

the Jesse W. Beams Award for research.

Pinkston, a member of the Annapolis faculty since 1942, was cited as an "innovative classroom and laboratory instructor" whose "ingenious and carefully prepared demonstrations have excited and instructed two generations of students." He earned his master's degree in physics from Catholic University in 1954 and during 1958-67 was chairman of the Annapolis physics department.

Carr received his PhD in physics from the University of Virginia in 1941, joined Auburn University as associate professor of physics in 1948 and has been head of the department since 1953. The southeastern section recognized him as "developer and designer of outstanding undergraduate and graduate programs . . ."

Gordy earned his doctorate in 1935 from the University of North Carolina. He has investigated hydrogen bonding and molecular structure through in-

frared studies and has also worked on microwave radar and spectroscopy. He joined Duke University in 1946.

Astronomers name Herbig 1975 Russell Lecturer

George H. Herbig of the Lick Observatory has been named 1975 Henry Norris Russell Lecturer by the American Astronomical Society. The society presents the award annually in recognition of outstanding astronomical research. Herbig will deliver his lecture in December during the society's 75th anniversary meeting to be held in Chicago.

He earned his doctorate in 1948 from the University of California at Los Angeles. His specialty is stellar and interstellar spectroscopy. He has been with the Lick Observatory, at the University of California, Santa Cruz, since 1944 and is also a professor of astronomy and astrophysics.

Arthur P. Stern has been elected president of the Institute of Electrical and Electronics Engineers and Joseph K. Dillard has been elected executive vice president. Stern is vice president of the Magnavox Company and general manager of its advanced products division; Dillard is manager, advanced systems technology, at the Westinghouse Electric Corporation in East Pittsburgh, Pennsylvania.

Joining the Michigan State University physics department as assistant professors are Lawrence Litt, formerly with Brookhaven National Laboratory, James Whitmore, Fermi National Accelerator Laboratory, John Matthews, Stanford Linear Accelerator Center and Dan-Olof Riska, State University of New York at Stony Brook.

Korukonda L. Murty has been named senior research engineer at the Lynchburg research center, Babcock and Wilcox

obituaries

William David Coolidge

William David Coolidge died peacefully at home during the night of 3 February, several months after his 101st birthday on 23 October. Over sixty years ago his work on ductile tungsten and his invention of the x-ray tube that bears his name made him a great benefactor of mankind.

He was descended (as was our thirtieth president) from John and Mary Coolidge, who reached Massachusetts in 1630. In Coolidge, the sterner Puritan virtues were tempered by unflinching politeness, kindness, and consideration for others. Physical endurance and great energy gave the lie to his seeming frailty.

Nothing in Coolidge's ancestry or in his rural boyhood suggested his future. But, just after graduating from MIT as electrical engineer in 1896, he built at home good-sized equipment for experiments with x rays, then newly discovered. Thereafter, he earned a PhD (*summa cum laude*) in physics from Leipzig and returned to MIT in 1899 to become a physical chemist under the influence of Arthur A. Noyes and Willis R. Whitney. In 1905 he joined the General Electric research laboratory, which Whitney had founded five years before. Coolidge took charge of that laboratory in 1932, and retired from it as director of research and vice-president of the company at the end of 1944.

Applied research offers no more fascinating story than that of ductile tungsten. Coolidge became a sophisticated



Pioneer of the electronics era, William Coolidge, at ages 98 and 69. The photo on the right, taken in 1943 when Coolidge was General Electric's vice-president and director of research, shows him examining a one-million volt x-ray tube. His first x-ray patent was issued in 1917.

experimental metallurgist, inventing radically new techniques and founding industrial powder metallurgy in his efforts to render tungsten useful. The wire he made revolutionized the lamp industry, which uses his methods today. With the availability of ductile tungsten and its satellite, molybdenum, Irving Langmuir, Albert W. Hull and others could launch the electron-tube era. By studying lamp-filament wire, Langmuir discovered the thoriated-tungsten elec-



tron emitter and enabled Coolidge to invent his highly successful x-ray tube. Ductile tungsten, vital in itself, thus triggered a series of events that assured the success of the fledgling research laboratory and brought American industrial research to the world's attention.

Coolidge's later research, which centered on high-voltage x-ray and electron-beam sources, his success as director, his contributions to the government during both World Wars, his connection

Company, Lynchburg, Virginia. Murty was previously a research fellow at the University of Newcastle, Australia.

David C. Camp of the Lawrence Livermore Laboratory has been appointed adjunct assistant professor to the department of radiology, University of California Medical School.

John P. McKelvey, formerly of Pennsylvania State University, has been appointed head of the department of physics and astronomy at Clemson University, Clemson, South Carolina.

Steven J. Yellin, **Daniel C. Wilkins** and **Allan R. King** have been appointed assistant professors-in-residence at the physics department of the University of California, Santa Barbara.

