

Co-Editor in Chief Lucier Retires

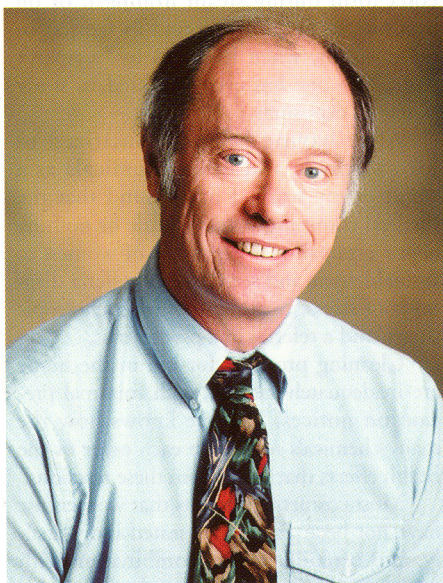
Public service. It's a term that has fallen into disregard in recent years as cynicism has replaced optimism about so-called government work and those who do it. Yet there are those who have chosen to follow the ideal of public service espoused by John F. Kennedy when he said "[A]sk not what your country can do for you, ask what you can do for your country."

One of these people is George W. Lucier, an environmental health research pioneer and co-editor in chief of this journal for the past 28 years. In 1970, Lucier chose to devote his intellectual talents to a career in science at a federal research institution, the NIEHS. What developed over the next 30 years of his career was a series of contributions to public health that reached beyond national boundaries. At the end of June, Lucier officially retired from his position as director of the Environmental Toxicology Program, the NIEHS program that executes the work of the National Toxicology Program (NTP), and as co-editor in chief of *EHP*. But the consequences of his leadership and life's work continue to be felt far beyond the epicenter of his career.

Lucier began his career by helping to mold basic science into tools for solving the complex problems created by an industrial society's impact on the natural world and human health. This work has been concentrated most significantly in two areas: the establishment of research models that use molecular epidemiology to obtain better measures of exposure to environmental agents and the use of receptor-mediated toxicology in understanding low-dose effects of chemicals.

In the early 1980s, Lucier began to examine the way that epidemiology was used to formulate estimates of exposure. His early research in the areas of benzene, polycyclic aromatic hydrocarbons, and dioxins formed the basis for new research models that have been accepted by scientists around the world. These models, which bring the tools of molecular epidemiology to bear on the process of human sampling and biochemical analysis of such samples to create better indications of human exposure to toxic substances, have become a benchmark for determining how animals and people respond to environmental insult. Consequently, this information is now commonly used to form the basis for human risk assessment and regulatory decisionmaking.

In the 1990s, Lucier continued to expand the scientific basis for risk assessment when he joined efforts with NIEHS biomathematician Chris Portier to transform science's understanding of receptor-mediated toxicology. Prior to this, chemical risk assessments were almost universally based on overly simplistic threshold or linear dose-response models. Lucier and Portier used their knowledge of the mechanisms of action of dioxins and environmental estrogens to develop laboratory strategies for understanding the low-dose effects of these, and subsequently other chemicals. This understanding of low-dose effects has revolutionized the way that scientists, regulatory agencies, and the public have come to view the dangers of toxic chemicals and other environmental agents. In particular, the mechanistic approach has been utilized through Lucier's involvement in an almost eight-year process by the U.S. Environmental Protection Agency to reevaluate the risk of human exposure to dioxin. This review, which is nearing completion, produced credible biologically



based models for estimating risk and will doubtless be used as a model for determining the hazards posed by other agents.

In recent years, Lucier's attention has been focused precisely on this problem of evaluating chemical and environmental agents for their effects on human health. In 1993, he assumed the directorship of the NIEHS Environmental Toxicology Program and began to transform the NTP from a program focused almost exclusively on traditional carcinogenicity and toxicity tests to one that sets the gold standard for toxicity evaluation by combining animal data with mechanistic approaches to evaluating human exposures. His mantra and that of the NTP became "good science for good decisions."

Recognizing that the purpose of the NTP is to serve public health, Lucier set about creating a framework for decisionmaking that incorporates multiple stakeholders including state and federal scientific and public health agencies, industry, and public interest and environmental organizations into the process with a focus on the consideration of a variety of inputs, open communication, and public accountability for both the process and the final decisions that are made as a result. His recognition that government-funded science cannot operate in isolation but must be shown to be appropriate, justified, and responsive to public health priorities has taken the NTP from a largely parochial program based at the NIEHS to a truly national endeavor toward solving major environmental health questions. Ways in which this is being accomplished include the establishment of NTP centers for the evaluation of reproductive risks, the validation of alternative test methods in toxicology, and the investigation of phototoxicology.

In turn, Lucier has taken the approaches developed in the NTP and applied them to major global health issues as well. For example, his work on a World Trade Organization scientific panel on the potential health effects of growth promoters in livestock helped to set a precedent for the use of health risk assessments in making international trade decisions. And his skills as a scientist, a negotiator, and a consensus-builder were used to ultimate advantage in brokering a level of agreement among various federal agencies over what are considered safe levels of methylmercury in our environment.

In conjunction with the multitude of his other duties, Lucier helped to lead *EHP* in its evolution from a series of monographs into a truly global science journal devoted to promoting environmental health through the communication of credible, timely, and understandable research and information.

Perhaps Lucier's greatest achievement, however, has been his ability over the years to inspire those who have had the opportunity to work with him and witness his devotion to public health to take up the mantle of public service themselves, to the betterment of the planet and all its people.

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