Obituary

Gioacchino Failla
1891-1961

It is with the deepest regret that we note the death of Dr. Gioacchino Failla, one of the founders of our Society and a former president.

Dr. Failla’s contributions in the field of radiation research are forever indelibly recorded and for these he has earned from his colleagues the highest esteem and admiration. All of us are keenly aware of the impact that his work and his influence left upon science in general and more particularly in the investigative areas dealing with ionizing radiation.

It is here appropriate to note that during his exemplary career a number of honors were bestowed upon him which accentuate the distinction and high regard with which he was held by the scientific world. He was an honorary member of the British Institute of Radiology, The James Ewing Society and the Radiological Society of North America. He was awarded the Pulitzer Scholarship, The Leonard Prize of the American Roentgen Ray Society, the Janeway Medal of the American Radium Society, The Caldwell Medal of the American Roentgen Ray Society, The Gold Medal of the Radiological Society of North America, The Ewing Society Medal, the American Cancer Society Annual National Award, and the Judd Cancer Award. He received an honorary doctorate degree from the University of Rochester.

The Radiation Research Society hereby marks the passing of a great leader and a fine person who commanded the respect and held the affection of all. The following obituary by a former student and close associate gives the highlights of the career of our beloved colleague.

Hymer L. Friedell, President

Gioacchino Failla, a founder and past president of the Radiation Research Society, died instantly on December 15, 1961 in an automobile collision in the vicinity of the Argonne Laboratory, not far from Chicago. Born in Sicily in 1891 he came to the United States in 1906. He attended the Stuyvesant High School of New York from which he graduated in 1910. In that year he won one of the coveted Pulitzer Scholarships and enrolled in the Engineering School of Columbia University from which he graduated with an E.E. degree in 1915.
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As a result of a part-time job at New York's Memorial Hospital offered to him at that time by the late Dr. Henry H. Janeway, he developed a keen interest in the physical properties and the clinical applications of radium and X-rays.

He obtained the M.A. degree in Physics from Columbia University in 1917 and the Doctorate from the Sorbonne in 1923 under Madame Curie, J. Perrin and Debierne. He served during the intervening World War I as assistant to the scientific attaché of the American Embassy in Rome. His association with Memorial Hospital, where he became attending Physicist and later Director of the Physics and Biophysics laboratory for radiation research, lasted until the end of 1942. Thence he became Professor of Radiology (Physics) and Director of Radiological Research Laboratory at the College of Physicians and Surgeons of Columbia. He retired from the University in the summer of 1960 and joined the Radiological Physics Division of the Argonne National Laboratory as Senior Scientist Emeritus.

His manifold activities, covering forty-five years of professional life provide abundant testimony to the stability and depth of his interest in the radiological sciences, for he never strayed from the field to which he dedicated his earliest efforts. These took form in facilitating the clinical application of radiation and in defining the scientific basis of radiotherapy of cancer. Thus from the beginning his contributions were dedicated to the analysis and evaluation of not only physical factors affecting tissue dosage but also of those intrinsic to the biological system. Among his technical contributions to radiation therapy, the automatic radon pump and the gold filtered radon implant (radon seeds) gained wide acceptance in the U.S.A. and other nations of the American continent. Aided by his engineering training, he always took delight in the design of numerous accessories to therapeutic apparatus of which we might recall two. The first one is the liquid-filled observation window for radiation therapy treatment rooms which is now an essential part of “hot cells” in modern radiochemical laboratories. The other is the “bubble” diaphragm for megavolt X-ray which permitted the exit of beams of radiation of different shapes by the insertion of relatively light hollow truncated cones or pyramids within a protecting pool of mercury encasing the anode of the X-ray tube. Many of his scientific publications are devoted to the measurement of absorbed dose, often as a prerequisite to radiobiological or radiotherapeutic reports published by various members of his laboratory staff. Here his versatility and originality found expression in the design, and often in the actual construction, of dozens of types of ionization chambers among which the extrapolation, mesh, tissue equivalent and wall-less types are the best known to students of radiation dosimetry. After the international adoption of the rad he devoted and directed activities oriented to the precise determination of the constants $W$ and $\rho$ necessary to its evaluation by the ionization method. As a result the data from the Columbia Laboratory rank among the most accurate on record.

