

The Forensic Anthropology Legacy of T. Dale Stewart (1901–1997)

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ABSTRACT: T. Dale Stewart (1901–1997) began his Smithsonian career as a temporary aide to Aleš Hrdlička (1869–1943) in 1924. At the time of his death in 1997, he was regarded world-wide as an authority who led the professional development of American forensic anthropology. He was a prodigious researcher, best known for his meticulous attention to detail, balanced scientific judgment, keen sense of research design, and ability for synthesis. Stewart's publications, extensive casework for the FBI and others, his court testimony, publications, professional contacts, and organizational activity merit him a prominent place in the history of American forensic anthropology.

KEYWORDS: forensic science, T. Dale Stewart, history, forensic anthropology

Throughout the world, the name of T. Dale Stewart (1901–1997) is synonymous with modern forensic anthropology. Stewart's extensive, early casework, court testimony, research, publications, professional influence, and administrative activities shaped the professional development of American forensic anthropology. In a tribute to his many recognized accomplishments, the physical anthropology section of the American Academy of Forensic Sciences offers the "T. Dale Stewart Award" as its highest honor for career accomplishments of members. This essay explores the development of Stewart's forensic career, and attempts to define the characteristics of his outstanding scholarship in this area.

Stewart was born June 10, 1901 in the Welsh community of Delta, Pennsylvania, where his father was the town pharmacist (Table 1). Stewart went through the local small public school system and, following high school graduation in 1920, he found employment at the local First National Bank of Delta. Apart from other duties, he became the bookkeeper and spent long hours with an adding machine making sure the ledgers' debits and credits balanced (Stewart transcript, Smithsonian Institution Archives, No. 9521). Although at the time he thought he was being trained for a career in small-town banking, his skills with the adding machine actually were positioning him for future employment with the Smithsonian Institution in Washington, D.C.

Encouraged by a family friend, John L. Baer, he left Delta in 1922 and enrolled in pre-medical studies at George Washington University in Washington, D.C. Mr. Baer not only provided housing for Stewart, but also arranged for him to have a roommate

(Henry B. Collins Jr. (1899–1987)) who introduced him to anthropology. At that time, Mr. Baer was working at the Smithsonian as a temporary substitute in archeology and occasionally for Dr. Aleš Hrdlička (1869–1943), Curator of Physical Anthropology. Through his contact with Baer, Collins, and another young Smithsonian employee, future Mayanist Karl Ruppert (1895–1960), Stewart gradually developed an interest in anthropology that was substantially augmented in 1924 when he was invited to fill in for Baer at the Smithsonian while Baer conducted field work in Panama. The opening created by Baer's departure was for a temporary assistant under Hrdlička. In spite of his minimal preparation in physical anthropology, Stewart was accepted by Hrdlička for this position, in part likely because of his old banking training with the adding machine. Hrdlička needed help tabulating figures for publications, and Stewart's experience working with numbers was appealing.

Although Stewart fully expected the position to terminate the following June, Mr. Baer developed health problems in Panama and died. Still needing an assistant, Hrdlička extended Stewart's employment into the following school year. Stewart learned from Hrdlička by the apprentice method, rapidly gained the latter's confidence, and continued in the position. By 1927, this confidence had grown to the point that Hrdlička offered Stewart a permanent position and the opportunity to eventually succeed him if Stewart acquired a medical degree. Following his graduation from George Washington University in 1927, Stewart studied medicine at the Johns Hopkins University, receiving his M.D. degree in 1931. Armed with the necessary medical diploma, Stewart resumed his work with Hrdlička and worked closely with him for many years.

Although Hrdlička had some unusual mannerisms, he was one of the major figures in the foundation of American physical anthropology and was at the forefront of most developments at the time. As his assistant, Stewart learned from this exposure and developed not only diplomatic skills dealing with the productive but idiosyncratic Hrdlička, but also editorial experience preparing Hrdlička's manuscripts for publication, deep knowledge of physical anthropology, contacts with the many professionals associated with Hrdlička, and a strong work ethic.

When Hrdlička retired in 1942, Stewart succeeded him as Curator, as promised by Hrdlička back in 1927. After Hrdlička's death in 1943, Stewart skillfully stepped out of his academic shadow, and enjoyed his own productive career (Fig. 1), becoming Head Curator (effectively Department Chair) from 1961 to 1962 and then Director of the entire National Museum of Natural History from 1962 to 1965. He found time to formally teach at the Washington University School of Medicine in St. Louis in 1943, at the Escuela Nacional d'Antropologia, in Mexico City (1945), and at his alma mater George Washington University (school of medicine) from

¹ National Museum of Natural History, Smithsonian Institution, Washington, D.C.

