



Peter R. Almond, Ph.D. – Physicist from Across the Pond

Peter Sandwall¹, Michael Lamba², Dennis Cheek², Christopher Njeh², Ahmet Ayan², Ashley Cetnar³ & Michael Gossman⁴
¹OhioHealth, ²Ohio River Valley Chapter; AAPM, ³The Ohio State University, ⁴Baptist Health



Abstract / Introduction

“Perhaps one of the greatest contributions physics has made to radiation oncology and radiology has been in developing ways to measure radiation accurately and precisely.” Dr. Peter Richard Almond would begin his lectures on radiation dosimetry with this statement. His work reflected his belief in this important aspect of medical physics and is memorialized in his lead authorship of the American Association of Medical Physics (AAPM) Task Group 51.

With a solid background in physics from his birth country of England, Dr. Almond came across the pond in 1959 and made his home at M.D. Anderson Cancer Center (MDACC) where he would spend the majority of his career. Dr. Almond had a 13-year sojourn in Louisville, during which time (1985-1998) he was Vice-Chairman of the Department of Radiation Oncology at the University of Louisville and President of the Ohio Valley River Chapter of the AAPM (1989), one of many professional leadership roles in which he served our community throughout his career.

Dr. Almond returned to MDACC in 1998 as a Distinguished Senior Lecturer and fully retired in 2013. His love of history was displayed several times during his latter career at MDACC, where he wrote about the history of medical physics and MDACC including a book published the year of his retirement. We hope he will appreciate this display of his personal and professional history as a demonstration of our respect and esteem for his many contributions to the field of medical physics.

Origin & Family

Born not so far from Stonehenge, a few miles outside of Salisbury and west of London, in Downton, England, September 10th 1937



With two older sisters, Peter was the oldest of identical twins (by five minutes). His father was a Baptist minister and wanted the best education for all his children, to give them the greatest opportunity.

Peter's earliest impressions were of the war. Before he was a year old, his family moved to a town called Edenbridge, about 30 miles south of London, where he grew up for the next 17 years.



Downton Baptist Church

His first distinct memory was looking out the window after the Battle of Britain, as his father approached a downed plane. Other childhood memories include night raids, a desire to be a Spitfire pilot, and the distinctive sound of V-2 rockets flying over his house. When the bombs started to fall closer to his home, his family evacuated to Downton and returned to Edenbridge after the war.

Peter has been active in the Baptist church nearly his entire life, serving over half a century as a Deacon and Bible teacher to Adults.



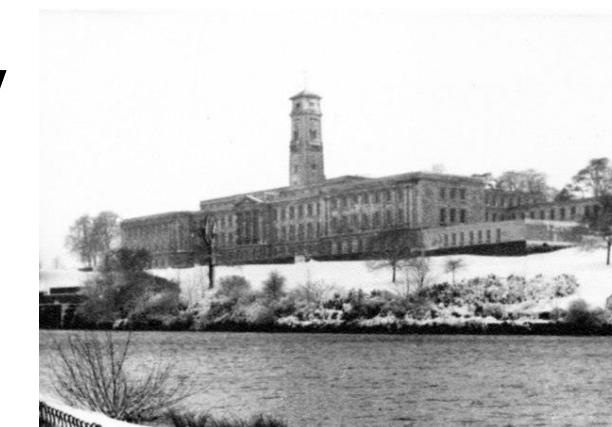
Education

Peter took his exams at 11 and again at 13 to gain admittance to grammar school. At the time, these exams were critical to your life's trajectory. His sisters gained entrance without issue while he and his twin brother were described as, 'classical late bloomers.' His brother would go on to become a civil engineer.

During later years of his grammar school Peter began to focus on sciences and gravitated toward physics. Upon his graduation he was accepted to Nottingham University, at the time only 5% of students went to college. Peter successfully applied for a scholarship from the county education system which covered his tuition with a small stipend.

