niques. These research devices had not yet been invented or discovered. (4) During the last few centuries, avenues of publication have increased very greatly in number. Moreover, both the demand and the reward for creative thinking have been growing. (5) According to Florian Cajori,[18] prior to about the beginning of the eighteenth century, mathematicians often deliberately withheld their discoveries as a means of preserving and enhancing their prestige (see Fig. 3). (6) The time-lag between date of discovery and the date of publication thereof may have been decreasing during the past few centuries.

Although the foregoing speculations may account in part for the finding that the contributions of the more recent era tend to occur at younger age levels, these speculations are rather inadequate. Perhaps it will be just as well if we confess our ignorance and ask not why this change has occurred but rather confine our attention to what has happened. At this point the present writer finds himself in hearty agreement with Professor Harvey B. Lemon, who, with reference to certain researches in the field of physics, has written:

> Our investigations into these things have but begun. What we do not ourselves understand any too well we cannot, naturally, explain fully to others.[19]

It has been suggested to the present writer that, whereas, in former days significant scientific contributions could be made often by youthful investigators who possessed relatively meager knowledge and background, to-day it may perhaps be necessary for the potential contributor to possess more extensive experience and a much larger fund of knowledge if he is to display effective and profound originality. It has also been argued that, because of our present greater average length of life, as compared with the average of previous centuries, maximum intellectual fecundity in the future will also tend to occur at older age levels.

The foregoing data reveal no factual basis for supposing that the most important creative work of the present day is being done by individuals who are older than the contributors of past centuries have been. Indeed, if any genuine age-change has been occurring (something more than a mere decrease in time-lag), the change seems to favor the younger rather than the older age-groups. And if a review of what has taken place in the past is an indication of what is likely to occur in the immediate future, it seems clear that there is no evidence whatever to support the hypothesis that future generations of creative thinkers will attain their peak output at increasingly older age levels. However, as was stated previously, this generalization does not hold for quantity of output but only for creative work of the highest merit.

OBITUARY

WILLIAM FOGG OSGOOD

WILLIAM FOGG OSGOOD was born in Boston on March 10, 1864, son of William and Mary (Gannett) Osgood. In July, 1890, he married Therese Ruprecht, by whom he had two sons and a daughter. In August, 1932, he married Céleste Phelps Morse, who survives him. He died on July 22, 1943.

Osgood was prepared for college at the Boston Latin School and became a member of the class of 1886. He took second-year honors in classics, and final highest honors in mathematics. There was little in the Harvard curriculum at that time to inspire a young man to give his life to mathematical research. The only member of the Mathematics Department, actively interested in scientific advance, was the youthful Benjamin Osgood Peirce, and his interest lay largely in the field of physics. But Osgood had early absorbed the idea that mathematics was the most difficult subject to be studied, and he meant to try for the biggest prize.

On graduation from Harvard he spent one more year in Cambridge as a graduate student, then went abroad for three years of advanced study in Germany. He spent the first two years in Göttingen, working especially under that prince of teachers, Felix Klein. His third year was in Erlangen, and there he took his doctorate. The years spent in Germany determined absolutely his whole future life. He married a German wife. He acquired such a mastery of German that his most important scientific writings were in that language. He adopted the German Weltanschauung to an extent that became somewhat embarrassing during the first World War. In the present crisis he saw matters in a different light. He received a mathematical impulse which guided his scientific thinking for the rest of his life.

Osgood returned to Harvard to teach in the autumn of 1890, thus beginning a connection which remained unbroken until the time of his retirement at the age of 69, in 1933. His was a distinguished and successful career. He saw the need for real improvement in the Harvard mathematical teaching. Byerly was an outstanding teacher in introductory courses, and J. M. Peirce was patient and conscientious, but there were others in the teaching force who lacked both

[18] F. Cajori, "A History of Mathematics," p. 133. Second edition. New York: The Macmillan Co., 1922. Pp. xiv–516.

