Franklin S. Harris, Agronomist, Educational Administrator

The present concern of the United States with an abundance of food instead of famine is due, in great measure, to the contributions of such men as Franklin Stewart Harris. His pioneering contributions to the agriculture of arid regions have served as a solid foundation for the development of irrigated agriculture in the United States. As an educator and as president of two universities, he had a profound influence in stimulating large numbers of young people to seek careers in science. As an adviser to foreign countries, he paved the way for better agriculture and friendly relationships with the United States.

Harris was born in Benjamin, Utah, in 1884 but spent his youth in northern Mexico. His college training was received at Brigham Young University, Utah State University, and Cornell University. Immediately thereafter he returned to Utah State University as soil chemist. There he produced numerous technical publications on the effects of irrigation practices on the yield and composition of crop plants. He also helped plan and conduct some of the first experiments on fallowing land in order to conserve moisture and increase yields of wheat under arid conditions. During this period he became interested in salt and alkali in soils and studied their effects on soils and plants. His book *Alkali Soils* was a unique summary of information up to 1921.

Modern irrigation in the United States began in 1847 with the Mormon pioneers, near the center of what is now Salt Lake City. Arriving in the dry, sun-baked valley on 24 July, they diverted water from City Creek onto the land to provide moisture for plowing and planting of crops. Experimental work in irrigation was initiated by the Utah Agricultural Experiment Station in 1889, and scientific principles involving soil and plant science were developed, in a large measure, by the studies of J. A. Widtsoe and F. S. Harris. They measured the water applied and the effects of this on the growth habits and yield of several crop plants. The results and conclusions obtained by these two agricultural scientists were basic to irrigation in agriculture until superseded in the last ten years by newer concepts and findings.

Although fallowing land to increase crop yields goes back to Old Testament history, the modern practice of alternating crop and fallow for wheat production under arid conditions was first worked out in northern Utah in the middle part of the 19th century. Research on this practice, known generally as dry-farming, was first initiated in 1901. Harris became involved in some of the early experiments and helped to plan and carry out some of the first studies to measure the moisture and nutrient build-up in fallowed soils and the effects of these on crop growth.

In addition to conducting a vigorous and productive research program, Harris was active in scientific societies. He was elected president of the American Society of Agronomy in 1920. He helped organize and held offices of leadership in the Utah Dry Farmers' Association and the Utah Irrigation and Drainage Congress. His broad experience and unusual memory made him an excellent teacher. He stimulated large numbers of young men from the West to become technically educated and to advance to positions of leadership in agricultural science.

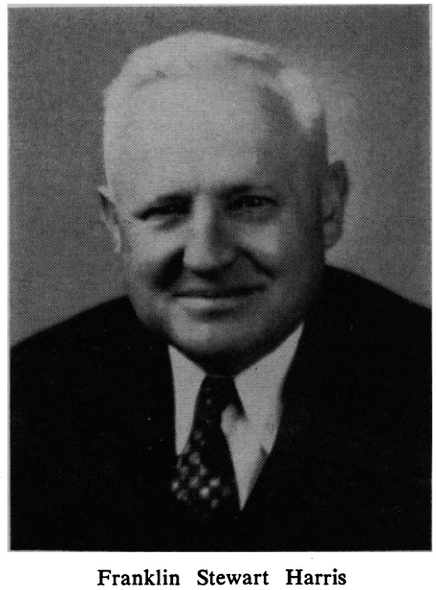
Only five years after receiving the doctoral degree he became director of the Utah Agricultural Experiment Station (1916). At a time when agricultural science was still too often limited to field observations, he insisted on precise measurements and on combining field studies with chemical and physical investigations under controlled laboratory and greenhouse conditions.

Harris served as university president for 29 years—24 years at Brigham Young University and five years at Utah State University. During this period the state of Utah reached a position of sending more than twice the national average of its college graduates into science, as listed in *American Men of Science*. As president of two of the three universities in the state, Harris was an important force in encouraging graduates to go into science.

Harris had a special gift for providing the practical illustration or phrase that would illuminate the heart of a problem. He was the rare kind of man of whom it can be said that he was thoughtful of others without having to think about it. He will be long remembered for the force of his personality and the warmth of his friendship. He seemed never to forget any former student and could recall him by his first name after an absence of many years.

In the midst of his busy life as research scientist in agriculture, teacher, and university president, Harris found time for several missions to help agriculture and education in other countries. In 1926 he served as chairman of the Agricultural Sections of the Pan-Pacific Congress in Japan. Then, later, he was made chairman and agriculturalist of the Jewish Colonization Organization of Russia, which was contemplating Jewish settlement of a tract of land along the Amur River in Siberia.