B.Sc. Honours Physics (1957), Nottingham University Nottingham, England

Peter worked through his summers and completed his bachelor studies in three years. During one of the summers when he was working in the physics department, he distinctly remembers a professor asking him why he didn't travel, stating that it was something good to do when young. Unfortunately, he didn't have money for travel at that time.



Nottingham University

Post Grad. Cert. Medical Physics (1958), Bristol University Bristol, England

Following his undergraduate studies Peter started a 1-year post-graduate course in medical physics at Bristol University. He recalls a comprehensive curriculum working with radium and cobalt units, which were under development at the time.

Peter's instructors were Dr. Herbert Freundlich, Head of the Medical Physics Department of Bristol General Hospital & Derek Gifford, author of a popular physics textbook for technologists.



Bristol University coat of arms and Bristol General Hospital

Still dependent on scholarships, he completed his certificate at the age of 21. Near this time, Peter inherited a small amount of money from his aunt. Recalling his previous professors comment regarding travel, he asked his advisor Dr. Freundlich about possible training opportunities in the United States.

He recalls being advised, "on the whole, medical physics in the United States is terrible," but if you really want to go there are a couple of outstanding places and outstanding people. Notably, Dr. Warren Sinclair at M.D. Anderson Hospital for Cancer Research of the University of Texas (MDAH) and Dr. Robert Loewinger at Stanford University. Peter wrote and asked for fellowships, both accepted; however, Warren wrote back first.

M.A. Rice University, Nuclear Physics (1963) Houston, Texas

Peter's letter of acceptance for a 1-year research fellowship at MDAH included information about an opportunity to receive a stipend to attend Rice University for an advanced degree, which at the time was tuition free. Before Warren Sinclair left MDAH in 1960 he advised Peter that there was not much of a future in traditional medical physics and recommended steering toward biophysics and radiobiology.



Rice University coat of arms and administrative building

Peter stayed the course in nuclear physics, and attended Rice University starting in 1960 while working at MDAH. His dissertation focused on the deuteron reaction in boron with neutron and gamma spectroscopy. Simultaneous to his graduate work he started working on calorimetry at MDAH. Dr. Almond completed his graduate studies in 1965.

Ph.D. Rice University, Nuclear Physics (1965) Houston, Texas

Work

M.D. Anderson Hospital for Cancer Research of the University of Texas Houston, TX (1965-1985)
Faculty Physicist, Professor of Biophysics
Head, Radiation Physics Section
Director, Cyclotron Unit



Dr. Almond is almost hidden in the back row, directly below the S in Research

University of Louisville, James Graham Brown Cancer Center Louisville, KY (1985-1998)
Vice Chairman of Research
Professor of Radiation Oncology



Dr. Almond was offered a position at MDAH to develop an electron beam program with a Siemens betatron, which had been initiated Ralph Worsnop. Dr. Almond tied this in with his calorimetry research while getting the electron beam running clinically.

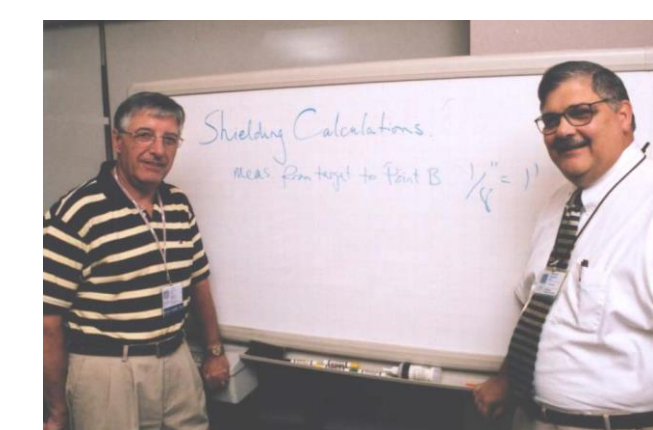
The University of Texas M.D. Anderson Cancer Center Houston, TX (1998-2013)
Distinguished Senior Lecturer

Following retirement of Dr. Gilbert Fletcher, a search committee decided to hire his replacement from outside the department; Dr. Lester Peters. Several radiation oncologists, who had been in line to succeed Dr. Fletcher, realized they would have to leave to become Chair. Two in particular, Dr. David Husey to Iowa and Dr. Robert Linberg to University of Louisville in 1984. Dr. Linberg recruited Dr. Almond to join him in Louisville and build an academic department.



