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ARTICLE

Embodied Poverty: Bioarchaeology of the Brentwood Poor Farm, Brentwood, New Hampshire (1841–1868)

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Abstract
Through a commingled, fragmentary assemblage of skeletal remains (MNI = 9) recovered from a 1999 salvage excavation, this article explores the lives and deaths of individuals interred at the Brentwood Poor Farm, Brentwood, New Hampshire (1841–1868). This work demonstrates that bioarchaeological analyses of smaller samples can provide nuanced accounts of marginalization and institutionalization even with scant historical records. The skeletal analysis presented here is contextualized within the larger history of the American poor farm system and compared to similar skeletal samples across the United States. The hardships these individuals faced—poverty, otherness, demanding labor—were embodied in their skeletal remains, manifesting as osteoarthritis, dental disease, and other signs of physiological stress. These individuals' postmortem fates were also impacted by status; they were interred in unmarked graves, disturbed by construction, and once recovered, were again forgotten for more than 20 years.

Resumen
A través de un conjunto fragmentario y mezclado de restos óseos (MNI = 9) recuperados de una excavación de salvada de 1999, este artículo explora las vidas y muertes de personas enterradas en Brentwood Poor Farm, Brentwood, New Hampshire (1841–1868). Este trabajo demuestra que los análisis bioarqueológicos de muestras más pequeñas pueden proporcionar muestras matizadas de la marginación y la institucionalización incluso con escasos registros históricos. El análisis esquelético presentado aquí está contextualizado dentro de la historia más amplia del sistema de las granjas de los pobres estadounidense y se compara con muestras esqueléticas similares en todo Estados Unidos. Los sufrimientos que enfrentaron estos individuos (pobreza, alteridad, mano de obra exigente) quedaron encarnados en sus restos esqueléticos, manifestándose como osteoartritis, enfermedades dentales y otros signos de estrés fisiológico. El destino post mortem de estos individuos también se vio afectado por el estatus; fueron enterrados en tumbas anónimas, alterados por la construcción y, una vez recuperados, volvieron a ser olvidados durante más de 20 años.

Keywords: bioarchaeology; poor farm; structural violence

Palabras clave: bioarqueología; granjas pobres; violencia estructural

Bioarchaeologists have increasingly explored the lives and deaths of individuals and populations that have been omitted—purposefully or not—from dominant historical narratives (Blakey 2004; Crist et al. 2017; de la Cova 2019, 2021; Garcia-Putnam et al. 2023; Grauer et al. 2017; Halling and Seidemann 2017; Lowe 2017; Mant and Holland 2019; Nystrom 2011, 2014, 2017; Nystrom and Mackey 2014; Richards et al. 2017; Seidemann 2017; Zuckerman 2017). Within this larger trend is a focus on the impacts of institutionalization on individuals placed into the care of the state, both willingly and

unwillingly (Berger 2021; Blakely 1997; Blakely and Harrington 1997; Byrnes 2017; Crist and Crist 2011; Crist et al. 2017; Dougherty and Sullivan 2017; Garcia-Putnam et al. 2023; Grauer et al. 2017; Halling and Seidemann 2017; Harrington 1997; Lowe 2017; Muller et al. 2020; Nystrom 2011; Nystrom and Mackey 2014; Owsley et al. 2017; Voss 2018). Bioarchaeologists can directly observe the implications of institutionalization and marginalization on human bodies, given that the violence, hardships, and stressors that accompany poverty and otherness may manifest in skeletal and dental tissues (Farmer 2003, 2004; Gowland 2018; Klaus 2012, 2014; Sofaer 2006). Individuals in institutions such as prisons, mental asylums, indigent hospitals, and poor farms / almshouses are generally not included in dominant historical narratives. However, close examination of their life histories provides a stark reminder of how we treat unhoused individuals, migrants, incarcerated individuals, disabled individuals, and others marginalized in the United States today.