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TABLE 1—*Career chronology of T. D. Stewart.*

1901	Born June 10 in Delta, Pennsylvania
1920	Graduates from high school
1922	Enrolled at George Washington University
1924	Temporary assistant to Hrdlička
1927	Graduates from George Washington University
1931	Received M.D. degree, Johns Hopkins University Resumed work with Hrdlička
1942	Promoted to Curator of Physical Anthropology
1948	Began consultation with U.S. Army Quartermaster Corps.
1954	Project in Kokura, Japan
1955	Seminar on Human Identification
1961	Became Head Curator of Department
1962	Became Director of National Museum of Natural History
1968	Human Identification Conference (Mass Disasters)
1974	Elected Honorary Member, American Academy of Forensic Sciences (AAFS)
1978	Appointed Consultant to the American Board of Forensic Anthropology (ABFA)
1981	Recipient of Physical Anthropology Section Award, AAFS
1987	AAFS, Physical Anthropology Section Award renamed the "T. Dale Stewart Award"
1992	Published Smithsonian monograph (at age 91)
1997	Died October 27 in Bethesda, Maryland

1958 to 1967. Although his professional interest spanned most areas of physical anthropology, his contributions to forensic anthropology were numerous and critical to the historical professional development of this subdiscipline.

Casework in Forensic Anthropology

Clearly, Stewart first became involved with casework in forensic anthropology during his long association with Hrdlička, but the date of his involvement is not clear. In an unpublished manuscript (NAA, Stewart Papers), "The Role of the Smithsonian Institution among Government Agencies in Dealing with Forensic Anthropology Cases," Stewart claims: "With the death of Aleš Hrdlička in 1943, I became aware for the first time that the FBI had been coming to him for skeletal identifications. He had never told me about this because he thought it should be treated as a secret." However, in a taped interview in 1975 (Smithsonian Archives, 9521, manuscript p. 165), Stewart traced his memory of Smithsonian FBI work to the completion of the Department of Justice building that was being built when he returned from medical school in 1931. ". . . [W]hen that was finished the FBI moved in on the top floor, and if they had been coming to Dr. Hrdlička before that time, I was not aware of it . . . I have no recollection, or any way of knowing, how often they came to Dr. Hrdlička because he was very secretive about this. He sort of felt that this was not for public notice, and so he wouldn't tell me. However, occasionally I would be aware of a visitor talking to him on forensic matters. Then, when he retired and then soon died I, as the new curator, began getting visits from the FBI agents asking me to help them with their identifications problems as Dr. Hrdlička had." According to FBI sources, the "Technical Laboratory" relocated to the seventh floor and attic of the Justice Building in 1934. The name of the former Division of Investigation was changed to the Federal Bureau of Investigation (FBI) on July 1, 1935. The laboratory remained in the Justice Building until 1974, when it relocated to the then-new J. Edgar Hoover Building one block away.

Smithsonian records indicate that Stewart was likely aware of

Hrdlička's assistance to the FBI as early as December 20, 1937. According to record 146283, Smithsonian Institution Archives, a case was delivered to Stewart on that date by the FBI and later analyzed and reported by Hrdlička. Hrdlička's report of his analysis of a white adult male with skeletal trauma was communicated to the FBI through the Assistant Secretary of the Smithsonian, Alexander Wetmore (1886–1978) on December 22, 1937.

Smithsonian Institution Archives record 146758 suggests J. Edgar Hoover (1895–1972) sent additional remains to Hrdlička to analyze but they were reported on by Stewart, again through A. Wetmore on February 17, 1938. The material consisted of rabbit bone fragments and adult American Indian human remains of an individual who had died at least 10 years previously.

On May 26, 1938, Smithsonian Associate Director Graf reported to Hoover that Stewart had examined additional materials at the request of the FBI and had determined they represented "unidentifiable ashes."

Documentation for the extent of Hrdlička's consultation with the FBI originates from three primary sources: Hrdlička's archival material (National Anthropological Archives), the FBI file on Hrdlička, and official Smithsonian correspondence between the Office of the Secretary and J. Edgar Hoover of the FBI (1). It appears that at that time, formal reports on forensic cases were written by Hrdlička but were communicated from the Secretary of the Smithsonian to the Director of the FBI. These sources suggest that Hrdlička reported on a minimum of 37 cases for the FBI between December 20, 1937 and June 29, 1943. It seems clear that Hrdlička did not share details of this work even with his close associate Stewart. Clearly, Stewart was aware of at least the cases in which he participated in 1937 and 1938.

