Resolution of Respect

Stanley I. Auerbach

1922–2004

Dr. Stanley Irving Auerbach, 82, died Saturday, 1 May 2004 in Nashville, Tennessee, following an extended illness. He was a scientist, research administrator, educator, and professional leader. Most of all he was devoted to his wife of 50 years and their four children. He was a mentor and colleague to many at Oak Ridge National Laboratory (ORNL) and across the country. Stan Auerbach, a founder of the science of radioecology and always a champion of modern ecological science, was one of those pioneers from the post-WW II era to whom we owe a great deal for the legacy that they created.

Stan grew up in Chicago, Illinois, where his parents had a movie theater in which he worked part-time. In 1942, he enlisted in the U.S. Army to serve in World War II as a second lieutenant until 1944. In 1946 he earned a bachelor's degree in zoology, and in 1947 a master's degree in zoology from the University of Illinois. His MS studies were carried out under the tutelage of world-famous ecologist Victor E. Shelford. Stan earned his doctorate in 1949 at Northwestern University, specializing in invertebrate ecology under Orlando Park. With this superb academic training, Stan began his career teaching zoology and ecology at Roosevelt University in Chicago, Illinois, and was also active in the Chicago Academy of Sciences.

The story of how Stan came to Oak Ridge National Laboratory is humorous. Sometime in late 1954 (the Cold War was raging) he got a call from his major professor, who asked if they might have a meeting. Orlando picked him up in his car and they drove for a long time through Chicago with little conversation. Finally, they arrived at a large, deserted parking lot in an industrial area. Orlando looked all around and said in a hushed voice, "Stanley, I have something to talk with you about that is of the utmost secrecy." It turned out that Orlando, a renowned Sherlock Holmes aficionado who enjoyed intrigue, had been serving as a consultant to ORNL's Health Physics Division. Thus Stanley learned for the first time about Oak Ridge National Laboratory, the Atomic Energy Commission (AEC), and found out that Orlando had recommended him as ORNL's first full-time ecologist.

This was the early 1950s, and the Laboratory was becoming more sensitive to its waste management and waste disposal practices. It was discovered that liquid and solid waste disposal to

trenches for soil retention had serious deficiencies; radioactivity was appearing in surface waters and was being taken up by surrounding trees. More intensive study was necessary. Several years earlier, while at Northwestern University pursuing advanced study, Ed Struxness, himself a pioneer in the area of health physics, had by chance taken an ecology course (this was then a relatively new field in academia) offered by Orlando Park. So Struxness naturally turned to Professor Park for a recommendation, and Stan Auerbach's life was forever changed.

Auerbach arrived in Oak Ridge at the end of 1954. He immediately set about conducting laboratory radiation experiments and laboratory studies of the biological uptake of strontium. By the summer of 1955 a team of 10 researchers was assembled by Auerbach, consisting mostly of visiting scientists, consultants, and students. Park visited other national laboratories and found that they were experiencing similar environmental problems. Stan solicited the Atomic Energy Commission (AEC) to research the environmental fate and effects of radionuclides. Auerbach and Park got the Ecological Society of America to raise awareness in the scientific community, and ESA created the Radiation Ecology study section. (Stan would eventually become ESA Secretary from 1965 to 1970 and President in 1971–1972.) As a result, the AEC established the Division of Biology and Medicine in 1955 and set up a national ecology program in Washington, D.C., under the direction of John Wolfe, an ecologist from Ohio State University.

Stan leaves behind not a body of ecological knowledge for which he is primarily responsible, nor is there a legacy of graduate students whocarry on this line of research. Rather his legacy lies in his influence on government programs, such as radioecology in the Atomic Energy Commission, or the Biome Programs that presaged ecosystem studies supported by the NSF. Stan's career epitomizes the conundrum, does man make history or does history make the man? This remains unanswered, but what we can say is that Stan took the right courses of action when presented with the events of his time.

Two significant events shifted Stan's career and his eventual ecological legacy in the mid-1950s. In early 1956, John Wolfe made his first visit to Oak Ridge, and as a consequence emphasis was placed on field-oriented research in contrast to laboratory studies. In the same year, Auerbach was able to add a second full-time ecology position and redirected the research program to the waste disposal sites and the contaminated sediments of the drained White Oak Lake bed. Thus began many decades of pioneering research at ORNL. By the end of 1959, the Radiation Ecology Section was created and Auerbach, as its Chief, had assembled his initial team of early Oak Ridgers: Dan Nelson, Jerry Olson, Paul Dunaway, D. A. Crossley, John Witherspoon, Don Jacobs, and Gordon Blaylock, among others, with Gene Odum as a consultant. The scientific field of radioecology had emerged. Large-scale field studies of ecological systems were the focus.

