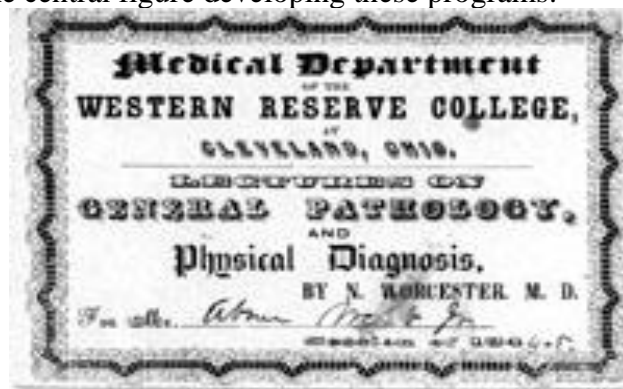


History of the Department of Pathology University Hospitals and Case Western Reserve University: A Timeline of the Chairs of the Department

Pathology first appeared in the Western Reserve College [precursor to CWRU] curriculum in 1843. The first class in pathology was taught by Dr. Noah Worcester. Dr. John Delamater, one of the founders of the school, often taught pathology, continuing to do so intermittently after Noah Worcester's death in 1847. It was not until the 1870's that pathology became a regular part of the curriculum. By then, medicine was on the verge of revolutionary changes that would create a deep sense for the importance of pathology and bacteriology in understanding disease. Dr. Isaac Newton Himes, Professor in the Department of Pathology and Bacteriology, joined the department in 1870 and was the central figure developing these programs.



A card admitting a student to Dr. Worcester's class in the session of 1844-5.

Dr. Himes became Dean of the Medical Department in 1893. His term as dean was cut short by his death in 1895, but through his efforts the medical school established large, well-equipped laboratories for studies in pathology, histopathology, and bacteriology. He ensured a continuation and expansion of the teaching tradition he had started by hiring William Travis Howard to lead Pathology.

There is very little available information about Dr. Himes, but a poem attributed to Dr. Himes is amusing:

*Slowly, slowly, slowly we oxidize!
Become old and rusty,
Fungoid and musty,
Diminish in size;
Reputation decreases and our self-conceit ceases—
Cares fret and wear out facial lines incessantly,
Yet doctors grow old rather pleasantly!*

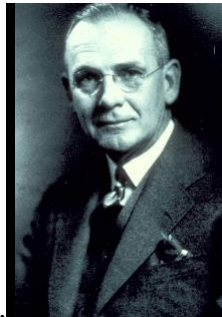


William T. Howard, Jr., M.D.

Professor of Pathology, Pathological Anatomy and Bacteriology
Department of Pathology, Bacteriology and Hygiene
Chair, Department of Pathology from 1895-1914.

With modern laboratory facilities, microscopes for all the students, and arrangements for teaching in newly developed pathology laboratories at City, Charity, and Lakeside Hospitals, Dr. William T. Howard, Jr. brought the teaching of pathology into the 20th century.

Dr. Howard's own research focused on bacteriology, particularly water-borne organisms. He organized the first bacteriology laboratory in the city at City Hospital in 1894. It became Cleveland's first municipal bacteriological laboratory in 1901. He demonstrated the great importance of bacteriology to Clevelanders when the city was struck by a typhoid fever epidemic in 1903 by showing that typhoid fever organisms were present in the city's drinking water, taken from Lake Erie. This, he argued, was the result of taking garbage-contaminated water from too close to the shore. In response to his arguments, the city moved the intake farther out into the lake and the incidence of typhoid dropped from 500 cases per month to 50.



Howard T. Karsner, M.D.

Professor of Pathology
Chair, Department of Pathology 1914-1949
Founding Director, Institute of Pathology (1929)

Dr. Karsner was the visionary and distinguished pathologist who designed and founded the Institute of Pathology of Western Reserve University dedicated in 1929. The Institute was praised by many leaders, including Abraham Flexner. The Institute of Pathology, which served as a model unique in the United States for Pathology Training, embodied the philosophy of the Latin poet Horace - *Form and function are a unity, two*

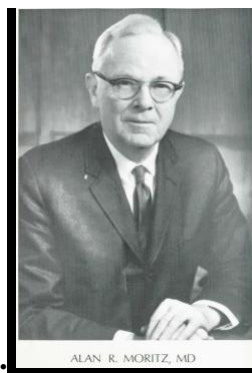
sides of one coin. In order to enhance function, appropriate form must exist or be created.

The qualities promulgated by Dr. Karsner embraced the integration of scholarly investigations with the application of clinical knowledge and pursuits, the ongoing quest for quality and excellence in all endeavors, and a passion for teaching. Between 1925 and 1950, the education of many thousands of medical students throughout the English-speaking world was enhanced by their use of his textbook Human Pathology, which went through eight editions during this period. As one of the early and long-time members of the National Board of Medical Examiners and one of the founders and long-time members of the American Board of Pathology, he contributed importantly to the evaluation of educational programs in both undergraduate and graduate pathology. He was the recipient of many honors during his lifetime, including the William Wood Gerhard Medal of the Philadelphia Pathological Society, the Centennial Award of Northwestern University, the Gold-Headed Cane of the American Association of Pathologists and Bacteriologists (now the American Society of Investigative Pathology), and the Captain Robert Dexter Conrad Award of the United States Navy.