Information on Stewart's own casework in forensic activity is available largely through his documents and those of the Department of Anthropology in the National Anthropological Archives (Department of Anthropology, National Museum of Natural History, Smithsonian Institution) and documents curated in the Smithsonian Institution Archives. Forensic reports by Hrdlička apparently were reviewed by the chain of command at the Smithsonian and released at the highest level in the form of letters from the Office of the Secretary to Hoover. After Hrdlička's death, when Stewart began regular reporting of the FBI cases, policy shifted. Reports were released along with the remains with records maintained as part of the shipping papers of the National Museum of Natural History. It is not clear at this time if this was a procedural change initiated by Stewart or general Smithsonian policy to reduce the correspondence of the Secretary's office. Hrdlička's final report to the FBI on June 29, 1943 was sent by the Secretary's Office while Stewart's first report after this time appeared in 1947 in the shipping records. Policy from 1943 to 1946 remains unclear. Although the reports during this period were not located, it seems clear that Smithsonian consultation with the FBI continued. On October 23, 1943 (NAA, Stewart Papers, Box 5), Stewart wrote a letter introducing himself to Hoover. The annual reports of the Smithsonian list four FBI cases for 1943, "several occasions" in 1944, "more often than here to fore" in 1945, and nine cases in 1946. The annual report lists 12 FBI cases for 1947 whereas shipping invoices suggest Stewart reported on a minimum of four. The numbers reported in the annual reports do not coincide exactly with the numbers from the shipping records in subsequent years also. This apparent discrepancy may reflect oral reports in which no shipping papers were generated, lack of comparability of the report dates, reports written by other Smithsonian staff, or other factors.



FIG. 1.—T. Dale Stewart, January 13, 1966 at a Smithsonian event. Courtesy NAA, Smithsonian Institution.

The records suggest that Stewart remained the primary consultant for the FBI in forensic anthropology until 1962. At that time, Stewart assumed duties as Director of the National Museum of Natural History and J. Lawrence Angel (1915–1986) joined the Smithsonian staff and assumed primary responsibility for the forensic reporting. Although Stewart's forensic caseload dropped off dramatically after 1962, he reported on cases in 1967 and 1969. At the time of Stewart's major involvement from 1943 until 1962, he was assisted by other Smithsonian staff, primarily Marshall T. Newman (1911–1996) who was employed by the Smithsonian between 1941 and 1942 and then again following his military service between 1946 and June 1962. Numerous reports by Newman, apparently substituting for Stewart when necessary,

appear as early as February 1947. Newman was particularly active while Stewart was Head Curator in 1961 and 1962 before J. Lawrence Angel joined the Smithsonian staff (Angel's first FBI report dated September 7, 1962).

The available data suggest that both the quantity and rate of consultation by Stewart for the FBI surpassed that of Hrdlička. Hrdlička reported on 37 FBI cases between 1937 and 1943, a rate of 6.2 cases per year. Stewart reported on 167 cases between 1946 and 1969, a rate of 7.3 cases per year (Table 2). During the period of his greatest forensic caseload, 1946 to 1961, Stewart reported on 159 cases, a rate of 10.6 per year.

In addition to the FBI work, Stewart and colleagues also reported on numerous other forensic cases submitted to them directly. The

TABLE 2—Forensic cases reported on by Stewart.

Year	All Forensic Cases			No. with Skeletal Evidence of Trauma	
	No. FBI	No. Non-FBI	Total	No. FBI	No. Non-FBI
1938	2		2	0	0
1943		1	1	0	0
1945		1	1	0	0
1946	1	1	2	0	1
1947	4	3	7	1	0
1948	3	3	6	0	0
1949	12	4	16	0	0
1950	11	6	17	2	0
1951	4	3	7	0	0
1952	11	5	16	4	0
1953	13	7	20	2	0
1954	1	1	2	0	0
1955	17	5	22	1	0
1956	17	10	27	0	0
1957	12	9	21	0	0
1958	13	4	17	0	0
1959	17	9	26	6	0
1960	18	4	22	4	0
1961	5	4	9	0	0
1962	3	1	4	0	0
1967	1		1	0	0
1969	4		4	1	0
?		3	3	0	0
		1	1	0	0
Total	169	85	254	21	1

line between forensic cases and specimens of archeological origin is not entirely clear here, but the shipping records in the files of the Division of Physical Anthropology (NAA) reveal that Stewart reported on 85 non-FBI forensic cases during the period from 1943 to 1969 (Table 2). The combined total of FBI and non-FBI forensic cases for the period of 1943 to 1969 is 254 for Stewart, a rate of 9.8 per year.