David S. Saxon has been appointed president of the University of California. Saxon, a member of the UCLA physics

faculty since 1947, is currently provost of the university system and executive vice-chancellor of the Los Angeles campus.

John M. Osepchuk has been named a consulting scientist at Raytheon Co's research division in Waltham, Mass. This appointment to Raytheon's highest scientific and engineering level is made to recognize continually outstanding research or engineering achievements.

Gabriel M. Loiacono, formerly with the Isomet Corp, has joined the exploratory research group of Philips Laboratories in Briarcliff Manor, N.Y.

Willis Dean Smith and **Lloyd B. Craine** have been selected as Congressional Fellows by the Institute of Electrical and Electronics Engineers. They will serve on the staff of a Congressional committee, Senator or Congressman for one year.

Kalinath Mukherjee has been named head of the department of physical and engineering metallurgy at the Polytechnic Institute of New York. He succeeds George Fischer, who has been appointed dean of continuing professional studies.

New editor of *Physical Review A* is **Robert H. Tucker**, succeeding **C. Lewis Snead, Jr.**

Samuel A. Goudsmit has joined the physics department of the University of Nevada at Reno as distinguished visiting professor. He will be developing an elementary-physics course for humanities majors.

Kenneth W. Ford has been appointed president of the New Mexico Institute of Mining and Technology, effective 1 July. He is presently professor of physics at the University of Massachusetts in Boston.

with nuclear energy, which began before the government preempted the field and extended beyond retirement—all these and more cannot be described here.

He was honored frequently during the long period from 1914 (Rumford Medal) to 1975 (induction on 9 February into the National Inventors Hall of Fame). Numerous medals and awards, foreign and domestic, came from an unusually wide variety of organizations and disciplines.

Coolidge's two greatest contributions continue to serve mankind almost in the form he made them. They are lasting evidence of his firm belief in experiment as the surest guide to progress in science. In his case it was *informed* experiment, to which he brought quick perception, keen insight, great resourcefulness and enduring tenacity. We need men like him today.

HERMAN A. LIEBHAFSKY
Texas A&M University
College Station

Walter Christian Michels

Walter C. Michels, internationally known physicist and science educator, died on 27 February at his home in Wayne, Pennsylvania. Born 14 June 1906 in Utica, New York, Michels received an electrical engineering degree from Rensselaer Polytechnic Institute in 1927 and a PhD from the California Institute of Technology in 1930. He was a National Research Council Fellow at Princeton University from 1930 to 1932, at which time he joined the department of physics at Bryn Mawr Col-

lege, serving as its chairman during 1936-1970. Except for leaves of absence, notably as a research scientist and naval officer during World War II, he remained at Bryn Mawr, becoming professor emeritus in 1972. His research interests included excitation of atomic spectra, the solid state and psychophysics.

Michels was deeply involved in teaching and editing from the beginning of his professional career, and for a quarter of a century has been recognized on a national scale, initially in the American Association of Physics Teachers. He was president of AAPT in 1956-57 and was instrumental in promoting renewed vigor and activity of that organization. From 1959 to 1966 he was editor of the *American Journal of Physics*. He participated in the development of the physical science study committee physics course and related curricula, and when the Commission on College Physics was established in 1960, Michels was its first chairman. His publications include well known books on electrical measurements, co-authorship of texts on general physics, and the editorship of the *International Dictionary of Physics and Electronics*. He was, from 1964 to 1970, editor of Momentum Books, a series of paperbacks for students of physics, and for many years he played an important role in the improvement of standardized tests, for example, the Graduate Record Examination. In 1963 he was chosen to receive the Oersted Medal, an award made annually by AAPT for notable contributions to the teaching of physics.

Michels was a colorful figure, red haired and red bearded, vigorous and forthright, with an infectious sense of

humor combined with the most serious sense of responsibility. His colleagues everywhere respected his wisdom, judgment, integrity and, over an enormous range of activities, his taste. He was both gentle and righteous, and almost inevitably right. To those who knew him there was no contradiction between the sincere Quaker and the effective war researcher and naval officer (by 1944 he had become a Commander in the USNR). It is salutary to recall his reaction to the destruction of the Japanese cyclotrons by American soldiers in 1945, for it was a valiant expression of sanity in a world too prone to hysteria. His memorandum of 20 November, which was made public later, during the struggle for civilian control of atomic energy, began:

"I have just taken part in an act of vandalism which is paralleled only by those which were perpetrated during the 15th and 16th centuries, or, possibly, by the book burnings which accompanied the establishment of the Nazi party in Germany Ten o'clock on the morning of November 20 was H-hour for the seizure, preliminary to destruction, of all equipment which had been used for research in nuclear physics in the laboratories of Japanese universities. . . ."

Michels, the only American physicist in the area, did not refuse the request that he be a member of the party assigned to this task at Kyoto University, repugnant as it was, for he hoped to prevent wanton destruction of general research equipment. This, along with his protest, was typical of Michels.

MELBA PHILLIPS
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