NATIONAL ACADEMY OF SCIENCES

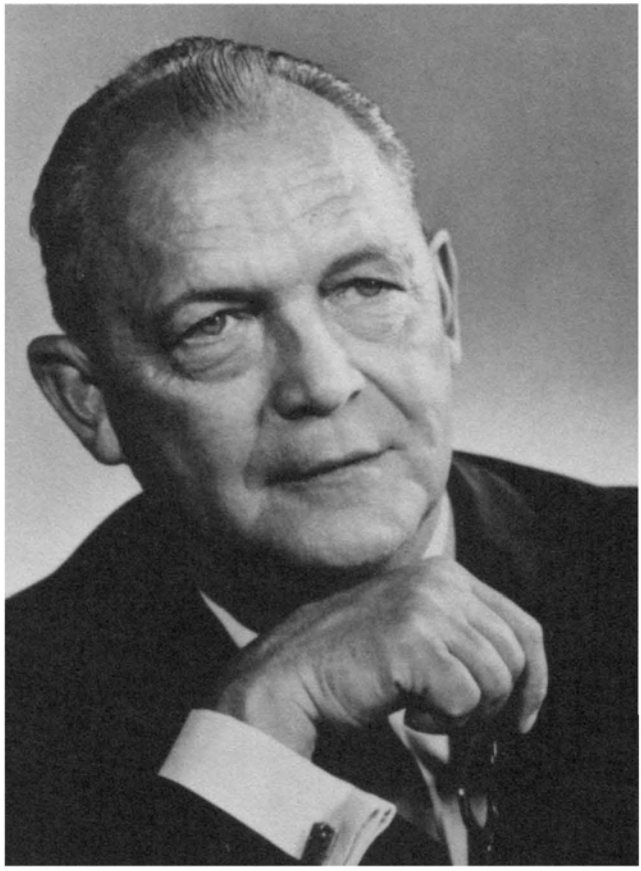
J. GEORGE HARRAR

1906—1982

A Biographical Memoir by

JOHN J. MCKELVEY, JR.

Biographical Memoir



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J. G. Hannan

J. GEORGE HARRAR

December 2, 1906–April 18, 1982

BY JOHN J. McKELVEY, JR.

J GEORGE HARRAR led from strength—from many strengths. He loved a battle; he expected to win, and few indeed were the battles that he lost. Intuitively and with uncanny accuracy, he assessed his odds for success in whatever endeavor he contemplated. Quick in mind, he reached decisions easily—a quality most evident in the formative years of his career. He never lost this quality, but sometimes it was masked later in his life by the subtleties of many situations he had to face.

Born on December 2, 1906, in Painesville, Ohio, George shared with his brother Ellwood Scott, Jr., two years older, and his sister Marjorie, three years younger than he, the parental guidance typical of an Ohio family at that time. Regular attendance at church school was a must. There, as in his high school, the younger children in the group would cluster around him. E. S. Harrar, Sr., George's father, had earned his degree in electrical engineering from Lehigh University. When the family lived in Painesville, he worked to establish ore docks in nearby Ashtabula. When George was three years old, the family moved to Ashtabula; six years later, Youngstown became their permanent home. In Youngstown Mr. Harrar was instrumental in the electrification of steel mills for the Youngstown Sheet and Tube Company. George's

mother, Lucetta Sterner, taught school briefly but gave up teaching after her marriage to devote herself exclusively to her family.

George's father was a Boy Scout leader and stimulated his sons' interest in nature. Both relished the merit badge challenges of the program and went beyond Eagle Scout rank. As a Boy Scout, George became the troop bugler. His interest in the bugle led him to cornet lessons, and soon he was playing in the school band. He loved good music; he could identify almost any composition and its composer after hearing only a few measures. The Scout sports program also appealed to George. Through its activities he became a fine swimmer and diver. A nearby tennis court sparked his interest, and he spent many hours practicing there. He also managed the basketball team in high school. From riflery and target practice he developed a penchant for hunting. During the summer months, George turned his interest in sports to good advantage, earning his spending money as a golfer's caddie—and trying golf himself with his own homemade golf club. George also read from the best of the literature in the family library, but at an early age his reading interests turned to biology and the sciences.

