



Arthur Tremain Hertig



Arthur Tremain Hertig, HMS '30, Shattuck Professor of Pathological Anatomy, Emeritus, died suddenly on July 20th, 1990, in his 86th year after a distinguished, varied, and colorful scientific career, much of it spent in association with Harvard Medical School.

Born in Minneapolis, he was initially attracted toward a career in entomology, and indeed began his scientific career as a high school senior working part-time in the Department of Entomology at the University of Minnesota. He later wrote that the “vista of science opened for me. At 40 cents an hour the pay and intellectual climate were better than working in a bakery-ice cream establishment,” - where he had worked previously - “good though that was.” His elder brother, Marshall, was an

entomologist and no doubt this played a role in Dr. Hertig’s life-long interest in entomology; in later years, he termed himself a “pseudo-entomologist”. Entomology was pursued as a means of financial support in college and later in medical school. A greatly admired family physician led Hertig to study medicine at the University of Minnesota. Following his freshman year, the lure of entomology drew him to take a two-year leave of absence from medical school to work with Marshall in China at the Peking Union Medical College. During the course of his work as Marshall’s assistant in field studies on the insect transmission of Kala Azar, the brothers devised an ingenious method for artificially feeding sand flies (the insect vector now known to transmit Kala Azar), and to infect them with Leishmania donovani, the causative agent. The technique was reported in Science in 1927 and was the first of Dr. Hertig’s many and diverse scientific papers; he was always proud of this particular publication. Fortuitously, Dr. David L. Edsall, then Dean of the Harvard Medical School, was in China at that time, and young Hertig had the opportunity of demonstrating (with the last captive sand fly of the season!) his technique. Dean Edsall was so impressed with the procedure and its inventor that he invited Hertig to transfer to Harvard Medical School to continue his medical studies, which he did in 1928 (luckily for HMS) after completing his second year in

Minnesota.

At that time S. Burt Wolbach, the IVth Shattuck Professor of Pathological Anatomy at HMS and Pathologist-in-Chief at the Peter Bent Brigham Hospital, was carrying out his authoritative investigations on diseases caused by rickettsiae and their transmission by insects. Naturally, with his interest in entomology, Hertig was drawn to work with Dr. Wolbach and was hired in 1929 to spend a summer of field research with him on Naushon Island and Martha's Vineyard, working on a project to control wood ticks. Hertig's interest in pathology was piqued by his contact with Dr. Wolbach, so, after he graduated M.D. in 1930, he started training as a house officer in pathology at the Peter Bent Brigham. With barely eight months of formal training under his belt, Dr. Hertig was invited by Dr. Wolbach to establish the first pathology laboratory at the former Boston Lying-in Hospital. The invitation was extended while Drs. Wolbach, Farber and Hertig were walking down Longwood Avenue on Valentine's Day, 1931. Fortunately, Dr. Hertig paid no heed to some of his peers who advised him that there was no future in obstetric pathology as reproduction and childbirth were normal, physiologic phenomena - furthermore, as he pointed out, this was a paying job in the Depression.

In 1933 a one-year National Research Council Fellowship in Embryology enabled Dr. Hertig to study at the Carnegie Institute in Baltimore, under the eminent embryologist George L. Streeter. There was a two-fold outcome of his sojourn in Baltimore: a lifelong interest in early human development and in obstetric and gynecologic pathology, and a masterly and beautifully illustrated opus published in 1935, on the cellular events involved in angiogenesis in early human and Macaque monkey placentas. It was also at the Carnegie that Dr. Hertig, "as an interested onlooker", learned a technique developed there of isolating early fertilized ova from primates. This experience was to have enormous consequences in his research some years later. On his return to Boston, Dr. Hertig completed his training in pathology under Dr. Sidney Farber at the Children's Hospital, and was appointed assistant pathologist at the Boston Lying-in Hospital. In addition, on the advice and urging of Frederick C. Irving, Richardson Professor of Obstetrics, he simultaneously undertook full-scale training in obstetrics and gynecology - no mean feat - and was later certified a diplomate by both the American Board of Obstetrics and Gynecology and the American Board of Pathology in 1944 and 1946 respectively. Although initially Dr. Hertig was an Instructor in Pathology for six years, by 1948 he had risen to the rank of Professor and pathologist at the two Harvard-affiliated teaching hospitals for obstetrics and gynecology, the Boston Lying-in Hospital and the Free Hospital for Women. In 1952, he was appointed Shattuck Professor of Pathological Anatomy and Chair of the Department of Pathology, positions which he held for 18 and 16 years respectively. In order to return to full-time research, he resigned somewhat ahead of time from the Chair, joining the staff of the New England Primate Center in Southborough, Massachusetts, as Chief of the Division of Pathobiology, (whilst, he said, "I still have all my buttons."). Dr. Hertig became Emeritus in 1974, but continued to work at the Primate Center virtually until his death.

