

The Influence of William M. Bass III on the Development of American Forensic Anthropology

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ABSTRACT: Through his teaching, research and casework over the last 33 years, William M. Bass has become a central figure in the development of the American forensic anthropology. His influence can be measured through the quantity and activity of his students in the field, the number and breadth of his publications relating to the field, his growing casework, his activity and important role in the development of the Physical Anthropology section of the American Academy of Forensic Sciences, and his continual willingness to lecture to interested groups.

Like many of his contemporaries in physical anthropology, Bass gradually shifted his academic interests toward forensic anthropology throughout his career. This shift is reflected in all areas of his academic life. His contributions have raised professionalism and acceptance of forensic anthropology as an integrated aspect of both forensic science and anthropology.

Bass's unique style and breadth of his contributions can be traced to his education (University of Virginia, Kentucky, and Pennsylvania) and his mentors (Coon, Krogman, Stewart, Easley and Roberts).

KEYWORDS: physical anthropology, forensic anthropology, William M. Bass, history

The name of William M. Bass III is immediately linked with American forensic anthropology by all who have knowledge of him and/or this aspect of physical anthropology and forensic science. This paper reviews the career development of Bill Bass, especially the forensic aspects of his work, and offers perspective on his major contributions to the field.

Bill Bass entered the world on August 30, 1928 in Staunton, Virginia (Table 1). His formative years in rural Virginia included exposure to the use of heavy power equipment in the local rock quarry where his father was employed, experience that he would later put to professional use in his pioneering work on the selective use of such equipment in human burial recovery. An excellent primary and high school student, Bill traveled to the University of Virginia in Charlottesville for his university study. Although he majored in and eventually graduated with a Bachelor's degree in psychology, during his junior year Bill took an elective course in anthropology from the late Clifford Evans (1920–1981). Although Evans is primarily known for his archeological research in Latin America, Bill found him to be a stimulating and gifted teacher. Bill took all of Evans' courses and then those of the late Edward

¹Curator and Collections Manager/Physical Anthropology, respectively, Department of Anthropology, National Museum of Natural History, Smithsonian Institution, Washington, D.C.

TABLE 1—Career chronology of William M. Bass.

1928	Born August 30, Staunton, Virginia
1951	B.A., Psychology, University of Virginia
1951–1953	U.S. Army, Fort Knox, Kentucky
1954–1956	Counseling Office, University of Kentucky
1956	M.S., Anthropology, University of Kentucky
1960	Instructor, University of Nebraska, Lincoln
1960–1971	Instructor-Professor, University of Kansas, Lawrence
1961	Ph.D., Anthropology, University of Pennsylvania
1971–1992	Professor and Department Head, University of Tennessee, Knoxville
1992–1994	Professor and Head of the Forensic Anthropology Center, University of Tennessee, Knoxville
1995–	Professor emeritus and Head of the Forensic Anthropology Center, University of Tennessee, Knoxville

Hunt (1922–1991), who also joined the University of Virginia staff. Bill became hooked on anthropology.

Bill's career took a military twist when he served for two years (1951 to 1953) as an enlisted man during the Korean conflict. Two good things happened to Bill in the military: (1) He helped evaluate units that received grant support, thus becoming familiar with elements of successful fund-raising, and (2) he met and married Mary Ann Owen (1930–1993), at Fort Knox, Kentucky, and together they raised three sons {Charles (1956–), William IV (1962–) and James (1964–)} and had many years of companionship and support. Ann later acquired a Ph.D. in Food Science and Nutrition, became legendary for her pioneer work among the Cherokee Indians of Tennessee, and provided Bill with academic advice from her own specialty.

When he was released from the military in November of 1953, Bill immediately found employment as a civilian with his old unit, testing new products such as ear protective devices. Bill realized that science was not all in the ivory tower; there could be direct, practical applications that benefited contemporary society.