Although communities and charitable organizations historically built poor farms and almshouses as a welfare endeavor, these spaces also acted as places to keep marginalized individuals out of view of the middle and upper classes (Muller et al. 2020). Poverty was the thread that connected those forced into these facilities (either involuntarily by the state or by lack of resources), but often, marginalization was an interwoven web of poverty, race, ethnicity, and mental or physical illness (Byrnes 2017; Muller et al. 2020). Poor farms offered room and board in exchange for labor; the treatment of residents varied dramatically but was often exploitative if not downright violent (Bushnell 2020; Daley and Pittman-Munke 2016; Nystrom 2014, 2017).

The Brentwood Poor Farm (1841–1868), located in Rockingham County, New Hampshire, represents one of the few bioarchaeological investigations into such an institutionalized population in New England. This research explores the limited ethnohistoric evidence documenting the residents of the poor farm. That history is utilized to interrogate a commingled and fragmentary skeletal assemblage (minimum number of individuals [MNI] = 9) recovered from the farm grounds after accidental exposure during a construction episode. The authors have permission and support from the local community, as well as the New Hampshire Office of the State Archaeologist, to conduct this research; furthermore, the authors are presently working with the town and landowners to establish a reburial plan.

Historical Context

History of Poor Farms in the United States

Poor farms and poorhouses (or almshouses) were facilities meant to house the poor, elderly, infirmed, disabled, and others considered unwelcome in society. These facilities were common in the United States, particularly in the more populous northern states in the nineteenth century (Bushnell 2020). In Nystrom's (2014) summary of the history of and rationale behind the creation of the almshouse system in the United States during industrialization, he remarked that with an increase in nonskilled jobs—and therefore an increase in the number of laborers—there was a resultant decrease in wages (Nystrom 2014:767). When work was available, it was often seasonal and difficult, dangerous, and done for low pay (Nystrom 2014). As states grappled with the growing scale of poverty in the early nineteenth century, some began to see poverty as a social issue requiring a governmental fix (Rothman 1971). That fix was the proliferation of government-run or -assisted almshouses and poor farms. Nystrom states, "The worthy poor [those with disabilities] could obtain the assistance they deserved while also providing the opportunity to reform the character flaws of the pauper through labor" (2014:768), suggesting that the prevailing attitude of the time was that one could work one's way out of poverty and become a beneficial member of society (see also Katz 1986). This concept is rooted in the belief that hard work is an expression of faith and morality, a value system based on Puritan religious principles that were central to early governance of the United States. As Wagner states, these farms were "efforts by early Americans to rationalize life along productive lines with hopes of character development" (2005:46). The primary function of these farms was the care and employment of local paupers, but they were also critical for food production and creating revenue for local economic systems (Daley and Pittman-Munke 2016).

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Due to the drastic changes in means of production during industrialization, a largely male itinerant workforce would frequent poorhouses. Typically, individuals would not stay at almshouses for more than two weeks (Higgins et al. 2002), although many established residences at poor farms during the harsh New England winters (Bushnell 2020). Higgins and colleagues (2002:175) suggest that this could mean that signs of poor health seen on the skeletal remains of institutionalized individuals had less to do with their time in the institution and more with "the result of nutritional or disease stress experienced outside the almshouse." Unsurprisingly, the Great Depression saw increases in longer-term stays (Wagner 2005).

Although American facilities focused more on hospitality and reintegration than their European counterparts (which had a reputation for violence and harsh treatment), there was still considerable variation in the treatment of the poor in these facilities across the United States (Wagner 2005). Nystrom and colleagues (2017) comment that the influential political philosopher Jeremy Bentham "argued that poorhouses should be punitive in nature, intentionally designed to dissuade people from seeking public assistance; those individuals that did not or could not contribute to society should be made to work" (Nystrom et al. 2017:283). Throughout the tenure of the poor farm system in the United States—the mid-1600s to the mid-1900s—there was a general trend from violent treatment and harsh punishments (including whippings) to a system based on positive reinforcement and less severe punishment (Wagner 2005). Less severe punishments, such as isolation, are still physically and emotionally taxing and are not trivial. Forms of violence were always a part of the system (Wagner 2005:41). Birk (2022) notes that treatment of almshouse residents was directly tied to notions of worthiness, and that it was a commonly held belief that "spoiling the poor" (Birk 2022:59) would, as an 1881 issue of the *Atlantic Monthly* states, "tempt the poor into pauperism" (as quoted in Birk 2022:59). According to this issue, punishment at poorhouses was meant to act as a tool to dissuade the poor from taking advantage of the state's charity (Birk 2022). For example, a 1797 Poor Relief Law in Vermont gave overseers permission to whip inmates; other common punishments included withholding food and the placement of inmates in solitary confinement—sometimes in pest houses typically used for smallpox and other epidemic disease quarantine (Bushnell 2020). Daley and Pittman-Munke (2016) claim that individuals with mental disabilities were often controlled by opiates, and both disabled individuals and incarcerated individuals were often chained in jail-like facilities.