Dr. Hertig often talked about the role of chance in his life, but clearly, in accord with Pasteur's aphorism, chance favored his prepared mind. A further instance of this in Dr. Hertig's career was when he

became pathologist at the Free Hospital for Women in 1938, and began his long-standing collaboration, describing the early human ovum, with Dr. John Rock, HMS '18; the egg-harvesting techniques he had observed at the Carnegie for collecting ova now bore fruit. Drs. Hertig and Rock collected 34 normal and abnormal human ova from uteri and fallopian tubes removed for gynecologic disease. These ova were studied in fastidious detail in a series of ageless papers published over a span of fifteen years. These studies included the first description of the earliest stage of human development, the two-cell ovum, which appears in all major textbooks of anatomy, embryology and gynecology. Only 34 of 210 egg-hunts were successful! Those who were present when an "egg-hunt" was in progress marveled at the dedication, care, dexterity and patience displayed in finding the ovum, photographing it at the gross level, then serially sectioning it for microscopic analysis and reconstruction. These systematic studies, accomplished without formal grant support, were basic to the subsequent development of current management of infertile patients and our ability to transplant fertilized ova.

Being a sports fan, Dr. Hertig would not infrequently claim that the successful conclusion of the hunt occurred, for instance, at the very moment Ted Williams hit a home run, or at the moment Dominic DiMaggio tied the 1946 World Series for the Boston Red Sox with a double, and thus the appropriate sobriquet was attached to that particular ovum - even if it turned out to be a "bad egg," a lost game, or a lost series.

Dr. Hertig's further scientific publications encompass the breadth of obstetric and gynecologic pathology. The early studies on angiogenesis in the early human chorion and in the primary placenta of the Macaque monkey formed the basis for analyses of abortuses, hydatidiform mole and choriocarcinoma. These reports are basic to our understanding of trophoblastic disease and its treatment. Dr. Hertig's monograph, *Human Trophoblast*, published in 1968, is the synthesis of his lifelong fascination with this tissue.

Alongside the trophoblastic studies, were fundamental and classic studies on dating the human endometrium in the menstrual cycle, and correlation of the endometrial patterns with corpus luteum development and function. Atypical endometrial patterns were correlated with the development of adenocarcinoma. Together with Paul Younge he worked on the interpretation of early abnormal changes in the cervix preceding the development of squamous cell carcinoma. Overall Dr. Hertig made pioneering and significant contributions in placental pathology, precancerous lesions of the endometrium and cervix, and trophoblastic disease. He wrote all three of the Armed Forces Institute of Pathology fascicles dealing with female genital tract tumors. Nevertheless, he took the most pleasure in his studies of the early ovum. Through his research contributions, at a time when obstetric and gynecologic pathology in the USA was dominated by European-trained physicians, Dr. Hertig rose to be the first truly great native-trained pathologist in that subspecialty. Moreover, he was well-known as a caring and compassionate physician. His concern for patients, his wisdom and his vast expertise, made him highly regarded as a consultant on whom clinical colleagues markedly depended for guidance.

After retiring from the Chair of the Department of Pathology in 1968, Dr. Hertig moved his laboratory to the New England Primate Research Center where, with typical zest and curiosity, he focused his attention on nonhuman primate reproductive pathophysiology, and made some remarkable contributions, including investigations of the placental lesions associated with spontaneous abortion, vaginal adenosis, and the ultrastructure of ova.

Dr. Hertig's teaching is remembered by many HMS graduates. He loved introducing medical students to obstetric and gynecologic pathology, but did not neglect ensuring that other areas of pathology were properly covered. Many of the gross specimens and slides were personally inspected as to suitability for the students. His lectures were clear and concise, scholarly and logical, and laced with a delicious sense of humor, personal anecdotes and mordant wit. Dr. Hertig would tell the students that he was "just a hospital pathologist", and that he would lecture on the female reproductive tract, which was important because it was possessed by 50% of the population, and also because "it was the only thing he knew about." What was unique was that Dr. Hertig would sit in on lectures in the course, especially those given by the junior faculty. He would take pages of notes in longhand, just as a student would, and at the end of the lecture hand the notes to the lecturer, saying, "Well, this is what I understood. If I got it wrong, you'd better do something about it." He felt that successful teaching was couched in simple language.

His regard and concern for students was reflected in the fact that, for some years, he endeavored to have every student in the class, in a small group, to tea in his office. This was an enormous consumption of his time, but was a vivid reflection of his concern for students and for teaching. In fact, on two occasions, Dr. Hertig received the highest award at HMS, given by the students themselves, for excellence in teaching, and was made an honorary member of one the graduating classes - a signal recognition of his interest in students.