Bill then entered graduate school at the University of Kentucky, pursuing a Master's degree in psychology, specializing in counseling. During the second year of his graduate program, Bill was asked to run the laboratory and become the office administrator. He rapidly demonstrated ability at administration, but left the job because he became "tired of listening to other people's problems," not realizing how important those skills and experiences would become in his future role as university teacher and administrator.

At the University of Kentucky during his early graduate career (1954–56), he began to develop a strong academic and personal relationship with Charles E. Snow (1910–1967) and his interest in anthropology evolved to focus specifically on human osteology.

He changed his major to anthropology and graduated with a Master of Science degree in 1956. Family responsibilities grew as well with the birth of the first of his three sons.

While at Kentucky, Bill participated in his first forensic case with Charles Snow. Basically, an A&P food truck collided with a beer truck and three bodies were found instead of the expected two. Bill learned that his new-found interest in osteology could be useful in resolving contemporary problems.

Bill also learned many other valuable traits from his relationship with Snow that would be beneficial to his career. In his obituary of Snow, Bill described him as "a personable and persuasive individual" [1] (p. 370), qualities that equally describe Bill.

Although accepted into Ph.D. programs at Harvard (where Snow received his Ph.D.) and Michigan (urged by his other mentor, Clifford Evans), Bill selected the University of Pennsylvania, largely because of the presence of Wilton M. Krogman (1903–1987). By that time, Krogman, along with the Smithsonian's T.D. Stewart (1901–), was recognized as a leader in the newly formulated field of forensic anthropology and Bill wanted to pursue this new-found interest. At the same time, Bill forged a new relationship with the Smithsonian, working with T.D. Stewart, Robert Stephenson (1919–), and Frank Roberts (1897–1966) in the excavation and analysis of human remains from archeological sites, mostly in the Plains. Utilizing knowledge acquired during his boyhood years on the quarry in Virginia, Bill introduced the use of heavy power equipment to assemble large samples of human remains from archeological sites (Fig. 1). His dissertation at the University of Pennsylvania drew from this work, being one of the first major synthesis of human skeletal variation among Plains Indians. The dissertation was published as the first Memoir of the *Plains Anthropologist* in 1964 [2]. Throughout this period, however, Bill increased his experience in forensic casework, working directly with Krogman in a tutorial relationship. The learn-by-doing approach introduced by Krogman impressed Bill and it became his own preferred method of teaching.

Bill's doctoral committee included some of the most accomplished anthropologists of that time: Carleton Coon (1904–1981), Krogman, and Loren Easley (1907–1977) of the University of Pennsylvania, and Frank Roberts and T.D. Stewart of the Smithsonian. Each of these men left their mark on Bill. Carleton Coon was *the* expert in human physical variation in those days and therefore naturally contributed to Bill's own concepts of human variation. Coon was also a noted writer and speaker, conveying scientific information in a manner digestible for laymen and yet succinct for scholars as well. This method of oral and written expression would also be Bill's, drawing large admiring undergraduate crowds to his introductory anthropology courses and making him in constant demand as a public speaker.

Wilton Krogman's approach to forensic analysis and his tutorial teaching style were prominent in shaping Bill's research and teaching methods. Krogman's instruction in osteology and forensic investigation was an important addition to the strong foundation set by Snow in the previous years. Bill will be warmly remembered by most of his closer students as a "hands on" teacher, always giving suggestions, guidance and motivation during archaeological fieldwork in the Plains, out "on a case" in the Tennessee hills, or while working in the lab. More acute, indelible information was transmitted in those personal settings than could be taught by years in the classroom. Not only was this Krogman's way with his students, but Bill also indicated that Charlie Snow was "always the teacher, he never missed an opportunity to point out, name and describe a tree, rock or geological formation" [1] (p. 369).



FIG. 1—William M. Bass using heavy earth-moving equipment during 1965 archaeological excavation at the Leavenworth Site, South Dakota (39C09).

Loren Easley, an eclectic anthropologist, is perhaps best known for his poetry and public writing that reached far beyond the traditional frameworks of anthropology. The scope of his influence is found in how Bill also reaches out to the public and to other disciplines with a flair which is captivating.

