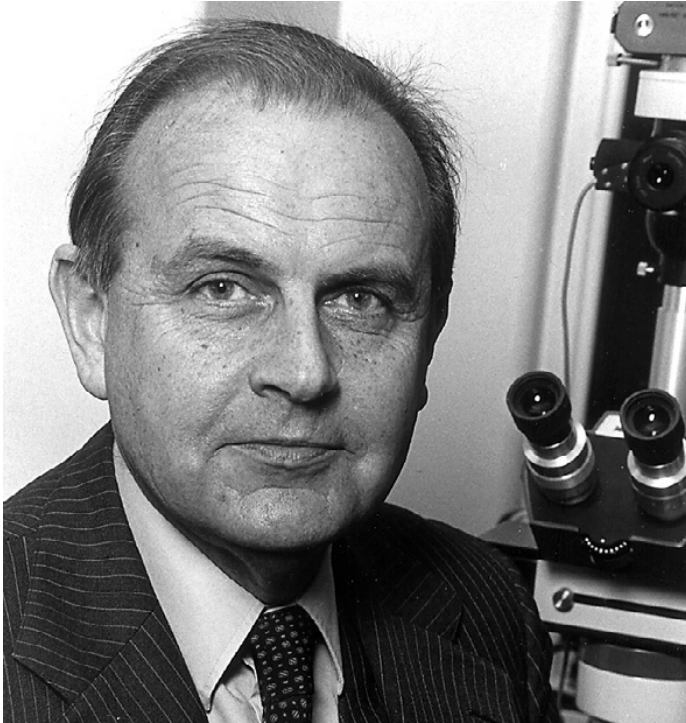




# Amico Bignami



Amico Bignami, professor of neuropathology at Harvard Medical School and Associate Chief of Staff for Research and Development at the Brockton/West Roxbury VA Medical Center, died on August 5, 1994 at the age of sixty four, a few weeks after he was diagnosed with a neuroglioblastoma. His distinguished career in neuropathology spanned four decades and three countries: Italy, England, and the United States. His pioneering work in experimental neuropathology led to many significant contributions to the field, but he will be best remembered for his groundbreaking work in three areas: subacute spongiform encephalopathies, the glial fibrillary acidic protein (GFAP), and the glial hyaluronic acid-binding protein (GHAP).

Born in Montreux, Switzerland on July 9, 1930, Amico was raised and educated in Rome, Italy. At home, his family spoke Italian, French, English

and German, and he was schooled in Latin and ancient Greek. He was a brilliant student in the Jesuit high school in Rome, and the medical school of Rome University from which he graduated summa cum laude in 1954.

While a resident in pathology at the Hospital of Santo Spirito, the oldest hospital in Rome, he first developed his keen powers of observation and identification at the microscope and the autopsy table. He was appointed Assistant Professor of Pathology at the University of Rome in 1959, coinciding with the year his first paper on glioma was published. With Giovanni Alema, he published a review of the clinicopathological features of the spongiform encephalopathies, which, for the first time, described the subtypes of Creutzfeldt-Jakob Disease (CJD). In 1966, he was appointed Associate Professor. It was also at this time that he, along with Guido Palladini, had published in Nature Magazine, their discoveries that the spongiform change induced in the rat cortex had EEG discharges similar to those observed in human CJD.

The year 1969 was an important milestone in Amico's life. First, he married a Norwegian biochemist, Doris Dahl, previously on the faculty of the Bergen Medical School, who over the next quarter of a century was his research collaborator and best friend. Second, he left Italy and came to the United States

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*In tribute to their dedicated efforts to science and medicine, deceased members of the Harvard Faculty of Medicine (those at the rank of full or emeritus professor) receive a review of their life and contributions with a complete reflection, a **Memorial Minute**.*

as Associate Professor of Pathology at Stanford Medical School. There he turned his attention to the process of the degeneration and regeneration of the central nervous system. In 1971, with colleagues at Stanford, he discovered that glial fibrillary acid protein (GFAP) could be used as a reliable marker for astrocytes. In 1972, using gliotic brain tissue to demonstrate the astroglial origins of GFAP, he co-authored the first study on the use of an antibody to GFAP. This enabled the identification of cells both in vivo and in vitro, independently of their shape and appearance, and led to practical applications in cell biology, oncology, developmental studies, and the pathological analysis of brain encephalopathies.

