

Reviews of Environmental Health, 1998

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The significant and mysterious interrelations of events, discoveries, inventions, etc. are chronicled by James Burke in his popular monthly commentary series in *Scientific American* called "Connections." In his series he explores how the prepared mind grasps apparently disparate concepts and then uses them to develop a new concept or make an important discovery. For example, in his July 1997 article Burke relates the story of how Galvani induced a dead frog's leg to twitch by touching a metal wire connected to its central nervous system to another object made of a different metal. This observation led Volta to develop the first battery. It took Volta's prepared mind to benefit from Galvani's serendipitous occurrence.

The invention of the battery illustrates the need for integration of ideas and scientific discoveries in order to achieve maximum impact. This is especially true of environmental problems that are so complicated and important that we cannot simply leave their resolution up to the few existing polymaths. Although it is imperative that experts focus on certain research areas, it is equally important that these experts not lose sight of the much larger picture. Progress in improving the environment and the human condition depends on our ability to understand the interrelationship of ideas and things.

Once again *Environmental Health Perspectives* publishes its yearly supplement containing review articles covering a wide range of topics in the field of environmental health. Articles summarize new developments in environmentally relevant areas, provide a perspective for these new findings, and provide sufficient background information for those not familiar with the specific topic. The review issue of *Environmental Health Perspectives Supplements* is developed to provide an opportunity for the environmental scientist to learn about new areas of research. It is hoped that with this more broadly based information, scientists will be able to make important connections. Having made the connections, perhaps greater strides can be made in understanding and protecting our environment, and at the same time, improving human health.

This annual review issue has 16 articles. Two articles deal with the field of endocrine disruption. Environmental signaling

is reviewed by Cheek et al., whereas Crisp et al. present the U.S. EPA assessment and analysis of endocrine disruption.

Several articles discuss the urgency of developing a rapid method to identify carcinogens. The use of transgenic animals to address this need is discussed in three papers. Yamamoto et al. introduces the *rasH2* mouse as a rapid carcinogenicity testing system. Approaching the issue from a regulatory standpoint, Contrera and DeGeorge discuss the use of transgenics in bioassays of pharmaceuticals. The potential role of transgenics in the U.S. National Toxicology Program is presented by Eastin.

Three articles explore models of diseases. Rowat evaluates the integrated defense system as a disease model, using multiple chemical sensitivity as an example. Kodavanti et al. examine rodent models of cardiopulmonary disease for studies of air pollutant susceptibility. *In vitro* techniques for the assessment of neurotoxicity are explored by Harry et al.

Three reviews cover toxicology of chemicals. Rosenthal et al. review new developments in asbestos immunotoxicity. An improved approach in assessing PCB congener toxicities is presented by Hansen. The health risk of exposure to the gasoline additive methylcyclopentadienyl manganese tricarbonyl is highlighted by Davis.

Three articles review confounders of toxicity. Peraza et al. address effects of micronutrients on metal toxicity. Mielke and Reagan discuss soil as an important pathway of human lead exposure. The susceptibility of the individual is evaluated by Šrám, using the example of the effect of glutathione *S*-transferase *M1* polymorphisms on biomarkers of exposure and effects.

Two papers highlight global environmental issues. Martens presents an approach to model the health impacts of climate change and ozone depletion. Sherman et al. discusses replacing processing solvents with "green" alternatives.

We hope that the articles in the review issue will help prepare your mind to make new connections when serendipity strikes.