science. On this slender reed, they began to build a larger edifice.

Finally, in the mid-1990s, the Academies commissioned a study committee to review the expanded role that geography might play in the larger worlds of science and policy. Wilbanks chaired the committee, which produced a report entitled *Rediscovering Geography: New Relevance for Science and Society* (National Research Council 1997). The volume addressed government officials and the academy, and at first it seemed to have little effect. Two years later, however, the Academies created a Committee on Geography (chaired by Bill Turner) to infuse geography into American science and to advise the federal government on matters geographic. The committee envisioned by Mel and his associates more than a decade earlier became a model for such efforts in the NRC. Geography’s outer worlds had expanded beyond anyone’s expectations.

Mel’s connection to young people was not limited to those who were professional geographers. Throughout the last two decades of his career, his interests in environmental and geographic education reached a broad general clientele of schoolchildren through his activities at the Yosemite Institute. The Institute’s mission fit perfectly with Mel’s life’s work, and over a period of two decades his service on its board of directors resulted in substantial contributions to the success of the organization.
The Institute was founded in the early 1970s as a way to introduce school children, especially those in middle school, to the natural world through multiday visits to Yosemite National Park and Golden Gate National Recreation Area in San Francisco. From the mid-1970s until his death, Mel championed quality outdoor and intellectual experiences for the students in the program.

By the late 1990s he had successfully established two agendas. First, an additional campus was added to the Institute’s activities in Olympic National Park. Second, a modernized curriculum offered students a sweeping environmental ethic. The newly established curriculum has a familiar ring to anyone who knew Mel and his view of geography. It has three main teaching objectives for the 38,000 students it serves annually: to instill a sense of place, to make connections among places, and to create a lasting sense of stewardship for the national parks and the students’ homes. Mel’s plan for his final sabbatical was to work full time on Institute affairs, but that last sabbatical never came.

Conclusion

When word went out through the geographic community of Mel’s death while leading students in those bright, high reaches of the San Juan Mountains of Colorado, there was an overwhelming sense of loss among geographers of all interests. The big man would be sorely missed. His enthusiasm, joy in life, pleasant companionship, academic leadership, and numerous contributions to the lives of many people had come to an end. But the sadness was tempered by faint smiles, because those who knew and loved him recognized that he had died where his heart was, in academic fellowship, in the sunlit mountains, in the cold, dry snow.

Honors and Awards

John Oliver LaGorce Award in Cartography, University of Miami, Coral Gables, 1956.
Election to Society of Sigma Xi, 1965.
Fellow, Arctic Institute of North America, 1968.
Fulbright-Hays Fellow to New Zealand, 1972.
Fellow, Arizona-Nevada Academy of Science, 1981.
Fulbright-Hays Fellow to New Zealand a second time, 1981.
Erskine Fellow to New Zealand, 1985.
Election to Phi Kappa Phi, 1986.

Election as Alumnus Member, Phi Beta Kappa, 1988.
(University of Miami did not have a chapter at the time of Mel’s graduation.)
Erskine Fellow to New Zealand a second time, 1993.
Distinguished Alumni Public Lecturer, University of Miami, Coral Gables, 1996.
AGS Cullum Medal, 1997 (posthumous).
AAG Honors Award, 1997 (posthumous).
AAG Lifetime Achievement Award, 1997.

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Van Dusen, P. 2000. Personal communication. Letter to authors, 14 March.

Winters, D. 2000. Personal communication with authors.

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