cording to the London *Times,* the estimated cost is over £1,000,000.

The plan provides for a barrage and a navigation lock on the Tigris at Kut and, higher up the river, a head regulator and a canal through which the waters of the Tigris will be diverted as required into the Shatt-el-Gharraf. This river, the course of which is southward to Nasiriyeh, on the Euphrates, at present runs dry when the level of the Tigris is low in the summer season, and the object of the works is to ensure a continual flow of water throughout the year. With the installation of pumps it will thus be possible to irrigate an immense area of land which, properly watered, has rich possibilities for the production of wheat and maize and cotton.

The barrage will be nearly 2,000 feet long with its approaches and will have 56 openings, each nearly 20 feet wide, controlled by sluice gates. Its height will be nearly 50 feet from the bottom of its concrete base to the road along the top. This road, 13 feet wide, will serve as a much-needed public bridge. The navigation lock will have an effective length of 260 feet and a width of 53 feet, and as the Tigris is used extensively by a species of salmon, a fish ladder, the first structure of its kind in Iraq, will be embodied in it, to allow the passage of fish up the stream. The Shatt-el-Gharraf Canal will be 3,250 yards in length and 90 yards in bed-width.

The Tigris Barrage is one of the three big irrigation works included in the Capital Development Works program of the Government of Iraq, which, originally in the nature of a five-year-plan, was passed into law in 1931. The first of these projects was the Habbaniyah Escape, one of the principal irrigation schemes proposed by the late Sir William Willcocks some years before the war. Its primary object was to provide an escape for the spring flood of the Euphrates by diverting it into the Habbaniyah Lake on the right bank of the river between Fallujah and Ramadi, at the upper end of the cultivable lands. The water level in the river then could be controlled south of Ramadi and thus the flooding of the river year by year, with the consequent heavy damage, would be almost entirely eliminated. The other scheme is the Abu Ghuraib Canal, a smaller operation, which is now under way. The line of this canal runs from the left bank of the Euphrates about six miles below Fallujah towards Baghdad. It is 40 miles long and is expected to water about 120,000 acres.

The Government of Iraq also contemplates the erection of a dam on the River Diala, at a point where it passes through hills about 70 miles north-east of Baghdad. The effect of this work would be to form a reservoir capable of raising the river's level in the summer months and thus of irrigating 1,500,000 acres of land suitable for cotton and wheat between Diala and Kut, the cost of which would probably be more than £1,000,000.

THE DROUGHT AND AUTUMN RAINS

OVER most of the interior states, the three fall months changed completely the weather picture of the preceding winter, spring and summer, so far as moisture is concerned, according to a statement made by J. B. Kincer, of the U. S. Weather Bureau. In many areas where unprecedented drought had hung on from the first of January until the last of August abundant rains fell in September, October and November. Even with the heavy fall precipitation, however, subsoil moisture remains deficient and the average rainfall for the year is bound to be below normal in many sections where the drought was most severe.

Above-normal temperatures in every state also distinguished the autumn of 1934. Very rarely are all the states on the same side of the normal temperature mark at one time. As a rule when one part of the country is warmer than normal, some other part is colder than normal.

The fall rains that turned the tables in the heart of the drought area brought approximately one and a half times the normal precipitation to states that for the preceding eight months had averaged about one half of normal. Thus, in Iowa precipitation was only 65 per cent. of normal for the eight months from January through August, but rose to 150 per cent. for the three-month period from September to November. In Nebraska the corresponding change was from 50 to 103 per cent.; in Kansas, from 57 to 134 per cent.; in Missouri, from 59 to 164 per cent., and in Illinois, from 67 to 154 per cent. The average precipitation for the year so far—which Mr. Kincer states is not likely to change materially between now and January 1, 1935—is 86 per cent. of normal for Iowa; 69 per cent. for Nebraska; 75 per cent. for Kansas; 85 per cent. for Missouri, and 90 per cent. for Illinois.

While the Middle West and the Central Valley were being well watered the eastern Ohio Valley was dry. Ohio, after a moderately dry summer, had only 80 per cent. of normal rainfall for September, October and November. The far Southwest and the northern Great Plains also continued dry through the fall. North Dakota, for example, had only 68 per cent. of its normal precipitation, following a 52 per cent. normal rainfall for the preceding eight months. This means an average annual rainfall of just a little more than half normal for North Dakota.

The Southwest started the year dry and stayed dry. Colorado had 67 per cent. normal rainfall from January through August and 62 per cent. for the rest of the year. In Utah the corresponding percentages were 63 and 90; in Arizona, 81 and 54, and in New Mexico, 69 and 66.

Fall rains were abundant in the Middle Atlantic States and in the Mississippi Valley States. Several of these had approximately one and a half times their normal precipitation—Wisconsin, 170 per cent. of normal; Maryland, 164 per cent.; Virginia, 152 per cent., and Mississippi, 148 per cent.