The two brothers chose Oberlin for college, George enrolling at age sixteen in 1923, a year after his brother. Scott, as a sophomore, suffered a serious automobile accident that took him out of Oberlin; but he went on to study forestry at Syracuse University and ultimately to serve as dean of the College of Forestry at Duke University. George stayed at Oberlin; he could have graduated in 1927 after the customary four-year period but remained for a fifth year to take additional courses and to captain the track team.

Throughout his life, George was "George" to almost everyone, but he was "Dutch" to the few who knew of his prowess on the Oberlin track team. At college he earned the

sobriquet "The Flying Dutchman" (shortened to Dutch) for the records he set in 1928 in the 440-yard dash and as anchorman on the record-setting mile relay team. One of his classmates wrote recently, "I remember 'Dutch' Harrar very well and always enjoyed attending track meets when he ran. He seemed to give every ounce of energy to it and I always feared whether his endurance could hold out"—an assessment of performance that was characteristic of George's entire career.

Oberlin taught George academic rigor; it blessed him also with the love and friendship of two persons who were to influence his entire life—Georgetta (Georgie) Steese, then a student in the Conservatory of Music, and Frederick Grover, emeritus head of the botany department. Georgie became his wife, whose love and support he thoroughly appreciated. Grover, a classical botanist and an impressive teacher, recognized George's intellectual talents and cultivated his interest in botany. An intense mutual admiration developed between the two. The twinkle in Grover's eye when he later spoke of George told of the human as well as of the intellectual traits he knew George possessed and that he, Grover, understood. (Perhaps from his Oberlin classmates or from his colleagues at the Youngstown steel mills—where he earned money sharpening tools during the summer months—he further acquired a colorful vocabulary and the art of telling stories—risqué ones—that might deceive those who were unaware of his high moral standards.)

Following graduation from Oberlin, George had hoped to enroll in medical school, but the Depression precluded such a long and expensive period of education. Instead he won a teaching fellowship in plant pathology at Iowa State University where he studied under the direction of I. E. Melhus, the head of the department, and John Aikman, a plant ecologist. Within nine months he completed the require-

ments for the master's degree and was on his way to the University of Puerto Rico as professor of biology in the College of Agriculture; shortly thereafter, Georgie, his bride, joined him. His subsequent four years in Puerto Rico gave him a love of the Latin temperament and facility with the Spanish language.

George left Puerto Rico in 1934 to accept a Firestone fellowship and to become an instructor in plant pathology at the University of Minnesota. He went there because he wanted to work toward his Ph.D. degree with E. C. Stakman (Stak), the eminent wheat pathologist and a man with international interests who would later receive world recognition as the elder statesman in his discipline. As in the case of Frederick Grover, George and Stak became fast friends; once again a relationship of mutual admiration and loyalty developed—each would pick on the other's weaknesses but passionately defend the other from outside attack.

Like George, Stak had a powerful and intensely competitive intellect. One day when Stak and I were sitting in the lobby of a hotel in New Delhi, India, amidst the haze of blue smoke from his pipe, he blurted out, "John, have you ever had an argument with George?" I answered, "No, not a real argument. After all, first as one of his graduate students and now in his employ, I have never been in a position to have an argument with George." After a long silence, Stak offered, "Well, an argument with George is not an argument—it's a battle." And Stak—halfway around the globe from George who was then in New York—must have been nursing some wounds from an "argument" he had lost and mulling over what he should have said and did not.

George went from the University of Minnesota to Virginia Polytechnic Institute (VPI) in Blacksburg in 1935 to teach plant pathology. I first met George in 1939 at the International Microbiology Congress in New York. A melange of

impressions struck me then: his youthfulness; his slight build and small features; his thinning hair, fine, slightly reddish, and wavy; his conservative dark-blue suit; and eyes, as blue and sharp as I had ever encountered, that divined instantly what one might be thinking.