Dr. Almond accepting the William D. Coolidge Award, 1990

Dr. Almond returned to MDACC in 1998 where he documented the history of radiation dosimetry. He retired in 2013, the same year he was recognized as one of 50 outstanding contributors to the field over the last 50 years. He worked the entire span, with many notable achievements.



Dr. Almond with Dr. Ken Hogstrom

Achievements / Service

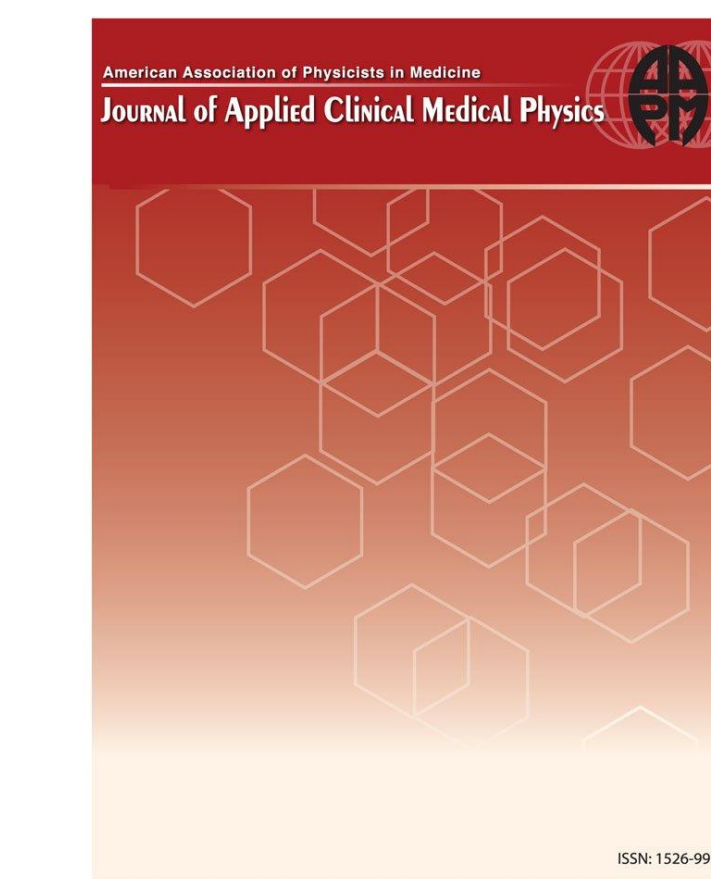
It is difficult to separate Dr. Almond's achievements from his service, his work consistently served the broader medical physics community. Dr. Almond helped develop radiotherapy treatments using multiple types of ionizing radiation including, high-energy photons, electrons, and neutrons. This work drove his interest in radiation measurements.

Dr. Almond started attending Radiological Society of North America and American Association of Physicists in Medicine (AAPM) meetings in 1965. Serving in various capacities on several committees, Dr. Almond helped write significant calibration protocols. First, as an early member of the AAPM Subcommittee on Radiation Dosimetry (SCRAD), later Task Group 21, and as lead author of Task Group 51. Other AAPM contributions include reports on total skin electron and neutron dosimetry.