Frank Roberts obviously influenced Bill in his interests in Plains archeology and concern with archeological problems. Bill himself identified Henry Collins of the Smithsonian as a great influence in his archaeological interests. His other Smithsonian mentor, Dale Stewart, taught Bill the value of careful problem-oriented research, museum collections of human remains, and detail in analysis.

In 1960, Bill accepted a temporary teaching job at the University of Nebraska and then moved in the late 1960s to the University of Kansas for a \$500 raise to an annual salary of \$5,500 and long-term academic stability. During his eleven years at Kansas (1960 to 1971) Bill strengthened his research in Plains prehistory, became an important figure in forensic anthropology in his own right, and began nurturing growing numbers of students in his areas of interest. The years at Kansas were golden for the students, with Bass, Ellis Kerley, and the late Thomas McKern all providing educational opportunities (Table 2). Unfortunately, academic strife developed

TABLE 2—Forensic anthropologists who completed a thesis at the University of Kansas and identify themselves as students of William M. Bass.

1963	Birkby, Walter H. (M.A.) Subjective and metrical depth of the suborbital fossa.
1965	Suchey, Judy M. (B.A., Undergraduate research project on osteology in Honors Program under Bass's direction.)
1968	†Phenice, Terrell W. (Ph.D.) The Schultz Mounds skeletal material: A descriptive and comparative analysis.
1969	Rosen, Stephen, I. (Ph.D.) A comparative study of the microscopic anatomy of non-human primate head hair.
1970	Jantz, Richard L. (Ph.D.) Change and variation in skeletal populations of Arikara Indians.
1971	Gill, George W. (Ph.D.) The prehistoric inhabitants of northern coastal Nayarit: Skeletal analysis and description of burials.
1971	Rathbun, Ted R. (Ph.D.) A study of the physical characteristics of the ancient inhabitants of Hasanlu, Iran.
1973	Ubelaker, Douglas H. (Ph.D.) The reconstruction of demographic profiles from ossuary skeletal samples: A case study from the tidewater Potomac.

†Deceased.

and Bass left Kansas to shape the Anthropology Department for the University of Tennessee.

At Tennessee, as Head of the Department of Anthropology, Bill was called upon to utilize his skills as teacher, counselor, and administrator to renovate and develop the departmental curriculum (Fig. 2). Although administration consumed much of his seemingly limitless energy, Bill's forensic casework increased, he formed a center for forensic anthropology, and encouraged growing numbers of students in skeletal biology and forensics (Table 3).

Bill influenced forensic anthropology through his research, casework, lecturing, involvement in Academy affairs, and teaching.

Research

With 193 publications at present, Bass represents one of the most productive American physical anthropologists since Aleš Hrdlička. Although his research and publications focus on a wide variety of topics, beginning with the influence of whole body vibration and noise on visual acuity in 1955 [3] and culminating with the training of cadaver dogs at the University of Tennessee in 1993 [4], forensic themes are apparent throughout. Some of

TABLE 3—Students of William M. Bass who completed theses at the University of Tennessee.

