them famous, but they themselves are better known than their discoveries. Faraday's reverence for truth and unselfish devotion to its acquisition have a higher value than the laws which he established. We gladly admit our debt to Pasteur and to the Curies, and yet the inspiration which we draw from their lives is even better than the results of their work. The world admires Franklin for his discoveries in electricity, yet it respects him more for his wisdom. I might prolong the list, but every one here can do that for himself. In brief the spirit in which knowledge is sought and the manner in which it is used are more important, more real than knowledge itself.

The records of scientific discovery, of the development of the fields of experiment which began three hundred years ago, have shown the growing power of science. The extent of their power is to-day a chief concern; we must, as so many are now trying to do, give anxious thought to its exercise. The power is not actually in the hands of the scientist, though he is deeply interested in its future because he has been and is the occasion of its existence. It may fairly be inferred from experience that the scientist himself will never be a tyrant. His work does not rouse in him the desire to dominate, but rather to assist. Love of accuracy, patience, perseverance, self-denial have been common qualities and necessarily so. These have a place in the general esteem, and therefore have their effect. Most of all the world respects the devotion to service that has so often been found; the warm love of their fellows which has inspired so many to give themselves and their labor without counting the return. We must hope that such a spirit will continue in ourselves, whether as individuals or as societies.

The problems of society and in particular those into which natural knowledge enters so powerfully will long demand a patient examination. But whatever may be the tactics that are developed in the end, it is certain that the satisfactory solution will be based upon moral influence. It is for us, as scientists, to supply the natural knowledge and help in its application, but that is not the complete account of what we have to do. Our effectiveness will depend, as is shown by all human history including our own limited experience, upon the devotion, wisdom and good-will which we bring to our task.

SCIENTIFIC EVENTS

THE ZOOLOGICAL SOCIETY OF LONDON

In a summary of the annual report of the Zoological Society of Great Britain, given in the London *Times*, it is reported that there was a decrease of 130,885, compared with 1937, in the number of visitors to the Zoological Park, London, last year. This is attributed mainly to the September crisis. The total number was 1,816,012. At Whipsnade there was an attendance of 523,345, a decrease of 23,073.

The number of visitors to Regent's Park was the twelfth highest in the history of the society. Admission receipts were £5,628 less than the previous year, and total income amounted to £112,957, a decrease of £12,165. Expenditure was £112,488, a decrease of £5,061, leaving an excess of income over expenditure of £469. Receipts for admission to Whipsnade decreased by £1,077. Income was £33,575, a decrease of £2,421, and expenditure was £27,568, a decrease of £738, giving an excess of income over expenditure of £6,007.

The average strength of the society's collection, excluding aquarium, reptile and insect houses, was 1,035 mammals and 1,846 birds. The animals at Regent's Park consumed 91 tons of hay, 156 tons of clover, 124 tons of horseflesh, nine tons of monkey nuts, 12 tons of bread, 244,649 bananas and $4\frac{1}{4}$ cwt. of honey.

The aquarium was visited by nearly 15 per cent. of those who entered the gardens. The visitors numbered 283,248, compared with 271,933 in 1937. The increase was largely due to the reduced charge of 6d. on Saturdays, instituted during the year.

In September, it is stated, a scheme was worked out for measures in case of war or other emergency. This involved the conversion of basements into air raid shelters and the removal of valuable books and documents and the families of the staff to Whipsnade.

THE TRANSFER OF DIFFICULT ALPINE PLANTS MADE AT WASHINGTON ARBORETUM

Although the Washington Arboretum at Seattle has been established for less than three years it is producing results that are attracting the attention of both layman and scientist. Thousands of plants have been propagated that are now being placed in permanent locations on the grounds where they will be kept under observation for developments of scientific and educational value.

A significant accomplishment has been the transfer, in one year, of alpine and subalpine plants from their natural altitudes to sea level with no loss of vigor and with no apparent change in character. Three notable instances of successful transfer were *Campanula piperi,* a miniature evergreen member of the Campanulaceae; *Lewisia tweedyi,* the largest and most beautiful of the Lewisia tribe, and *Douglasia dentata,* a rose-colored evergreen member of the Primulaceae. The domestication of these three little known but valuable plants will be a distinct addition to the small list of strictly alpine plants now in use, but the real significance of the accomplishment was that the successful transfer of these difficult plants from altitudes of 7,000 feet or more down to sea level without loss of time was an encouraging indication that in this far western arboretum the development of plant life can be carried to points hitherto unknown.