The Brentwood Poor Farm

The town of "Brintwood," now Brentwood, was founded in 1742, after its dissociation from the nearby town of Exeter. The rocky sediments made farming a challenge, and the town grew slowly. Given the hardships of life in the region, families supported one another in their daily routines (Brentwood Historical Society 2017:399). Despite helpful neighbors, some individuals did not have the resources to weather the effects of serious illness, injury, old age, alcoholism, single parenthood, or sporadic or permanent unemployment (Brentwood Historical Society 2017:403).

In 1763, the town voted to build a workhouse to employ the underprivileged. Residents held an unsuccessful meeting in 1767 to determine how pauperism should be handled; it took nearly a half-century to be voted on again. Brentwood voted to create an establishment for the poor in 1821, and in 1838, the town legislature decided that it must assume the costs of care for local paupers (Brentwood Historical Society 1967:97). Finally, in 1841, a building was purchased for $2,800 and began to function as the town poorhouse (Brentwood Historical Society 2017). Before the farm was operational, Brentwood auctioned off some local paupers to wealthy residents as indentured servants to decrease the number of poor individuals that would reside at the poor farm. These pauper auctions were common occurrences at the time (Daley and Pittman-Munke 2016:5) and often resulted in brutal conditions for individuals. Some paupers experienced "physical and sexual abuse, lack of food, [and] poor clothing" (Brentwood Historical Society 2017:401), which led to paupers absconding from their custodians. Helping paupers who had left their custodians was unsurprisingly discouraged; newspapers released notices warning against townsfolk opening their homes to deserting paupers.

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The Brentwood Poor Farm operated from its founding in 1841 until 1868. It is unclear how many residents lived at the poor farm at a given time, but its occupancy fluctuated seasonally. Dr. Joseph Dalton and others were hired to look after the medical needs of the "inmates," as they were called (Bushnell 2020), receiving 68 cents for each visit (Brentwood Historical Society 2017:404). By 1868, the Brentwood Poor Farm was no longer feasible to maintain due to the substantial financial burden it placed on the town, and the property was sold to pay off debt accrued from the Civil War. Even after the farm officially ceased operations, it continued to function as a rural medical facility. A steady flow of individuals were interned at the farm into the 1960s, with a particularly large influx of inmates—almost 400—in 1935, due to the Great Depression. Today, Brentwood is home to the county's nursing home and jail, a seeming continuation of the institutionalization originating with the poor farm (Wagner 2005).

Archaeological Context

The land that once held the poor farm passed into private ownership during the 1900s. In 1999, fill from the land—sold for construction and landscaping purposes—was delivered to another private residence in a nearby town for a renovation project. The homeowners quickly discovered skeletal fragments that they initially believed to be animal remains in the deposited fill. After finding several long bones in the deposit, the homeowners called local law enforcement. Police interviewed the owner of the land where the fill was sourced, who claimed having no knowledge of a burial ground on the property. No extant infrastructure or grave markers were visible on the property.

The New Hampshire state archaeologist responded to the site and determined that the remains were historic due to their condition and the presence of coffin materials. It was suggested that the remains were likely those of paupers buried on the grounds of the former poor farm. The remains were turned over to the medical examiner's office, where they remained in storage for 23 years. In 2022, the remains were transferred to the University of New Hampshire's Forensic Anthropology Identification and Recovery Lab for skeletal analysis.