This post-Sputnik period of the late 1950s was characterized by dynamic planning at the Laboratory, and these young ecologists were encouraged to actively participate. ORNL was and is first and foremost a physical sciences laboratory. That ecology gained a foothold in this scientific environment is testimony to Stan's doggedness. Because of the complex pathways for movement of radionuclides in the environment, ecologists were forced early on to think in terms of environmental systems. Staff continued research on radionuclide uptake by the vegetation and radiation effects on native mammal populations on the White Oak Lake bed, and colleagues in the Waste Disposal Section of the Health Physics Division were completing one of the first studies of the transport of low-level radionuclide discharges to the Clinch River. (A companion study was underway at Hanford on

the Columbia River.) In 1964 the ecologists were conducting the first experimental "tagging" of a natural ecosystem—the Cesium-137 forest. In 1967, Walker Branch Watershed was established to study natural biogeochemical cycles, and Walker Branch continues to serve as an ecological research platform today.

Under Stan's visionary leadership, his growing cadre of young ecologists gained recognition internationally as the leading center of the emerging area of ecosystem research and systems ecology. Stan had recruited Jerry Olson, who used a Ford Foundation grant to train students at the University of Tennessee in systems ecology. Stan also recruited Bernie Patten, a University of Georgia professor, the late George Van Dyne (later to become director of the Grasslands IBP Site at Fort Collins), and later Bob O'Neill, to form the nucleus of his systems ecology group. In 1968, the National Science Foundation selected Auerbach to direct its pioneering, multi-university/laboratory research program on forest ecosystems and aquatic ecosystems of the Eastern Deciduous Forests. This multi-biome effort was the largest and most complex interdisciplinary ecological research program ever attempted up to that time. The new NSF research program was part of the International Biological Programme (IBP), and it brought ORNL to the center of ecological research, as well as bringing ecology into the realm of big-scale, multi-institutional and multidisciplinary science. IBP's important legacy was a new Ecosystem Studies Program at the National Science Foundation. Ecosystem analyses and simulation modeling of ecological processes at ORNL moved to the cutting edge of ecological research. Stan pressed interactions with university colleagues—a move that at the time was new to national laboratories, which had lived behind security fences in the Cold War era. The Environmental Sciences Division's program of university collaborations expanded dramatically to become a model for the Laboratory. By 1969 Stan was working with The University of Tennessee to establish the Graduate Program in Ecology, now the Department of Ecology and Evolutionary Biology.

Creation of the National Environmental Policy Act (NEPA) in 1969 changed the course of environmental research in Auerbach's program forever. The AEC directed that all aquatic research staff drop their research and immediately support the AEC in the preparation of environmental impact statements. To many directors, this directive would have elicited (and did) angst and a "woe is me" attitude, because their carefully honed scientific agenda had to be changed. Not Stan. He saw this as an opportunity to bring the still largely descriptive field of ecology to bear on an immediate societal issue. Additional scientists were hired to meet these demands, including Steve Hildebrand, who now occupies Stan's former position. For many, it was their first employment after graduate school. In later years, when they were able to return to research, their perspectives on environmental issues were changed, as were those of their colleagues. Ecology at ORNL now became acclaimed not only for the quality and innovation of the basic research, but also for the relevance of its application to real-world problems. The first evidence of this was the creation of the ORNL thermal effects research program on aquatic biota and ecosystems, led by Chuck Coutant.

About this time, Stanley began a remarkable personal transformation in leadership style, a transformation which few pioneers in science have made successfully. From the very hard-driving, authoritative, and centric leader, he became open, inclusive, and sharing of decisions with his subordinates. He championed workplace diversity long before it was recognized as important. He was training the next generation of leadership, but he still retained his dogged leadership style. His protegees occupy and have occupied important academic and governmental leadership positions

across the country as well as at ORNL.

Dave Reichle remembers the atmosphere in the research group. In the early years, Stan, who had a knack for hiring bright and creative people, was also inheriting their individualism and rebellious attitudes to authority. Stan once remarked in response to Dave's frustrations with bureaucracy and personnel issues, "Dave, if it weren't for these problems, we would not have jobs." It was like herding cats, in a laboratory environment that was serious about the one and only right way to get things done. Staff got him into trouble more than a few times, but like responding to an Army drill sergeant, they knew who the boss was—they complained a lot, but they congealed as a team.

The internationally renowned ecology program under Stan's leadership grew rapidly. In March 1970, the Laboratory established the new Ecological Sciences Division, and very shortly thereafter, in 1972, it evolved into the Environmental Sciences Division. In 1973, the AEC became the Energy Research and Development Administration (ERDA). By the middle of the decade, the Division had a staff of 127. Eight years later the Department of Energy was established, and Assistant Secretary for the Environment Ruth Clusen dedicated the Oak Ridge National Environmental Research Park on 2 October 1980.

