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An Early Twentieth-Century Skeleton Collection

REFERENCE: Gindhart, P. S., "An Early Twentieth-Century Skeleton Collection," *Journal of Forensic Sciences*, JFSCA, Vol. 34, No. 4, July 1989, pp. 887-893.

ABSTRACT: The collecting of human remains for study in museums and medical schools has been a vital scientific endeavor for many years. In some cases, such as the fetal and neonatal skeletons discussed, surreptitious dealings were involved. However, one must consider the attitudes that prevailed at the time, the high rate of fetal and infant mortality, and the blossoming role of museums as repositories of knowledge.

KEYWORDS: physical anthropology, musculoskeletal system, historical background, fetal, medicolegal history, skeletons

Museum acquisition of human skeletons is likely to be as interesting as the skeletons themselves. The exchange of money, grave robbing, coded messages, and lawbreaking have the intrigue of a spy novel. In the first two decades of this century, an extensive collection of skeletons of fetuses, neonates, and infants was amassed in the Department of Anthropology, the National Museum of Natural History, the Smithsonian Institution, Washington, DC. Responsible for this collection was Dr. Aleš Hrdlička, who was in charge of the Division of Physical Anthropology from its establishment in 1903 until his retirement in 1942. The prevailing attitudes among the medical and scientific communities in the late 19th and early 20th century is important in understanding the reasons for the donations of these skeletons to the museum. Lay persons' perception of medicine and science also provides insight into some of the activities.

Early Twentieth-Century Populations

At present, the collection contains 282 skeletons, of which 151 are black, 120 white, 119 male, and 94 female. The remainder are unknown for race and sex. The majority of the skeletons are from Baltimore, Maryland, and Washington, DC and were acquired by the Smithsonian between 1903 and 1917. Census data for these cities in this time period provide important information on population and mortality. The total population in the two cities is given in Table 1 [1].

Infant mortality rates were incredibly high early in this century among all groups in the United States. The rates per 1000 for infants less than 1 year old are given in Table 2 [2,3]. (After 1916, deaths of black infants were distinguished from other nonwhite infants). Still-birth data for the late 19th century in Baltimore showed rates of 17/100 000 for blacks and 7/100 000 for whites. In Washington, the rates were 20/100 000 for blacks and 6.5/100 000 for whites [4]. Calhoun [5] considered maternal ignorance or toil as the reasons for the high

Received for publication 18 Aug. 1988; revised manuscript received 26 Oct. 1988; accepted for publication 31 Oct. 1988.

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TABLE 1—*Total population by race in Baltimore and Washington, DC, 1900 and 1910.*

City		1900	1910
Baltimore	black	79 739	85 098
	white	429 218	473 387
Washington, DC	black	87 186	94 941
	white	191 532	236 128

TABLE 2—*Infant mortality rates for 1900 and 1917, per 1000 for infants under 1 year old.*

City		1900	1917
Baltimore	black	356	197
	white	178	103
Washington, DC	black	366	160
	white	159	71

rates of stillbirths and maternal absence a cause of infant deaths among blacks and felt that untrained doctors and midwives could inflict a great deal of harm. Donald [6], however, thought that poor physical surroundings, inability to provide proper medical care, and mothers' ignorance of proper care were the problems, not neglect. The leading causes of death in early infancy among both blacks and whites, according to Holmes [3], were respiratory diseases, diarrhea and enteritis, premature birth, congenital debility, atrophy, marasmus, whooping cough, and influenza. Black infants had especially high rates of death attributed to unspecified or unknown causes. If mothers did not die during childbirth or as a result of complications, they could expect to die from one of the many major causes of death at the time: tuberculosis, pneumonia, diseases of the nervous system, heart disease and dropsy, diarrheal diseases, typhoid fever, or cancer and tumor [6].

Dr. Daniel S. Lamb and the AMM

In 1902, the District of Columbia passed its first law regarding the disposition of dead bodies and fetuses. The law controlled all dead bodies, including those in medical schools. Selling, buying, or in any manner trafficking in bodies, including grave-robbing, was forbidden [7].

One would assume that obtaining specimens for study at the two major museums in Washington, DC interested in anatomy and pathology became more difficult after the passage of the "body" laws. Transfer of material from the Army Medical Museum (AMM), which is now the National Museum of Health and Medicine, to the United States National Museum (USNM), now the National Museum of Natural History, increased beginning in December 1903. A large number of specimens, including many fetal skeletons, were sent by Dr. Daniel S. Lamb, a pathologist and researcher at the AMM, to the USNM. Lamb would continue sending occasional specimens until 1916. He obtained the specimens from private physicians, who donated them to him or to the AMM or from his own autopsies at Freedman's Hospital, which had been established in 1862 by the federal government to care for colored people, indigents, and paying people from all over the United States [8]. Although it has so far been impossible, as a result of somewhat less than accurate record keeping, to pinpoint the exact source of each of the specimens contributed to the USNM by Lamb, it is worthwhile to note, from various writings, his comments about his work and interests.