Methods

The remains were commingled and fragmentary due to their unintentional removal and redeposition as part of the commercial fill operation. The material culture associated with the remains was minimal, only consisting of fragments of painted coffin wood and glass beads. Prior to skeletal analysis, the authors conducted commingling analysis, refitting, and MNI determination. Given the observed taphonomic variation, along with the presence of (1) sexually dimorphic elements such as the cranium and innominate, (2) variation in pathological conditions such as osteoarthritis, and (3) variation in element size and form, there were many instances of nonoverlapping elements or groups of elements that the authors considered as separate individuals. Paleodemographic and paleopathological analyses followed standard nonmetric data collection protocols to assess age at death and sex for these individuals when possible (Buikstra and Ubelaker 1994; Klales et al. 2012; Meindl and Lovejoy 1985; Nawrocki 1998; Osborne et al. 2004; Shirley and Jantz 2011; Walker 2008). No formal ancestry estimation was undertaken.

Following standard procedures, the authors recorded evidence of all skeletal lesions by written description and scoring when applicable (Buikstra 2019; Buikstra and Ubelaker 1994). Degenerative joint disease (DJD), such as osteoarthritis (OA), was analyzed following Waldron (2009). The skeletal sample was notable for the extreme antemortem tooth loss (AMTL) and alveolar resorption seen on multiple individuals' maxillae and mandibles, which therefore produced a small dental dataset; pathological conditions of the present dentition and alveolar bone were recorded for those individuals by tooth and scored following standard protocols (Buikstra and Ubelaker 1994).

Given the hardships these individuals faced due to their social position (especially manual labor on the farm), this research was chiefly interested in markers of systemic physiological stress and degenerative joint diseases. Stress here is defined as any disruption to an individual's physiological homeostasis. Although stress itself may not be observable, its consequences are. Klaus (2012) laid out six markers of systemic biological stress, used as hallmarks of structural violence; three of those markers

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are useful only in analyses of large skeletal samples. In contrast, the other three markers—(1) periosteal reaction (ossification of the membranous sheath on the outer surface of bone, which is a sign of nonspecific infection and indicates systemic stress [Weston 2012]), (2) linear enamel hypoplasia (linear defects on tooth enamel that results from childhood illness or stress events [Waldron 2009]), and (3) porotic hyperostosis / cribra orbitalia (porosity of the cranial vault and eye orbit, respectively, which are traditionally thought to be indicative of iron deficiency anemia [particularly cribra orbitalia] and are generalized signs of childhood illness or stress [O'Donnell et al. 2023])—are useful for exploring the stress placed on an individual or a small sample (Garcia-Putnam et al. 2021). Degenerative joint disease, such as osteoarthritis (OA), which is the result of joint disfunction from trauma (including overuse) or other conditions (Waldron 2019), commonly presents as lipping and/or porosity at joint surfaces. OA may advance to eburnation—the complete breakdown of cartilage in a joint surface resulting in bone-on-bone contact that produces a polished appearance or groove formation (Waldron 2019)—and in severe cases, elements can fuse together, limiting all joint mobility. The presence, location, and state (active, healing, or healed) of lesions, resulting from physiological stress and degenerative joint disease, were recorded following standard protocols (Buikstra and Ubelaker 1994; Waldron 2019; Weston 2012).

A unique contribution to this bioarchaeological sample is the authors' collaboration with the DNA Doe Project (DDP), a national nonprofit organization that identifies decedents using forensic investigative genetic genealogy (FIGG). Although it is cost prohibitive to use FIGG to attempt a positive identification (i.e., the recovery of a specific name matched to an individual with proof of life and death) on all the individuals in the sample, the authors selected one individual with preserved hair to submit for DNA extraction and sequencing. Pending a successful extraction, DDP genealogists will create ancestry trees for this individual. FIGG is a relatively new tool in forensics (Glynn 2022), but it may also be useful for historical bioarchaeology research. Recovering the name of one person in this assemblage cannot tell us everything about the individuals who lived and died at the site. However, a deeper understanding of one person, anchored by historical context and genealogical research, can provide a richer life history narrative.

