to become the scientists of to-morrow, so that they may carry on the torch of scientific learning. Were it possible to settle the problems of mankind on a rational basis rather than on the present emotional plane, the world of to-morrow would be a better place to live in.

The scientist has hope. Even though he now looks upon a distorted world of victor and vanquished, he knows that real progress will be made, for in his imagination he sees a future which will be an improvement over the past.

In chapter twenty-one of Revelations it is written of the future of a new Jerusalem:

> And the building of the wall of it was of jasper, and the city was pure gold, like unto clear glass.
>
> And the foundations of the wall of the city were garnished with all manner of precious stones. The first foundation was jasper; the second, sapphire; the third chalcedony; the fourth an emerald; the fifth sardonyx; the sixth sardius; the seventh chrysolyte; the eighth beryl; the ninth a topaz; the tenth a chrysoprasus; the eleventh a jacinth; the twelfth an amethyst.
>
> And the twelve gates were twelve pearls; every several gate was of one pearl and the street of the city was of pure gold as it were transparent glass.

Should scientists accept these scriptures as a challenge? If not taken too literally, they have already done so.

An old Chinese philosopher has said of a gentleman: "To see clearly; to understand what he hears; to be warm in manner; dignified in bearing; faithful in speech; painstaking in his work; to ask when in doubt; in anger to think of difficulties; in sight of gain to think of right!"

All these qualities scientific men must possess and one more—imagination! With the ability of creative thought applied to their fields, scientists will transform the world!

OBITUARY

EDWARD BURR VAN VLECK
1863–1943

ON June 2, 1943, a leading figure was plucked from the ranks of American scholars, and especially from those of American mathematicians, through the death of Edward Burr Van Vleck.

Professor Van Vleck was born at Middletown, Conn., on June 7, 1863, the son of John Munroe and Ellen Maria (Burr) Van Vleck. His college training he received at Wesleyan University, Conn., from which he graduated in 1884. His graduate studies in mathematics and physics he pursued at the Johns Hopkins University from 1884–87, and, after an interim during which he served as an instructor at his Alma Mater, at the University of Göttingen, Germany, from which he received the doctorate in 1893.

Professor Van Vleck's period of activity as a teacher and mathematical investigator may be regarded as having properly begun with his acceptance of an instructorship at the University of Wisconsin in 1893. Simultaneously with this he took membership in the American Mathematical Society, and thereby actively affiliated himself with that group of young scholars whose enthusiasm and attainments were largely instrumental in establishing in America mathematical standards and research comparable with those of Europe. Of this group he was one of the first to make his home in the Middle West. Although Wesleyan University again called him in 1895 and held him in a professorship until 1905, he thereupon returned to Wisconsin to spend there the remainder of his life. His retirement from active teaching came in 1929.

The development of American mathematics during the first quarter of the present century was phenomenal, and in this Professor Van Vleck played a prominent part. He become a member of the council of the American Mathematical Society in 1902, and was a "Colloquium Lecturer" before this society in 1903. He served the society from 1905–10 as an editor of its *Transactions,* in 1908 as its vice-president and during the years 1913–14 as its president. The mathematical literature over a period of many years is dotted with papers of his on infinite series; on functions defined by ordinary differential equations; on continued fractions; on point sets; on functional equations; on the roots of polynomials, etc. As a teacher he stood at all times for the highest standards of scholarly integrity. A considerable number of America's more accomplished contemporary mathematicians have at one time or another come under his influence.

Professor Van Vleck was the recipient of many honors. Aside from the offices through which the American Mathematical Society honored him, he was distinguished by Clark University (1909) and Wesleyan University (1925) as a doctor of laws; by the University of Groningen (1914) as a doctor of mathematics and physics; and by the University of Chicago (1916) as a doctor of science. The French government named him officier de l'instruction publique (1920); he became a member of the National Academy (1911); and he held the chairmanship of Section A of the American Association for the Advancement of Science (1912).

In his person Professor Van Vleck was modest and

kindly. His father had been distinguished before him as a professor of astronomy and mathematics and erstwhile president at Wesleyan University. He thus carried on a family tradition of intellectual interest and culture. He was a passionate and experienced traveler, and made his home the repository of many artistic treasures.