Seated in the back of George's classroom at VPI, one had difficulty in following his lectures because he spoke in such a steady, low voice. Yet discipline never got out of hand in his classes—an amazing fact given the nonacademic interests of most of the VPI cadet corps—"Highty Tighties," as they called themselves in the 1930s. George said to me one day, "If trouble is brewing in my class, I just look for the biggest and roughest in the bunch and take him on; then the others behave." No smart aleck lasted long in George's graduate studies program, either. He demanded loyalty and work to the best of one's ability. Whether or not an individual was an *A* student did not matter as long as one strove to do one's best. And George cared deeply about his graduate students. He insisted that they participate at national scientific meetings, where he made certain to introduce them to his colleagues. He sought job opportunities for them diligently, even if an available job would carry a student into a different but related discipline.

George, Georgie, and their two children—Cynthia Ann and Georgetta Louise, born in Roanoke—loved Blacksburg. Although for George the academic pace set by the easygoing head of the Department of Biology I. D. Wilson was too slow, the surroundings nevertheless offered a spectacular succession of black locust, red bud, dogwood, azalea, and rhododendron in blossom. In the fall, the hunting for quail and grouse was good. As a volunteer, George coached the VPI track team.

The Harrars built a home in Blacksburg, but by 1941 the challenges clearly lay elsewhere. So after six years at VPI,

George accepted the positions of professor and head of the Department of Plant Pathology and head of the Division of Plant Pathology of the Agricultural Experiment Station at Washington State College. (This prestigious set of posts had previously been held by F. D. Heald, whose text on plant pathology had become the Bible of plant pathologists.) During these years, George and his brother Scott at Durham, North Carolina, worked intensively on their book, *Guide to Southern Trees.*

The Harrars stayed less than two years at Washington State College because George accepted an offer to become the local director of the Mexican Agricultural Program, which the Rockefeller Foundation had decided to initiate in 1943. This program had originated in discussions among the U.S. Vice-President Elect Henry Wallace, certain Mexican officials, and the Foundation's president (then Raymond B. Fosdick). The talks explored how the Rockefeller Foundation might be able to help bring Mexico out of its slump in agricultural production to the point where it could produce the basic foods it needed—corn, beans, and wheat. The Foundation called on three eminent agriculturists—E. C. Stakman, who was the project's leader; P. C. Mangelsdorf, professor of botany at Harvard University; and Richard Bradfield, head of the Department of Agronomy at Cornell University—to advise on the feasibility of the Foundation's entering into an agreement with the Mexican government to build a program of research dealing with the basic food crops.

Strange that the Foundation should have chosen George to head a practical program in agriculture. He was city bred; he had no farm experience; he had graduated from a liberal arts college; and in his research in graduate school and his subsequent assignments at the University of Puerto Rico and VPI, he had focused—and published—mainly on mycologi-

cal problems associated with plant disease agents rather than on pragmatic problems of producing basic food crops. The choice was not so strange, however, when one considers three things: George's total dedication to a task at hand; his growing awareness through his land-grant college assignments of the vital importance of a healthy agriculture to the welfare of a country; and his reputation as a proven scientist.

Free to build a program in Mexico, George sharpened his talents in administration and diplomacy. He exercised his inspirational leadership abilities, his deftness in the choice of colleagues, and his ability to maintain a cool exterior while burning inside. Innate patience never figured among George's strengths, but he did have a miraculous control—in public—of a fiery temperament. He hated to be kept "on hold" outside the offices of Mexican officials, but he would wait and burn. While he burned, he would exercise his charm, wit, and diplomacy on the junior functionaries who ofttimes held the keys to the inner sancta, whether of the secretary, subsecretary, or other agricultural official. George often got past those doors when others could not.

In selecting the scientists and other staff for the Mexican Agricultural Program, George exhibited one of his strongest suits: the ability to choose the right person for the right job. Most of those he selected spent their entire careers in one or another of the Foundation's programs. One of his earliest choices, Norman E. Borlaug, later received the Nobel Peace Prize for his contributions—not only in Mexico but worldwide—to the alleviation of hunger through the production of varieties of high-yielding wheat resistant to disease.

No one, however, can achieve a perfect score in the choice of individuals for specific assignments. Once in a while a staff member had to go. In such cases George would feel a responsibility toward that individual's career, and he would invariably work out an easy transition for the person leaving

the Foundation. The Mexican civil service system, from which it was almost impossible to fire an individual, may have reinforced this compassionate feeling. In that system an individual who was unsatisfactory in his post likewise would eventually find himself transferred to another.