Results

The burial environment was clearly dynamic and variable. There was considerable taphonomic variation that impacted the preservation, color, condition, and fragmentation of the remains in numerous ways. For example, whereas one individual retained head hair, and another exhibited darkly stained remains with limited postmortem damage, others' remains were gray in color, brittle, and exfoliated. The latter remains had postmortem damage, including bending and folding of the cortical bone, which could indicate a wetter burial environment than that of other remains.

Along with eight partially complete adult individuals, there was a sample of 54 fragmentary elements that could not be grouped with a particular individual. A single isolated cranial fragment (a partial sphenoid) was representative of a ninth individual—the only subadult remains in the sample. Based on the age of fusion of the sphenoid to the occipital (Shirley and Jantz 2011), this individual was under 17 years of age; however, based on the size of the fragmentary element, this individual was likely considerably younger than 17 years of age.

Osteobiographical Vignettes

To rehumanize these individuals, the authors have chosen to present the following analyses by individual (corresponding to Table 1) in so called "osteobiographical vignettes." These vignettes act to both individualize and contextualize these remains. Below are brief demographic profiles of each individual, along with descriptions of the suite of pathological conditions present on each individual's remains.

Individual 1

Represented by a cranium and cervical vertebrae 1–2, this is possibly a middle adult (35–50 years old) male. This individual's mandibular fossa exhibits porosity and lipping, with overall malformation and flattening of the temporomandibular joint (TMJ) surface, a condition that would have drastically

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Table 1. An Inventory of the Skeletal Remains from the Brentwood Poor Farm with Accompanying Demographic Information When Available.

Ind.[a]	Elements Present	Age at Death	Biological Sex
1	Cranium, cervical vertebrae (C) 1–2	Middle Adult	Pos.[b] Male
2	C1–C7, thoracic vertebrae (T) 1–10	Adult	Indeterminate
3	Lumbar vertebrae (L) 1–4, sacrum, left os coxa	Middle to Older Adult	Pos. Female
4	Fragmentary cranium, mandible, C1–5	Middle to Older Adult	Pos. Male
5	Frontal and left and right parietals (preserved hair on all elements)	Adult	Indeterminate
6	Partial cranium, mandible, C1–5, T6	Middle to Older Adult	Indeterminate
7	Left and right os coxae, femora, tibiae, and fibulae	Middle to Older Adult	Pos. Female
8	Mandible; left humerus; left and right ulnae, radii, femora, and tibiae; right carpals; metacarpals (MC) 1–5; left carpal; left MC1–2; left talus and calcaneus; and left metatarsals (MT) 1–5	Middle to Older Adult	Pos. Male
9	Sphenoid fragment	Subadult	NA

[a] Ind. = Individual
[b] Pos. = Possible

impacted this individual's ability to masticate. Both cervical vertebrae exhibit osteoarthritis, including severe pitting and lipping; the lipping was noticeably more severe on the left side. While much of this individual's dentition was lost postmortem, the right maxillary molars, right and left maxillary canines, and right lateral maxillary incisor were all lost antemortem, likely a result of periodontal or dental disease.

Individual 2

This individual, an adult (18+) of indeterminate biological sex, is represented by a partial vertebral column (cervical vertebrae 3–7, thoracic vertebrae 1–10). These remains do not articulate—due to substantial size and form differences—with the vertebrae from Individual 1. The vertebrae exhibit severe osteoarthritis, especially on the left side. The cervical vertebrae display widespread macroporosity and compression to the left side. Furthermore, eburnation is present on the left articular facets of cervical vertebrae 4 and 5. Although osteophytic lipping is severe throughout, cervical vertebrae 6 and 7 and thoracic vertebrae 1 and 2 have progressed to fusion, more completely on the left side. All the thoracic vertebrae show mild pitting and osteophytic lipping.

Individual 3

This individual, a middle to older adult (35–50+) possible female, is represented by lumbar vertebrae 1–4, a sacrum, and a left innominate. The left acetabulum has a small lesion within the acetabular fossa, which may be indicative of strain, damage, or a possible tear of the ligamentum teres—the ligament responsible for preventing femoral dislocation (White et al. 2011). The sacrum and lumbar vertebrae 1–3 show mild pitting and lipping, whereas lumbar vertebra 4 has advanced osteophytic activity on the body.