1975	Berryman, Hugh (M.A.) A multivariate study of three prehistoric Tennessee skeletal populations: Mouse Creek, Dallas and Middle Cumberland.
	Owsley, Douglas (M.A.) A demographic analysis of skeletons from the Larson Site (39WW2), Walworth County, South Dakota.
1978	Glassman, David (M.A.) A multivariate analysis of palatal measurements in four populations.
	Owsley, Douglas (Ph.D.) Dermatoglyphic variability and asymmetry of patients with cleft lip and cleft palate.
1981	Berryman, Hugh (Ph.D.) The Averbush skeletal series: A study of biological and social stress at a Late Mississippian Period site from Middle Tennessee.
1982	*Rodriguez, William (M.A.) Insect activity and its relation to decay rates of human cadavers in East Tennessee.
	Glassman, David (Ph.D.) Skeletal age changes in <i>Saguinus fuscicollis</i> and <i>Saguinus oedipus</i> (Callitrichidae, Primates).
	Willey, P. (Ph.D.) Osteology of the Crow Creek Massacre.
1983	Kile, Dorm P. (M.A.) Multivariate discriminant function analyses of the mandible in American Caucasoid and American Negro populations.
	Joerschke, Bonnie (M.A.) The demography, long bone growth and pathology of a Middle Archaic skeletal population from Middle Tennessee: The Anderson Site (40WM9).
	Hunt, David (M.A.) Age changes and morphology in Arikara subadult ilia.
	*Watkins, Lorna (M.A.) Late post-mortem changes in three human bodies in Knox County, Tennessee.
1984	Puskarich, Cheryl L. (Ph.D.) Metric variation among the Arikara.
1985	Rodriguez, William (Ph.D.) Development ossification patterns in the human sternum from fetus to 19 years of age. A cross sectional study based on radiographic analysis.
1986	Falsetti, Anthony (M.A.) Allometric variation of the postcranial skeleton in two South American Tamarins <i>Saguinus oedipus oedipus</i> and <i>Saguinus fuscicollis illigeri</i> (Callitrichidae, Primates).
1989	*Snow, Fredrick (M.A.) The effect of environmental conditions on blood deterioration and blood detection in Tennessee.
	Gilbeau, Mark (M.A.) The analysis of saw marks in bone.
	Hunt, David (Ph.D.) Dermatoglyphic variation among Sub-Saharan Africans: A multivariate analysis of population structure.
	Moore-Jansen, Peer (Ph.D.) A multivariate craniometric analysis of secular change and variation among recent North American populations.
	Simmons, Linda "Tal" (Ph.D.) Comparative morphometrics of the frontal bone in hominids: implications for model of modern human origins.
	Falsetti, Anthony (Ph.D.) Anthropometry of Native North American Indians from the Arctic, Subarctic, Northwest Coast, Great Basin and California: An examination of scaling phenomena.
1990	Meadows, Lee (M.A.) Estimation of stature from metacarpal lengths.
1991	*McDonald, Rex (M.A.) Quantitative effects of skeletonizing processes on bone density.
	*Vass, Arpad A. (Ph.D.) Time since death determinations of human cadavers utilizing soil solution.
1992	*Cahoon, Shawn (M.A.) Effects of clothing on human decomposition and deterioration of associated yarns.
	Matternes, Hugh (M.A.) Modeling suture ossification: A view from the cranial capsule.
	Holcomb, Susan (M.A.) A morphometric study of sex differences in fetal ilia.
	*Guilbeau, Mark (Ph.D.) Forensic application of the skeletonized hyoid bone and ossified structures of the larynx in an adult American sample.



FIG. 2—Dr. Bass working in his office at the University of Tennessee, July 1989.

TABLE 3—Continued

	Symes, Steven (Ph.D.) Morphology of saw marks in human bone: Identification of class characteristics.
1993	Bone, Karen (M.A.) A bias in skeletal sexing. Cleaves, Juliet (M.A.) Sex and race determination from the base of the skull. Marks, Murray (Ph.D.) Dental enamel microdefects as indicators of childhood morbidity among Historic African Americans.

*Denotes theses or dissertations based on research conducted at the Anthropological Research Facility, University of Tennessee, Knoxville.

these references include; racial factors in human maturation [5,6], guidelines for the excavation of human remains [7,8], the study of postmortem change [9,10], age changes in the skeleton [11], general techniques of identification [12], and the role of forensic anthropology in the investigation of mass disasters [13]. At the University of Tennessee in Knoxville, Bill established not only the forensic anthropology center, but the Anthropological Research Facility, a pioneering effort to use human cadavers in studies of postmortem change. Few others would have had the personal abilities to establish such a facility and maintain its integrity through the inevitable public reaction. Bill's rapport with the Knoxville public has helped keep the reaction and interest mostly positive. His early training in psychology and counseling prepared him well.