George set the life-style, the ethic, of the Mexican Agricultural Program; to wit, "work hard, play hard, but above all, work hard." Even socializing at frequent house parties (discotheques in a sense) and at bowling parties took on value greater than merely releasing tensions engendered during the work of a highly competitive group of colleagues. It was a mechanism for achieving interdisciplinary cooperation and for bringing wives into a full knowledge of and participation in program activities.

Although George had found his métier in Mexico, toward the close of his nearly ten years there he had obviously outgrown the program. By 1952 the Mexican Agricultural Program had proliferated. A similar effort was under way in Colombia, and arrangements had been made to create an additional program in Chile. Brazil, Ecuador, and Peru, among other countries, were clamoring for assistance for their agricultural, educational, and research institutions; and a program in India was under consideration. Warren Weaver, director of the Foundation's Natural Sciences Division, decided he needed George at headquarters in New York.

Reluctantly, George went to New York; but his heart never left Mexico. The move to New York meant that those occasional sorties at dawn, slogging through the marshes of Toluca Valley to hunt ducks, would have to go. So would the lilt of the mariachi music from the itinerant bands of Mexico City. Something else would have to replace the satisfaction of outfoxing the foxes who might try to torpedo parts of his program, the occasional lesser officials who did not always appreciate George's motives and those of his colleagues. The

lightheartedness, the *compañerismo,* among staff families would have to give way to a New York sedateness and formality. Nevertheless, in New York his drive to inform staff wives and to involve them in Foundation affairs lingered. It cropped up in the occasional get-togethers at George's house in Scarsdale and in the banquets at the Tower Suite of the Time and Life Building in New York.

In New York as deputy director for agriculture, George sometimes chafed under Warren Weaver's direction. Weaver's program on molecular biology was well established, and the two programs were in a sense competitive for the same funds. Moreover, Weaver, of diminutive physique, was another intellectual giant, a mathematician with sparkling clarity in his thinking and writing. He was charming, but he, too, could indulge in intellectual skirmishes with punitive results to his adversary. It tickled George that E. C. Stakman could exasperate Weaver, who would lay a neat trap in an argument only to find that Stak was "batting on another wicket" by the time Weaver thought he had him in his clutches. "Ouchy" about pain himself, George admired Weaver for his inurement to it. For example, Weaver—in shorts—would tramp through the brambles of his seven acres on Second Hill in New Milford, Connecticut, unmindful of the blood trickling down his legs from his brush with the thorns of those bushes.

Weaver had become the most powerful of the directors of his time within the Foundation. He accepted the groundswell of trustee and public concern about agricultural research and development, even though it promised to engulf his cherished program in molecular biology. Shrewdly he developed companion interests that he labeled "nonconventional agriculture," which was somewhat competitive with George's practical program. Under this rubric, Weaver could support research on solar energy for agricultural uses; on *Chlorella,* an alga, for producing proteinaceous food under laboratory

conditions; on discarded pea pods and vines ground and compressed into pellets that when liberally doused with curry were supposed to be palatable; and on *Torula* yeasts for converting sawdust and similar cellulose waste products into highly proteinaceous foods for human consumption.

During his years as Weaver's deputy director for agriculture (1952–55), and subsequently as director of agriculture (1955–59) in his own right, George brought to realization his concept of international institutions devoted to practical research for the improvement of basic food crops. The first of these, the International Rice Research Institute (IRRI) in the Philippines, had its origin partly in the successes of the Mexican Program on wheat improvement. It also came partly from the idea that an international effort might offer freedom from the constraints of operating at national levels through the bureaucracies of foreign countries; but mainly IRRI arose out of the need to improve rice production in Asia. Harrar, whose vision always sought the financial horizon beyond existing monetary barriers, knew that the Rockefeller Foundation could not by itself finance the first of the international agricultural research centers—let alone those to follow. Since Vice-President F. F. Hill of the Ford Foundation shared George's belief that something should be done about rice jointly, with USAID and other donor agencies participating later, they could and did establish IRRI.

