

## MEMORIAL RESOLUTION

JAMES EDWARD McDONALD

1920-1971

James E. McDonald, professor of Atmospheric Sciences and Senior Physicist in the Institute of Atmospheric Physics at the University of Arizona died on 13 June 1971. He was born on 7 May 1920 in Duluth, Minnesota, earned the B.A. degree at the University of Omaha in 1942, the M.S. degree at Massachusetts Institute of Technology in 1945 and the Doctor of Philosophy degree at Iowa State University in 1951. During World War II he served in the Navy as an aerologist, was a meteorology instructor at M.I.T. and reached the rank of lieutenant junior grade. Dr. McDonald spent 1953 at the University of Chicago before joining the staff of the Institute of Atmospheric Physics in 1954 as the associate director. He later relinquished this post to devote all his time to teaching and research.

Dr. McDonald worked in many ways to make the University of Arizona a better school. He served on the Faculty Senate from 1959-1962 and 1965-1969 and was a member of the Committee of Eleven for several terms. Many of his suggestions for change, proposed in written memoranda, have now become University policy.

Dr. McDonald was a scientist and a person having most unusual qualities. He was a voracious reader and had an encyclopedic memory. There were few scientific subjects which escaped at least partial scrutiny and in many areas, his knowledge made him an authority. Anyone who encountered Dr. McDonald in the midst of a research endeavor will surely recall his relentless pursuit of knowledge and understanding.

The contributions to the atmospheric sciences by Dr. McDonald extended far beyond the contents of his published papers. He was a brilliant teacher and lecturer who was an inspiration to his students. His courses in cloud and precipitation physics were outstanding in content, challenging in presentation, successful in exciting interest and curiosity, sometimes sprinkled with sarcasm and often lightened with humor. In his lectures, he invariably impressed audiences with his attention to details and his extensive documentation.

One of Dr. McDonald's early important papers published in 1954 dealt with the shape of raindrops. During the fifties and sixties he published a series of articles dealing with problems of cloud physics, particularly nucleation and other aspects of physical meteorology. The subject of radiation and atmospheric optics was one of his favorites. Of particular note was his work in the field of weather modification. In 1958 he wrote a lengthy article entitled "The Physics of Cloud Modification" which serves as a standard reference on this subject.

Dr. McDonald had a major impact on the atmospheric sciences as a result of his service on the Panel on Weather and Climate Modification of the National Academy of Sciences. His work with this group tells much about the man. He joined it just after an early preliminary report gave a pessimistic view on the status of the subject. Dr. McDonald tended to share this view with the general community of atmospheric scientists. On the other hand, certain scientists, particularly those associated with commercial cloud seeding organizations, strongly objected to the negative tone of the report. Dr. McDonald agreed to carry out a careful examination of data and reports of a large number of cloud seeding projects particularly those conducted by commercial operators. As a result, he convinced himself and the Panel that there was reason for optimism about the efficacy of procedures for increasing precipitation by means of ice-nuclei seeding. This notion, expressed in the Panel's final report in 1966, had a marked effect on the progress of weather modification in the United States. Subsequent research has supported and extended the earlier optimistic views. During 1970, Dr. McDonald played a crucial role on the Project Stormfury Advisory Panel as it sought to evaluate the results of experiments aimed at reducing the intensity of hurricanes.

Over the last few years, Dr. McDonald gave considerable attention to the analysis of reports of Unidentified Flying Objects. As was his custom, he approached the problem as a scientific one, he studied all available information and evidence, he interviewed hundreds of people and made detailed analyses of possible explanations. He maintained that the pursuit of satisfactory explanations for UFO reports represented an important scientific problem which was not getting adequate attention

Within his humanistic outlook, Dr. McDonald believed that the scientist should involve himself directly with major problems of society. He entered public debates on such important questions as those dealing with civil rights, racial justice and the influence of the military on civilian life. His 1959 analysis of Air Force missile-siting policy resulted in nationwide news coverage, an award-winning publication of the problem, and ultimately an official acknowledgement from the Department of Defense regarding the validity of his analysis.

Most recently he was deeply committed to the analysis of the effects on the atmosphere of the emission from supersonic transport airplanes. He spent hundreds of hours studying the relevant printed material and consulting with experts in many related disciplines. Having concluded that SST emissions could reduce ozone concentrations, increase ultraviolet radiation reaching the earth and lead to increases in the frequency of skin cancer, he did his utmost to convince other scientists, laymen and public officials that the SST represented a danger to society.

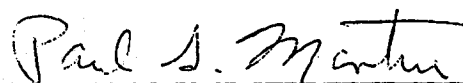
Dr. McDonald was a man of integrity and great courage. He was loved and admired by a great many people, he was respected by everyone who stopped to listen, he made a lasting impact on many facets of the atmospheric sciences and society, and he will be missed much more than we now realize. The Faculty of the University wishes to pay a sincere tribute to our colleague and extend our sympathies to his family.



Louis J. Battan



A. Richard Kassander, Jr.



Paul S. Martin



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