Obituary

Arthur L. Koch

Arthur L. Koch, 90, passed away on May 10, 2016, from Alzheimer’s Disease. Arthur has been described as “one of the true Renaissance scientists of the past several decades.” He published on diverse topics, including metabolic rates and cell growth, antibiotic resistance, cellular evolution, gliding motility, bacterial growth and division, bacterial shape, solute transport, bacterial light scattering, adaptive responses of bacteria, the interferon dose response curve, and even problems faced by migrating sea turtles! His last paper, from 2008, is on “Stone-Age Diseases and Modern AIDS.”

Arthur served in the U.S. Navy during World War II in the Pacific. After returning he completed his chemistry B.S. (Cal Tech, 1948), and a biochemistry Ph.D. (University of Chicago, 1951). Following positions at Argonne National Laboratory (1951–56) and the University of Florida College of Medicine (1956–67), in 1967 Arthur joined Indiana University (IU) as a Professor in what was then the Department of Bacteriology, and remained at IU until retirement (1967–98). Arthur published over 250 papers, presented hundreds of seminars, and won numerous
awards, including a Guggenheim fellowship, a Rockefeller Scholar award, a Wellcome research travel grant, and a U.S. Public Health Service award.

Arthur practiced the art of mathematical biology decades before its recent rebirth. His surface stress theory, among his most prominent achievements, describes how surface tension-like forces determine bacterial shape, and how bacteria can grow but maintain cellular integrity with huge internal turgor pressure. Arthur’s seminal theoretical work in the 1980s on cell-wall growth based on equations developed by D’Arcy Wentworth Thompson (1917) is still cited. The surface stress theory applies not only to cell shape and growth, but also to autolysin regulation, cell wall maintenance, chromosome segregation, and motility.

Arthur’s book, *Bacterial Growth and Form*, summarizes his fascination with microbiology. In the preface he writes, “My most important goal in writing the book is to make accessible the relevant thinking from fields of science other than microbiology that are important to microbiology,” summing up Arthur’s career quite admirably.

Foremost he was a teacher, expanding microbiological perspectives and providing theoretical bases for understanding wide-ranging microbiological phenomena. More simply, he helped and encouraged many in their research. There was practically no area of microbiology and life science in which Arthur lacked interest and understanding. Arthur trained many students through their Ph.D. and master’s degrees at Florida and later at IU. In addition, his colleagues benefitted from and enjoyed Arthur’s frequent and enlightening visits with a pile of papers and advice about their own favorite research topic. Even after retiring in 1998, Arthur was a spirited regular attendee at many IU seminar series and journal clubs and could be counted on to ask a memorable question of almost any presenter on almost any subject.

Arthur Koch was a unique, one-of-a-kind gentleman, quirky, intelligent and interested in a wide breadth of topics including science but also music, the outdoors, and his family, friends and colleagues. His absence from our department and now from the community is a loss for us all. He will be sorely missed.

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