Born in Philadelphia in 1879, he graduated from the University of Pennsylvania School of Medicine in 1903. He served as resident physician at the Philadelphia General Hospital between 1903 and 1905, as resident physician in the Philadelphia Municipal Hospital for Contagious Disease between 1905 and 1907, as extern in pathology in hospitals in Vienna and Berlin during 1907-1908, as a demonstrator in pathology at the University of Pennsylvania between 1907 and 1911. Professor Councilman recruited him to Harvard in 1911, and he then moved to Western Reserve University in 1914.

For more information, go to

<http://www.pubmedcentral.nih.gov/picrender.fcgi?artid=2047405&blobtype=pdf>.



Alan R. Moritz, M.D.

Professor of Pathology

Chair, Department of Pathology & Director, Institute of Pathology (1949-1965)

Alan R. Moritz (1899-1986) was born and raised in Red Cloud, Nebraska. He attended the University of Nebraska where he earned his bachelor's, master's and medical degrees which were followed by an internship at University Hospitals. In 1937 he left

Cleveland to become the George Burgess McGrath Professor of Legal Medicine at Harvard and to become the first Chair of a Department of Legal Medicine in an American university.

Later, in 1949 he returned to University Hospitals to become Pathologist-in-Charge and Associate Professor of Pathology at Western Reserve University. Physician, pathologist and educator, he developed in 1955 a separate curriculum for forensic medicine, thus creating a basis for the profession. During the last 2 years of his tenure as Director of the Institute (1964-1965), he was also Vice-President of the University. This was followed by 2 years as Provost, and then as the first Chief of Staff of University Hospitals of Cleveland (1970-1972).

He committed himself to the establishment of the medical examiner system in this country. At every point in his career, he engaged in some type of research on topics as diverse as calcium metabolism, heart and renal disease, and thermal trauma. Acclaimed by peers and colleagues for half a century as the "Father of Forensic Pathology" in the United States, Alan Moritz may be best epitomized by his own delineation of the role of forensic pathology: the application of scientific knowledge to the needs of the law, requiring medical expertise plus a sensitivity to detail that comes only through experience.

For more information, go to

<http://www.pubmedcentral.nih.gov/picrender.fcgi?artid=1899647&blobtype=pdf>.



Dr. John R. Carter,
Director of Pathology (1966-)

John R. Carter, M.D.

Professor of Pathology

Chair, Department of Pathology & Director, Institute of Pathology (1966-1981)

Buffalo-born, Dr. John R. Carter went to Hamilton College as a premedical student and gained in-depth experience in science while also extending his cultivation of a lasting love of classical and big band music. He graduated with honors from the University of Rochester, School of Medicine and Dentistry in 1943, served his internship and residency at the University of Iowa and returned to its faculty following a two-year tour of duty in the Navy. Appointed Professor and Chairman of the Department of Pathology and Oncology at the University of Kansas Medical Center in 1960, he then moved to Case Western Reserve University and University Hospitals of Cleveland in 1966 as Professor, Chairman of the Department of Pathology and Director of the Institute of Pathology. He was a leader in orthopedic pathology and was deeply involved in

research and teaching in that area, holding a professorship in the Department of Orthopedics as well. During the course of his academic career, Dr. Carter contributed to the advancement of medical knowledge in over a hundred publications in the arenas of blood coagulation and orthopedic pathology. He served on innumerable professional and governmental committees and chaired many of them. However, it has been his commitment and contribution to education and training that have given him particular satisfaction, and among the many honors and accolades he has received, he rightly cherished most his teaching awards from generations of medical students, residents and faculty.



Michael E Lamm, M.D.

Professor of Pathology

Chairman, Department of Pathology (1981-2001)

From 1981 until 2001, Dr. Lamm served as Chair of the Department of Pathology. A past president of the American Society for Investigative Pathology, Dr. Lamm is also the recipient of the Gold-Headed Cane Award.

During his career, Dr. Lamm's research interests included antibody structure, experimental glomerulonephritis, and especially mucosal immunology. He discovered new mechanisms for the role of IgA in host defense beyond the traditional immunological barrier function in extracellular mucosal secretions. In particular, he demonstrated two new defense functions of IgA (a) to neutralize intracellular microbial pathogens during the transport of IgA through the mucosal epithelium and (b) to "excrete" antigens, as immune complexes, from the lamina propria across the epithelial barrier. His work embraced three general topics: the assembly and transport of IgA in and through epithelial cells, IgA as an excretory immunoglobulin, and the disease IgA nephropathy.