Once a professional, always a professional. While involved with the administration and execution of the Foundation's agricultural program, George collaborated with Stak to produce their text, *Principles of Plant Pathology.*

George and Warren Weaver never developed a "Frederick Grover" relationship, although Warren became one of George's most ardent mentors. When in 1955 Weaver became vice-president for medical, natural, and agricultural sciences under President Dean Rusk's administration of the Founda-

tion, George became director for the agricultural sciences. When Warren Weaver retired in 1959, George followed in his shoes as vice-president. In that capacity one of his major accomplishments was to open up for the Foundation (and for the U.S. government through USAID as well) the potential for developing programs in Africa. In consultation with many experts, he developed the initial pattern for the improvement of science, technology, and education throughout Africa in a study that he led and USAID financed through the Foreign Office of the National Academy of Sciences. What George really set in motion within the National Academy, however, was a long-term effort of assistance to developing countries. This proliferated to embrace the South Pacific and Latin American, as well as the African Science Board, and culminated in the creation of the Board of Science and Technology for International Development.

In 1961 George succeeded Dean Rusk as president of the Foundation when Rusk left to become President Kennedy's Secretary of State. Two years later, in 1963, the Foundation celebrated its 50th anniversary. George took advantage of that moment to reflect on the Foundation's past accomplishments and to lead in recasting its program.

George carried into the presidency his "do it yourself" philosophy sharpened by his land-grant college experiences and by the successes of the Mexican Agricultural Program. He also brought his penchant for integrating programs that had become diffuse and disconnected and his insistence that programs express purposeful objectives. Thus, early in his administration he called upon the social, agricultural, natural, and medical sciences to interdigitate in a university development program for the developing world. The agricultural, medical, and social sciences were to forge linkages embodying crop production, nutrition, economics, and agricultural policy in a program entitled "Toward the Conquest

of Hunger." The medical and natural sciences division was to embrace population stabilization. These growing in-house programs required a vast expansion of field staff on whose importance Harrar laid special stress; he was mindful of the great achievements of such staff in the days when the Foundation was combating hookworm in the southern United States and malaria and yellow fever abroad, as well as of his own experiences in Mexico. By 1968 George and the trustees had woven into the social sciences division an action program entitled "Toward Equal Opportunity for All," which was directed toward disadvantaged racial groups in the United States. Finally, in the last several years of his presidency, he sneaked through a Foundation program called "Allied Interests," his concern, as expressed in one of the first annual reports of his presidency, for the quality of the environment. By 1971 this concern had become a full-fledged program entitled "Natural and Environmental Sciences," dealing not only with the noxious chemicals applied to agricultural crops but with those spewing from industry as well.

The 1960s—the decade of George's presidency—were halcyon days for the philanthropic foundations. The economy was robust, inflation was insignificant, and the Rockefeller Foundation's assets rose to nearly a billion dollars, a level not to be reached again until the early 1980s. The Foundation trustees were relaxed; they dipped into capital annually—at times to the extent of $10 million to $15 million—to finance especially worthwhile projects.

Congressional uneasiness about tax-exempt institutions soon impaired that aura of well-being. The Committee on Finance of the U.S. Senate and the Committee on Ways and Means of the House of Representatives requested that the Treasury examine the activities of private foundations for tax abuses and report its findings and recommendations. While these investigations revealed that the preponderance of private foundations performed their functions without tax

abuse, evidence accrued to indicate that a very few such organizations did abuse the tax exemption privilege: through self-dealing, retaining contributions as capital and thus delaying the benefits to charity, involvement in business enterprises, family use of foundations to control corporate and other property, the performance of financial transactions unrelated to charitable functions, and in other ways. The report led to recommendations for legislation that would have seriously cramped all of the foundations in their efforts to provide wise and responsible philanthropy. Against this background, George, among other foundation presidents, felt it imperative to plead the case for the foundations—albeit some foundation executives seemed complacent about the report and about the proposed legislation. Indeed, in his oral history George reported:

> The Chairman of the Board [of the Rockefeller Foundation] said, "Well, George, if you're worrying as much as you are, we won't worry any more," or something like that. Well, that was nice to let me worry alone. I *did* worry a great deal, and it was at that point that I decided on my own that, yes, I was going to write a good deal more and I was going to have other people writing and I was going to appear on television and radio and in every way that I could, with dignity and within reason, that we'd try to get our case before the public in a more effective fashion.
>
> By the end of the year 1969, we were right into it and we were doing everything we could to try to offset some of the threats which we knew existed. One was that should not all foundations be given what I called a death sentence? Should they have a fixed life? And that ranged from 25 years to 45 years, as I remember it. The various suggestions came in and we really protested to the maximum of our ability and did succeed in getting those provisions knocked out of the bill. I had a few colleagues who said, in the foundation world, "Well, within 45 years, who knows? Or in 25 years a thing can turn around," et cetera, et cetera. I said, "We're under the gun right now. Let's not put up with this. We know it's wrong. . . ."

The responsibilities of the presidency weighed heavily on George. He seemed not to enjoy that post as he had his early

ones. He retained his thoroughness in researching matters upon which he had to reach decisions. But his inclination increased, in fact, to let officers proceed far down a trail in expecting one decision only to find ultimately that George had reached an alternative one.

George's collateral responsibilities burgeoned during his tenure as president of the Rockefeller Foundation. He was elected to the National Academy of Sciences in April 1966 and shortly thereafter served on its Committee on Science and Public Policy. His alma mater, Oberlin College, elected him a trustee. President Johnson appointed him to his General Advisory Committee on Foreign Assistance Programs from 1965 to 1969. These and others, together with his academic and social affiliations and with the honors that he received, required that much of his time be spent in writing and in speaking engagements.

When George retired, the trustees of the Foundation took the unprecedented action of recognizing his achievements by designating him a life fellow, the first in the fifty-eight years of Foundation history. George himself had stabilized many of the Foundation programs with staff he had so artfully acquired over the years. In the program "Toward the Conquest of Hunger," for example, soil scientist R. F. Chandler, Jr., was serving as director of the Rice Research Institute; Norman E. Borlaug had won his Nobel Peace Prize and was continuing his research in Mexico on wheat as an associate director in New York; Dorothy Parker, trained as a botanist, was specializing in library development; Sterling Wortman, a plant breeder, had become the Foundation's vice-president for the natural, environmental, and agricultural sciences; plant breeder E. J. Wellhausen was director of the corn and wheat improvement center, CIMMYT, in Mexico; and John A. Pino was director for agricultural sciences, the post that Harrar once held. All had at one time or another been staff members

in the Mexican Agricultural Program. These staff and their colleagues gathered at Williamsburg in 1979 to honor George and Georgetta. They presented him with a silver sword embedded in crystal, a facsimile of King Arthur's Excalibur—incidentally to recognize George's abiding interest in collecting knives, symbolically to pay tribute to his mastery over his profession, agriculture.

The many responsibilities that came George's way in retirement may have deprived him of time with his family and the opportunity to take the frequent dips he enjoyed in his swimming pool at his Scarsdale home. He wrote; he participated in an early scholarly exchange mission to China sponsored by the National Academy of Sciences, the Social Science Research Council, and the Council of Learned Societies; he served as director of several corporations; he lectured as an Andrew D. White Professor-at-Large at Cornell University; and above all, he still engaged in institution building. Sterling Wortman, vice-president of the Rockefeller Foundation, called on George to become a trustee and chairman of the board of the newly created International Agricultural Development Service to help that institution meet its mandate to promote the application of modern agricultural research to problems of development among the nations of Latin America, Asia, and Africa. Slowed in his seventies, however, by decades of burning his candle at both ends—in the best sense of that figure of speech—in his seventy-fifth year, George succumbed to a heart attack in his home on April 18, 1982.

J. George Harrar's strength—his many strengths—sprang from his intrinsic capabilities. Certain extrinsic forces, however, helped him to make the most of those capabilities. The perfect marriage, synchrony in philosophy, of a man and an institution figured among the strongest of those forces. The Rockefeller Foundation offered George flexibility and scope for formulating and executing his programs—which

then became Foundation programs—from the conquest of hunger through equality of opportunity, quality of the environment, population stabilization, and improvement of health to promotion of the arts and of the humanities and development of social sciences and educational opportunities in the universities of the developing worlds. And George offered the Rockefeller Foundation leadership with loyalty and distinction, enabling it to satisfy its mandate—which was George's mandate as well—"toward the well-being of mankind throughout the world," during the thirty years of that marriage that culminated in the decade of his presidency: inspiring times, troubled ones, too, in a great Foundation.