The forensic cases reported on by Stewart originated from the District of Columbia, Dominican Republic, Guatemala, Puerto Rico, San Salvador, and Europe, as well as all U.S. states except Hawaii, Maine, Rhode Island, Vermont, and Wisconsin (Table 3). Cases most commonly originated from Florida (19), New York (12), Louisiana (10), Texas (10), and Washington (10). Of the 169 FBI cases, 154 (91%) represented only human remains, nine (5%) involved commingled human and animal remains, five (3%) were non-human animal and one remained unidentified (Table 4). Remains altered by heat represented 16 (6%) of Stewart's cases (9% of FBI and 1% of non-FBI cases). Evidence of likely foul play was detected by Stewart in 22 cases (9%), 12% of the FBI cases and only 1% of the non-FBI cases. Twelve (5%) of the cases were determined by Stewart likely to be archeological in origin (6% of FBI and 2% of non-FBI). Twenty-two cases (9%) displayed soft tissue or other evidence of being relatively fresh (13% of FBI and no non-FBI cases).

Those reports that are sufficiently dated to allow a temporal assessment suggest that both Stewart's FBI and non-FBI casework steadily increased during his period of activity and peaked between 1955 and 1958 (Table 5). During this four-year period, Stewart averaged 21.3 forensic reports per year. A temporal pattern of cases involving evidence of foul-play is not apparent (Table 5).

Court Testimony

According to biographical materials in the Stewart papers of the National Anthropological Archives, Stewart testified as expert witness in seven murder trials in the states of Arkansas, Delaware, Kentucky, Louisiana, Mississippi, Texas, and Virginia. Stewart's

TABLE 3—Geographic origin of forensic cases reported on by Stewart.

State	No. FBI	No. Non-FBI	Total
Alabama	2	1	3
Alaska	4	0	4
Arizona	2	0	2
Arkansas	2	0	2
California	6	1	7
Colorado	2	0	2
Connecticut	1	0	1
Delaware	3	4	7
Florida	14	5	19
Georgia	3	1	4
Hawaii	0	0	0
Idaho	2	2	4
Illinois	2	2	4
Indiana	1	0	1
Iowa	3	0	3
Kansas	2	1	3
Kentucky	5	0	5
Louisiana	7	3	10
Maine	0	0	0
Maryland	0	4	4
Massachusetts	0	1	1
Michigan	2	2	4
Minnesota	2	2	4
Mississippi	7	0	7
Missouri	3	3	6
Montana	6	0	6
Nebraska	0	1	1
Nevada	6	0	6
New Hampshire	1	0	1
New Jersey	2	0	2
New Mexico	8	1	9
New York	7	5	12
North Carolina	3	2	5
North Dakota	1	2	3
Ohio	3	4	7
Oklahoma	5	0	5
Oregon	2	4	6
Pennsylvania	4	1	5
Rhode Island	0	0	0
South Carolina	2	1	3
South Dakota	0	2	2
Tennessee	3	4	7
Texas	4	6	10
Utah	1	3	4
Vermont	0	0	0
Virginia	4	3	7
Washington	10	0	10
West Virginia	6	3	9
Wisconsin	0	0	0
Wyoming	7	1	8
District of Columbia		5	5
Dominican Republic		1	1
Europe		1	1
Guatemala		1	1
Puerto Rico	1		1
San Salvador		1	1
?	8	1	9
Total	169	85	254

TABLE 4—Characteristics of forensic cases reported on by Stewart.

Source of Cases	No. Cases	Non-human		Human and Non-human		Human		Burned		Skeletal Evidence of Foul Play		Archeological		Soft Tissue	
		No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%
FBI	169	5	3	9	5	154	91	15	9	21	12	10	6	22	13
Non-FBI	85	5	6	6	7	74	87	1	1	1	1	2	2	0	0
Total	254	10	4	15	6	228	90	16	6	22	9	12	5	22	9

TABLE 5—Temporal pattern of cases reported on by Stewart.