In 1976, the Bignamis moved east to Harvard Medical School and the West Roxbury VA Hospital, Amico as Professor of Neuropathology, and Doris as Assistant Professor in the Department of Neuroscience. In the ensuing decade, Amico and Doris directed their research to the characterization of GFAP, neurofilaments, and other cytoskeletal proteins, and they described the genesis of glial cells, their differentiation and normal function, and their role in disease and regeneration.

Dr. Bignami's penultimate discovery, which his untimely death prevented him from fully exploring, was in the field of the extracellular matrix of the brain. He found the glial hyaluronic acid-binding protein, GHAP, a protein specific to the extracellular matrix of the brain. Amico showed that GHAP limits cell motility and repels axonal growth, suggesting a possible explanation for impaired axonal regeneration in the central nervous system. His last published paper dealt with the role of GHAP in Alzheimer's disease, and on the very weekend he went to the hospital for his diagnosed brain tumor, he completed with Doris Dahl, the book *Glial Cells in the Central Nervous System and their Reaction to Injury*.

In 1987, Amico was awarded the Senator Jacob Javits Neuroscience Award by the National Institute of Neurological and Communicative Diseases. The prize included seven years' funding for his research on basic biochemistry and immunohistochemistry of brain proteins. Posthumously, in 1999, the American Association of Neuropathologists honored Amico with the "Award for Meritorious Contributions to Neuropathology."

Amico's illustrious career is only partially reflected in the over 200 peer-reviewed journal articles and over 50 reviews, chapters and books. He was invited as speaker and lecturer throughout the continent and in the United States. A keen student of history, the stimulus for his research was grounded on observations and problems identified by such great scientists as Virchow, Weigert, Ramon y Cajal, and del Rio Hortega. Yet Amico's multidisciplinary experimental approaches to these problems, which integrated the disciplines of morphology, biochemistry, and neurochemistry, were far ahead of his time. His background in the classics, his modesty and keen wit, his clarity of thought and expression, his graciousness, elegance, and gentlemanly manner stamped him as a unique teacher and colleague. He was wise, he was loyal with impeccable integrity, he was warm, he was refined, he was brilliant, he was cultured, he had an endearing smile and even when not smiling, his eyes were always smiling.

As Associate Chief of Staff for Research and Development at the Brockton/West Roxbury VA Medical Center, Amico helped design the Research floor of the elegant new wing of the hospital so it would be flexible for use by future researchers. The research program flourished under his tutelage, and he quickly was recognized as one of the premier Associate Chiefs of Staff for Research in the VA system. In recognition of his innumerable contributions to research in the VA, the conference room for the Research Program at the West Roxbury VA was dedicated in his name – a singular honor considering that the site is a Federal building.

Amico loved the outdoors and he always sought out arduous hikes and beautiful vistas, whether roaming the rugged mountains of Central Italy, the Rocky Mountains and the Sierra Nevadas when he was at Stanford, or the White Mountains and the shores of Cape Cod during his years at Harvard. He was a knowledgeable and avid antique collector, especially of antique furniture and antique rugs.

He was also a devoted husband and father. Amico and Doris were partners in every sense of the word, sharing laboratory and home from the time they first met. He always made time to be with his children, Francesca and Adrian, whether it was to read aloud, play tennis, go hiking, attend concerts, or help at ski races in New Hampshire. Besides his wife and children, he is survived by his brother, Giorgio, physician and Research Director at the National Institute of Health in Rome, his sister, Marta, Associate Professor of History of German Culture at the University of Rome, his sister-in-law Laila Almas of Oslo, Norway, and an extended family in Italy, France, and Norway.

Amico will be remembered for his pioneering work in Neuroscience, for merging the history, traditions and culture of Europe with the United States, for his enterprising pursuit of change, innovation and progress, for his gentle wit and gentlemanly demeanor and for his passion for all things beautiful.

Respectfully submitted,

Ernest M. Barsamian, *Chairperson*  
Ramzi Cotran  
Doris Dahl Bignami

*The committee gratefully acknowledges the assistance of Francesca Bignami, Amico's daughter, who summarized three separate memorials submitted by Amico's friends in Europe.*