Far less known is his early interest in what today is called radiobiology: his
debut took place in a paper with K. Sugiura, published in 1922, wherein several long-term observations on irradiated mice and on their non-irradiated progeny were made. Thereafter, with the cooperation of Mrs. E. H. Quimby and members of the clinical staff at Memorial Hospital, and while delving in the immediate needs of radiotherapy, observations on the effects of radiation were pursued in various biological systems. Outstanding were the studies on the threshold erythema of the human skin and the recurring efforts to determine the susceptibility ratio in tissues as a rational approach to radiotherapy. In the late twenties, with the addition of biologists to the research staff of his laboratory, the first non-academic radio-biological laboratory was established in the United States. His interest in radio-biology never wavered nor did his contacts with the field ever relent; as a matter of fact, with the establishment of his summer experimental activities at the Marine Biological Laboratory of Woods Hole they expanded in number and depth. He entered the theoretical side of the field in 1937 by proposing that cell death was due to osmotic swelling following breakdown of giant molecules and suggested several experiments to test his assumptions: these observations have stimulated some interesting research in recent years. More widely known is his relatively recent theory of ageing ascribing this process to the accumulation of somatic mutations in the entire organism.

This inadequate summary of the highlights of his seventy published papers compounds the inadequacy of his written work to delineate his true stature as an influential scientist: for Failla avoided printed virtuosity per se, and much preferred the use of intra- and inter-laboratory discussions. These he enlightened with the constructive stimulus of his imagination and he tempered with the sobering criticism of his logic. Thus much of his thought is reflected in hundreds of papers by associates and professional colleagues and, as recognition came to him, in the reports of the many committees in which he served. And many they were, from the pioneering Committee on Radiation Units, Standardization and Protection established within the radiological community to the National and International Commissions on Radiation Protection of today; from the wartime National Defense Research Committee and the Radiological Instrument Panel of the Armed Forces Special Weapon Project to the Advisory Committee on Isotope Distributions, the Advisory Committee on Biology and Medicine of the USAEC and the Genetics Committee, National Academy of Science Committee on Biological Effects of Atomic Radiation.

This wealth of commitments in the public service did not prevent his resolve to lay the foundations of the Radiation Research Society and to serve it as Chairman of the Organizing Committee, as member of the Council, President, and as the member of the Executive Committee who virtually made possible this journal. The objectives of these efforts are written in the Editorial of the first number of Radiation Research.
He bore extra-curricular responsibilities with equanimity, sometimes with gusto, always grateful and glad to be of service. This characteristic was but an extension of his sincere interest in the welfare of his associates and friends who often confided in him and whom he advised and helped in innumerable ways. To this activity he gave his time cheerfully and with unquestioned priority, unaware of the import of his gift and unsuspecting of the cherished image that he was molding in the memory of us all.

L. D. Marinelli

It is my privilege as Managing Editor of *Radiation Research* to add this footnote in acknowledgement of the many contributions of Dr. Failla to this Journal. He, probably more than any other person, guided us into the proper area of service and responsibility. His advice and counsel was most important to the Managing Editor and to other members of the Editorial Board in all of the important decisions during the formative days of the Journal.

Members of the Society and readers of this article will be interested in knowing that fitting memorials to Dr. Failla have been written by H. H. Rossi in *The American Journal of Roentgenology* and *Radium Therapy and Nuclear Medicine* 87, 608 (March, 1962); and H. L. Gray in the March issue of the *British Journal of Radiology*. The April issue of *Radiology* will contain a series of papers given in honor of Dr. Failla’s 70th birthday, which symposium was held at the 1962 meeting in Chicago November 25–30.

As a further service to those interested in the career of Dr. Failla and the development of radiation research, we have listed below most of his publications in chronological order.

**BIBLIOGRAPHY**


OBITUARY