No. Years	Dates	FBI		Non-FBI		Totals		Skeletal Evidence of Foul Play			
		No.	Rate Per Year	No.	Rate Per Year	No.	Rate Per Year	FBI	Non-FBI	Total	% of Cases in Period
9	1938–1946	3	.33	3	.33	6	.67	0	1	1	17
4	1947–1950	30	7.5	16	4.0	46	11.5	3	0	3	7
4	1951–1954	29	7.3	16	4.0	45	11.3	6	0	6	13
4	1955–1958	59	14.8	28	7.0	87	21.3	1	0	1	1
4	1959–1962	43	10.8	18	4.5	61	15.3	10	0	10	16
2	1967–1969	5	2.5	0	0	5	2.5	1	0	1	20
Totals		169		81		250		21	1	22	

philosophy toward serving as expert witness is revealed in his book *Essentials of Forensic Anthropology* (2), an unpublished manuscript, “The Role of the Smithsonian Institution among Government Agencies in Dealing with Forensic Anthropology Cases” (NAA, Stewart Papers), and the Smithsonian Archives Oral History Project tapes. Stewart clearly recognized the legal obligations encountered by anthropologists becoming involved in such cases and accepted the responsibility. His desire for objectivity is registered in the somewhat extreme position of not wanting to know the geographic origin of the submitted remains prior to analysis. His reports and testimony were concise and non-speculative. His descriptions of his courtroom experience demonstrate his awareness of legal procedure and the need for concise, accurate testimony. By his own account, the need for his testimony was only occasional since “so often the material I dealt with had a poor prospect of ever reaching court” (2:18). On the eight occasions when his testimony was required, the court was presented with the leading authority in the world who, through his patented apprentice method, became even more effective with each court appearance.

Research in a Military Context

Stewart’s self-prepared biographical materials suggest he began consultation with the Quartermaster Corps of the U.S. Army in 1948. Although specific data on the extent of his involvement are not available, he indicates he was “frequently consulted on identity of soldier remains.” Although Stewart apparently assisted with identification, he recognized both the need for improved techniques and the unusual opportunity to gather such data afforded by the military identification process. He recognized that existing techniques were based heavily on dissection room skeletons such as those in Ohio (the Todd Collection) that contributed to the work of T. Wingate Todd (1885–1938). The Todd Collection and the similar

Terry Collection (now located at the Smithsonian) were comprised primarily of older individuals. The military remains, once properly identified, were mostly of the young and thus added the vitally needed information about that segment of American society. For example, Stewart was influential in convincing the military to allow Mildred Trotter (1899–1991) to collect research data in addition to her work in identifying the deceased. This work led to Trotter’s vitally needed revisions of formulae for stature estimation.

In an August 28, 1953 editorial in *Science* (3), Stewart brought broad scientific attention to the unfulfilled opportunity existing with the military remains: “Strange, too, the groups utilizing such information in a practical way—law enforcement agencies, the military—have contributed very little to the research involved. For instance, since the close of World War II, the Memorial Division of the Armed Forces has had to identify the remains of thousands of soldiers. Yet the military authorities made no plans to profit from this unusual research opportunity. It was largely in spite of military inertia that one physical anthropologist succeeded in improving the formulae for estimating stature from long bones. Now the Memorial Division has wisely substituted these new formulae based on hundreds of American soldiers for those used heretofore, based on 100 elderly French cadavers measured in 1880” (3:3).

Following Trotter’s lead, Stewart himself initiated a research project with the military. He convinced them that it was to their advantage in improving methods of identification to allow data collection on the skeletal remains of recovered and identified military deceased. An arrangement was made between the Department of the Army and the Smithsonian for Stewart to work on such a project in Kokura, Japan from September 1954 to February 1955. Working with a small staff, Stewart carefully documented age changes among 450 skeletons, of which 375 had been positively identified. Stewart later collaborated with the late Thomas W. McKern (1920–1974) to analyze these data, culmi-

nating in their classic work "Skeletal Age Changes in Young American Males" (4).

The experience in Japan convinced Stewart of the continued need to improve methods in skeletal human identification. In September 1955, Stewart organized in Washington a Wenner-Gren sponsored seminar on human identification. The multi-day sessions focused on the role of physical anthropology in the identification process and included such primary figures as Wilton M. Krogman (1903–1987), William S. Laughlin, J. Lawrence Angel, Mildred Trotter, and T. D. McCown (1908–1969).

Thirteen years later, in 1968, the war in Viet Nam prompted new concern on the part of the military toward enhancing identification efforts. Once again, they turned to Stewart who agreed to organize and host a meeting of relevant specialists in this regard. Stewart brought together a wide range of specialists, including William W. Greulich (1899–1986), Thomas W. McKern, Ellis R. Kerley (1924–1998), M. Trotter, G. Steele, E. Giles, William W. Howells, and J. L. Angel. Stewart edited the resulting papers into another classic in forensic anthropology, *Personal Identification in Mass Disasters* (5).

