

Preface

When World Scientific Publishing Co. first approached me about compiling a volume of some of my popular speeches, I was slightly hesitant due to my still very busy schedule which I have been keeping up at my young age of 83. However, World Scientific did a very fine job on a previous volume of some of my scientific papers, *Modern Alchemy: Selected Papers of Glenn T. Seaborg*, and after giving their proposal some consideration, I decided it would be an excellent opportunity to present some different but interesting aspects of my professional life that began with a career in science. My life in science and in public service has given me the opportunity to learn about and reflect on a great many topics, from the formulation of national science policy to the promise of youth. I am glad that this volume of selected speeches and articles will allow me to share some of these thoughts, as I originally penned them, with the reader.

My introduction to national public service came when I was appointed by U.S. President Harry S. Truman to serve on the first General Advisory Committee (GAC) to the U.S. Atomic Energy Commission (AEC) for a term extending from January 1947 to August 1950. This first GAC played an important role in helping to establish a number of the basic policies of the AEC.

However, the real beginnings of diversion from my scientific career began in the fall of 1952, when Clark Kerr, who had just been appointed the first chancellor of the Berkeley campus of the University of California, called me to his office. Would I like to serve as faculty athletic representative to the Pacific Coast Intercollegiate Athletic Conference? I was taken by surprise and unable to give him an immediate answer. However, I had had a lifelong interest in athletics and had been an avid follower of the University of California's athletic teams. I soon decided to accept Kerr's offer. I served as faculty athletic representative from January 1953 until July 1958, attending all of the meetings of the Pacific Coast Conference

(PCC) and several meetings of the National Collegiate Athletic Association (NCAA). My duties included ruling on the eligibility of the athletes and presiding over the Berkeley campus athletic advisory board meetings. During the latter half of this period, I served as the press spokesman for the Pacific Coast Conference at its semiannual meetings. This was a lively responsibility since during this period the rather widespread rules violations in the conference were discovered. The violations led to the ultimate breakup of the conference. I was then cast in a leading role in putting together the successor to the PCC — the Athletic Association of Western Universities, which has in the meantime been expanded to ten members or the so-called Pacific 10 Conference (PAC 10).

In the summer of 1958, Chancellor Kerr became president of the University. Once again, Kerr called me to his office. Perhaps because of our close association in weathering, somewhat successfully, the highly publicized and difficult PCC affair, he and the regents wondered if I would be a candidate for the chancellorship. The decision was a difficult one to make. I was reluctant to step out of science to the extent that this position seemed to require; yet the larger challenge was appealing. When I was allowed to continue as an associate director of the Radiation Laboratory and to direct graduate student research in the laboratory and the College of Chemistry, I accepted. The two-and-a-half years I served as chancellor was a period of extensive development for the Berkeley campus on many fronts.

While chancellor, I was appointed by President Dwight D. Eisenhower, in 1959, to be a member of the President's Science Advisory Committee (PSAC), on which I served until January 1961, and to the National Science Board of the National Science Foundation (1960–61). While serving on the PSAC, I accepted an assignment to chair a special PSAC panel on basic research and graduate education. From the work of this panel, we issued the report "Scientific Progress, the Universities, and the Federal Government — A Statement on Basic Research and Graduate Education in the Sciences" which called for a partnership between the federal government and the universities to recognize and to support the symbiotic relationship necessary between basic research and graduate education. The report, which became known as the "Seaborg Report," gained widespread attention and laid the foundation whereby the federal government is actively engaged in support and funding of scientific inquiry at research universities.

In January 1961, President Kennedy called me to serve as the chairman of the Atomic Energy Commission, a position that I held for more than ten years while on leave of absence from the University of California, a period longer than that of any previous chairmen and spanning the terms of two presidents, John F. Kennedy and Lyndon B. Johnson, and part of the term of President Richard M. Nixon. In this capacity I also served on such bodies as the National Aeronautics and Space Council, the Federal Council for Science and Technology, the Federal Radiation Council and the President's Council on Marine Resources and Engineering Development.

As chairman of the AEC, I took on the role of spokesman and advocate for the peaceful uses of the atom. It was a role with which I was not unfamiliar. Towards the end of World War II, during which time I headed the chemistry section at the Metallurgical Laboratory at the University of Chicago which had the responsibility to extract and to purify plutonium as part of the Manhattan Engineer District efforts, I was an original signatory of the Franck Report, which was a recommendation by some Manhattan Project scientists to President Truman to demonstrate for the Japanese government the atomic bomb on an uninhabited island. Our suggestion was either ignored by or did not reach the president.

