Federal Trade Commission, in its control of prices, must determine costs; and as we interpret the present attitude of the whole coal-mining industry the operators are willing to rest their case on a fair determination of actual costs on which their profits may then be figured.

Geo. Otis Smith,
C. E. Lesher
United States Geological Survey

JOSIAH ROYCE[1]

Josiah Royce died September 14, 1916, aged nearly sixty-one. He was born at Grass Valley, California, November 20, 1855. At sixteen he entered the University of California. There he came under the teaching of the geologist, Joseph LeConte, a pupil of Louis Agassiz; and this teaching Royce himself estimated as one of the greatest philosophical influences of his early life. There also he first became known to Daniel Coit Gilman, who was then the president of the university. Royce received his bachelor's degree in 1875, and left at once for a year of study in Leipzig and Göttingen. At the same time, Gilman was called to Baltimore to "launch" the Johns Hopkins University; and thither he summoned Royce to be one of the first twenty fellows on the opening of the new university in September, 1876. Two years later, in 1878, he received the doctorate at Baltimore, and then returned to Berkeley, where for four years he taught English and incidentally logic. In 1880 he married Katharine Head, and to her unfailing devotion and helpfulness the public acknowledgments of her husband's prefaces bear ample witness. In 1882, he was called to Harvard to fill a temporary vacancy occasioned by the absence of William James, and in 1885 he was appointed assistant professor. Not long after came a nervous breakdown so serious that he made the voyage to Australia in a sailing-vessel, and with happy result. In 1892 he was made professor, and in 1914, on the retirement of Professor Palmer, he became Alford professor of natural religion, moral philosophy and civil polity.

During his fruitful career as scholar and writer and teacher, he grew steadily in renown and influence. He was regarded with constantly deepening love by those who knew him, and with increasing admiration by the great company of those who read his books and heard his lectures. He received honorary degrees from Johns Hopkins, Aberdeen, Yale, St. Andrews, Harvard and Oxford. He was Ingersoll Lecturer at Harvard in 1899, and Walter Channing Cabot Fellow from 1911 to 1914. He was Gifford Lecturer at the University of Aberdeen, 1898 to 1900, and lecturer on the Hibbert Foundation at Manchester College, Oxford, 1913.

He died in the fullness of his intellectual powers, and with his fame still in the ascendant. During the last summer he heard of his election to an honorary fellowship in the British Academy. At the meeting of the American Philosophical Association, held in Philadelphia in December, 1915, he was honored as no American philosopher has been honored during his lifetime. Two sessions were devoted to papers concerning his philosophy and teaching (since published under the title "Papers in Honor of Josiah Royce on his Sixtieth Birthday"); and there was no member of the association who did not feel that he had a debt to acknowledge. Royce was able to receive such homage with the sincerest modesty and with a radiant kindliness and broadcast affection that made him loved even by those who never saw him except in public. He was a natural leader in any community of scholars, but his superiority, though it was masterly in quality, was both fatherly and brotherly in its feeling. During the last year of his life he was rarely able to forget the awful tragedy of the war. Many will feel that he reached the climax of his greatness when, at Tremont Temple on January 30, 1916, he became the inspired vehicle of a righteous indignation. His remarkable address, which at once made Royce a great public figure, is soon

[1] Minute on the life and services of Professor Royce placed upon the records of the faculty of arts and sciences, Harvard University, at the meeting of November 7, 1916.

to appear with other writings of his upon the war, under the title "The Hope of the Great Community." It is the last memorial of himself which his own hands fashioned and his own heart quickened.

Both the teaching and the writing of Royce testify to the extraordinary range of his attainments. Philosophy is wide, but Royce was wider. His prodigious memory, his powers of observation, and his linguistic versatility gave him a general equipment that few men of his day have possessed. In his earlier years he was a historian and a novelist. He was a wide reader and an acute critic of literature. He made permanent contributions to psychology. He was renowned as a moralist, and as a philosopher of religion. But during the later part of his life, logic and methodology became his favorite field of research. His eminence in this field, both as teacher and as writer, was not a little due to his remarkable grasp of mathematics and the physical sciences. Perhaps no man of his time knew so much about so many things and knew it so well. His knowledge of the special sciences was respected even by specialists. His most notable contribution to the teaching of the university was made through his seminary in logic, which became a veritable clearing-house of science. Men of widely different training and technique—chemists, physiologists, statisticians, pathologists, mathematicians—who could not understand one another, were here interpreted to one another by Royce, who understood them all. But he could do even more than that. He could interpret each man to himself, divine his half-thoughts and render them articulate.

Here is enough to make a great man. But to most persons, his peculiar metaphysics, known to many Harvard men as "Philosophy 9," and to thinking people everywhere through his volume entitled "The World and the Individual," will remain his principal monument. Royce's metaphysical thought was audaciously speculative; but to him speculation was the opposite of guesswork—it was a severe analysis of the certainties that lie at the basis of knowledge. When he asserted the existence of an all-comprehending mind, it was not as a probable hypothesis, but as a necessity of thought, implied in every act of judgment, even in our errors. Much of the fascination of his early work is due to his willingness to accept the weakest link in human intelligence as the support of the weightiest conclusions. His doctrine of reality as an absolute mind numbers him among the idealists in metaphysics. In the works which followed "The Conception of God," he was more inclined to express the nature of reality in terms of purpose than in terms of thought, and thus he came so far into agreement with the school of pragmatism. But since he regarded truth as dependent not on changing human interests, but on a single and eternal will, he distinguished his own doctrine as "absolute pragmatism." Royce was not one of those thinkers whose concern for the unity of existence obscures the sense of its pluralism and variety. "The World and the Individual" undertakes to determine the place of human personality in the life of the whole; and his solution finally embodied itself in his conception of the community. It is through loyalty to common causes that men must win both selfhood and freedom; and the goal of human endeavor is membership, through such loyalty, in the Great Community, which is the "city of God."