Formation of ERDA and the experience of the NSF programs provided Stan with yet another opportunity to extend the scope of environmental research at ORNL. Radionuclides were no longer to be defined as the only environmental pollutants. Natural biogeochemical cycles were seen as the basis of ecosystem functioning. A new ERDA Synfuels program introduced organic toxicants. The Environmental Sciences Division also brought a new style of research to ORNL. Instead of "secret" research inside the security fences, ORNL ecologists were moving across the country analyzing the function of different ecosystems, as the nation recognized that varying geographic scales were a critical part of environmental problems. By the time the Department of Energy was created, Stan had positioned the Environmental Sciences Division as one of the leading research centers for studying hazardous wastes, the ecological effects of global change, and renewable energy. New scientific fields were pioneered by the new staff recruited to Oak Ridge in answer to Stan's vision and determination to keep ecological sciences at the forefront; these included landscape ecology (notably including Bob O'Neill and later Virginia Dale) and ecological risk analysis (with Glenn Suter and Larry Barnthouse).

Dave Reichle, Stan's "mentoree," who remained his close friend, remembers what it was like to work for Stan. "You always knew where you stood with Stan. Clarity in communication was not one of his weaknesses. Stan was a visionary and a builder. Stan would never ask you to do something that he wouldn't be willing to do himself, nor would he work less hard than you. Stan did not constrain initiative, and he helped you to learn your limits. He prized good science. He always supported his staff, gave credit to others and celebrated their accomplishments, but he expected you to remember who was the boss."

At Stan's retirement, in 1986, he was recognized by scientists around the world. Over the course of his career he received many awards and recognitions of his service to science, federal agencies, and other organizations, including the Distinguished Service Awards from both the Department of Energy and the Ecological Society of America. Stan left behind a tremendous legacy of science, a premier research organization then consisting of over 225 staff, and a cadre of future leaders at ORNL. Most significantly, he retained the respect and affection of colleagues. The Environmental Sciences Division at ORNL and large-scale ecological research around the world remain today as a strong tribute to Stan Auerbach.

Stan and his wife, Dawn, moved to Nashville in 1993 to be close to their two daughters, Allison

and Ann. Their son Andrew and family live in Wichita, Kansas, and their son Jonathan in Colorado. But Stan's heart has always remained in Oak Ridge, with his friends and his legacy of science at ORNL. He missed Oak Ridge and the fields and forests of the Ridge and Valley Province very much, and we who knew and worked with him and for him will miss him even more.

David E. Reichle
Oak Ridge, TN
and
W. Franklin Harris
University of Tennessee
Knoxville, TN

Society Section and Chapter News

Applied Ecology Section Newsletter

Greetings! The Applied Ecology, Agroecology, Rangeland Ecology, and Soil Ecology Sections are once again planning a joint mixer for the ESA 2004 meeting in Portland, Oregon. The mixer will be held on Wednesday, 4 August, from 6:30 to 8:00 pm, at the Oregon Convention Center, Portland Ballroom 251. The Applied Section will hold a business meeting toward the end of the mixer to discuss the 2004 election results. Special thanks to Deborah Ulinski Potter for serving as Chair of the Nominating Committee and for preparing the ballot for this year's election. I also thank the 2002–2004 officers, Jon Keeley, Vice Chair, and Dan Binkley, Secretary, for their service to the Section. I have enjoyed my tenure as Chair, and I thank the members of the Section for giving me the opportunity to serve.

The Applied Ecology Section has selected Justin Touchon, a Ph.D student in the Department of Biology at Boston University, to receive a $750 Student Travel Award to attend the 89th ESA Annual Meeting this summer. He will be presenting his research on the interactions of biotic and abiotic risks affecting eggs and larvae of the neotropical tree frog *Hyla ebraccata* in the symposium, "Ecological Implications of Phenotypic Plasticity." Congratulations Justin!

This year we are also sponsoring the symposium "Ecological Implications of Fuel Reduction Treatments to Reduce Fire Hazards in Forested Landscapes." The symposium will be held Thursday, 5 August, 1:30-5:00 pm, in Oregon Ballroom 204 of the Oregon Convention Center.

Many forests today are denser, contain fewer large trees, and have higher fuel loads and greater fuel continuity, increasing the probability of unnaturally severe wildfires. Until recently, little data that would allow managers to evaluate the ecological comparability of different fuel reduction treatments had been collected. This symposium brings together researchers affiliated with several large multidisciplinary fuel reduction and stand structure manipulation experiments nationwide. Speakers will present findings from different study disciplines to provide the best current understanding of the ecosystem-level impacts that fuel reduction treatments are likely to have.

Hope to see you in Portland!

Paulette Ford, Chair
Rocky Mountain Research Station
333 Broadway SE, Suite 115
Albuquerque, NM 87102-3497 USA
(505) 766-1044
Fax: (505) 766-1046
E-mail: plford@fs.fed.us