Obituary

Otis William Caldwell
1869–1947

"Our lives," said Dr. Caldwell, "are for what we may do, not for what we have done." To this design for living he adhered faithfully until the very end, which came on July 5, 1947.

Otis Caldwell blazed a trail in the two great enterprises of the modern world—science and education. For him the two enterprises were one. That was the essence of his outlook and of his contribution. Along every part of the trail, which stretches back more than half a century, he was surrounded with friends and followers whom he attracted and inspired.

While it is customary to trace a man's career from youth onward, Caldwell's work can be better understood by reversing that direction. The great concern of his later years was the American Association for the Advancement of Science. He held the post of general secretary, to which office he gave every ounce of his abundant energies and every facet of his fine mind. This was the golden opportunity of his life. He regarded our association of scientists as the most potent single force in the life of the Nation. He suffered a sense of hurt when scientists were ignored by statesmen. To make them understand what science can do for society became the absorbing interest of his life. There were two things to be done: Scientists themselves must be persuaded to give some of their precious time to the problems of people, and the people must become more aware of the new world being built by science. "What science may *do for men* is not enough," said Caldwell. "This must become subordinate to what science may *do to men.* Knowledge must be directed toward common needs of common men as well as toward the advancement of knowledge itself."

As general secretary, Caldwell was largely responsible for the AAAS Committee on the Place of Science in Education. Having experienced both the joys and the tribulations of the laboratory scientist, he understood why the man of science is reluctant to move out of his field of special competence. Yet his charm of manner and his wisdom brought top-rank scientists to his side in the work of improving science teaching in schools and colleges. Having been a professor of education, Caldwell was also "at home" with school administrators and educationists. To these groups he brought the essence of the scientific spirit, demonstrating the need for it in curriculum construction and in educational procedures. Thus, he helped to bring together two fields which diverge too often, to the detriment of both. In the last year of his life Caldwell was invited by the National Society for the Study of Education to write the capstone chapter in *The 46th yearbook,* devoted to science education in American Schools. The chapter closes with this paragraph:

> Science education, therefore, seems imperative if society seeks security. Yet science education can not guarantee security. Security rests not only in men's knowledge but in their characters. The will to do what is right transcends knowledge of how to do what is right. Science may contribute knowledge and understandings. Their ways of working may exhibit the unprofitableness of errors, but educated human character must assume the decisive role in civilization's future.

The State Academies of Science and the Junior Academies of Science were another fertile field for the energies of the general secretary. By persistence and eloquence he heightened the interest of the Association in this work. Through unceasing effort he brought scientists, teachers, and youth together in many states throughout the Nation. This work with young people was the precursor of the science club movement and of science talent searches. The AAAS Committee on Junior Scientists Assembly was inspired by Dr. Caldwell. The first of these Assemblies, held in Boston in December 1946, created unusual interest. For the first time, young scientists were welcomed to take part in the program of adult scientists. Caldwell saw clearly the need for continuous recruitment of youth to the ranks of science. He was appalled at the losses in scientific personnel brought about by the war, and he feared the impending shortages of scientists and technologists.

The AAAS-George Westinghouse Science Writing Awards were another Caldwell project. His concern with "science in our lives" had led him early to an examination of newspapers, magazines, and world affairs. His famous study, "Biology in the Public Press," was a pioneering effort that touched off many similar studies. In these annual awards to science writers Caldwell found new opportunities to bring good science to all the people.

Dr. Caldwell was the patron saint of the AAAS Cooperative Committee on Science Teaching and the founder of the National Science Teachers Association. This group, numbering several thousand science teachers and teaching scientists, is an affiliate of the AAAS and, at the same time, the department of science instruction of the National Educational Association.

When Caldwell was 75, a group of his colleagues and

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former students (he called them his Dependable Associates) prepared manuscripts for a brochure entitled *Looking ahead in education*. This was published by Ginn and Company in 1945 and has had wide national circulation. In each chapter of this work we find a bit of the essence of Caldwell's outlook on life. Scientists, teachers, psychologists, mathematicians, administrators, sociologists, and economists all join in projecting his philosophy into the future. They point up the Caldwell drive toward an education for our times based upon imagination and intelligence and recognizing the vital role of science in social progress.

When Caldwell reached 70 years of age, another group of faithful friends compiled a volume of greetings which expressed the deep appreciation of 150 loyal colleagues, grateful students, and parents. The volume was presented to Dr. Caldwell at a luncheon during the meetings of the AAAS in Columbus, Ohio. Two excerpts from these greetings reveal another facet of Dr. Caldwell's personality, so important in all that he did. One was from a parent of the school which he directed:

> And then we sat down and talked to you, and asked you a lot of unintelligent questions, but they were things that were in our hearts and minds. And then we enrolled the first child. And shortly thereafter, the second child, and not so long after that, the third child. And then we made friends with you and the school—you and the school were really one. And in a few years, you built up a magnificent educational institution, you built up traditions, and you made both children and parents happy.

