to the University of Oxford she gave loyal and devoted service, service recognized in 1936 by the conferment on her of an Honorary M.A. by the University. She retired in 1947, and spent her remaining years in Upwey, near Weymouth.

H. H. PLASKETT

CARL KEENAN SEYFERT

Carl Keenan Seyfert, who lost his life (1960 June 13) at the height of an active career devoted to astronomy, was born in Cleveland, Ohio on 1911 February 11. After attending schools locally he spent his college years (1929 to 1936) at Harvard College from which he received the B.S., M.S., and Ph.D. degrees.

As a young man from a pharmacist's family his first inclinations in entering college were toward the study of medicine, but an inspiring course in astronomy given by Professor Bok soon directed him toward fruitful endeavour in astronomy. Since Harvard College Observatory was a particularly active centre of astronomy, he profited from the opportunities presented by this environment. His principal work at Harvard, under the guidance of Professor Shapley, consisted of studies of colours and magnitudes of external galaxies.

Upon completion of formal studies at Harvard in 1936, he went to Yerkes Observatory as part of a staff being formed for the newly established McDonald Observatory. While there he collaborated with Popper in an important study of the radial velocities, colours and magnitudes of 118 faint B stars in which they carried out solutions for distances, absolute magnitudes, and the ratio of total to selective absorption. He also continued his investigations of the distribution of colour in spiral galaxies.

In 1940 he had the opportunity to go as a National Research Council Fellow to the Mount Wilson Observatory where he carried out an important investigation of the emission lines in the spectra of the nuclei of galaxies. After spending two years in these studies, he returned to Cleveland where he taught navigation to the armed forces at the Case Institute of Technology and participated in secret scientific research. In spite of the severe restrictions which wartime conditions imposed, he nevertheless was able to continue with some astronomical research and he carried out fruitful studies at the Warner and Swasey Observatory in collaboration with Nassau and McCuskey. The Warner and Swasey Observatory possessed a magnificent new Schmidt telescope, with the added attraction of an objective prism; this equipment was just being put into active use at that time. Several interesting publications on the

Andromeda Galaxy and on the spectra and luminosity function of Milky Way stars resulted. Using the Warner and Swasey spectroscopic equipment in association with Nassau, he obtained the first successful colour-photographs of nebulae and stellar spectra. Three of these subsequently appeared in the *Encyclopaedia Britannica*.

After the war, Seyfert was given the opportunity to join the faculty of Vanderbilt University with the responsibility of starting a new and vigorous programme in astronomy. Although the University took pride in its very early association with E. E. Barnard and possessed a small observatory named in honour of this noted astronomer, it had not been in a position to support either active research or more than a modest teaching programme in astronomy until recently. Among the various factors which contributed to the renewed interest in astronomy was the acceptance by the University of a 24-inch fused-quartz disk which had been made by the General Electric Company in its early experimental work aimed ultimately toward fabricating a 200-inch fused-quartz blank for the Mount Palomar Observatory. It was the intention of the University to stimulate astronomical interest by having a telescope built using the 24-inch blank. Seyfert took on the task of building a telescope and an observatory, and of starting a new series of courses in the college. He undertook these tasks with great vigour and within a few years had interested the Nashville community in supporting the construction of an observatory. A splendid and versatile 24-inch telescope, designed by Baker to offer Schmidt-like characteristics as well as conventional Newtonian and Cassegrain features, was to be the principal equipment of the new observatory. After intensive efforts on the part of several competent optical firms, the fused-quartz mirror was found to be somewhat imperfect, and was abandoned in favour of one made by Pyrex. Thus, although the attractive thermal properties of quartz were not to be had, the mirror blank nonetheless made a singular contribution to astronomy by being initially responsible for bringing Seyfert and an active observatory to Vanderbilt University.

In Nashville he became widely known, and his lectures on astronomy to students as well as civic groups outside the University endeared him to all listeners so that he enjoyed an enviable degree of popularity. Undoubtedly his genuine enthusiasm and kindly persuasiveness enabled him to achieve unprecedented success in creating an important astronomical centre at the University. He made many close friends in the community who shared with him the excitement of planning the observatory; one of his staunchest supporters was A. J. Dyer who helped him enlist financial support. It is a tribute to Seyfert's ability and untiring efforts that during the years required to plan and build the observatory, he not only continued with the normal duties of teaching and University affairs, but appeared on television daily as the most popular local weather-forecaster. In addition, some research activities continued, using plates from other observatories, and making observations at the private observatory of another associate.

Upon completion of the observatory, Seyfert became engaged in galactic structure studies to which the telescope, with its objective prism, was well suited. This research included the search for Be stars, studies of several OB associations, and participation in the instrumental developments necessary to equip the new telescope. In the last years of his life he was concerned with the limitations imposed by the sky background on objective-prism spectral plates, and experimented with filters of restricted band-width which would substantially reduce the sky fog, but pass a band containing lines suitable for classification.

He was elected a Fellow of the Society in 1946, held membership in numerous other learned societies, and served on the Council of the American Astronomical Society from 1955 to 1958. Often he was sought out by scientific and cultural groups because of his administrative ability and experience in getting along happily with those around him. He rendered important services to astronomy through being a trustee-at-large of the Associated Universities Incorporated, a member of the board of directors of the Association of Universities for Research in Astronomy, and a member of the Astronomy Advisory Panel to the National Science Foundation. His colleagues and friends everywhere remember him for his vitality and enthusiasm and will mourn the loss of a warm friend and gifted scientist. He is survived by his wife, formerly Muriel E. Mussells, whom he married in 1935, by a son, Carl Keenan, Jr., and by a daughter, Gail Carol.

ROBERT HARDIE