An internal memo at the USNM in 1912 concerning who should be credited with a donation, the AMM or Dr. Lamb personally, states that "Doctor Lamb has a collection of his own, Mrs. Doctor Lamb is an M.D. and I am sure this is o.k. The Army dont (*sic*) worry with infants but with infantry."² Unfortunately for those of us trying to reconstruct past histories of individual specimens, Dr. Lamb also thought it was "o.k." to provide limited information with his donations. When he sent a set of twin fetuses, a female and a much undeveloped male, he recorded only sex, estimated age, and the reason he thought they were so different in size. He then concluded his letter to the USNM, "I have not yet received any history of the case but presume that what I have said above will be all that you need."³ No racial identification, no information about the mother such as age, medical history, and so forth was ever forthcoming. The female specimen is still available, but the male was never retained.

In his autopsy reports, Lamb, of course, provided more details and was not adverse to making social commentary. He mentioned women's marital status more often than men's, especially if the deceased was a single mother. He sometimes speculated on whether the miscarriage was an induced abortion and, in fact, as might be expected some deaths of young females were actually caused by abortions. An October 1894 entry contained this information: female, mulatto, age 16, servant, single, cause of death septic peritonitis from abortion. For the same month, he also records a female, colored, age 21, single, cause of death septic peritonitis, possible abortion??? [9]. "Now and then I have examined women who died of hemorrhage or peritonitis under circumstances which suggested mal-practice. In such cases, I have made a frank statement of the findings and conclusions. I recall only one case, however, in which any legal inquiry followed, and in that case the testimony failed to sufficiently incriminate any particular person" [10, p. 387]. Holmes [5], who did extensive analyses of census and public data, noted an increase in abortions especially among urban blacks versus rural blacks in the early 20th century. He also thought that syphilis was the chief factor in the high rate of stillbirths and abortions and in early infant mortality. This venereal disease was three times as frequent in blacks as in whites in 1914 to 1923. Syphilis has been diagnosed in a few of the skeletons in the collection.

With regard to illegitimate births among blacks, statistics for the District of Columbia show variation from 9.8% in 1878 rising to 17% in 1879 and 20% in 1881, with a fluctuation between a fourth and a fifth of all births until 1910 after which there was a downward trend until 1929. In Baltimore, the rate of illegitimacy at the turn of the century was 26.2%, declining to 21.5% by 1929 [11]. According to Diner [12], among the Irish during this time period, illegitimate births, virtually unknown in Ireland, did increase modestly in the United States. The Irish population is used as representative of the white community because the Irish were present in large numbers in the cities and were about as recently arrived there as the blacks, that is, after the Civil War.

Lamb's [10] "Some Reminiscences of Post Mortem Work" published in 1904, toward the end of his long career at the AMM (1862 to 1917), contains many valuable insights into turn-of-the-century practices. He made note of the effect of the new "body" laws in Washington, DC "at least in the hospitals, if we wanted a post mortem examination we simply made it without asking leave of anybody. That time has passed" [10, p. 385]. The following account is most revealing of the attitudes that prevailed:

I was asked one day, at the instance of a well-known business man, in whose family she lived, to examine a woman who died of some gastric trouble. She had had some rather persistent vomiting, and had become very melancholic; had gradually wasted away. She was a member of a church here, and her minister wanted to be present at the examination. The religious never ob-

²Memo on file with the Registrar, National Museum of Natural History, Washington, DC.

³Letter dated 5 June 1911 on file with the Registrar, National Museum of Natural History, Washington, DC.

jected to autopsies. I did not find any lesion, but I found a three-month fetus in the uterus. I managed to divert the attention of the minister, so that he did not see me take out the specimen and place it under cover. What I told him I have forgotten, and the minister is dead. Not long afterwards I had a call from the business man; he wanted to know if I had the specimen and would I give it to him. I asked no questions, but kept the specimen until *he* died, and then gave it away [10, p. 397].

Lamb does not say to whom the specimen was given, nor how the specimen was preserved. All but two specimens of this age in the original collection at the Smithsonian have been lost or destroyed, and neither of those was contributed by Lamb.

Lamb [9, 10] also mentions specimens given to him by private physicians: a six-week-old child who died of purulent pericarditis, a five-month-old baby who died of pneumonia, and a seven-week-old infant who died of pneumonia brought on by a congenital valvular opening between the esophagus and trachea. He even noted an examination made at the cemetery on a child of thirteen months who died of cholera infantum. The police called on Lamb to autopsy fetuses and babies who were stillborn or who had been murdered and abandoned in the inevitable vacant lot or thrown into the Potomac River.

