

PREFACE

In the year and a half interval between the appearance of these essays and the writing of this preface, many things in the world have changed.

In my last essay for 1988, for instance, I discussed international science policy and outlined the structure and management of R&D in the USSR. It would be enlightening to re-examine that structure today, as political and social changes sweep the USSR and Eastern Europe, Soviet scientists collaborate via modem and fax with their Western colleagues, and the American government even considers funding for Soviet research.

Fortunately though, some things don't change—and my treatment of other subjects has proved more permanent, if not a bit ahead of the general public's interest. The importance of our national concern about science literacy is one of them. While the state of our educational system—from grammar school onward—has not improved markedly in the past two years, an increasing amount of needed attention is being paid to the problem of science literacy.

Another issue that has captured the public imagination is the depletion of the ozone layer, first noted over the Antarctic in 1985. In the two years since my essay on the issue, the debate has intensified to the point where this has become a social, political, and scientific issue of global proportions. Indeed, the growth of the literature has led ISI[®] to launch yet another information service called *Focus on Global Change*.[™]

The history of science has always been pre-eminent among my concerns. In 1988 new tools became available for studying the history and structure of science. Among the developments introduced that year, one in particular—the *Science Citation Index*[®] Compact Disc Edition—still has the power to excite, bringing a creative, intuitive quality to desktop literature searching and information discovery.

The same year marked the publication of the *SCI*[®] cumulation covering the crucial postwar decade 1945-54—an important resource for understanding the history of scientific achievement—as well as the publication of *Current Contents on Diskette*.[®] Today annual CD's covering 1980 to the present are available, and the *Social Sciences Citation Index*[®] also has been made available on CD-ROM.

In his foreword to this volume, Dr. Baruch S. Blumberg refers to Baron Alexander von Humboldt, who was said to have been the last scientist capable of

comprehending all the scientific data of his day. Certainly Dr. Blumberg himself comes closer to von Humboldt's broad comprehension of science than do I. But I like to think that my curiosity and fascination with scientific knowledge occasionally leads me off the well-traveled highways of science and down some interesting though seldom-traveled detours.

The reader of this volume will be taken with me on a few of these detours. Early on we will meander into a two-part discussion of chronobiology, the study of the internal biological clocks that govern the lives of all plants and animals. Later on we turn toward the lighter side of science with an essay on the fictional "International School of Professional Ethics," which is purported to give lessons in scientific fraud. We enter a snake pit with a poisonous essay on how research and immunotherapy are taking the bite out of venom. And along the way we visit noninvasive medicine, embryology, midwifery, sleep deprivation in medicine, hibernation, and embryology.

Even though it's clear that I lack von Humboldt's comprehension of all things scientific, let no one say that I failed to comprehend science as it really is, warts and all. In fact, one essay covers the etiology and biology of warts, and another discusses their treatment.

I hope that the reader enjoys the journey.