Dr. Michael Lamm completed his undergraduate career at Amherst College, Massachusetts in 1954. He went on to earn his M.D. from the University of Rochester, New York in 1959 and his M.S. in Chemistry at Western Reserve University in 1962. Dr. Lamm was an intern and Assistant Resident in Pathology the Institute of Pathology and University Hospitals of Cleveland. He became Senior Assistant Surgeon and Surgeon (Research Associate) for the Section on Physical Chemistry at the National Institute of Mental Health, Bethesda, from 1962 until 1964. The next four years were spent as an Assistant Professor of Pathology at New York University. Dr. Lamm continued on as an Associate Professor and then Professor of Pathology at New York University until 1981. During this time period, he spent a year each as Visiting Scientist and Professor at the University of Oxford's Department of Biochemistry (R.R. Porter) and University of Geneva's Department of Pathology (P. Vassalli).



George Perry, Ph.D.

Professor of Pathology

Interim Chairman, Department of Pathology (2001-2005)

Dr. Perry served as Interim Chairman of the Department of Pathology from 2001-2005, providing able academic and administrative leadership during a period of institutional organizational transition. He was Professor of Pathology and Neurosciences with a research program in Alzheimer's Disease of international stature.

His research revealed the roles of oxygen radicals and oxidative damage in the initial cytopathology of Alzheimer's disease. He has been distinguished as one of the top 20 Alzheimer's disease researchers with over 600 publications, one of the top 100 most-cited scientists in Neuroscience & Behavior. He served as President of the American Association of Neuropathologists. He served on the editorial boards of multiple journals, including the American Journal of Pathology, and as Editor-in-Chief of the Journal of Alzheimer's Disease.

Dr. Perry received his Ph.D. in Marine Biology from Scripps Institution of Oceanography, University of California at San Diego.

In 2006 he moved to University of Texas San Antonio to become Dean of the College of Sciences.



John B. Lowe, M.D.

Professor of Pathology

Chair, Department of Pathology (2005-2008)

CWRU/University Hospitals Case Medical Center

Dr. Lowe was recruited from University of Michigan, where he had established a prominent research program funded by the NIH and the Howard Hughes Medical

Institute in areas pertaining to inflammation, leukocyte trafficking, and molecular analysis of mammalian glycosylation pathways. Dr. Lowe's research focused on understanding the genes required for steps in the glycosylation of glycoproteins, including the specific genes and corresponding complex sugar molecules that are used by white blood cells to leave the blood stream to fight infection and to contribute to immunity against pathogens. Dr. Lowe's work identified biochemical pathways for which pharmaceutical inhibition may block the synthesis of complex sugar molecules required for migration of white blood cells and cancer cells during metastasis, and which thus may prevent white blood cell-dependent inflammation or the spread of cancer cells.

Dr. Lowe received his M.D. from the University of Utah College of Medicine in 1980. He trained as a resident in clinical pathology at Washington University in St. Louis from 1980-1984, and completed postdoctoral research training in bacterial genetics and mammalian gene expression at Washington University during the same period. He left CWRU/UH in 2008 to lead a team at Genentech.



Clifford V. Harding, III, M.D., Ph.D.

Joseph R. Kahn Professor of Pathology
Distinguished University Professor
Chair, Department of Pathology (2008-present)
Interim Chair, Department of Anatomy (2012-present)
Director, University Hospitals Diagnostic Institute (2018-present)
Director, Medical Scientist Training Program (2001-2019)
CWRU/University Hospitals Cleveland Medical Center

Dr. Harding received his B.A. from Harvard University *magna cum laude* with Highest Honors in Biology, and his M.D. and Ph.D. from Washington University, St. Louis. He remained at Washington University for his residency in anatomic pathology, postdoctoral research in immunology and several years on the faculty, before moving to CWRU/UH.

Dr. Harding has published over 200 scientific papers on topics including exosomes, immunology, infectious diseases, pathology and cell biology. He has had over \$50 million in cumulative NIH funding. His research at CWRU/UH has focused on mechanisms of antigen processing and presentation, immunology of infectious diseases (particularly tuberculosis), and regulation of antigen presenting cells (dendritic cells, macrophages) and T cell responses by microbial products and Toll-like receptors. His early work included the discovery in 1983 of exosomes – exocytosed membrane vesicles – and the mechanism of exosome biogenesis via their formation in multivesicular endosomes and subsequent exocytosis. He has subsequently studied the

role of exosomes in immune responses, infection and cancer, and he has demonstrated biogenesis of both exosomes and bacteria-derived vesicles in tuberculosis infection.

Dr. Harding has devoted substantial effort to research training programs. He served from 2001-2019 as Director of the NIH T32-supported CWRU Medical Scientist Training Program and has served since 2007 as the founding Director of the NIH TL1-supported Clinical and Translational Scientist Training Program. He was the founding director of the CWRU Immunology Training Program and its NIH T32 grant. He has contributed to the design and launch of several new graduate programs.

Note: The terminology for the Department of Pathology and its primary leader has changed over time and has not been used with much precision even within a single year or used at all. The Department was established as an “Institute” by Dr. Karsner, and that term was used for an indefinite period after Dr. Karsner’s period as “Director”. For some periods, the term “Director” was used, especially in the “Institute era” launched by Dr. Karsner. In general, we have used the term “Chairman” for the leader of the Pathology department, and we have added the term “Director” when it was commonly used during the “Institute era”.