And the other was from Helen Keller:

> We feel twice blest in you as a friend of man and as a scholar who breathes new vitality into many old forms of knowledge.
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> In you shines truly the spirit of America. It is the American heritage—to think and experiment for oneself, to apply science freely for the benefit of all the people—that teachers like you in the sense of creators arise among us.
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> Many will honor you for the breadth of your sympathies in quickening young minds and finding constructive solutions for baffling individual problems. With emotion I thank you for the unique tenderness that has moved you to use your immense learning and resources for the blind also. It is a boon to them past computing to have you help them discover their own powers of self-expression and of disciplining their fettered bodies to a creatively shaping will. Affectionately I salute you as a gracious beacon spreading its rays over all the highways and byways of the people's development.

Dr. Caldwell retired from the directorship of the Institute of School Experimentation of Teachers College, Columbia University, at the age of 65. He left behind him the Lincoln School. Those of us who are today still fighting for adequate representation of science in the curriculum can understand why he seized the opportunity of directing a school. The Lincoln School of Teachers College is world famous. Conceived by the Caldwell mind, it lighted a flame which is still burning vigorously in all curriculum laboratories. The Lincoln School placed science at the core of the educative process. Its curriculum determined the physical plant which was built according to the Caldwell blueprint. He gathered a great faculty of broadly educated and competent men and women who became the living examples of a sound program of teacher training. In that school science was much more than a subject to be taught; it was a phase of life to be integrated with all other aspects of child experience.

When Dr. Caldwell retired from his post at Teachers College, he indulged his earliest interest by returning to the work of laboratory scientists at the Boyce Thompson Institute for Plant Research. From that vantage point he carried on as general secretary of the AAAS, where his matured philosophy of science education found new outlets and widened scope.

Science was a way of life to Dr. Caldwell. He could not and would not tolerate prejudiced thinking. What, then, should be done to rid the world of such thinking? The typical Caldwellian answer can be found in his two widely read books: *Science remaking the world* and *Do you believe it?* In the first, he asks that "intellectual and moral ideas shall develop in harmony with modern science." In the second, he subjects man's common superstitions to the cold, blazing light of scientific reason.

"Ignorance and superstition," says Caldwell, "contribute to one another. Knowledge is the enemy of both. In childhood, as with older people, the attitude of desiring knowledge is in itself like an insurance policy that has been secured against superstition. But like any other insurance policy, it is a protection against the event when encountered and not a guarantee that the event cannot occur. Those who fear ignorance but have no fear of truth, need have no fear of superstition. Facts properly interpreted and used make freedom possible. The text that is frequently used about truth making people free is not yet in danger of excessive application."

Trained as a botanist, he knew well the part that biological sciences can play in the education of children. He knew, too, that the essence of this contribution is to be found in all the sciences. With true vision he threw himself into the General Science movement, bringing it to fruition in the schools of the Nation. His textbooks have been and are still being read by millions of school children all over the world, as are also his textbooks in biology.

In 1920 Dr. Caldwell, as chairman of the Committee on Science of the Commission on the Reorganization of Secondary Education, crystallized the pattern of the science curriculum. In this report, science teachers could see clearly for the first time, a sequence of science studies that gave dignity and scope to their efforts. It was Dr. Caldwell again who showed the way in extrapolating that sequence to include the elementary school at one end and the junior college at the other.

We have now followed the trail which Caldwell blazed half way toward its beginning. In 1919 he electrified the science teaching world with his survey of Science Teaching in the Gary Public Schools. In 1917 he had left his post at The University of Chicago, where he had been associate professor, then professor of botany, and finally in charge of science teaching at the School of Education. He had come to the University in 1907 from the Eastern Illinois State Teachers College, where he had held the post of head of the Department of Biology since 1899. From 1897 to 1899 he had been assistant in botany at The University of Chicago, which granted him a Ph.D. degree in 1898. His undergraduate work was done in Franklin College, from which he received the B.S. degree in 1894. Later, in 1917, his alma mater bestowed upon him the degree of LL.D. Otis Caldwell was born on December 18, 1869, in Lebanon, Indiana, where he spent his early youth.

Edwin G. Conklin, renowned biologist and past president of the AAAS, once wrote to Dr. Caldwell as follows:

> Any man who has lived for more than seventy years amidst all the dangers and vicissitudes of life is a biological triumph of adaptation, endurance and good fortune. When in addition he has lived a life of marked intellectual and social leadership and has left his mark not only on his generation but also on future ones, he is one of the immortals.

MORRIS MEISTER, *Principal*

The Bronx High School of Science