Book Reviews

An Inside View

A Scientist at the White House. The Private Diary of President Eisenhower's Special Assistant for Science and Technology. GEORGE B. KISTIAKOWSKY. Harvard University Press, Cambridge, Mass., 1976. lxx, 448 pp. $15.

George Kistiakowsky's diary, written during the year and a half in which he was President Eisenhower's Special Assistant for Science and Technology, provides an intriguing glimpse of the highest levels of governmental decision-making involving science. It provides a rare opportunity to learn how a key participant viewed events as they occurred, not as he might rationalize them with the benefit of hindsight. No substantive changes have been made in the original diary entries, so the issues and their resolution are pictured as they evolved.

The journal has been edited to eliminate references to some ceremonial functions, personal material, and office trivia. Furthermore, each chapter is prefaced with a discussion of the major issues under consideration at the time it covers, and Charles S. Maier has written an excellent introduction that develops a historical perspective for the period when Kistiakowsky was working in the White House. These additions serve to make the book a valuable and very fascinating contribution to the history of the last years of the Eisenhower Administration.

Since no attempt was made to edit out Kistiakowsky's personal reactions to the various individuals with whom he was working, the diary provides some very frank vignettes of many of the leading figures in the Administration. However, it would be a mistake to leaf through the diary looking for little nuggets of inside knowledge or gossip. Rather, the journal should be read as a whole, for it is the continuing references to subjects or individuals that make history come alive and provide the real insight into the mechanics of policy-making.

Kistiakowsky's growing appreciation for President Eisenhower's character and abilities—and incidentally vice versa—becomes apparent as the diary proceeds. His frustrations with and distrust of John McCone, then Chairman of the Atomic Energy Commission, are even more obvious. Many of the scientists who worked with Kistiakowsky as members of the President's Science Advisory Committee (PSAC) also come in for their share of biting criticism, particularly for their unwillingness to spend the necessary time and effort to deal with the inevitable bureaucratic conflicts.

Kistiakowsky followed James Killian, becoming the second holder of the post of Special Assistant to the President for Science and Technology, a post that was established in the aftermath of the Soviet launching of Sputnik on 4 October 1957. It was probably during Kistiakowsky's incumbency that the office attained its pinnacle of prestige and influence. The majority of his multifarious activities involved not the state of science but instead two aspects of national security—what military weapons and forces the United States should procure to deal with an emerging Soviet nuclear capability, and what arms control measures could be negotiated to restrain the nuclear arms race.

The Defense Department was just beginning to get the management of its weapons development under control with the appointment of Herbert York as Director of Defense Research and Engineering, but the President, and indeed even the Secretary of Defense, were still looking to the Special Assistant for Science and Technology for critical advice in this area. This followed the precedent that had been established by necessity when Killian was in the White House and a vacuum existed in the Pentagon. Even the AEC, with all its scientific talent, could not afford to ignore the Special Assistant. In later years, the Defense Department became not only more competent but also more autocratic, and the presidents became more willing to rely on its internal technical judgments. The influence of the Special Assistant in the White House decreased during the 1960's until the position was eventually eliminated by President Nixon, who disliked independent scientific advice. Thus, the period of Kistiakowsky's incumbency and his personal report thereon are of particular historical interest and, indeed, should be carefully studied as the post of Special Assistant is now being reconstituted under the Carter presidency.

Kistiakowsky's book will quickly disillusion anyone who has assumed that scientific decisions related to national policy are carefully developed on the basis of rigorous scientific principles and procedures to produce an incontrovertible solution to the problem at hand. Policy-making by scientists is no more precise than policy-making by politicians, economists, or diplomats. It involves a pragmatic approach to problems that takes into consideration the personalities of the major actors and the inherent imprecision of the issues. Rarely was there a yes-or-no situation, and policy had to be evolved in a succession of meetings extending over months and even years. The climate of the times made rational decisions difficult as public hysteria over Sputnik unleashed the technologists to propose every wild dream while President Eisenhower and his economic advisers sought to screw the lid ever tighter on the federal budget. A narrow line had to be walked between developing and buying every conceivable new weapon and seeking arms control as the ultimate solution to the dangerous arms race. The Special Assistant played a key, but not always happy, role in keeping the nation on this line.

The issue that occupied Kistiakowsky's attention probably more than any other was nuclear weapons testing, an issue that is still unresolved almost 20 years later and that will certainly occupy the attention of President Carter. In 1959, we were in the midst of a nuclear test moratorium as technical negotiations were going on in Geneva to work out methods of verifying a treaty banning nuclear tests. When Kistiakowsky assumed office, a scientific panel under the chairmanship of Robert Bacher had just painted a very pessimistic picture of our ability to detect violations of such a treaty; those who wished to continue nuclear testing had promoted a scheme by which nuclear explosions could be carried out without detection in large, deep underground cavities—for example, in a chamber the size of the Yale Bowl several thousand feet underground. Kistiakowsky's task was to evaluate the scientific merit of such schemes, to put them in perspective, and to keep the door open to an eventual test ban. Simultaneously, the weapons developers were trying to persuade President Eisenhower to abrogate the moratorium and recommence testing. This group, led by AEC Chairman McCone and Edward Teller, were continually arguing that the United States could no longer afford to forgo testing. The AEC halted weapons safety experiments to increase pressures

on the President to end the moratorium, but this tactic failed when Kistiakowsky got scientists to show that nuclear tests were not necessary for establishing safety.