Professional Contacts

Once Stewart succeeded Hrdlička as Curator of Physical Anthropology, he rapidly established himself as the leading authority in forensic anthropology. His correspondence files document the wide range of his professional contacts. Most of the leading scientists in his area of expertise not only maintained contact with Stewart but sought out his advice and opinions. For example, when Wilton Krogman was organizing his plans for his classic text published in 1962 (6), he sought input from Stewart on content. On August 17, 1960, Krogman sent Stewart an outline of his proposed book requesting "tell me if I've missed anything" (NAA, Stewart papers, Box 8).

Stewart's most lengthy and regular correspondence was with Mildred Trotter. Stewart clearly valued her scientific opinions and worked closely with her on a number of projects, especially the research and identification effort with the military. Recently, Jantz et al. (7) noted some confusion in Trotter's published methods of measuring the tibia for stature estimation and they questioned who was advising her on this measurement. Not surprisingly, Stewart was involved. On November 30, 1948, Trotter wrote Stewart from the Central Identification Laboratory. At this time she was formulating a plan on what bones to measure if the research opportunity was made available. She wrote "But what about the Tibia? Krogman, I gather, measures it with spreading calipers. He didn't say so in so many words but he implied that he took the shortest length between the inferior articular surface and the lateral condyle (of the head). Please tell me what measurements to take on the Tibia. I find it a very troublesome bone. Here we are measuring from the rim of the lateral condyle to the tip of the medial malleolus. Even though our osteometric board has no slit in the stationery end through which the medial malleolus can slide I can eliminate both spine and medial malleolus, but then I'm measuring from the rim of lateral condyle to the rim of the distal articular surface . . ." (NAA, Stewart papers, Box 17).

Stewart's reply of December 20, 1948 offered the following advice: "Greatest Length of the tibia is indeed an annoying measurement. Apparently the older measurements were taken on an osteometric board which had a hole in the vertical head piece to accommodate the malleolus. However even this arrangement is not satisfactory because the proximal articular surfaces are inclined to

the axis of the shaft and only the anterior edges of the articular surfaces touch the borders of the hole. In the field, when I had to improvise an osteometric board, I have measured from the medial side of the proximal articular surface to the tip of the malleolus. If time permits, I would suggest that you take this measurement and also one connecting the centers of the superior and inferior articular surfaces. The first of these measurements would be useful for comparison with the older records. The second might yield a closer correlation with stature. The main thing to remember, however, is that you should have a clear idea of what you are measuring and stick to it. As long as others know exactly what measurements you took they can use your data . . ." (NAA, Stewart papers, Box 17). Research by Jantz et al. (7) suggests that while Stewart's advice was frequently sought, it was not always followed.

Publications

Stewart published prolifically. He recognized the importance of scientific publication and worked hard to ensure that his published work was accurate, concise and well written. Stewart was widely regarded as a master of focused, problem-oriented research. His research articles were comprehensive and seldom needed additional editorial work. His skills in this area were honed under Hrdlička who taught him a productive work ethic. Stewart's work preparing Hrdlička's material for publication also taught him editorial skills and the need for precision in tabulation and writing. His days on the adding machine back in his hometown bank in Delta, Pennsylvania had taught him to spend long hours, if necessary, to make sure calculations are accurate.

His editorial skills were widely recognized. He served as frequent reviewer for major journals in his field. He was the Editor of the *American Journal of Physical Anthropology* from 1942 to 1948 and performed editorial functions for the *Handbook of Latin American Studies* (1938–1961), the *Handbook of South American Indians* (1946–1950), the *American Lecture Series in Physical Anthropology* (Charles C Thomas, Publisher, 1950), the third and fourth editions of *Hrdlička's Practical Anthropometry* (1947, 1952), *Clinical Orthopedics* (beginning 1954), and the *Handbook of Middle American Indians* (beginning 1957).

Stewart's publications number 394. Many of these are directly in the field of forensic anthropology. Stewart is well known in forensic anthropology for his classic works "Skeletal Age Changes in Young American Males" (4) with T. W. McKern, his 1970 edited volume on *Personal Identification in Mass Disasters* (5), and his 1979 text *Essentials of Forensic Anthropology* (2). These timeless works continue to function as valuable reference works today. Classic Stewart individual papers include his work on vertebral osteoarthritis (8), anterior femoral curvature (9), and historical articles on Dorsey (10) and Fully (11). In these papers, Stewart reveals a significant problem worthy of research attention, devises a thoughtful approach, pursues it exhaustively and originally and then writes it up in a coherent, readable manner. Stewart demonstrated throughout his career a unique capability to tackle discreet problems in an exhaustive manner and relate numerous such investigations into larger, synthetic works.