After the completion of teaching on Friday mornings, the faculty would meet in the department for lunch. Seated at the head of a long table, Dr. Hertig would regale the company with aphorisms, stories, jokes and pearls of wisdom. In reference to his own career he was fond of saying "I have gone a long way on a few dozen eggs and a bunch of grapes" - the latter referring to his work on hydatidiform moles. Other favorite phrases were "the morphology, the more fun" (bad puns did not faze him). He would aver that there was little correlation between quality of work and fanciness of laboratory surroundings and equipment. Reflecting on his own research, accomplished without high technology, he stated: "We need high-powered thinking with low-powered tools." Certainly, his own major tool was the dissecting microscope. He referred to a luncheon party that he hosted for John Rock, his long-time friend and collaborator, as the "Hertig-Rock festival." His faculty and residents were always eager to hear his words and laugh with him at pomposity. He would recount progress on the refurbishing of his wooden sailboat, including bending the ribs, an art which he had learnt from a carpenter at the medical school. Sailing was his main hobby, relished at his summer home in Gloucester, Mass. A whale washed up on his beach one year, and the saga of having it removed - all officialdom disclaiming responsibility -

entertained his listeners for weeks; some accused him of deliberately arranging the beaching as a conversation piece! His adventures in China must have led to a liking for Chinese food: he would expound on and demonstrate the use of chopsticks.

He loved words, their twists of meaning and their sound, and would insist on correct and euphonious usage, which entailed frequent consulting of dictionaries and thesauri. On accepting the highest award of the American Association of Pathologists, the Gold-Headed Cane, he said he was both “astounded” and “surprised” - astounded by the honor, and surprised when he heard of it. He then discoursed learnedly on the differences in precise meaning of these words. He quoted the anecdote concerning Dr. Samuel Johnson, discovered by his wife kissing the maid. Johnson’s wife exclaimed: “Why, Dr. Johnson, I am surprised.” Said Johnson, “On the contrary, madame, you are astounded; I am surprised!” Dr. Hertig wittily pointed out that actually “surprise” and “astound” can be in some senses synonymous, which leaves us “a bit confused, as undoubtedly, both the wife and Dr. Johnson were, not to mention the maid herself.” Paradoxically, he disliked writing papers, agonized over them: nevertheless, he has some 200 papers to his name. He spent hours going over manuscripts and grant applications of junior faculty. The writings of E.B. White, particularly *Stuart Little*, were much quoted.

Happenings in his science as well as in his personal life were described in vivid terms. In his biographic sketch, published in *Obstetrics and Gynecology* in 1973, he synopsized his career as “forty years in the female pelvis - a case of prolonged dystocia.” Many will remember his exhortation when life looked gloomy - “Be of good cheer!”

Dr. Hertig took an active leadership role in many professional societies. These included *inter alia*, President of the American Board of Pathology, the New England Society of Pathology, the New England Obstetrical and Gynecological Society, Governor of the College of American Pathologists, and a Member of the Scientific Advisory Board of Consultants to the Armed Forces Institute of Pathology.

He received many awards and honors: among these were election to membership in the American Academy of Arts and Sciences, corecipient with John Rock of the American Gynecological Society Award, the Ward Burdick Award of the American Society of Clinical Pathology, Distinguished Service Awards from the College of American Pathologists, the American Society of Clinical Pathologists (also elected an Honorary Fellow), and the American College of Obstetricians and Gynecologists (which also inducted him into their Hall of Fame), the American Gynecological Society, and from the International Academy of Pathology, the Distinguished Pathologist Award. The American Association of Pathologists and Bacteriologists gave him its most prestigious award, the “Gold-Headed Cane”; and the Royal College of Obstetricians and Gynecologists, London, elected him an honorary *ad eundem* fellow (only one American a year can be so honored).

It was typical of the man that in a published speech “On Accepting An Award”, he declared, in tribute to his teachers, “*Pigmaei gigantum humerus impositi plusquam ipsi gigantes vident*”- pygmies placed on

the shoulders of giants see more than the giants themselves.

Many are those who have stood on Dr. Hertig's shoulders, and have become well-known and successful in their own right. A ruddy-faced, rather bluff man, Dr. Hertig revealed, on acquaintance, an outgoing, kind and sensitive persona. Generous with his time and wisdom, his teaching of fellows and residents was vivid, full of wit and whimsy, and laced with countless humorous anecdotes. When he viewed something through the microscope that was distinctive but not familiar, he would say: "This is a classic example of whatever it is!" An inspiring, tireless and kind teacher of residents and fellows, he could not stand cant and pomposity, stating: "One must take the job but not one's self seriously."

Dr. Hertig, his beloved wife, Linda, on whom he was greatly dependent, and their two children, Helen and Andrew, led a happy, close-knit home life. Many students, residents and faculty will remember gracious hospitality at their homes in Winchester and Mussel Point, Gloucester, Mass., and numerous kind gestures of helpful interest in their personal lives. Tragedy struck in 1983 when Helen and her younger daughter were killed in a plane crash; in 1988, Linda died. Dr. Hertig bore these blows with fortitude, sustained by his strong religious faith, and supported by Andrew and his family, and Helen's children. His later years were clouded by severe arthritis, and his second marriage to Frances Thomas lasted unfortunately but a few happy months.

Dr. Hertig's contributions to science and medicine are imperishable; his impression on our minds and hearts as a teacher, leader, colleague and friend is indelible.

Respectfully submitted,

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February 1, 1996