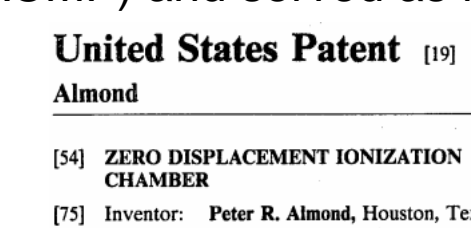
Engaged in the training of medical physicists for decades, Dr. Almond found teaching to be extremely rewarding. His students include many distinguished physicists such as James Purdy, George Oliver, Ann Wright (his first graduate student), Bhudatt Paliwal, Kenneth Hogstrom, Arthur Boyer, Michael Gossman, and Carlos de Almeida who returned to his home country of Brazil. Dr. Almond recalls many international students from countries such as Venezuela and Iran among others. He truly had an international impact.

Dr. Almond has lead and been a member of committees for the International Atomic Energy Agency (IAEA), International Commission on Radiation Measurements and Units (ICRU), National Council for Radiation Protection (NCRP), Nuclear Regulatory Commission (NRC), and the American Society of Therapeutic Radiology and Oncology (ASTRO). He was chairman of the National Institute of Health (NIH) Radiation Study Section and worked on dosimetry for atomic bomb survivors for the National Academy of Science / National Research Council. He was also requested by the President of Panama to help with consultation for radiation accidents.

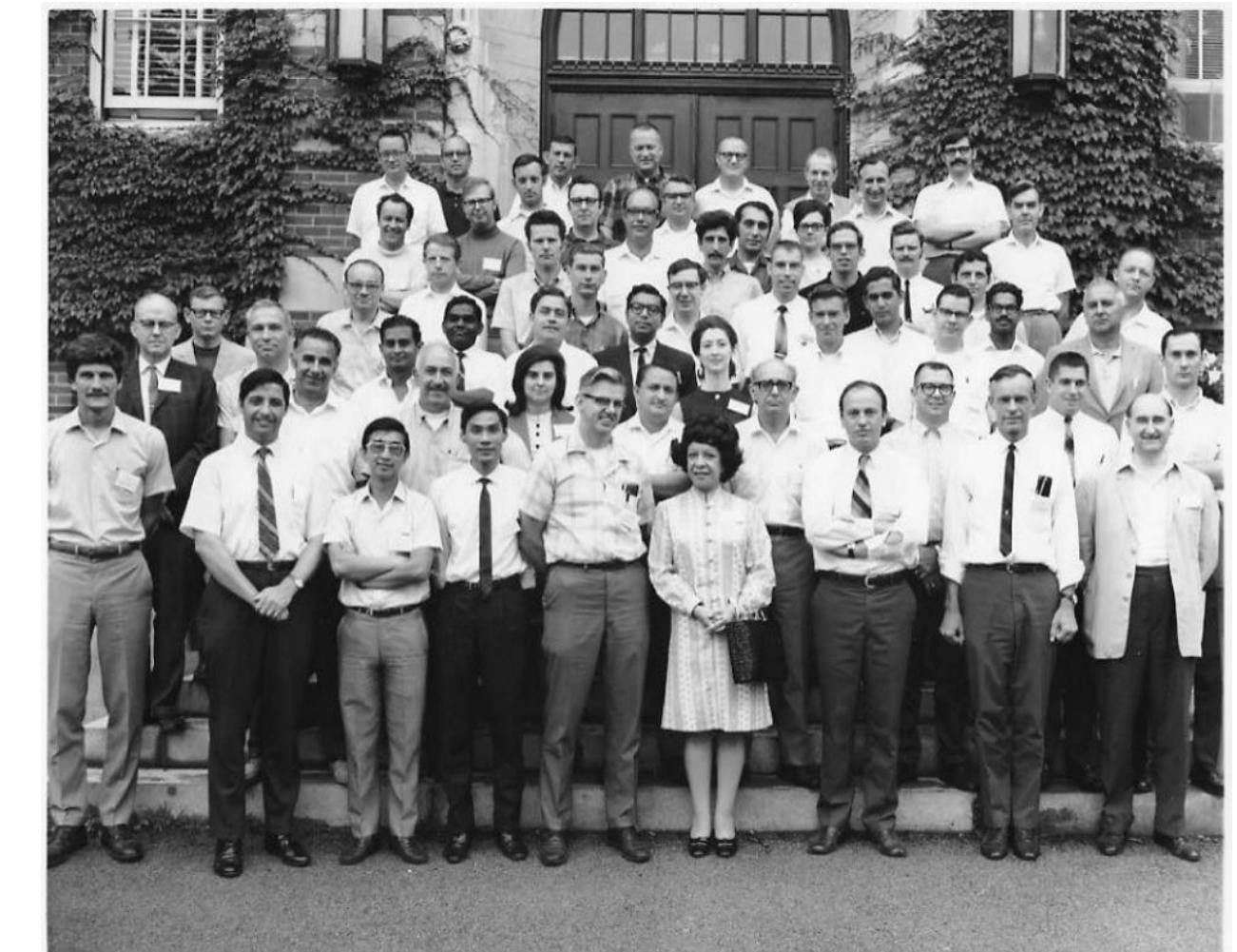
Dr. Almond served as the President of AAPM (1971), Ohio River Valley Chapter, Southwest Chapter, and the Council on Ionizing Radiation Measurements and Standards (CIRMS). He also served as Chairman of the Board of Chancellors of the American College of Medical Physics (ACMP).