The Washington Arboretum is situated on the shore of a large inland salt water basin within an area governed by natural phenomena probably without parallel. This enormous inland sea is almost completely enclosed in high, storm-excluding mountain ranges and filled with warm water that flows in from the equatorial streams of the Pacific Ocean. Hygrothermograph charts show a relationship between air and soil temperatures and humidity that is particularly favorable to plant life. The variation in summer and winter atmospheric temperatures is enough to insure plant vigor and hardiness, but is neither extreme enough, nor abrupt enough to retard plant growth.

The presence of conditions unusually favorable to plant life as shown by the natural vegetation has been recognized by scientific men, such as the late Henri Correvon, Reginald Farrar and Dr. E. H. Wilson.

The accomplishments of Washington Arboretum have substantiated their belief that the further development of plants already domesticated and established should be attempted under these conditions.

With a plan of organization similar to the one used at the Arnold Arboretum and the avowed purpose of collecting all reliable information on plant life of educational or scientific value; located on a site of ample size (260 acres) within an area particularly favorable to that purpose; under the scientific supervision of Dean Hugo Winkenwerder, of the School of Forestry of the University of Washington; supported by the Washington Arboretum Foundation, Dr. E. Weldon Young, president; with the cooperation of the Board of Park Commissioners of Seattle and the United States Federal Government, this latest addition to the facilities for scientific research should become one of the leading institutions of its kind in the world.

J. B. F.

DEVELOPMENTS IN ENGINEERING AT CORNELL UNIVERSITY

RAYMOND F. HOWES, assistant to the dean of the College of Engineering of Cornell University, writes that the appointment of Dr. William Abbett Lewis, Jr., of the Westinghouse Electric and Manufacturing Company, as director of the School of Electrical Engineering at Cornell University, which took effect on February 1, completes the reorganization of the administrative staff of the College of Engineering, begun in November, 1937, with the appointment of Professor S. C. Hollister as dean. To succeed Dean Hollister as director of the School of Civil Engineering, Dr. W. Lindsay Malcolm, formerly lieutenant-colonel of Canadian Engineers, was secured from Queens University. Professor William N. Barnard, long head of the Department of Heat-Power Engineering at Cornell, was made director of the Sibley School of Mechanical Engineering; and with the establishment of the School of Chemical Engineering on July 1, 1938, Dr. F. H. Rhodes, professor of industrial chemistry in charge of the former chemical engineering curriculum, became director.

Since the new school has been added to the college and new administrative officers selected for the other three schools, the curve of enrolment has started upward once more, numerous improvements have been made in facilities for instruction and research, and plans have been announced by President Edmund E. Day and the Board of Trustees for a $6,000,000 program to strengthen the college's resources by increasing endowment for instruction and research and constructing the first two units of a proposed new physical plant. A trustee committee, of which Bancroft Gherardi, retired vice-president and chief engineer of the American Telephone and Telegraph Company, is chairman, and the new provost, H. Wallace Peters, is executive secretary, is raising funds for the project.

While waiting for tangible results from this long-range program, the college is constantly improving existing facilities. During the last few months two floors of Sibley Dome have been entirely remodeled. With the Mechanical Engineering Library moved to the second floor, the first has been used to concentrate administrative offices, making available additional classroom space in East Sibley. Faculty offices have also been remodeled in the Mechanical Laboratory buildings, and changes and additions made in equipment. The material testing laboratory has a new 200,000 lb. tension-compression machine, and is installing two smaller machines. Regrouped on a new concrete floor are other machines for tension-compression, torsion, transverse bending, impact and various other standard tests.

New apparatus has also been added to the photo-elastic laboratory, and a constant-temperature room for heat-transfer tests, humidity control and various other types of research in air-conditioning and related fields is under construction. A micromotion laboratory, with moving-picture cameras and projectors and other apparatus for time and motion studies of industrial operations, has recently been completed.

In the School of Civil Engineering, the sanitary and photo-elastic laboratories have made important additions to equipment, as has the material testing laboratory. A graduate students' shop for the construction of special apparatus needed for research