Perhaps the most noteworthy of his foreign accomplishments resulted from missions to the Middle East in 1946 and again in 1950. The contacts and



Franklin Stewart Harris

close relationships he established with leaders in Iran were important in cementing the present close relationships between that country and the United States.

Throughout his career Harris had the warm support of his wife, Estella Spilsbury Harris. She accompanied him to public functions and made their home notable for generous hospitality, and together they reared a distinguished family of six children.

The death of Harris in April of this year terminated a busy career which had been a source of inspiration to thousands of college students. He had produced six books and numerous scientific articles and had guided the development of agriculture in several foreign nations as well as in the western United States.

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Science in the News

Use of Funds from Sales of Surplus Foods for Science and Education Is Not up to Expectations

For six years the United States has been selling about a billion dollars' worth of surplus food abroad each year. Most of the money is given back to the purchasing country in the form of outright grants or long-term loans.

About one-fifth of the money is actually available for the United States to spend. Most of this "U.S. use" share of the proceeds is used to supply the foreign currency needs of American diplomatic and military personnel in the countries involved in the sales agreements. Some of it is earmarked for such programs as the Fulbright scholarships and agricultural research. In a few countries there is an excess of currency. We have more than we can spend, and to remove this embarrassment of riches Congress last year authorized the use of excess foreign currency for such things as scientific and cultural ventures. But the effects of this new authority have, so far at least, turned out to be unimpressive. Indeed, due to some wording slipped in late in the Congressional deliberations, the amendments to Public Law 480 intended to expand the science and education programs financed under this act have actually had the effect of inhibiting those activities.

The law is known formally as the Agricultural Trade Development and Assistance Act of 1954, and more familiarly as simply PL 480, despite some efforts to give it a more impressive title, such as the Food for Peace Act. Essentially the law represents an effort to get rid of some of our immense food surpluses to the mutual advantage of ourselves and the rest of the world.

During the last fiscal year (ending 30 June 1960) the "U.S. use" share of the proceeds came to just over a quarter of a billion dollars, or 22 percent of the total value of the food shipped abroad. Of this, only $5.1 million was available for the scientific, medical, and cultural programs under the new authority given in the 1959 amendments. Nearly 80 percent of this limited amount was for agricultural research, the remainder was for the National Science Foundation translation program. This was spent in three countries: Yugoslavia, Poland, and Israel. The Yugoslavs and Poles worked mainly on translating their own publications into English; the Israelis worked mainly on English translations of Russian work.

There was no money available for such newly authorized programs as the acquisition and distribution by the Library of Congress of foreign publications and the establishment of chairs in American studies in foreign universities. The limited "U.S. use" funds are, in most countries involved in the program, fully committed to cover the needs for foreign currency under the older programs, which have priority. The new authority to pay for cultural, scientific, medical, and educational activities (Section 104k) only becomes useful when the government finds it has an excess of foreign money that might otherwise go unused. As interpreted by the Bureau of the Budget, this means that no money can be made available for the new programs until the U.S. has accumulated a backlog of several years' currency in a country, enough to meet any shortage that might develop. The decision as to whether there is surplus money available in a given country is somewhat arbitrary, depending on what you call a reasonable layaway for future years. But even the most generous estimators do not see any surplus money in more than a dozen of the 38 countries taking part in the agreements. The Bureau of the Budget, which has the final say, narrows this down to only six. This means there is some but not a great deal of money that might be made available to expand programs under Section 104k next year.

Federal Bookkeeping

To get this money, an agency that would like to spend some excess currency puts in a request with the Bureau of the Budget. The bureau then distributes whatever excess money there is available among the requesting agencies. The agencies put the requests, in terms of the equivalent in American dollars, into their next budget request to Congress. If they get an appropriation they draw the money out of the Treasury and give it to the Commodity Credit Corporation, which handles the PL 480 program, and in return draw the equivalent in foreign currency. Thus, although for bookkeeping purposes the money appears as an addition in dollars to the agency's budget, the American money merely travels around within the government. Nevertheless, in the view of some critics this bookkeeping arrangement has had an unfortunate effect on the programs for using excess PL 480 funds. These critics, including some within the Administration, suggest that the Bureau of the Budget is so intent on keeping the federal budget as low as possible that it tends to try to cut down even spending of excess foreign currency under PL