1907 to 1918. During World War I he served as captain in the Quartermaster Corps for a short time. In 1918 he accepted the position of Andrew Carnegie professor of biochemistry and chairman of the department at the University of Cincinnati—a position held until his retirement in 1939.

Mathews' Ph.D. thesis at Columbia University was entitled "The Physiology of Secretion," and was published in 1898; in 1895 he was coauthor, with E. B. Wilson, of a long paper on "Maturation, Fertilization and Polarization of the Echinoderm Egg"—a title indicating his interests in biological matters. Over the next 20 years his studies dealt with salt effects in cells and with the physical chemistry of living systems; for these studies he used fish, sea urchin, and starfish eggs as material. This work was carried out at the Marine Biological Laboratory at Woods Hole, Massachusetts, where Mathews spent his summers for many years, as an associate and intimate friend of the great biologists who made that laboratory renowned throughout the world. He lived with his charming wife and daughter in his cottage on Buzzards Bay Avenue, next to that of T. H. Morgan and across the street from that of E. B. Wilson, while E. G. Conklin and G. N. Calkins lived near by. Jacques Loeb, whose books *The Mechanistic Conception of Life* and *Dynamic of Living Matter* had so much influence on the men of that day, lived not far away. Woods Hole was just the place for a man of Mathews' broad interests, and the group benefited immensely from his new and stimulating ideas. He was a member of the board of trustees of the laboratory from 1906 until his death.

Mathews' textbooks illustrate his love of exposition, and it is as a teacher and a stimulator of young minds that he will be best remembered. His students all think of him with very deep and real affection, grateful for his advice in scientific matters and the encouragement he gave them to adopt careers in medicine and science. It was not only in professional but also in personal matters that Mathews and his wife were so helpful and sympathetic. Up to the time of his death he followed the later life of his students with the greatest interest. A total of 66 master of science degrees and 44 doctor of philosophy degrees were granted under his direction.

At the time of his death, Professor and Mrs. Mathews had been married for 62 years. She was devoted to him, and the family life was a particularly happy one. Mathews was a fine specimen of mankind—tall and handsome, with that athletic look that befits a person of character and determination. I can still see him, walking briskly with great strides along the streets of Woods Hole, with his head held high and a keen penetrating look in his blue eyes, as if he were about to lay bare the secrets of the universe. His convictions were strong and his ideals high. Science, particularly biochemistry, has lost a great teacher and a dedicated seeker of new knowledge.

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News of Science

Improving High School Education

At a meeting of high school principals and teachers in Washington on 23 March, three of the nation's leading scientists and educators offered suggestions for improving high school education. The meeting was part of the fiftieth anniversary celebration of St. Alban's School for Boys at the Washington Protestant Episcopal Cathedral.

Merle A. Tuve of the Carnegie Institution of Washington, James R. Killian, Jr., President Eisenhower's Special Assistant for Science and Technology, and Rear Admiral Hyman G. Rickover of the Navy's nuclear reactor program agreed on the need to raise the standards that all high school graduates must meet. Following are excerpts from the three speeches; the excerpts set forth some of the principal suggestions offered.

Tuve advises making teaching more attractive. "It is exceedingly difficult nowadays to attract into teaching any student who has completed a good, solid, college major in physics or chemistry or mathematics, because there are so many interesting and attractive jobs elsewhere, with good pay, and also because most states and local communities have laws which require all prospective teachers to have taken many semester hours of educational psychology, practice teaching, and similar subjects.

"If we really want to do something about improving secondary education here is one direct and simple thing that will surely have great effect in strengthening our schools: We can go after our local school boards and our own state legislatures to change the laws which now restrict teacher certification to the products of the courses in education.

"There are two other actions local groups can take in any community which also will help greatly to improve secondary education.

"The idea that our secondary school teachers should be working with students five or six hours a day for five days a week, plus some late afternoons and many evenings on P-T. A. and other school assignments, denies these teachers any status as scholars. A practical action for a community group is to insist that the professional teacher be given some time to himself for his own scholarship. We can hire clerks and stenographers and specialists in education to handle these countless chores and public relations activities.

"The other action relates to salaries; this is important but not as vital as the first two points I have made. There should be provision for much greater spread of salaries, and a significant part of this spread should be for merit in teaching and scholarship, not only for longevity and for credits and more degrees from schools of education."

Killian scores attitude of take-it-easy. "If we are to have better science education, we must have better over-all education and if we are to have better education, we must have a shift in values so that intellectual interests and performance are not played down and socially denigrated. We must cultivate in all of our education a distaste for the take-it-easy and anti-intellectual attitudes and a positive taste for what is excellent in intellect and spirit. . . .

"In the development of our public school system, we have concentrated in recent years on making it universally available and of the greatest help to the

greatest number. The next phase—the next great mission of our educational system—should be to introduce more extensively into our system of mass education the opportunities and means for differentiation in order to permit the fullest encouragement and development of our high talent.

"We need to fight the mucker pose that it is smart to be anti-intellectual. We must set greater store by intellectual achievement and the senses of the first-rate in all education."