Although Bass' interests in forensic themes are reflected throughout his publication record, they have increased noticeably since the late 1970s. Table 4 compares the percentage of Bass' publications that focus on forensic-related topics (non-archeological) at various periods throughout his professional career. Overall, 54 of Bass' 193 publications (28 percent) are forensic-related. For comparison, only about 16 percent of the publications of J. Lawrence Angel (1915–1986), the late well-known forensic anthropologist from the Smithsonian Institution, focused on forensic themes [14].

The percentage of Bass publications focusing on forensics increases sharply and steadily since the late 1970s, culminating in the last three years at 82 percent. The shift toward forensics in the late 1970s was no accident. The section of Physical Anthropology at the American Academy of Forensic Sciences was established in 1972 and the Diplomate certification program of the American Board of Forensic Anthropology began in 1978. The period witnessed a surge of interest (professional and public) in forensic anthropology and Bass was a key player in those developments. At the same time, concern was growing within the American Indian community about the excavation and analysis of archaeologically recovered human remains of American Indian origins. These con-

TABLE 4—Percentage of Bass' publications on topics relating to forensic anthropology.

Period	Total	No. on Forensic Topics	Percentage
1955–1960	6	2	33
1961–1966	51	3	6
1967–1972	39	5	13
1973–1978	27	1	14
1979–1984	30	14	47
1985–1990	23	15	65
1991–1993	17	14	82

cerns were centered in the Plains area of the United States where Bass had conducted most of his research and even produced armed conflict at some archeological sites [15]. Although Bass never wavered in his strong support of research on archaeologically recovered samples of human remains, he, like others, gradually shifted his academic interests more toward forensics.

Casework

Bass' casework has grown dramatically throughout his career (Figure 3). Sporadic consultation at the University of Pennsylvania and Nebraska grew to large caseloads at Kansas and Tennessee. Factors in this increase are his obvious competence in skeletal interpretation, the growing number of students involved in the cases with him through the old Krogman tutor system, growing personal contacts with law enforcement and medical authorities through lectures and seminars, and formal integration of forensic anthropology into state systems for the investigation of death. Bill is not only a very skilled anthropologist, he is also a joy to work with. For these scientific and personal skills, he has been sought out by all for his forensic involvement. In the 22-year period from 1971 to 1993, Bass reported on 515 cases. His caseload has grown steadily from an average of 7.2 per year in the early 70s to over 45 per year in the 90s (Fig. 3). Most of these cases cover local forensic questions, but they also include civilian and military mass disaster situations since Bass has served as a consultant for the Department of Defense, Armed Forces Institute of Pathology (AFIP), Washington, D.C., Army Central Identification Lab (CILHI), Honolulu, Hawaii and the U.S. Air Force Mortuary Services at Tyndall Air Force Base, Florida.

Lectures

For as long as we have known Bill, he has always been recognized as an outstanding teacher and public speaker. He not only knows his subject matter, but how to present it in an entertaining and interesting manner. It is no accident that his introductory anthropology classes often swelled to over 1000 students and he is in constant demand as a speaker. Increasingly, forensic groups have become the recipients of his speaking skills, frequently leading to additional casework and increased exposure of the non-anthropological community to the contributions of forensic anthropology. Bill routinely lectures to law enforcement associations and training sessions throughout the U.S. and to innumerable organizations such as the Sertoma Club, Rotary, Kiwana's, American Legion, etc. All this exposure helps make the public more aware