Resurrectionists and the Lay Public

Lamb and others in the medical establishment were simply reacting to the accepted attitudes and needs of the time. According to Spencer [13], as the number of medical schools increased, so did the need for bodies which were always in short supply. As a reaction to the stealing of the body of John Scott Harrison, son of one president and father of another, anatomic acts were established in various states after 1878 permitting unclaimed bodies to be given to medical schools. Therefore, the need for resurrectionists ended. (The first anatomic act in the United States was passed in New York in 1788.)

During the time period under discussion, to the average person, doctors and, most especially, medical students were seen as fiends, body snatchers, demons, and so forth. Some of the most illustrative statements expressing this view were written by H. L. Mencken [14] in his biographies. Among the blacks of Baltimore, there was an intense fear of hospitals and the personnel therein. Hospitals were places of death, not healing. The blacks in Mencken's West Baltimore of the late 19th century would never allow themselves to be taken to the old University of Maryland Hospital, so long as they were conscious, for then they would be prey to the medical students," who never had enough cadavers to supply their hellish orgies, and were not above replenishing their stock by sticking a knife into a patient's back, or holding his nose and forcing a drink out of the black bottle down his throat" [14, p. 153].

One young black man, blown up in a factory accident, while mourned, was thought, however, to have been lucky enough to have escaped the body snatchers [14]. And, body snatchers there were, if a certain dean of one of the medical schools, who visited the Mencken home, was to be believed. It seems that medical students would remove fresh bodies from the cemeteries outside of town, prop the well-dressed body between them on the carriage, and if stopped by the police, explain that he was a drunken friend. The fact that two white students had a black friend in Sunday clothes seemed to be overlooked by the "helpful" police [14].

Far worse than the fear of grave robbers was the fear of murder for the express purpose of selling the cadaver to a medical school. One such case in Baltimore had occurred in the early 1880s. Emily Brown, an elderly black woman, had been murdered by two men who then sold her remains to the janitor at the University of Maryland Medical School for \$15. The murderers were tried, convicted, and hanged. The men had told the janitor that they were undertakers, and that the woman was an insolvent client. The janitor was cleared of all charges [14]. Mencken never mentioned fetuses or infants, but as we will see, janitors did have a role in the Hrdlička Collection.

The Baltimore Connection

Approximately one half of the collection came from Baltimore under the instructions, first, of Dr. Franklin P. Mall, Anatomical Laboratory of the Johns Hopkins University, and later from Dr. J. Holmes Smith, University of Maryland Medical College. Rather interesting correspondence exists between these men and the USNM which provides further insights into attitudes and scientific cooperation at that time.

According to museum records, the first group of 35 fetal and newborn specimens were sent as a "gift" from Mall to the USNM in November 1904 and were macerated in the museum. There was information provided on sex, age, and race. Every specimen was described as colored, modified by the terms "degree Negro?" or "mixed Negro."⁴

On 9 Feb. 1906, the Head Curator of Anthropology, USNM, on behalf of Dr. Hrdlička, sent a letter to Mall thanking him for sending, "four Negro brains and a large number of other valuable specimens."⁵ The latter would fill important gaps in the museum series according to the curator who expressed interests in further specimens, "which are very hard to obtain in Washington City."⁶ Only 20 days later, a second letter to Mall thanks him for "a barrel of specimens which are of especial value because they are difficult to obtain in this city" and concludes, "Hoping for the continuance of your cooperation along these same lines."⁷ All of the fetuses were macerated in the museum, resulting in 53 skeletons and 13 brains. Sex, race, and various measurements were recorded on some of the cards for individual specimens.

Mall again sent a large "batch" of specimens as a gift in February 1908.⁸ These contained the same limited information and were treated in the same manner in the USNM. Mall [15] himself was very interested in fetal development and published many articles and, in 1910/1911, a major text on human development.

Through the generosity of Dr. J. Holmes Smith, a gift of seven specimens arrived from Baltimore in late 1916 and eleven more in early 1917.⁹ Beginning in March 1917, some of the more amusing exchanges of letters occurred. The first letter on 6 March 1917 from the Department of Anthropology Head Curator to the Assistant Secretary of the National Museum mentions that Professor Smith "has offered certain anatomical specimens of particular interest as a gift," and the curator then asks, "Will you not kindly authorize _____, Aid in the Division of Physical Anthropology, to proceed to Baltimore without delay for the purpose of getting these specimens. The expense will be merely the carfare—\$1.50."¹⁰ The second letter, 30 March 1917, from Smith to Hrdlička, is blunter and simply states, "I have a number of foetuses on hand. Will you please send for them? If you can send your man on Monday April 2nd with something to carry them in he can take such as will be of use to you— . . . W.B.&A. cars (Electric line) pass by door."¹¹ The Aid was directed to proceed to Baltimore and allotted \$3.00 to cover the expenses of travel and subsistence.¹² At the end of April, an urgent appeal from Smith arrived:

I have another lot of foetuses for you (including two pairs of twins) which as the weather is getting warm I think had better be handed over two (*sic*) you as soon as it is convenient for you to send for them—there are eighteen or twenty—of them and still coming in—Thursday or Friday about

⁴Key to Collection card and individual specimen cards, Division of Physical Anthropology, National Museum of Natural History, Washington, DC.