He holds a patent for an ionization chamber and has authored award winning scientific journal articles, multiple book chapters, and a biography of Leonard Grimmett, "The Man Behind the First Cobalt-60 Unit in the United States." Dr. Almond helped found the journal Medical Physics, served as North American Editor for Physics in Medicine and Biology, and with Dr. Michael Mills started the Journal of Applied Clinical Medical Physics (JACMP) and served as its first Editor-in-Chief.



United States Patent #19 Almond [54] ZERO REPLACEMENT IONIZATION CHAMBER [57] Inventor: Peter R. Almond, Houston, Tex.



Dr. Almond (front row, 2nd from left) organized the first AAPM Summer School, 1969 in Burlington, VT where he shared lectures on Cavity Theory.



Dr. Almond contributed to standardizing radiation dosimetry throughout his career, CIRMS Inaugural Meeting, 1992 (second row, 4th from the right).

Awards / Honors

Farrington Daniels Award, AAPM, 1976

Fellow, ACMP, 1989

Fellow, AAPM, 1989

Marvin D. Williams Award, ACMP, 1990

William D. Coolidge Award, AAPM, 1990

Fellow, ACR, 1997

Fellow, IOP, 1999

Farrington Daniels Award, AAPM, 2005

Outstanding Contributions Over the Last 50 Years,

IOMP, 2013

Randall S. Caswell Award, CIRMS, 2017

Peter R. Almond Award of Excellence for an Outstanding Radiation Measurements

Article, JACMP, 2019 Among his many honors, perhaps most fitting is Dr. Almond's namesake Award which encourages excellence in radiation measurements and medical physics.

Dr. Almond has created a history to be proud of.

Bibliography

Physics Today 43, 11, 191 (1990)

Almond, Peter "AAPM History Interviews" (1993) By Robert Gorson, AAPM Annual Meeting

Almond, Peter "Medical Physics Graduate Program Alumni Newsletter" (2008) MDACC

Ibbott, G., et al. (2008). Anniversary Paper: Fifty years of AAPM involvement in radiation dosimetry. *Medical physics*, 35(4), 1418-1427

Almond, Peter (2009) "A Brief History of Dosimetry, Calibration Protocols, and the Need for Accuracy", AAPM Summer School

Almond, Peter (2013) "Cobalt Blues.", Springer New York

Almond, Peter (2018) "Calibration Protocols - A Proud History of the AAPM", AAPM Annual Meeting