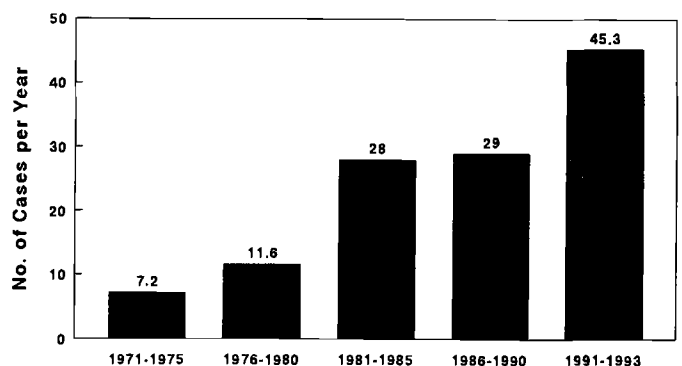


FIG. 3—Average number of Bass' forensic cases per year, from 1971 to 1993.

of the benefits that forensic anthropology can provide and raise awareness of the value of careful crime scene investigation.

Academy Affairs

Bill Bass was a founding father of American forensic anthropology and helped to shape its development. In the early 1970s Bass, Ellis Kerley, and Clyde Snow met in Clyde's hotel room at the annual meeting of the American Academy of Forensic Sciences in Phoenix, Arizona, to organize what is now the section of Physical Anthropology. After receiving permission from Academy officials to proceed, the group called all colleagues they felt were qualified to form the nucleus of the section. At least ten were needed to form the new section. By the next annual meeting, fifteen new members were admitted and the new section was formed with Bass and Ellis Kerley as the first officers. Since that time, Bill has served on a number of committees and boards in the AAFS throughout his career. In this last year, Bass received the Distinguished Fellow Award and at the same meetings his lifetime contributions to forensic anthropology were acknowledged by his students with a special Forensic Anthropology symposium in his honor.

Throughout the years, Bass has maintained a gentle but steady influence on section developments. He has served in all offices and regularly delivered papers at the annual meetings. At the business meetings he usually can be counted on to give advice on controversial issues and always takes a positive approach.

Teaching

Although Bass's publication record, caseload, and other forensic attributes are impressive, most who know him consider teaching to be his singular most important contribution. In fact, it is difficult to separate his teaching from his other accomplishments since through his tutorial approach students are deeply involved in his research, publication, and casework. Most students who have studied osteology since 1971 have been influenced by Bass through his *Human Osteology, A Laboratory and Field Manual* [16] and have used this book as a reference, if not as their primary textbook. His pleasing personality, humor, and inclusive attitudes have influenced and inspired scores of high quality students over the years. Through this great following, Bass's contributions to forensic anthropology have been enormous.

This commitment to excellence in teaching and education was acknowledged in 1985 when Bill was honored with "Professor of the Year" by the National Council for Advancement and Support of Education.

A measure of Bass' student legacy in forensic anthropology can be seen in Rhine's recent survey [17] of the academic pedigrees of practicing forensic anthropologists. In Rhine's survey, 129 forensic anthropologists listed 65 different individuals as their principal advisors. Since some anthropologists listed multiple advisors, 153 names were indicated. Of these, Bass was the most frequently listed advisor with 20, followed by Hulse (10), Birkby (6) and Kerley, Hooton, Anderson, Brues, Melbye, and Kennedy with five each. Thirteen percent of all practicing anthropologists (including those prior to Bass' teaching career) list Bass as a principal influence upon them. Bass and his students (those who list him as their advisor and who are themselves listed by others) account for 25 percent of all listings. As shown in Table 5, the frequency of professionals in forensic anthropology who consider Bass as a primary influence has grown steadily since the 1960s. Bill's first student at the University of Kansas was Walter Birkby, whose

academic abilities and hairstyle were considered by Bill to be models for all future students to emulate.

Through his research, publications, casework, lecturing, and, most importantly, his teaching, Bill Bass has touched us all and helped to shape this field that we have grown to know as forensic anthropology.

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TABLE 5—Percentage, by decade, of practicing forensic anthropologists who list Bass as advisor.

Period	Number of Anthropologists	Number with Bass	Percentage
1920s	2	0	0
1930s	5	0	0
1940s	3	0	0
1950s	5	0	0
1960s	23	2	9
1970s	42	7	17
1980s	31	7	23
1990s	18	4	22
Total	129	20	16

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