ration, purification, protection or improvement of practically everything with which we come in contact. There is no science which has more to do with our lives and habits of living than the science of chemistry.

In conclusion permit me to say that I have refrained from discussing more recent discoveries and the many new products of the research laboratory for the reason that the true commercial value of them has not yet been determined. "Luxuries of to-day become necessities of to-morrow." Many, many products are often developed and their value proven conclusively, yet months and sometimes years elapse before any very great activity occurs putting said products on the market. The research man, though seemingly slow, is ever seeking after truth—truth as expressed in the laws of nature.

Dr. Carver, the Negro scientist of Tuskegee, summarized well the work of the research chemist when he said of his own work, "I simply try to think the thoughts of the Almighty after Him. Humbly I try to utilize some of the many things He has placed here for our benefit."

Yes, 'tis true, these "wonder workers" are ever striving, pushing forward, to know and understand more fully the laws that govern and control the universe, thereby creating opportunities so that they and others may render greater service to humanity.

OBITUARY

JOSEPH N. HARPER

DR. JOSEPH N. HARPER, widely known in connection with soil fertility interests in the South, died at his home in Atlanta, Georgia, on July 1.

He was born on March 11, 1874. He began his advisory career with his appointment in 1898 as agronomist to the Kentucky Experiment Station, where he made notable contributions on the culture of tobacco, wheat and hemp.

In 1905 he was called to head the Department of Agriculture of Clemson College, South Carolina, and to direct the activities of the South Carolina Experiment Station. These positions he held for eleven years, and under his direction the Research Department of Clemson College became recognized as a leading experiment station dealing with problems of soil fertility and plant diseases.

Dr. Harper, in 1917, was chosen to direct the extensive work of the Soil Improvement Committee of the Southern Fertilizer Association. His sound scientific knowledge and practical judgment won for him, in his travels all over the South, the respect of all concerned with the maintenance and building up of soil fertility.

With the formation of N. V. Potash Export My., Inc., Dr. Harper became a director of this company's agricultural and scientific bureau, in charge of the southern territory, which position he held until the formation of the American Potash Institute in July, 1935. For the institute he was manager of the southern territory.

Dr. Harper held memberships in many scientific societies and had held every office in the Association of Agricultural Workers, which is composed of the leading agriculturists of the South. It has been said of him that his success was due not only to his scientific knowledge, but to his practical knowledge of farming, and that when he talked to farmers he had his own experience of a lifetime of farming from which to draw upon. R. H. S.

RECENT DEATHS AND MEMORIALS

DR. FRANKLIN DAVIS BARKER, professor of zoology and head of the department at Northwestern University, died on July 10 at the age of fifty-eight years.

PROFESSOR JESSE EARL HYDE, head of the department of geology of Western Reserve University and curator of geology and paleontology in the Cleveland Museum of Natural History, died on July 3 at the age of fifty-two years.

DR. PERCY G. STILES, since 1916 assistant professor of physiology at the Harvard Medical School, died on July 5 at the age of sixty-one years.

WILLIAM TYLER OLCOTT, lecturer and writer on astronomy, since 1911 secretary of the American Association of Variable Star Observers, died on July 6. He was sixty-three years old.

OTTO PAUL AMEND, of New York City, who retired in 1934 as president of Eimer and Amend, manufacturing druggists, died on July 4 at the age of seventy-seven years.

WILLIAM G. MARQUETTE, JR., a graduate student of Columbia University, who had been working this summer at the Marine Biological Laboratory at Woods Hole, has died by suicide at the age of twenty-two years.

WILLIAM ERNEST DALBY, emeritus professor of engineering in the University of London, died on June 25 at the age of seventy-two years. He was an authority on the steam engine and in particular on the balancing of engines.

HENRI LEON UNGEMACH, the Alsatian mineralogist, died on June 11 at the age of fifty-seven years.

THE death is announced of Dr. Guglielmo Romiti, professor emeritus of anatomy at the University of Pisa.

