

OBITUARY

Chapman H. Binford, M.D.

1900–1990

A friend may well be reckoned the masterpiece of Nature.—Emerson

Chapman H. Binford, born in 1900 in Darlington Heights, Virginia, died at his home in Arlington, Virginia, on 9 February 1990. Although technically retired in 1960, he was active and deeply involved

full-time in research, training, and consultation at the Armed Forces Institute of Pathology until September 1988. Failing health then required him to terminate his regular professional activities, but he remained keenly interested in the work of his former colleagues who continued to consult with him until the last. It was fitting that Senator John Warner of Virginia memorialized Dr. Binford in the U.S. Senate on 28 March 1990.

Brought up as a southern Virginia farm boy in a rural family of tender conscience and strong principles, Chapman Binford learned not only the value of the high qualities of character, but the importance of a rugged individualism. This individualism and keen intellect, seasoned generously with compassion, made him a focal point for consultation on all aspects of infectious diseases, especially leprosy, for half a century. His fairness, indefatigability, perseverance, and optimistic attitude made him a highly respected and successful leader in numerous professional organizations.

After graduation from Hampden-Sydney College (Phi Beta Kappa) in 1923, and a memorable, whimsical jaunt with friends to the West Coast and back by automobile, Chapman Binford followed in the footsteps of his grandfather as a teacher and principal in the public schools of Prince Edward County, Virginia. Perhaps it was his per-

sonal care for his then recently invalided father that turned his thoughts to medicine. Following his father's death, he entered the Medical College of Virginia and graduated (Alpha Omega Alpha) in 1929. He helped defray medical school expenses by door-to-door sales of Bibles and encyclopedias, and a job in a psychiatric hospital.

While in medical school, he often returned home for brief visits. On some of these occasions, a cousin, Lois, would bring along Thelma, a classmate at Blackstone Women's College, to visit with the Binfords. Thelma Beauchamp and Chapman Binford were married in June 1929, and thus began a 60-year partnership in the world of the art and science of medicine. The final chapter of this inseparable companionship closed with Mrs. Binford's death on 23 March 1990, just 6 weeks after her beloved Chapman died. Family survivors include a daughter, M. Lynette Binford of Arlington; a son, Charles C. Binford, a pathologist in Houma, Louisiana, and three granddaughters.

Dr. Binford's professional life was a productive blend of activities in the United States Public Health Service (USPHS), Armed Forces Institute of Pathology (AFIP), American Registry of Pathology (ARP), International Academy of Pathology (IAP), International Leprosy Association (ILA), and the Leonard Wood Memorial (American Leprosy Foundation) (LWM). He served for many years on the Advisory Board of the Damien-Dutton Society for Leprosy Aid, and frequently was consulted by the American Leprosy Missions. Each of these organizations in turn played varying roles in different eras in his life and career, but he remained consistently loyal to all of them.

In a paper entitled "Research Is a State of Mind," presented at an American Leprosy Missions seminar at the National Han-

sen's Disease Center in Carville, Louisiana, in 1966, Dr. Binford described how, in 1930, while an intern at the U.S. Marine Hospital in Norfolk, he was inspired to a lifetime of medical research. He had been sent to Washington, D.C., by boat to Walter Reed Hospital on a medical errand. While over-nighting at Walter Reed and during a chance meeting with Dr. Joseph Kerr, Chief, Scientific Research Division of the USPHS, he learned how the research careers of some eminent USPHS scientists had been launched, in particular that of Milton Rosenau. This chance meeting with Kerr was a pivotal moment leading to Dr. Binford's appointment by the USPHS to Dr. Rosenau's department at Harvard University from 1930–1932 to do research with Dr. Shields Warren on spontaneous and induced tumors in mice. While there, he became fascinated with pathology, which became his lifelong specialty, consuming interest, and hobby.

In 1932, the USPHS asked if Dr. Binford would accept a 3-year assignment in the Territory of Hawaii as a second physician for the Leprosy Investigation Unit at Kalihi Hospital in Honolulu. Without hesitation, and knowing that the chaulmoogra oil therapy then in vogue was not usually efficacious, he accepted the invitation to join Dr. N. E. Wayson. Grasping the opportunity, he made key clinical and pathologic observations that later helped him formulate hypotheses that would influence the course of leprosy research worldwide. This experience reinforced Dr. Binford's compassion for the sick, especially those who suffer from leprosy.

Chapman Binford began his pathology residency at the National Institutes of Health (NIH) in 1936, and in 1937–1941 served as Chief Pathologist at the U.S. Marine Hospital in Detroit and Instructor in Pathology at Wayne University. During this time he became a Diplomate of the American Board of Pathology, qualifying in both Anatomic and Clinical Pathology. From 1942–1945 he was Chief Pathologist, U.S. Marine Hospital, New Orleans, and Instructor at Tulane University School of Medicine. Of this period he most often recalled the pioneer pathologic studies that resolved the mystery surrounding the deaths in a particularly virulent epidemic in 1943 of "bayou pneu-

monitis" (psittacosis), and the first detailed pathologic description of endemic (murine) typhus.