An estimate of Royce as an eminent man of science would be futile indeed unless coupled with some judgment as to the practical influence which his deep and subtile thinking had upon his own life and the life of his fellows. To him the great ultimate questions were not simply interesting scientific problems that challenged his intellect; they were also matters of intensely practical import for the spiritual quickening of his fellow-men. His personality, as it developed from that of the shy youth to that of the grave and gentle sexagenarian, was informed by a wideness of moral vision and a loftiness of moral standards that set him apart from the common. He could see the true values of things. This inspired and inspiring vision of the eternal realities enabled him not only to bear the severest blows of personal affliction with courage and serenity,

but also to awaken many a slumbering soul to a larger and nobler life. By precept and example he set forth worthy ideals of virile scholarship, of genuine religion, of civic, national and international righteousness. His spirit, reverent and fearless and tolerant, loving and loyal, still lives in his disciples. Who shall say when its workings will end? His place in the history of speculative philosophy is secure. He, being dead, yet speaketh, and we have no need to grieve. But in the fresh sorrow for our loss, we mourn for Royce as the man and the moulder of men.

THE SCIENTIFIC EXHIBIT OF THE NATIONAL ACADEMY OF SCIENCES

At the recent meeting of the National Academ of Sciences at Boston, there were arranged at the Massachusetts Institute of Technology, an interesting series of scientific exhibits, which were explained by the exhibitors in person. The exhibits were as follows:

H. S. White, Vassar College. Graphic representations of triad systems.

Frank Schlesinger, Allegheny Observatory, Allegheny, Pa. Photographs of Jupiter.

Miss A. J. Cannon, Harvard College Observatory. Stellar spectra.

Leon Campbell, Harvard College Observatory. Visual observations of variable stars.

Miss H. S. Leavitt, Harvard College Observatory. Photographic magnitudes.

Solon I. Bailey, Harvard College Observatory. Variable stars in clusters.

A. G. Webster, Clark University. Acoustical measuring apparatus: standard phone, phonometer and phonotrope. Application of a drop chronograph for use in ballistics.

Charles A. Kraus, Clark University. A new vacuum pump and a new thermostat.

H. P. Hollnagel, Massachusetts Institute of Technology. Methods of isolating the infra-red region of the spectrum.

Alexander McAdie, Blue Hill Observatory. Cloud studies, wind structure and snow flakes.

Ellsworth Huntington, Milton, Mass. The relation between solar changes and barometric gradients. Optimum temperature for the human race.

Robert DeC. Ward, Harvard University. Weather types of the United States, illustrated by composite weather maps and instrumental records.

R. A. Daly and H. Clark, Harvard University. Design for a deep-sea thermograph.

Frank Hall, Massachusetts Institute of Technology. A thermophone arranged so that direct comparison may be made with a magnetic receiver.

A. H. Gill, Massachusetts Institute of Technology. Tests of lubricating mineral oils.

F. G. Keyes and J. B. Dickson, Massachusetts Institute of Technology. Continuous flow calorimeter for measuring heats of reaction in solution.

C. L. Burdick, Massachusetts Institute of Technology. Determination of crystal structure by X-rays.

R. E. Wilson, Massachusetts Institute of Technology. Apparatus for maintaining pressures of one tenth micron or less, and the investigation of the mechanism of chemical reactions.

Henry Fay, Massachusetts Institute of Technology. Erosion of large guns.

Albert Sauveur, Massachusetts Institute of Technology and Harvard University: (1) Photomicrographic apparatus (original). (2) Photomicrographs of metals and alloys; charts and diagrams; specimens.

H. O. Hofman, Massachusetts Institute of Technology. (1) Jenny flotation machine. (2) A laboratory revolving horizontal roasting furnace heated electrically and rotated in the same way.

A. E. Kennelly and Associates, Massachusetts Institute of Technology. Researches in electrical engineering.

Alexander Klemin, Massachusetts Institute of Technology. Aeroplane models used in wind tunnel.

W. Lindgren and W. L. Whitehead, Massachusetts Institute of Technology. Photomicrographs of silver ores from Chile and Tintic.

C. H. Warren, Massachusetts Institute of Technology. (1) A graduated sphere for crystallographic work. (2) Photographs of spherulites in polarized light.

Charles Palache, Harvard University. Models showing gnomonic crystal projection.

Wallace W. Atwood, Harvard University. The former glaciers of the San Juan Mountains of Colorado. The physiographic stages in the evolution of the San Juan Mountains of Colorado.

J. B. Woodworth, Harvard University. Glacial map of Cape Cod and adjacent islands. A glypolith from Nantucket.

Laurence La Forge, U. S. Geological Survey. Recent topographic and geologic maps of New