Individual 4

Represented by a fragmentary cranium, a mandible, and cervical vertebrae 1-5, this individual is a middle to older adult possible male. This individual suffered from complete antemortem tooth loss (AMTL) in the maxilla and mandible. A healing large abscess that likely involved the left canine is also present on the mandible. Cervical vertebrae 3–5 demonstrate signs of osteoarthritis including macroporosity and osteophytic lipping.

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Individual 5

This individual, an adult of indeterminate biological sex, is only represented by a frontal and partial left and right parietals (with hair preserved and adhered to the frontal). There is widespread active porotic lesion formation on the internal surface of the frontal with accompanying thickening and densification of the frontal, representing a possible case of hyperostosis frontalis interna (HFI). HFI is typically an incidental finding and does not "cause significant clinical disease" (Brickley and Mays 2019:561). However, its presence on this individual may be useful for sex and age-at-death estimation, as this condition is more often seen in females—particularly postmenopausal females—than males (Brickley and Mays 2019; Hershkovitz et al. 1999).

Individual 6

This individual is a middle to older adult of indeterminate biological sex and is represented by a partial cranium, mandible, and partial vertebral column (cervical vertebrae 1–5 and a thoracic vertebra). There is AMTL on the mandible leading to extreme alveolar resorption. The right and left central mandibular incisors were present at the time of death but lost postmortem. The left mandibular canine is the only tooth remaining in the mandible, and it exhibits extreme wear, with dentine exposure and a carious lesion at the cementoenamel junction. The right mandibular condyle exhibits a malformation due to a temporomandibular joint anomaly like that seen in Individual 1; both individuals' conditions are postulated to result from the impacts of AMTL on mastication (Zheng et al. 2023). Individual 6's corresponding right temporal bone displays an arthritic pad with mild eburnation at the location that receives the remodeled mandibular condyle. Moderate microporosity, minimal macroporosity, and osteophytic lipping are present in the bodies and articular facets of cervical vertebrae 1–5 and the thoracic vertebrae.

Individual 7

A middle to older adult possible female, this individual is represented by left and right innominates, femora, tibiae, and fibulae. There is substantial entheseal activity superior to the acetabulum of the right innominate where the rectus femoris muscle attaches, used to flex the leg at the hip. There is also mild lipping in the right acetabular fossa and corresponding entheseal growth on the right femoral head. Entheseal changes are alterations of muscle attachment sites on bone that result from overuse of that muscle or muscle group (Villotte and Knüsel 2013). The right femur exhibits lipping and other entheseal changes near the femoral head and neck. The left tibia exhibits either active periosteal reaction or entheseal changes that are obscured by substantial postmortem damage. The right tibia exhibits rugosity throughout, with considerable entheseal changes.

Individual 8

A partially complete individual without a cranium (see Table 1), this is a middle to older adult possible male. The only teeth lost postmortem were the mandibular incisors; all others were lost antemortem. There is even resorption of the remaining alveolar bone, suggesting that loss of dentition happened rapidly. The right trapezium and first metacarpal show osteophytic growth, eburnation, and pitting, which is characteristic of trapezio-metacarpal arthritis (involving the thumb).

Burial Goods

Glass beads were recovered during the salvage operation and were not associated with any individual. The beads ($n = 8$) were colored blue ($n = 3$), brown ($n = 4$), and one was too degraded to determine original color (mottled brown and tan). Seven of the beads were circular with rounded edges (average internal diameter of 2.8 mm and average external diameter of 7.3 mm), and one of the blue beads was smaller and hexagonally faceted (internal diameter of 2.8 mm and external diameter of 4.9 mm). They were all consistent with nineteenth-century glass beads recovered from historic sites across the United States. Their construction suggested they postdate 1820, around which time hand-blown beads fell out of practice (White 2005). Coffin wood fragments were painted white but retained no other diagnostic features.

