proportion (13:21) of atoms to valency electrons. X-rays, aided by electron diffraction, also give information about the crystal texture—the size and arrangement of the crystals as distinct from their inner structure; and the texture is the key to such different problems as the working of metals and the function of biological structures.

The Boulder Dam and its Equipment

IN *Engineering* for January 1 is a well-illustrated introduction to a series of articles which will deal with the mechanical, hydraulic and electrical features of Boulder Dam. These articles will be written by Mr. P. A. Kinzie, Mr. J. A. Winter and Mr. L. N. McClellan, who have each been responsible for some part of the equipment for the control and utilization of the water impounded by the Boulder Dam, which is not inappropriately described as "the greatest engineering effort of its kind in history". It was on December 21, 1928, that President Coolidge signed the Boulder Dam Act, which provided for the construction of a great dam on the Colorado River. The scheme had several objects. First, it was intended to prevent the serious floods which menaced the fertile district of the Imperial Valley; secondly, to conserve water for use in the same district during the hot dry summers; and thirdly, to provide a public water supply for the coastal cities of Southern California. The river has a length of approximately 1,700 miles, and drains an area slightly more than double the area of Great Britain. The site for the dam was chosen in Black Canyon about 300 miles upstream from the river mouth, a barren and inhospitable region, the character of which is well shown by the photographs in *Engineering*. The dam itself was completed in the summer of 1935. From the lowest portion of the foundation to roadway level it is 726 feet high; it is 660 feet thick at the base and 45 ft. thick at the crest, and contains about 6,600,000 tons of concrete. It is composed of massive vertical columns about 230 in number, interlocking both vertically and horizontally. Recently, the water impounded in the reservoir, Lake Mead, was estimated at ten billion gallons.

Electric Supply in Palestine

AN account of electric supply in Palestine since it was initiated in 1923, given in *Electrical Industries* of December 2, is of special interest in connexion with the political rioting which began last April. The pioneer of this supply was Mr. P. Rutenberg, who enlisted the support of the late Lord Melchett and the Baron E. de Rothschild. It was decided to have a national power supply from water-power, but as the rainfall for Palestine lasts only four months in the year, it was necessary to store the winter rainfall in reservoirs, the construction of which would take several years. It was advisable therefore to use temporary Diesel engine power stations at Haifa and Jaffa to begin the supply, whilst the Dagania dam across the River Jordan and the large one on the Tarmuck River were being constructed. In addition to these dams, Lake Tiberias, which forms a natural reservoir with a surface of 170 million square metres, was utilized. The water-power is converted into electrical power which by high-pressure electricity is distributed to Haifa and thence to the north and south of Palestine. In addition, a steam turbine power house was constructed in 1935 and a large power house called the 'Reading' (after the late Marquess of Reading) is being built in southern Palestine.

WHEN these plans are completed, the Holy Land will be as highly electrified as any territorial area in the British Empire. During the last three years, the consumption of electricity has quadrupled. There can be little doubt that industrialization is rapidly changing the character of Palestine and that electric power is the main factor in producing this change. Electric lighting, electric power driven machinery and all-mains wireless sets are to be found in small towns, villages and even in remote farming settlements. This is partly due to the fact that the immigrants who come from Germany, America, Czechoslovakia, Austria and the British Dominions, have been accustomed to the use of electric light in factory and home. It looks as if schemes for flooding the Dead Sea from the Mediterranean and so getting electric power possibly for sale to Egypt will soon be considered. One very beneficial effect would be that the constant evaporation from the greatly increased surface of water would humidify the atmosphere and so contribute to the fertility of the region.

Academic Freedom

THE report of the Conference on Academic Freedom at Oxford in August 1935 and the publication entitled "The Frustration of Science" form the text of a fine plea for academic freedom by M. J. Pelseneer in *Revue de l'Université de Bruxelles* of October–November. M. Pelseneer refers again to the various directions in which academic freedom is threatened and to the necessity for organized united resistance to those threats, and he emphasizes the way in which the freedom of the intellectual is linked up with the freedom of mankind. True liberty of thought is that which liberates mankind from the indignity of bondage. In particular, he pleads for tolerance in the matter of university appointments in the sense not merely of respecting the opinions of others but also in allowing them reasonable opportunity of expression. In this connexion it is interesting to note the conditions in the University of Heidelberg as set out on p. 98 of this issue of NATURE. M. Pelseneer, recognizing that human society must look to science for just laws and rational organization, even if their application to the distribution of production and government involves a social revolution, suggests that even within the limits of a given economic system, it is still worth while to discover the means of securing the minimum frustration of science.

Human Welfare and Human Efficiency

THE relation between industrial and social efficiency, discussed in a leading article in NATURE of October 3 dealing with Sir Josiah Stamp's address to the