Organizational Involvement

Stewart was not one to seek out honors and positions in professional organizations, but they steadily came to him. On February 14, 1974, he was elected an Honorary Member of the American Academy of Forensic Sciences. Stewart had been notified of this award previously by James T. Weston, M.D. Secretary-Treasurer

of the American Academy of Forensic Sciences, in a letter dated March 19, 1973. He was also contacted by Physical Anthropology Section Chairman Ellis R. Kerley (with whom he worked in Japan). On April 3, 1973 Kerley wrote: "By now you should have received official notification from the president of the American Academy of Forensic Sciences that you were elected to Honorary Membership in the Academy at our last annual meeting. Those of us in the Physical Anthropology Section are very pleased that this honor has been extended to you. Indeed, all of us in this section have learned much of our Forensic Anthropology from you by personal professional contact with you and from your many lectures, books and articles in this field. We welcome you to the Academy and invite you to participate in the Physical Anthropology Section. I am person-

ally very pleased that you have been elected to Honorary Membership in the Academy and offer my sincere congratulations to you. In addition to the knowledge I have derived from you directly, I have taken inspiration from your ever balanced judgment and meticulous attention to scientific accuracy. I am gratified that you have been given this honor in recognition [of] the many truly outstanding achievements and contributions you have made to Forensic Anthropology" (NAA, Stewart papers).

On April 4, 1973, Stewart modestly wrote Weston back, "Your letter of 19 March announcing my election to honorary membership in the American Academy of Forensic Sciences came as a complete surprise. I am most grateful to the Academy for this action. Although I am very likely past the point of making further substantial