⁵Letter on file with the Registrar, National Museum of Natural History, Washington, DC.

⁶See footnote 5.

⁷See footnote 5.

⁸Key to Collection card, Division of Physical Anthropology, National Museum of Natural History, Washington, DC.

⁹See footnote 8.

¹⁰See footnote 5.

¹¹See footnote 5.

¹²See footnote 2.

12:00 would be convenient time to deliver them—If I should be absent—my boy, Charles, can deliver them.¹³

At this time, the request for the Aid was for \$10.00 to cover expenses for this pickup and for the future because Smith had indicated there would be more.¹⁴ However, there never were further gifts of fetuses and newborns from Baltimore. Perhaps the laws concerning the disposition of the dead were more strictly enforced. There is no correspondence to shed light on the matter.

Sources in Washington, DC

Nor did the disposition of the dead laws of the District of Columbia totally stop all trafficking in remains in this city between the USNM and Howard University Medical School and the DC morgue. For the year 1909, several pieces of correspondence in the Registrar's records and notations on the cards in the Division of Physical Anthropology, USNM, indicate exchange of money for anatomical specimens. In March, 14 fetuses and 1 skull with brain were bought.¹⁵ Eleven more fetuses were bought on the second of April.¹⁶ And, in May, the same USNM employee gave a slight "bonus" for 12 remains to the Master of the Morgue and to the janitor of Howard University "for their trouble in saving the specimens."¹⁷ A short note on file reads, "It was thought better not to credit the man from whom the specimens were bought as he did not want his name to appear."¹⁸

On occasion between 1903 and 1917, a private physician, practicing in Washington, DC, would send a specimen to Hrdlička. The names of the physicians were always indicated because they were credited with the donation, but names of the families were never included, although there might be a reference such as someone's being of Jewish or German descent. Normal specimens outnumber abnormal or pathological in this group, as in all groups previously described. One possible reason that the USNM received normal specimens is that the abnormal ones were sent to the AMM, which was noted for studies in pathology. Unfortunately, there is a great lack of details about these private donations. However, we do know that one was an anencephalic, one a normal-term infant who died during labor, another a normal six-month fetus who died due to placenta previa, and another fetus of six months who probably had rickets. Several skeletons in the collection have been diagnosed as rachitic, and all of them are black individuals. According to Kiple and King [4], the medical profession at the turn of the century thought that all black children in the District of Columbia had rickets, and in 1917, Dr. Alfred Hess commented that 90% of all black children in the United States had rickets. Mothers with rickets would have had difficulty during childbirth as a result of deformity of the hips, which would be one more contributing factor to deaths of mothers and infants.

There are a few skeletons in the collection from other parts of the country, such as St. Louis, Iowa, and New Haven, which were donated in the same time period. The intense collecting of fetal and neonatal skeletons ceased in 1917.

Hrdlička Collection Studies

Little research has been conducted using the Hrdlička Collection. Stewart [16] developed femur length standards from fetal skeletons of combined sex and race. The maxillary bones were compared for racial variation in anterior spine formation by Mooney and Siegel [17],

¹³See footnote 5.

¹⁴See footnote 2.

¹⁵See footnote 8.

¹⁶See footnote 8.

¹⁷See footnote 8.

¹⁸See footnote 2.

who showed that whites exhibited a significantly earlier fusing of the premaxillary-maxillary suture than blacks. The post-cranial bones of fetal and neonatal skeletons were measured by DiBennardo and Taylor [18] to assess race and sex differences. They found that blacks and females are consistently precocious in development. Gindhart [19], using X-rays of the long bones of normal and pathological specimens, observed lines and bands of increased density in over half of the sample, including a fetal skeleton of only five months.

The valuable Hrdlička Collection is available for further study to qualified researchers interested in working with skeletons of known race and sex from a limited geographical area and time period.

Acknowledgment

I wish to thank Daniel Bennett, former Archivist, National Museum of Health and Medicine, for help with the Lamb material and Dr. Donald Ortner, Agnes Stix, and Dwight Schmidt, National Museum of Natural History, for their suggestions.

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