From 1945–1951 Dr. Binford was Chief Pathologist at the U.S. Marine Hospital in Baltimore. While there, he developed a deep concern for the often neglected clinicians in hospitals and clinics, and led a group of four "activists" who established the USPHS Clinical Society in 1947. At first, some administrators viewed them as insurgents because they excluded Clinical Directors and Executive Officers, but this popular society flourished, lasting until 1976.

In 1951, as a USPHS Medical Director, Dr. Binford began his 37-year career at the AFIP as head of the newly created Infectious Disease Section, and as the first Registrar for the Leprosy Registry established in 1950 by the LWM. He retired from the USPHS in 1960 rather than accept an assignment away from the AFIP, and continued at the AFIP for another 28 years in various capacities. His accomplishments in this period were prodigious, and only the highlights can be mentioned.

Early in his tenure at the AFIP, Dr. Binford became well known for his expertise in the pathology of infectious diseases, especially the mycoses and leprosy. Numerous staff members and visiting scientists are indebted to Dr. Binford for his instruction and guidance on infectious disease cases, studied one-on-one at the two-headed microscope. It would soon become evident to the neophyte and experienced pathologist alike that Dr. Binford had a simple scheme for the histopathologic identification of etiologic agents. Dr. Daniel H. Connor, a long-time colleague of Dr. Binford at the AFIP, has called the principles of this process, "Binford's Criteria." These are: "Infectious agents have a symmetrical distribution in the area of reaction; they increase in number as the lesion expands, and vanish as the lesion resolves." Although of general application, these criteria are particularly useful anywhere sophisticated laboratory procedures are not available.

Because the etiologic agent of leprosy could not be cultivated *in vitro*, Dr. Binford believed that animal models offered the only route for understanding leprosy and the leprosy bacillus. Based on both Virchow's observation that leprosy infiltrates were most

florid over the surfaces of the body "exposed to air," and his own clinical experience, Binford postulated at the First Carville Conference on Leprosy Investigations in January 1956, that, "In man the lepra bacillus has a natural preference for sites of lower body temperature." He then outlined plans for the application of this hypothesis to animal experimentation. This seminal concept was pursued in his laboratories at the AFIP and at the Centers for Disease Control (CDC), and led directly to his own successful transmission of leprosy to the ears and testes of hamsters, and indirectly to the classic mouse foot pad model developed by Dr. Charles Shepard in 1960 at CDC, and culminated in the selection of the nine-banded armadillo (body temperature 32°C–35°C) for inoculation of the leprosy bacillus by Dr. Eleanor Storrs and others at Gulf South Research Institute.

On his retirement from the USPHS in 1960, Dr. Binford continued as head of the LWM's Pathology Research Laboratory at the AFIP, and as Chief of AFIP's Geographic Pathology Division. He believed that geographic pathology should interact closely with developing countries, and negotiated with governmental, university, and mission organizations in Uganda, South Africa, Zaire, The Philippines, and Thailand in the formation of research liaisons. In 1963 he stepped aside as Chief of Geographic Pathology to become Medical Director of the LWM, and continued as Chief, Special Mycobacterial Diseases Branch, AFIP. As LWM Medical Director, Dr. Binford guided the scientific programs of the LWM. These activities included extensive studies in the chemotherapy and epidemiology of leprosy at the LWM Research Center in Cebu, Philippines; bacteriology of *Mycobacterium leprae* and other mycobacteria in Dr. John Hanks' laboratory at Johns Hopkins University, Baltimore, and overseeing the publication of the *International Journal of Leprosy*. During his tenure with the LWM (1963–1972), the present modern research laboratory at Cebu was built, including spacious air-conditioned animal quarters.

The American Registry of Pathology (ARP) at the AFIP, although then unchartered, served for many years as a link between military and civilian medicine, and as the channel for research funding. In 1975

there was a strong move by military officials to eliminate the ARP and to restructure the mission of the AFIP. Seeing the importance of preserving the traditional relationship between the military and civilian patient-oriented missions of the AFIP and the ARP, Dr. Binford worked tirelessly as a liaison between the AFIP and the Senate Health Subcommittee. As a direct result, the ARP received its Congressional Charter in 1976 (Public Law 94–361), greatly enhancing opportunities for the AFIP to help meet today's medical challenges in, for example, substance abuse studies, AIDS, environmental medicine, and leprosy. Dr. Binford served as Acting Executive Officer of the ARP from 1977–1980, and then continued as a consultant to the Leprosy Registry until his final retirement from the AFIP in September 1988. A major accomplishment of the AFIP years was the publication in 1976 of the two-volume atlas, *Pathology of Tropical and Extraordinary Diseases*, with Chapman H. Binford and Daniel H. Connor as coeditors. For all of these services he accepted only minimal reimbursement of commuting expenses. In 1985 the AFIP and ARP recognized his many contributions, especially as an educator, by establishing a medical training fellowship known as the Callender-Binford Fellowship for young pathologists.