The East also had plenty of rain this fall, almost enough to make up for the lack earlier in the year. Georgia and Florida were the only exceptions. These two states were seriously dry the latter part of the fall.

THE PRESIDENCY OF THE AMERICAN CHEMICAL SOCIETY

As announced in last week's issue of SCIENCE Professor Edward Bartow, of the State University of Iowa, has been elected president of the American Chemical Society for 1936, serving as president-elect during 1935. He was elected from among six candidates nominated by the local sections. The names of these nominees, with biographical sketches, as printed in the news edition of *Industrial and Engineering Chemistry,* are as follows:

EDWARD BARTOW, 64 professor and head of the department of chemistry and chemical engineering, State University of Iowa, Iowa City, which post he has held since 1920. A graduate of Williams College, he received his doctorate from the University of Göttingen and his D.Sc. from Williams College. He has taught at Williams, the University of Kansas and the University of Illinois. He was director of the State Water Survey at Illinois from 1905 to 1917 and chief from 1917 to 1920. He served as lieutenant colonel in the Sanitary Corps, U. S. A., on duty in France, and he has been a member of several important commissions, has been prominent in the work of a number of scientific organizations and has held office in several of these. He has been active in the International Chemical Union, serving as councilor, and at Madrid he was elected vice president for the United States and was made a corresponding member of the Spanish Academy of Science. Dr. Bartow has served the American Chemical Society in many capacities and at present is a member of the board of directors.

W. D. HARKINS, 60, professor of chemistry at the University of Chicago, where he has served as a member of the faculty since 1912. He is a graduate of Stanford University, and received his doctorate there too. He studied also at the University of Chicago and at Karlsruhe. He taught at Stanford and at the University of Montana before going to Chicago, and in 1910 he was research associate at the Massachusetts Institute of Technology. He has served as lecturer at the Mellon Institute and at the University of Illinois, has been consulting chemist for the U. S. Bureau of Mines, and was special agent of the Department of Justice on smelter smoke investigations in 1910–12. He has performed extensive public service, being president of the Missoula Board of Health, and still serves on the Chicago Committee on Ventilation. In 1928 he received the Willard Gibbs Medal of the Chicago Section of the American Chemical Society. He is a member of the National Academy of Sciences, the Philosophical Society, and served as vice president of the American Association for the Advancement of Science in 1920. His work in the field of physical chemistry is outstanding.

ARTHUR J. HILL, 46, chairman of the department of chemistry at Yale University since 1927. He is a graduate of Yale, where he received his Ph.D. in 1913, and since that time he has been connected with the faculty of the university, beginning his service as an instructor, following the completion of his work for the advanced degree. He is a member of the committee on hypnotics and chairman of the Subcommittee on Local Anesthetics of the National Research Council. He served in the Chemical Warfare Service during the world war. He has long rendered valuable service to the American Chemical Society, having been chairman of the New Haven Section in 1925, of the Division of Medicinal Chemistry in 1929, and is now most active in the Division of Organic Chemistry, of which he is the secretary. His principal scientific interests lie in the field of synthetic organic chemistry, biochemistry and medicinal products and dye intermediates.

WALTER S. LANDIS, 53, vice president since 1922 of the American Cyanamid Company, with which he has been associated since 1912, when he became chief technologist in that organization. He is a graduate of Lehigh University, from which institution he also received his master of science degree and the D.Sc. He was a student at Heidelberg 1905–6 and in Aachen in 1910. He was an assistant in metallurgy at Lehigh 1902–4 and was then advanced to an instructorship, next assistant professor from 1910 to 1912. He has served as chairman of the New York Section of the American Chemical Society, also of the Electrochemical Society of which he was president in 1912. He holds membership in the American Institute of Mining and Metallurgical Engineers, the American Institute of Chemical Engineers, and is well known for his research and developments in nitrogen fixation, fertilizers and electric furnace products.

A. S. RICHARDSON, 44, in charge of chemical research of the Procter and Gamble Company since 1921. His training was received at Princeton University, where he received his A.B. in 1913, his A.M. in 1915 and Ph.D. in 1927. He was an instructor in chemistry at Princeton from 1915 to 1917 and again from 1919 to 1920. He was a member of the research staff of E. I. du Pont de Nemours and Company from 1920 to 1921. Dr. Richardson was president of the American Oil Chemists Society in 1931. Besides his activities in the American Chemical Society and the Oil Chemists Society, he is a member of the American Association for the Advancement of Science and of the Chemische Gesellschaft. His scientific interests lie in the fields of catalysis, fats, and soap.

E. R. WEIDLEIN, 47, director of Mellon Institute of Industrial Research since 1921. He is a graduate of the University of Kansas, where he was a fellow from 1909 to 1912, receiving his A.M. in 1910. Tufts College awarded him the honorary D.Sc. in 1924, and the University of Pittsburgh the LL.D. in 1930. He was a senior industrial fellow of the Mellon Institute, a director of the experimental plant from 1912 to 1916 when he became associate director. Dr. Weidlein has been active in a great many scientific enterprises. He has