IN THE PREPARATION OF MY MEMOIR of J. George Harrar, I have drawn on communications from his sister, Mrs. Marjorie Filmer, and I have virtually quoted material that she sent to me in her letter of May 16, 1983, about his life prior to college days. I have also quoted Miss Gertrude Jacobs, a volunteer research assistant at Oberlin College, from a postscript of a letter that she wrote to me verifying George's track records at Oberlin. His wife, Georgetta, contributed much information about his entire life and work. Dorothy Parker, a lifelong associate of Dr. Harrar, verified information with respect to his career. Mr. William J. Hess, archivist of the Rockefeller Foundation, supplied me with information on George's testimony before the House Ways and Means Committee; and from the material he gave me I have excerpted quotations from George's oral history. Anne E. Newbery, editor; Henry Romney, director of information services, the Rockefeller Foundation; and my wife, Josephine Faulkner McKelvey, helped with specific editorial suggestions. Others have read the manuscript and offered suggestions. Anna Starr, my secretary, has been involved in the preparation of the manuscript and in assembling the bibliography. Marie Dooling, librarian, checked the references. I acknowledge with deep gratitude the help of these people.

HONORS AND DISTINCTIONS

EDUCATION

A.B., Oberlin College, 1928
M.S., Iowa State University, 1929
Ph.D., University of Minnesota, 1935

HONORARY DEGREES

1962 Doctor of Laws, Oberlin College
1963 Doctor of Laws, University of California
1971 Doctor of Laws, Columbia University
1971 Doctor of Laws, Utah State University
1964 Doctorate, Agrarian University, Lima, Peru
1966 Doctor Honoris Causa, University of the Andes, Bogotá, Colombia
1966 Doctor Honoris Causa, Central University, Quito, Ecuador
1964 Doctor of Science, University of Florida
1964 Doctor of Science, West Virginia University
1964 Doctor of Science, Ohio State University
1967 Doctor of Science, Clemson University
1968 Doctor of Science, University of Illinois
1968 Doctor of Science, University of Arizona
1968 Doctor of Science, Rockefeller University
1969 Doctor of Science, Washington University
1975 Doctor of Science, Ripon College

PROFESSIONAL APPOINTMENTS

1928–1929 Teaching Fellow, Iowa State University
1929–1933 Professor and Head of the Department of Biology, University of Puerto Rico, College of Agriculture
1934–1935 Instructor in Plant Pathology and Firestone Fellow (1935), University of Minnesota
1935–1937 Assistant Professor, Biology, Virginia Polytechnic Institute
1937–1941 Associate Professor, Biology, Virginia Polytechnic Institute
1941 Professor, Virginia Polytechnic Institute
1941–1942 Professor and Head, Department of Plant Pathology, and Head, Division of Plant Pathology, Agricultural

Experiment Station, Washington State College, Pullman, Washington
1943–1951 Local Director, Mexican Agricultural Program, The Rockefeller Foundation
1951–1955 Deputy Director for Agriculture, Division of Natural Sciences and Agriculture, The Rockefeller Foundation
1955–1959 Director for Agriculture, The Rockefeller Foundation
1959–1961 Vice-President, The Rockefeller Foundation
1961–1972 Trustee and President, The Rockefeller Foundation
1973–1979 Member, Governing Council, The Rockefeller Archive Center
1960–1972 Trustee, General Education Board
1961–1971 President, General Education Board
1971–1972 Chairman of the Board, General Education Board

DIRECTORSHIPS

1971–1982 Dreyfus Third Century Fund
1968–1982 International Flavors and Fragrances, Inc.
1962–1978 Campbell Soup Company
1971–1979 Merck and Company
1971–1978 Viacom International, Inc.
1970–1976 Kimberly-Clark Corporation
1964–1978 Nutrition Foundation (Chairman of the Board, 1972–78)