As Assistant Director for Science and Technology for the Central Intelligence Agency at that time, I worked very closely with Kistiakowsky and PSAC on the nuclear testing issue. The intelligence community was under great pressure to estimate that the Soviet Union was already violating the moratorium, and Air Force intelligence even set up a special group whose sole purpose was to twist intelligence to prove this thesis. It was very difficult for the CIA to prove the negative, that is, that the Soviets were not testing. Frequent reports and special studies were made for the White House on this question.

It is to Kistiakowsky's credit that he managed to keep U.S. policies on nuclear testing on a relatively even keel. The moratorium actually continued until the Soviet Union recommenced testing in September 1961, thus refuting those who had claimed it was testing all the time. Even though no test ban treaty was signed during the Eisenhower Administration, some of the differences between the U.S. and Soviet positions were narrowed during that period. Unfortunately, since 1963 virtually no progress has been made in this area, despite revolutionary advances in seismic detection and identification technology resulting from research programs started in the late 1950's. This failure is in no small part due to a lack of will and expertise in the White House.

The diaries make clear how uneasy is the life of a science adviser to the President. Kistiakowsky was frequently in the middle of the battles over the federal budget—sometimes fighting with the perennial economizer Maurice Stans, Director of the Bureau of the Budget, on behalf of greater support for basic research, and at others used by Stans to help control expenditures for new weapons and space vehicles. When a national furor exploded over Secretary of Health, Education, and Welfare Fleming's announcement that cranberries were contaminated with toxic chemicals and Secretary of Agriculture Benson became incensed because of the financial consequences to the cranberry growers, President Eisenhower turned to Kistiakowsky for a study of what should be done about carcinogenic chemical additives in food. This was the forerunner of many similar crises that beset our society today and for which there are no easy answers.

In the waning days of his Administration, Eisenhower asked Kistiakowsky to review the methodology used by the Strategic Air Command in developing its first Single Integrated Operations Plan (SIOP). I was privileged to participate in this thankless but nevertheless very interesting task. Armed with a strong Presidential directive, we were able to get some understanding of how the plans were drawn up and why they resulted in requirements for many megaton bombs on a single-target city when only one 15-kiloton bomb had devastated the city of Hiroshima. Kistiakowsky indicates that his report on this review was passed on to President Kennedy and Secretary McNamara, but it is not apparent that any lessons were learned, since the number of strategic nuclear weapons has continued to multiply since then.

The diary includes some interesting and heretofore untold episodes dealing with the loss of the U-2 on 1 May 1960 and the subsequent collapse of the planned Paris summit. Kistiakowsky reports what a blow this was to the President's strong desire to improve relationships with the Soviet Union and to bring the nuclear arms race under control. The diary poignantly shows how from that date the Eisenhower presidency was like a slowly deflating balloon and how his Administration became more and more only a caretaker for a future one.

In sum, *A Scientist in the White House* provides a personal insight into a vast panorama of events in the late 1950's. While scientists will be intrigued by the roles played by Kistiakowsky and his scientific colleagues, it is by no means a book for scientists alone. It will be fascinating and valuable to all those who are curious about how the government really works—or doesn't work.

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Trends in Pest Control

The Future for Insecticides. Needs and Prospects. Proceedings of a conference, Bellagio, Italy, April 1974. ROBERT L. METCALF and JOHN J. MCKELVEY, JR., Eds. Wiley-Interscience, New York, 1976. xvi, 524 pp., illus. $21. Advances in Environmental Science and Technology, vol. 6.

The Future for Insecticides is an outgrowth of a conference convened by the Rockefeller Foundation at which scientists pursuing research (many of them with support from the foundation) on alternatives to the pesticides currently in use were asked to assess the state of the art. We are fortunate that the proceedings have been made available to the scientific community at large.

The need for chemical control of insects detrimental to agriculture and to human health is clearly documented by Furtick of the Food and Agriculture Organization and by Wright of the World Health Organization. The major challenge in pest control that faces the entomologist is described by Furtick, who notes that the depletion of world food reserves in this decade has made the food supply particularly dependent on current production. Concurrent with this development has been a continued reliance on insecticides in the developed countries and an increased reliance on chemical control in the developing ones. At the same time the use of many conventional insecticides has been restricted or eliminated because of their effects on the environment or for other reasons (such as increased resistance on the part of target insects). Therefore, as Furtick points out, there has been heightened interest in integrated pest management that would involve "more specific, narrow-spectrum pesticides that could have the greatest possible impact on target species while at the same time causing minimum effects on other species in the environment."

The problems presented by currently available pesticides are then discussed. In particular, the authors consider resistance by target insects, pollution, and toxicity. Research on synthetic pyrethroids and the development of biodegradable insecticides focus our attention on the improvement of present classes of insecticides. A fourth portion of the book deals with the development of new classes of pest control chemicals such as insect growth regulators and pheromones.

Anyone concerned with chemical control of insect pests will want to examine these chapters on current trends in pesticide research. The insect integument as a possible site of action for insecticides (suggested in Locke's chapter) has already become a subject of intense research. The shortcomings of hormone mimics (discussed by Bowers) have not impeded progress in this area. The first insect growth regulator (methoprene) and the first pheromone (house fly attractant) have now been registered by the Environmental Protection Agency. The discovery of antihormones by Bowers, another major breakthrough in the development of new classes of insecticides, occurred after the conference.

There are, of course, many sources of information available (and some more current) on research activities with pesti-