The International Academy of Pathology was especially held dear by Dr. Binford. He and Mrs. Binford worked closely together to establish and administer (1956–1958) the still highly popular "Short Courses" given at the IAP meetings. Binford was President of the United States–Canadian Division of the IAP for 1958–1959, sat on the Council, was Chairman of the Education Committee, and Editor of *International Pathology*. During the 7th International Leprosy Congress in Tokyo in 1958, he took the initiative in helping the Japanese pathologists to establish the Japanese International Division of the IAP, the first of many such IAP divisions. He was honored by the IAP for his numerous contributions by an invitation to present the esteemed Maude Abbott Lecture in 1973, and was given the F. K. Mostofi Distinguished Service Award in 1978. Pathologists in the IAP particularly interested in infectious diseases honored Dr. Binford, along with his good friend Dr. Gus-

tave Dammin of Harvard University, by forming the Binford-Dammin Society of Infectious Disease Pathologists in 1988.

Dr. Binford joined the International Leprosy Association in 1948, and became a Councillor in 1963. In 1968 he was elected Vice-President for the Americas and Honorary Vice-President in 1973. During nearly his entire tenure with the Leonard Wood Memorial, Dr. Binford guided the affairs of the *International Journal of Leprosy*, serving for many years as Executive Officer of the Board of Directors and Chairman of the Finance Committee. A list of the positions he held in the ILA tells little of the dedicated and influential role Chapman Binford had in promoting worldwide interest in leprosy, the ILA, and the IJL. For example, during a visit by Dr. Robert Cochrane, then President of ILA, to Washington, Binford arranged for Dr. Cochrane to address a large delegation of members of the U.S. Congress to promote interest in leprosy. Dr. Binford's perceptive counsel in meetings and behind the scenes was highly valued by a long succession of ILA administrations.

Dr. Binford was a charter member (1965–1972) of the U.S. Leprosy Panel of the U.S.–Japan Cooperative Medical Science Program, and made important contributions to the effectiveness of this program. In 1980, Binford was instrumental in preserving the U.S. Leprosy Panel and its Japanese counterpart when he perceived that the very life of the program was being threatened by certain cryptic stratagems.

The Gillis W. Long Hansen's Disease Center (GWLHDC) at Carville was a cherished focus of Dr. Binford's attention during nearly his entire career with the USPHS and at the AFIP. He was a friend of the patients, and particularly of the staff of *The Star*. His last official tie to the GWLHDC was as a member of the Hansen's Disease Research Advisory Committee (1983–1986).

Dr. Binford was author or coauthor of 106 scientific papers, 36 book chapters, and seven books or monographs. Besides leprosy, the topics ranged from embolism of the aorta to hemochromatosis, Hodgkin's disease, endemic typhus, Korean hemorrhagic fever, syphilis, clonorchiasis, and numerous mycotic infections. He was coauthor of the standard reference text, *Medical Mycology*, which went through three edi-

tions. Beginning in 1975, many of Dr. Binford's publications were on naturally acquired leprosy, first in armadillos and later in monkeys, in collaboration with Gulf South Research Institute and the Delta Regional Primate Research Center. When some of the topics related to these studies became charged with controversy, he was adamant that truth prevail. In these and other contentions, Chapman Binford adopted Churchill's stance to "Never give in except to convictions of honor and common sense."

Dr. Binford held membership in many professional societies, and among the honors received were: honorary memberships in the Philippine Society of Pathologists and the Richmond Academy of Science; honorary Doctors of Science degrees from Hampden-Sydney College (1962) and Virginia Commonwealth University (1979); the Ward Burdick Award (1968) from the American Society of Clinical Pathologists; the Damien-Dutton Award, given in the Capitol Rotunda in 1971 by the Damien-Dutton Society for Leprosy Aid; and the Walter Reed Lecture (1983) of the Richmond Academy of Science. Dr. Binford also served as Chairman of the U.S. National Committee of the International Council of Societies of Pathology, established to promote worldwide uniformity in the diagnosis of tumors.

The legacy of Dr. Binford lives on in the scientific investigations his astute observations engendered and in the organizations he nurtured over many years, but he will best be remembered by those influenced directly by his warm personality. In addition to his abilities as a meticulous pathologist, scientist and administrator, Dr. Binford had two qualities that stood out: his compassion for people in all walks of life and genuine concern for their welfare and aspirations, always going the extra mile to help; and his passion for accuracy in scientific reporting, including the minutiae of description and data and the appropriate recognition of contributors.

Chapman Binford was a man of great humanity, selflessness, and vision. Always the optimist, he made the right things happen. We have been enriched by his life and friendship, and shall miss him.

—Wayne M. Meyers, M.D., Ph.D.