TRUSTEESHIPS

1973–1962 Chairman, Draper World Population Fund
1960–1962 The International Rice Research Institute
1962–1973 Oberlin College, Oberlin, Ohio
1972–1978 The Near East Foundation, New York
1975–1982 Chairman of the Board, International Agricultural Development Service

MEMBERSHIPS

1966–1982 National Academy of Sciences, Washington, D.C.
1972–1975 Citizen's Commission for Science, Law, and the Food Supply, New York

1972	Overseas Development Council, Washington, D.C.
1973–1979	Rockefeller University Council, New York
1973	Scientific Delegation to visit the People's Republic of China
1973–1975	Panel II on Food, Health, World Population, and Quality of Life, Commission on Critical Choices for Americans
1974–1976	*Commission on U.S.–Latin American Relations*
1974–1977	Corporation Visiting Committee, Department of Nutrition and Food Science, Massachusetts Institute of Technology
1967–1973	Visiting Committee to Harvard Medical School and School of Dental Medicine
1960	President Eisenhower's Science Advisory Committee
1975–1979	President's General Advisory Committee on Foreign Assistance Program
1966–1972	Mayor's Science and Technology Advisory Council, New York City
1973–1978	Advisory Board, New Perspective Fund, Inc.
1952–1982	American Academy of Arts and Sciences
1962–1982	American Philosophical Society
1968–1982	Chairman, National Advisory Council of the Monell Chemical Senses Center, University of Pennsylvania

HONORARY MEMBERSHIPS

1957	Brazilian Society of Geneticists
1966	Asociacion Ecuatoriana de Ingenieros Agronomos, Ecuador

FELLOWSHIPS

1939–1982	American Association for the Advancement of Science
1965	American Phytopathological Society
1972	Royal Society of Arts, London
	Andrew W. Cordier Fellow, Columbia University

LEARNED SOCIETIES

Academy of Arts and Sciences of Puerto Rico
American Academy of Arts and Sciences

American Philosophical Society
Italian National Academy of Agriculture, Bologna
World Academy of Art and Science
Japan Academy of Sciences

OTHER HONORS AND AWARDS

1950 Certificate for Meritorious Service to Agriculture, University of Florida
1952 Medal of Agricultural Merit, Government of Mexico
1952 Medal of Agricultural Merit, Government of the State of Coahuila, Saltillo (Mexico)
1953 Outstanding Achievement Award, University of Minnesota
1953 Distinguished Alumnus Citation from Oberlin College
1954 Cruze de Boyaca, "Caballero," Republic of Colombia
1958 Chilean Order of Merit, "Bernardo O'Higgins"—"Oficial"; "Gran Oficial," 1962
1960 Citation and Medallion of Merit, University of Arizona
1961 Citation and diploma for contributions to agricultural improvement in the Americas, from the Diplomatic Corps in Honduras representing Chile, Colombia, Costa Rica, Ecuador, El Salvador, Guatemala, Mexico, Nicaragua, Panama, Peru, and Venezuela
1962 Presidential Award, American Public Health Association
1963 Public Welfare Medal, National Academy of Sciences
1963 Decoration from the Government of Ecuador, "Caballero," for Agricultural Merit
1964 Order of the Golden Heart, Government of the Philippines
1965 Governor's Award, State of Ohio, for the Advancement of the Prestige of Ohio
1968 Inter-American Agricultural Medal, Inter-American Institute of Agricultural Sciences of the Organization of American States, Costa Rica
1969 Elvin Charles Stakman Award, University of Minnesota
1970 Distinguished Achievement Citation, Iowa State University
1971 The first Edward W. Browning Award, presented annually by the American Society of Agronomy
1971 Knight Commander of the Most Nobel Order of the Crown of Thailand authorized by King Bhumidol Adulyadej and conferred by the Prime Minister, Bangkok, Thailand

1973 "Rafael Uribe Uribe" Order of Merit in Agriculture, Republic of Colombia
1974 Wilbur O. Atwater Medal
1974 Americas Award
1975 Underwood-Prescott Memorial Award, Massachusetts Institute of Technology
1980 Harrar Hall (training and dormitory complex of the International Rice Research Institute) named in honor of Dr. J. George Harrar
1980 Order of the Aztec Eagle, Government of Mexico, Mexican Embassy, Washington, D.C.

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