Professor Van Vleck is survived by Mrs. Van Vleck (Hester Raymond) whom he married in 1893, who shared with him his many interests and who continues to make her home in Madison, Wis., and by his son, John Hasbrouck Van Vleck, professor of mathematics and physics at Harvard University.

RUDOLPH E. LANGER

GEORGE WEST GRAVES

DR. GEORGE WEST GRAVES, professor of agriculture and biology at Fresno State College, died in Fresno, Calif., on October 26, 1943. Professor Graves was born in Cedar Rapids, Iowa, on May 1, 1886. He is survived by his wife, the former Ella Macklin, and his parents, Walter Robert Graves and Mary Alice Graves.

His early education was received in the public schools of Chicago, Ill., where he graduated from the John Marshall High School. In 1905 he was graduated from Oberlin College. He received the Ph.B. from the University of Chicago in 1908. In 1912 he was awarded the M.S. by the State College of Washington. Further graduate study at the University of Southern California, the University of California and the University of Chicago led to the Ph.D. from the University of Chicago, 1931.

His interests were broad and enhanced by visits to England, Scotland, France, Belgium, Holland, Germany, Switzerland, Austria and Italy. In connection with his travels he studied the development of gardens at Kew, Pous, Berlin, Dresden and Amsterdam.

During the first World War he served as instructor in field artillery at Camp Taylor.

His more serious research interests were in the field of botany, where he made contributions on the ecological relationships of *Pinus sabiniana*. At the time of his demise he was actively participating in a study of fertilization in *Araucaria Bidwillii*.

In addition to serving as supervisor of agriculture in the public schools of Los Angeles, Professor Graves served as instructor in the State College of Washington, the University of Southern California and the University of California.

From September, 1919, until his demise, he served continuously as head of the department of agriculture and biology at Fresno State College. During this period of service he was successful in developing the largest department in that institution.

He played an active role in improving agricultural and science education in the San Joaquin Valley during the past twenty years, and was greatly interested in the development of science education throughout California. Since 1932 he contributed generously to the planning and preparation of the "Science Guide for Elementary Schools," a progressive enterprise of the California State Department of Education.

For the past sixteen years, Dr. Graves assumed the chief responsibility for the development of experimental gardens at the Fresno State College. As a token of appreciation, the administration of the college has taken steps to designate this enterprise in his memory as the George West Graves Botanical Gardens.

His general understanding of college problems had a tremendous influence in the development of the Fresno State College. His warm, friendly thoughts were generously shared with both students and colleagues, who quickly learned to seek his counsel. Always dealing with principles, never indulging in personalities, he will be remembered by those who were privileged to know him as a splendid teacher, a warm counselor and a sincere friend.

LEO F. HADSALL

FRESNO STATE COLLEGE

RECENT DEATHS

DR. LOUIS J. RETTGER, of Bedford Village, N. Y., from 1891 to 1937 professor of physiology and dean of Indiana State Teachers College and from 1931 to 1935 vice-president, died on December 1 at the age of seventy-six years.

CHARLES W. MANN, since 1922 senior pomologist at the Bureau of Plant Industry of the U. S. Department of Agriculture, died on December 3 at the age of sixty-four years. Mr. Mann was soil scientist with the Bureau of Soils from 1906 to 1910, assistant pomologist of the Bureau of Plant Industry, 1910–1917 and pomologist from 1919–1922, when he was appointed senior pomologist. He was a fellow of the American Association for the Advancement of Science.

DR. WILLIAM SALANT, from 1908 to 1918 chief pharmacologist of the Bureau of Chemistry of the U. S. Department of Agriculture, died on December 10 at the age of seventy-three years. Dr. Salant became acting professor of physiological chemistry at the University of Wisconsin after leaving the Department of Agriculture, and from 1920 to 1929 was professor of physiology and pharmacology at the School of Medicine of the University of Georgia. He then became until his retirement in 1932 research pharmacologist of the biological laboratory at Cold Spring Harbor, L. I., N. Y.

DR. HAROLD STANARD ADAMS, vice-president and