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Discussion

Demography and Health at Brentwood

The Brentwood Poor Farm skeletal sample provides a dataset that is missing from northern New England history. In an accounting of paupers residing in Rockingham County, New Hampshire, from the late 1700s to the late 1800s, Oesterlin (1992) shows that 193 paupers resided in Brentwood. A subsample of 68 of these individuals was recorded in Brentwood accounts dating between 1841 and 1868, within the time period that the poor farm was operational. Of that 68, 43% were designated as males and 57% as females. It should be noted that sex was assigned by the authors based on the first name of the individual; given conventions at the time, it is assumed that traditionally masculine and feminine names correspond in large part to how the individuals were gendered or how they gendered themselves. The skeletal sample is 60% male (3/5 individuals) and 40% female (2/5 individuals); the sex of four out of nine individuals was not possible to estimate due to the fragmentary nature of the remains. These sex percentages are not substantially different from the demographics reported in Oesterlin (1992) above; it should be noted that skeletal samples are never one-to-one representations of the once living population (Wood et al. 1992), and this sample's size limited the interpretive power of this study.

Records from the poor farm do not provide any information on the overall health of its residents. The only record of the health of Brentwood's Poor Farm residents comes from the skeletal analyses presented here. Widespread, severe OA was common in this sample (6/8 or 75% of adult individuals), particularly of the vertebral column. Entheseal changes were present in the lower limbs; of the two individuals with lower limb and pelvic skeletal elements present, one showed signs of entheseal changes. Both severe OA and entheseal changes are indicative of increased stress on these individuals' bodies, possibly a result of agricultural or early industrial workloads. The sample comprises mostly middle to older adults; it should be noted that OA can also represent age-related changes rather than a response to labor or injury. The OA observed in this sample is likely as severe as it is due to both these individuals' advanced ages and their institutionalization. No evidence of fractures or traumatic injury was observed on the remains. AMTL was common; all four individuals with maxillae and/or mandibles showed evidence of advanced AMTL. The only tooth present in the sample (Individual 6) exhibited a large carious lesion and severe wear; no linear enamel defects were observed on this single tooth. Two of the individuals had anomalous malformation of their TMJs. Given that the mandibular fossae for both individuals were effectively flattened and that there were arthritic reactions on both surfaces, it is likely that these were not the result of injury, but instead, bony remodeling associated with biomechanical shifts created by AMTL. Effectively, the loss of their dentition impacted their bite, and to compensate, there were resultant muscular and skeletal changes to the TMJ (Zheng et al. 2023). Dental diseases causing tooth loss and carious lesions are unsurprising at this time, especially given the circumstances of these individuals' lives. Poor diets, a lack of adequate dental care at the time, and other stressors likely contributed to this widespread poor dental health.

Klaus (2014) and others (see Bright 2021) have linked systemic biological stress to structural violence; that is to say, when a group or individual is marginalized by social structures (e.g., bigotry, poverty, inequality), their bodies may physically record or embody those lived experiences. As previously mentioned, markers of systemic biological stress such as periosteal reaction, cribra orbitalia / porotic hyperostosis, and linear enamel defects, are the physical manifestations of this stress, which are brought on by nonspecific infections, nutritional deficiencies, and childhood illness. Periosteal reactive new bone formation was rare in the sample. The only two cases include a possible instance of healed periosteal new bone growth on Individual 7 and a single fragment in the commingled assemblage with an active periosteal lesion. The scarcity of these lesions is surprising given the context but is likely the result of the limited number of lower limb bones in the sample (where periosteal reactions are most observed) and the postmortem damage and fragmentation. Porotic hyperostosis was also not present in this sample, but one individual in the sample did have the characteristic signs of hyperostosis frontalis interna (Brickley and Mays 2019:561). Cribra orbitalia, a response to childhood stress, was not evident on these remains (of the four individuals with at least one partially intact orbit). This could

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Table 2. List of Known Almshouse / Poor Farm Skeletal Assemblages from the United States.