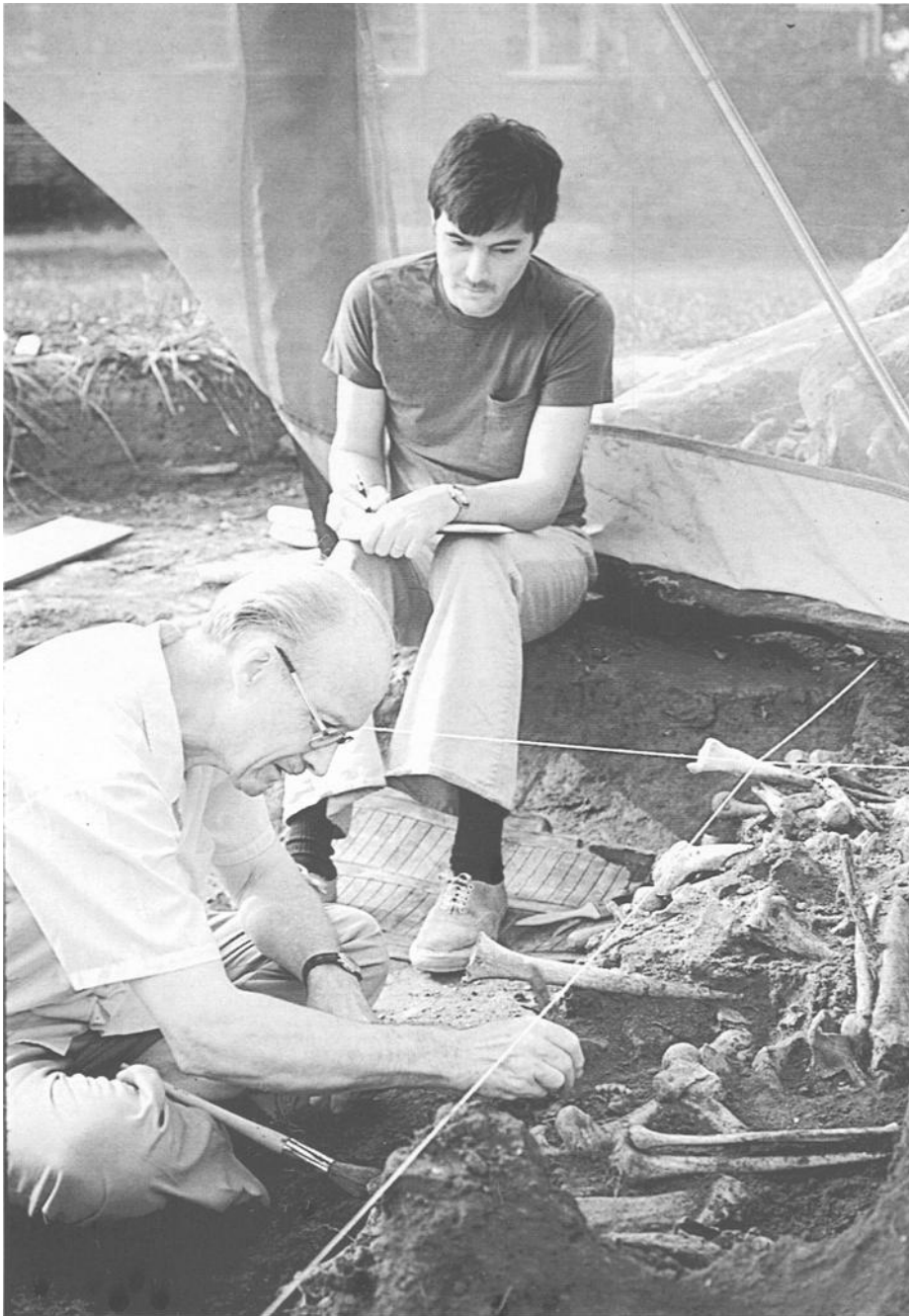


FIG. 2.—T. Dale Stewart and Douglas H. Ubelaker working at an ossuary burial site in Maryland, 1980. Courtesy Smithsonian Institution.

contributions to the field of forensic anthropology, I find it pleasing to know that I will now be in closer contact with an organization I have long respected . . ." (NAA, Stewart papers). Of course, Stewart made many contributions after this date, including his classic text *Essentials of Forensic Anthropology*, published in 1979 (2).

From 1974 until his age made travel difficult, he regularly attended the annual meeting of American Academy of Forensic Sciences and could usually be found on the front row of the Physical Anthropology section carefully listening to and frequently commenting on the scientific papers.

In 1978, he was appointed Consultant to the American Board of Forensic Anthropology, Inc. Three years later (1981), he was the second recipient (after Ellis R. Kerley) of the Physical Anthropology section award. In 1987, this award was formally renamed the "T. Dale Stewart Award" and remains the highest award of that section for career accomplishments in forensic anthropology.

Conclusions

From humble beginnings in a small town in Pennsylvania, T. D. Stewart became one of the most respected and accomplished anthropologists in the history of American science. Working from the broader perspective of physical anthropology (Fig. 2), Stewart led the professionalism of the emerging science of forensic anthropology. Through example, he set the standard for scientific conduct in this area with activity in forensic casework, court testimony, research, professional contacts, publications, and activity with the American Academy of Forensic Sciences. He was especially gifted in diplomacy, productivity, research design, scientific synthesis, balanced judgment, writing, and editing. Much of modern forensic anthropology stems from his efforts.

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References

1. Ubelaker DH. Aleš Hrdlička's role in the history of physical anthropology. *J Forensic Sci* 1999;44(4):708-14.
2. Stewart TD. *Essentials of forensic anthropology, especially as developed in the United States*. Springfield (IL): Thomas, 1979.
3. Stewart TD. Research in human identification. *Science* 1953;118(3061):3.
4. McKern TW, Stewart TD. *Skeletal age changes in young American males*. Natick (MA): Quartermaster Research and Development Center, Environmental Protection Research Division; 1957 May. Report No.: EP-45.
5. Stewart TD, editor. *Personal identification in mass disasters*. Washington (DC): Smithsonian Institution, 1970.
6. Krogman WM. *The human skeleton in forensic medicine*. Springfield: Charles C Thomas, 1962.
7. Jantz RL, Hunt DR, Meadows L. The measure and mismeasure of the tibia: implications for stature estimation. *J Forensic Sci* 1995;40(5):758-61.
8. Stewart TD. Rate of development of vertebral osteoarthritis in American whites and its significance in skeletal age identification. *The Leech* 1958;28(3-5):144-51.
9. Stewart TD. Anterior femoral curvature: its utility for race identification. *Hum Biol* 1962;34(1):49-62.
10. Stewart TD. George A. Dorsey's role in the Luetgert case: a significant episode in the history of forensic anthropology. *J Forensic Sci* 1978;23(4):786-91.
11. Stewart TD. A tribute to the French forensic anthropologist, Georges Fully (1926-1973). *J Forensic Sci* 1979;24(4):916-24.

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