Rickover stresses importance of factual knowledge. "We should not have to support schools if we want no more than "adjustment" of children to life as it is. A child is being properly educated only when he is learning to become independent of his parents. We have schools because we know that in today's world everyone is daily called upon to make decisions for which he needs a background of general knowledge, not obtainable merely by "learning through living." To acquire such knowledge, fact upon fact, takes time and effort. If we try to spare our children mental effort and to protect them against disappointments or personal failures through flunking exams, we send them ill prepared into a competitive world. The degree of ignorance which a democracy can tolerate varies in inverse ratio to the advance of the nation toward higher cultural and scientific levels.

"Our elementary and secondary education must, thus, provide first, for the average and below-average student, a sufficiently broad terminal education to fit him into a modern technological society; and second, for the talented student, it must provide a solid underpinning for subsequent professional education. Neither of these two objectives is achieved in the majority of American public school systems. Unlike all other Western countries of similar civilization, we lack a national standard for curricula, for school-leaving examinations, for diplomas, or for teacher qualifications. There is a wide variety in the school systems of different states, even for different cities in the same state."

Radiation Hazards Program

A program at New York University–Bellevue Medical Center concerned with hazards of radiation as they are to be found in the environment has been made possible through a $500,000 grant from the Rockefeller Foundation. The grant, for use during the 10-year period beginning January 1958, will provide salaries for additional staff required for development of a program of both research and teaching within a new unit.

The unit's work will be directed by Norton Nelson, head of the center's Institute of Industrial Medicine and professor and chairman of the department of industrial medicine in N.Y.U. Post-Graduate Medical School. An important contribution to the effectiveness of this program will come from the recently established arrangement between the Institute of Industrial Medicine and the U.S. Atomic Energy Commission's Health and Safety Laboratory which provides a basis for cooperative research and teaching between the two units. The Health and Safety Laboratory is under the direction of S. Allan Lough. Members of the Health Safety Laboratory have for a number of years served on the faculty of the institute.

Grants, Fellowships, and Awards

Botany. The Committee on the Darbaker Prize of the Botanical Society of America will accept nominations for an award to be announced at the annual meeting of the society in 1958. Under the terms of the bequest, the award is to be made for meritorious work in the study of algae. Nonmembers of the society are eligible. The committee will base its judgment primarily on the papers published by the nominee during the last two full calendar years previous to the closing date for nominations. At present, the award will be limited to residents of North America. Only papers published in the English language will be considered. Nominations for the 1958 award, accompanied by a statement of the merits of the case and by reprints of the publications supporting the candidacy, should be received before *1 May* by the chairman of the committee, George F. Papenfuss, University of California, Berkeley.

Cardiological Reporting. The American Heart Association has announced the opening of the sixth annual competition for the Howard W. Blakeslee Awards for outstanding reporting in the field of heart and blood vessel diseases. The association's Awards Committee will make its selections from among newspaper and magazine articles, books, radio and television programs, and films published or produced between 1 March 1957 and 28 February 1958. The deadline for entries is *1 May*. The awards which carry an honorarium of $500 each, will be presented in the fall. Entry blanks and rules folders may be obtained from local Heart Associations or from the American Heart Association, 44 E. 23 St., New York 10, N.Y.

Earth Sciences. The Earth Sciences Program of the National Science Foundation is now receiving proposals for research grants that will be made in October 1958. The deadline for the receipt of proposals for work to begin in the fall or early winter is *15 May*. There are no formal application blanks, but a foundation pamphlet describes the method of making application and outlines the information needed in a proposal. This pamphlet may be obtained by writing to the National Science Foundation, Washington 25, D.C. Attention: Earth Sciences Program.

Use of Satellites for Research in Life Sciences

Methods by which artificial earth satellites can be used to further basic research in the life sciences will be the subject of a symposium, 14–17 May, to be sponsored jointly by the National Academy of Sciences, the American Institute of Biological Sciences, and the National Science Foundation. Attendance at the symposium, which will probably take place in Washington, D.C., will be by invitation only; invitations will be sent to about 200 biologists, biochemists, biophysicists, psychologists, medical scientists, and others. About 30 papers will be presented.

A steering committee—composed of representatives of the three sponsoring organizations and of appropriate scientific disciplines—has announced three main objectives: (i) to exchange information concerning the technical feasibility and scientific importance of various experiments with living organisms in the satellite environment; (ii) to discuss methods and techniques for conducting such experiments, including associated laboratory work; and (iii) to stimulate thinking that will lead to a sound program of research in the life sciences through the use of earth satellites.

Geology Neglected?

The American Geological Institute has released a statement entitled "Government Weakness Apparent in Mineral Security Area" that includes the following comments:

"The American Geological Institute is deeply concerned over the current neglect by the Federal Government of problems relating to our national mineral security. Minerals and the mineral fuels are the raw material base on which our great scientific and technologic advances have been founded. In our current zest to conquer space, the government is unfortunately showing little concern over a strong mineral research policy to match growth and needs of science and technology.

"Dr. Robert C. Stephenson, Executive Director of the American Geological Institute, a federation of fourteen scientific societies in the area of the geological sciences, representing over 30,000 geoscientists, has recently, by letter, brought