[19] H. B. Lemon, "From Galileo to Cosmic Rays," p. 334. Chicago: The University of Chicago Press. 1934. Pp. xviii–450.

didactic skill and scientific interest. Osgood undertook to improve this situation. His teaching, whether of freshmen or graduates, was careful, clear and conscientious. He introduced a standard of rigor in Harvard mathematics which had been quite absent before. Many students received from him standards of absolute exactness and scientific honesty which lasted them through life. He wrote four text-books which were admirable for clearness and care. He never forgot the importance of linking up mathematics with physics. It is fair to say that to him this meant the application of classical mathematics to classical physical questions, rather than adapting new mathematical techniques to new physical demands.

Osgood pursued a life of scientific activity without haste and without rest. After his retirement from Harvard he spent two interesting years at the National University in Peiping, publishing two books, in English, which supplemented some of his earlier work.

He had returned from Germany at a critical moment when a number of young Americans, with training and ideals like his own, were determined to raise American mathematics to the standard of the subject in Europe. This was done partly by individual contributions, partly by founding and fostering the American Mathematical Society. Osgood was the eighth president. The essential quality of his own mathematical contributions, some seventy in number, was soundness. Whatever he wrote was rigorous and significant. He had a clear idea of what he believed to be of permanent importance in mathematical science, and that alone claimed his interest. He had no interest in the flashy or trivial. He was suspicious of devices which seemed too ingenious, fearing hidden difficulties. When a young man of thirty-two, he was invited to contribute one of the most important articles to the universal mathematical bible, the *Encyklopädie der mathematischen Wissenschaften.* His *Lehrbuch der Funktionentheorie,* which ran into no less than five editions, is the classical treatise on this fundamental subject. There was perhaps little change either in his scientific thinking or technique during the course of his career. In Germany he had such a large vision of the sort of work he would like to do, that its accomplishment and natural extensions sufficed for the whole of his productive life.

Osgood had two compelling loyalties, to mathematical science and to Harvard University. Utterly lacking in personal ambition, he had the highest hopes for the Harvard mathematical school. He took little share in the wider parts of university administration, but was characteristically conscientious in performing specific tasks, however monotonous. He was unwearied in his acts of kindness to individual students, and he treated all with an old-fashioned courtesy which sprang from his deep love for his fellow man.

JULIAN L. COOLIDGE
GEORGE D. BIRKHOFF
EDWIN C. KEMBLE

DEATHS AND MEMORIALS

DR. WILMON NEWELL died on October 26. Since 1915 he had been provost for agriculture at the University of Florida and a leader in the agricultural development of the state. He was appointed in 1920 dean of the College of Agriculture and director of the Experiment Station and the Agricultural Extension Service.

DR. THOMAS ANDREW STOREY, formerly director of the School of Hygiene at Stanford University, died on October 27 at the age of sixty-eight years.

PAUL BLAKESLEE MANN, who retired in 1941 as supervisor of science in the senior high schools of the New York City public school system after a career of forty years in teaching, died on October 22 at the age of sixty-six years.

DR. ELLIOTT SMITH, director of the Observatory of the University of Cincinnati, died by suicide on September 29. He was sixty-eight years old.

DR. WILLIAM WALDO BLACKMAN, professor emeritus of anatomy at the Flower and Fifth Avenue Hospitals of the New York Medical College, died on October 20 at the age of eighty-seven years.

THE Senate adopted on October 21 a resolution designating February 11, 1944, as Thomas Alva Edison Day. Under the resolution, which must have House approval, the President would be requested to issue a proclamation directing display of the flag on all Government buildings and inviting appropriate ceremonies in schools and churches or other suitable places.

SCIENTIFIC EVENTS

THE FORTIETH ANNIVERSARY OF THE FLIGHT OF A HEAVIER-THAN-AIR MACHINE

GOVERNOR J. MELVILLE BROUGHTON, of North Carolina, has issued the following proclamation:

Forty years ago, amidst the sand dunes at Kitty Hawk, North Carolina, two brothers, then obscure but since made famous, began experiments for the purpose of testing and confirming their conviction that machines heavier than air could be made to fly. In this seemingly fantastic endeavor, which was met with scepticism and even ridicule, they devoted many long hours and days of effort, experiment and frustration. Ultimately their efforts were crowned with success, and on December 17, 1903, the world was electrified at the announcement that for the