In the convening years (1955, 1958, 1964 and 1971), I was a member of the U.S. delegation to the United Nations Conference on the Peaceful Uses of Atomic Energy held in Geneva, Switzerland, serving as chairman of the American delegation in 1964 and as president of the conference in 1971. Also during my tenure, I attended the annual General Conference of the International Atomic Energy Agency in Vienna, Austria, eleven times. In my ten and one-half years as AEC chairman, I traveled to over 60 countries, speaking on diverse topics such as international cooperation in science, peaceful applications of nuclear power, predictions of the possibilities in a scientific society, and arms control. Three times a presidential plane was placed at my disposal when I circled the globe in January 1967 (Australia, India, Pakistan, Spain, and Thailand), July 1967 (Argentina, Brazil, Chile, Colombia, Peru, and Venezuela), and January 1970 (Ethiopia, Democratic Republic of Congo [now Zaire], Germany, Ghana, Kenya, Morocco, Spain, and Tunisia). I also recall fondly many trips to the former Soviet Union.

One of my proudest moments as chairman of the AEC came on 5 August 1963, when, as a member of U.S. Secretary of State Dean Rusk's

delegation, I witnessed the signing of the Limited Test Ban Treaty in Catherine Hall in the Kremlin. (I have recounted the innumerable meetings, negotiations, events and activities leading to the signing of the LTBT in my book *Kennedy, Khrushchev, and the Test Ban*, written with my friend and AEC colleague Benjamin S. Loeb; we also wrote a follow-up book *Stemming the Tide: Arms Control in the Johnson Years* that describes the negotiations leading to the Nonproliferation Treaty of 1968.) To this day, I still support, lobby, write, and speak about the need for a comprehensive test ban.

Since the 1950's, I have been quite interested in the improvement of the teaching of science, the need to interest young people in careers in science, the impact of science on society, the necessity for greater scientific literacy among the general public and the need for scientists to understand social problems and the humanities and to help bridge the gap between the two cultures. Thus I have served as chairman of the Steering Committee of CHEM Study. I had the privilege of serving on the Commission on the Humanities (1962–65), whose report played an important role in the establishment of the National Foundation on the Arts and the Humanities. I also served for nearly 30 years as chairman of the Board of Trustees of Science Service, a Washington-based organization with a strong national program for the popularization of science; it conducts the annual Science Talent Search in Washington, D. C., and the annual International Science and Engineering Fair, and publishes the very effective weekly *Science News* magazine. I also served as a member of the Board of Directors of the National Educational Television and Radio Center. This organization later became the Public Broadcasting Service.

My interest in the broad implications of science led to an increasing number of public speeches covering this subject, which expanded to even broader areas. Although I made many speeches on scientific subjects at seminars and meetings of scientific societies, I did not feel myself capable of venturing beyond this domain for a long time, and then I approached it gradually. Actually my first speech in a broader, philosophical vein was not made until I had passed the age of forty; this was entitled "Dawn of the Nuclear Age" and was delivered at the Charter Day banquet of the alumni of the University of California, Riverside in March 1953. This had been preceded by a number of talks to University of California, Berkeley alumni groups, including an alumni tour in 1952 with UC President Robert

Gordon Sproul up and down the state of California, on the "Peaceful Uses of Atomic Energy"; and followed by a similar alumni tour in 1956 with Chancellor Kerr, on which I spoke on the shortage of scientists; and by numerous talks to Berkeley alumni groups on these topics and other topics such as athletics and the Berkeley campus. These beginning attempts were followed by an escalation of topics and number of speeches, including the period of my Berkeley chancellorship, culminating in my Washington period, which resulted in hundreds of speeches beginning in 1961. Such activity led to my election in 1967 as a member of the Board of Governors of the International Platform Association, an organization of professional speakers, and in 1968–1969 and in 1981–1986 as its president.

Soon after my return to the University of California at Berkeley, I was appointed University Professor of Chemistry (a title now held by some 15 professors throughout the statewide nine-campus University of California with its 7,500 faculty members). I was also appointed head of the Nuclear Chemistry Division (soon to become the Nuclear Science Division) of the Ernest Orlando Lawrence Berkeley National Laboratory (the former Lawrence Radiation Laboratory) in which position I served until 1975, when I was appointed Associate Director-at-Large of the Ernest Orlando Lawrence Berkeley National Laboratory, a position that I have held since.

During 1972 I served as president of the American Association for the Advancement of Science and during 1973 as chairman of the Board of Directors of the AAAS. While serving in these offices I was instrumental in establishing the Office of International Science. It was largely in this connection that the Interciencia Association (which encourages collaboration with our neighbors in Latin America) was established. In 1975, I served as president-elect of the American Chemical Society. I then served as president of the ACS in 1976 (the year of its centennial) and as past-president in 1977. I served as a member of the ACS Board of Directors during each of these three years. At the centennial banquet held in New York in April 1976, I played host to a gathering of heads of chemical societies throughout the world, and at that time I proposed the creation of an International Chemical Society. Although such a society never came to fruition, one consequence of my proposal was the creation of the Affiliate Scheme of the International Union of Pure and Applied Chemistry, which came into effect in February 1985.