THE Chicago Ophthalmological Society is establishing the William Hamlin Wilder Foundation Memorial in memory of the late Dr. W. H. Wilder, professor of ophthalmology at Rush Medical College. A fund of

$10,000 is being raised, the interest to be used to bring an outstanding lecturer on ophthalmology or allied topics to Chicago every second year to deliver the Wilder Memorial lecture. Friends of the late Dr. Wilder who wish to contribute should send their checks to the Northern Trust Bank of Chicago.

SCIENTIFIC EVENTS

THE NATIONAL PHYSICAL LABORATORY

THE annual inspection of the National Physical Laboratory at Teddington to review the work done and the advances made at the laboratory in the past year was held on July 1. The London *Times* reports that the visitors were received by Sir William Bragg, president of the Royal Society and chairman of the general board of the laboratory; Lord Rayleigh, chairman of the executive committee, and Sir Frank Smith, secretary of the Department of Scientific and Industrial Research and director of the laboratory.

The metallurgy department exhibited fragments of copper and bronze articles from Ur of the Chaldees and Homeric Troy. The department has been asked to help in determining, by microchemical analysis and microscopical examination of minute samples, the source of origin of the metal used in these objects.

In the engineering department x-rays have been employed to discover how metal begins to break. This research has shown for the first time that though the fracture of an engineering component may have been produced by any one of a great number of methods of straining, the physical state of the crystalline structures that result is in every instance the same. This applies equally to a connecting-rod in which "fatigue" has been the cause of the breakage and to a chain which has snapped suddenly when much overloaded. The same department of engineering showed a model, 10 feet square, representing to exact scale all the buildings between the Thames Embankment and Aldwych, and extending west and east along the Strand. It is intended to place this model in the largest wind tunnel and there study the effects of high wind pressures on a building placed approximately where the Gaiety Theater stands. The results of this research will throw light on the screening effect of surrounding buildings and on what happens when they are removed or altered.

The new photometry laboratory in the electricity department was open to visitors for the first time. It includes a room 145 feet long for the measurement of different types of projectors, such as motor-car headlights, signal lights and searchlights. The high-voltage laboratory, equipped with a generator of surge voltages up to 2,000,000 volts—miniature flashes of lightning—has now been provided by the Central Electricity Board with an overhead grid transmission line 3,000 feet long, erected in the laboratory grounds; and the visitors saw in action the equipment whereby the characteristics of an electrical discharge lasting only a millionth of a second can be completely analyzed. It is thus possible to study the passage of "surges" traveling along the transmission line at 186,000 miles a second, with the object of minimizing the serious consequences which may ensue when an overhead transmission line is struck by lightning.

The aerodynamics department showed a film which has been made for the Air Ministry to elucidate air flow. The air flowing past aeroplane models can be actually seen, being made visible by the production in the air current of tiny electric sparks. The sparks heat spots of air, a shadowgraph of which is produced by suitable illumination and can be photographed by a cinema camera. With a high-speed camera taking 2,300 photographs a second it is possible to analyze changes in the motion which are far too rapid to be seen clearly by the eye.

TOURS OF THE THIRD WORLD POWER CONFERENCE

PLANS for nine separate tours for visiting foreign engineers, scientists and industrialists, in company with a group of Americans, have been completed as a supplement to the World Power Conference meeting in Washington from September 7 to 12.

The tours will be held both before and after the conference. More than 700 distinguished foreigners, representatives of 48 nations, are expected to meet with some 2,500 Americans, for the sessions, which will be devoted to a consideration of "The National Power Economy." Those participating will inspect hydropower plants, research laboratories, electrical manufacturing plants, business offices of urban utilities, metropolitan railroad terminals, big dams and small dams, high-speed railroad trains in operation and under construction. Visits will be made to the plants of the utilities of New York, the General Electric and Westinghouse factories, Pittsburgh's steel mills, Niagara Falls, Detroit's automobile factories, the great dams of the west, Coulee, Bonneville and Boulder, the San Francisco Bridges, Tennessee Valley, etc.

In Washington, the discussions will be devoted primarily to the economic problems involved in the conservation of power resources and the production and distribution of power. The tours will round out the conference on the technical side. They have be planned under the sponsorship of the enginee societies and the trade associations of industries cerned with power.