From 24 May to 10 June 1973, my wife Helen and I visited the People's Republic of China. We were members of a team including physical and

biological scientists and representatives of the social sciences and the humanities (and a few of their wives) sponsored by the U.S. Committee for Scholarly Communication with the People's Republic of China. Ours was the first group to visit the People's Republic of China on a semi-official basis for the purpose of negotiating agreements for exchange of scholars and visitors between our two countries. While in Beijing we had the pleasure of attending a meeting in the Great Hall of the People (National People's Congress Building) in Tiananmen Square in Beijing. Of special interest was the attendance at this meeting of Chinese Premier Zhou Enlai, whom we all met and who played an active role in negotiating the exchange agreement with the members of our delegation. During this visit to the People's Republic of China, we visited, besides Beijing, Shenzhen, Guangzhou, Nanjing, Wuxi, Xuzhou, Shanghai and Changsha. I kept a complete journal during this visit, which was published in a document entitled "China Journal."

I visited the People's Republic of China again from 17 May–11 June 1978, as chairman of a delegation for "Pure and Applied Chemistry." During this trip we visited Beijing, Dalian, Changchun, Shenyang, Fushun, Shanghai, Hangzhou, Xian, and Langzhou. Again I kept a complete journal which was published in a document entitled, "China Revisited." (A book, *Chemistry and Chemical Engineering in the People's Republic of China*, was also published by the American Chemical Society.)

I served as founding president of the International Organization for Chemical Sciences in Development (IOCD) beginning in 1981 and continuing until 1992 and with which I am still affiliated. The aim of this organization is to help to provide the benefits of chemistry to people in developing countries of the world. IOCD's working groups draw scientists from Third World countries into collaboration with scientists from industrial countries into research focused on areas of vital developmental concern: unchecked population growth, persisting parasitic diseases, and declining agricultural productivity. The scientists in IOCD's working groups represent the broad geographic regions of Africa, Asia, Latin America, and the Middle East.

Having been involved with the Lawrence Hall of Science on the Berkeley campus since its inception in the fall of 1958, I immediately resumed an active role on its Faculty Advisory Committee upon my return from Washington in 1971, later serving as the chairman of this committee.

I then served as director of the Lawrence Hall of Science from 1982–1984 and have served as chairman since 1984. The Lawrence Hall of Science has played and is playing a leadership role in solving the national crisis in precollege science and math education.

I served as a member of the National Commission on Excellence in Education (NCEE), which worked under the direction of Chairman David P. Gardner from the fall of 1981 until April 1983 to produce its report, “A Nation At Risk.” We presented this report to President Ronald Reagan on 26 April 1983. This report has had a substantial impact on the national reform movement toward improving the status of precollege education, especially science and math education, in the United States.

My public speaking schedule included about 700 speeches on a wide variety of topics. Included were talks each year (1972–1993) at the Science Talent Search in Washington, talks at seven of the annual International Science and Engineering Fairs, 19 commencement addresses, 40 lectureships, building dedicatory addresses, talks and lectures every year to freshman chemistry classes, and numerous speeches to professional associations and public groups.

In retrospect, I can see my stepwise progress, how each phase of my career prepared me for the next. The extraordinary, I called it magic, Berkeley atmosphere of the 1930's offered unparalleled opportunity. My close association with Gilbert Newton Lewis showed me firsthand how the world's best chemist worked and thought, and gave me, a young chemist rather lacking in self-confidence, the confidence that was essential to future progress. The association with the Radiation Laboratory, and the amazing Ernest O. Lawrence, made possible the discoveries with which I was involved before the war. This experience made it possible to carry out my subsequent responsibilities at the wartime Metallurgical Laboratory of the University of Chicago. These experiences, in turn, made it possible for me to carry out my research role in the Radiation Laboratory during the productive period 1946 to 1958. All of these experiences, and especially my experience as the faculty athletic representative to the PCC, prepared me for the Berkeley chancellorship. And the administrative experience gained in the latter position, together with all of my research experience, prepared me for the chairmanship of the AEC.

I conclude this introduction and overview with a comment related to the time span of the selected speeches and articles, which cover a period

of some forty years. Some of the early speeches used the term “man,” an obsolescent reference to people of both sexes. Some make predictions about the future that can now be compared with the actual situation today. These are often rather accurate but some miss the mark ranging from a moderate to a large degree.

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