Name	Location	Dates	MNI
Milwaukee County Poor Farm (1991/1992 collection)	Wauwatosa, WI	1878–1925	1,649
Milwaukee County Poor Farm (2013 collection)	Wauwatosa, WI	1878–1925	761
Blockley Almshouse	Philadelphia, PA	~1838–1905	248
Erie County Poorhouse	Buffalo, NY	1851–1913	376
Dunning Poorhouse	Chicago, IL	~1851–1869	120
Albany County Almshouse (2002 excavations)	Albany, NY	1826–1926	1,427
Uxbridge Almshouse	Uxbridge, MA	1831–1872	32
Monroe County Almshouse	Rochester, NY	1826–1863	296
Brentwood Poor Farm	Brentwood, NH	1841–1868	5

Source: Adapted from Nystrom 2017.

be the result of biases inherent in small samples or evidence of a lack of childhood stress, possibly suggesting institutionalization after childhood. As previously mentioned, this sample was notable for its extreme AMTL. As a result, the dental sample was nearly nonexistent (a single tooth), so the lack of dental enamel defects was also not surprising. Although the individuals that comprise this sample do not display widespread signs of systemic biological stress, the suite of other pathological conditions described above and their historical context depict a group of individuals that were likely not healthy due to their marginalized status and the labor they were forced to perform.

Previous Bioarchaeological Investigations into Poor Farms and Almshouses

The bioarchaeology of almshouses, poor farms, and other institutional populations has grown tremendously in the last decade. This provides an exceptional source of comparative data in this analysis of Brentwood's Poor Farm residents. In the definitive volume on dissection and autopsy in the bioarchaeological record—typically undertaken on unwilling and unwitting deceased victims—Nystrom (2017) and others in the volume highlight several case studies of dissection and autopsy from poor farm and almshouse populations. This includes the Milwaukee County Poor Farm (Wauwatosa, Wisconsin; Dougherty and Sullivan 2017), the Blockley Almshouse (Philadelphia, Pennsylvania; Crist and Crist 2011; Crist et al. 2017), the Erie County Poorhouse (Buffalo, New York; Nystrom and Mackey 2014; Nystrom et al. 2017), the Dunning Poorhouse (Chicago, Illinois; Grauer et al. 2017), and the Albany County Almshouse (Albany, New York; Lowe 2017). Higgins and colleagues (2002) and Wesolowsky (1991) also present data on the Monroe County Almshouse (Rochester, New York) and the Uxbridge Almshouse (Uxbridge, Massachusetts), respectively. These comparative cases were chosen because of their abundant published datasets and because they all operated during a time period similar to that of the Brentwood facility (1820s to 1920s).

Salvage excavations in Wauwatosa, Wisconsin (1991–1992), recovered 1,649 individuals (985 adults and 363 subadults) from the Milwaukee County Poor Farm (other remains from this facility have since been excavated; see Table 2). Of the 985 adult remains, 75.6% were estimated to be male ($n = 745$) and 12.7% were estimated to be female ($n = 125$); of the adults, nearly half (46.9%) were estimated to be middle adults (35–50 years; Dougherty and Sullivan 2017). Dougherty and Sullivan (2017) note high mortality rates for infants in the skeletal sample. Milligan (2010:111) notes, "When looking specifically at the adults, linear enamel hypoplasias, tibial periostitis, and degenerative joint disease are the most frequent indicators" of poor health and goes on to show that cribra orbitalia and porotic hyperostosis were present but less common in adults. Other signs of specific infectious diseases, such as tuberculosis, were common across the sample as well (Dougherty and Sullivan 2017; Milligan 2010).

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Salvage excavations in 2001 at the Blockley Almshouse, Philadelphia, Pennsylvania, recovered thousands of commingled human skeletal remains, mostly estimated to be older males of European descent (Crist et al. 2017). The commingled remains represented a minimum of 248 individuals: 67% were estimated to be males, 30% estimated to be females, and 3% were indeterminate. Over 60% of the sample was estimated to be older than 35 years old. Crist and colleagues (2017) note that vertebral osteophytosis and other degenerative changes to the spine were common.

Nystrom and colleagues (2017) and others (Byrnes 2017; Muller et al. 2020) have extensively studied the Erie County Poorhouse in Buffalo, New York. Salvage excavations identified over 400 grave features and recovered human remains from 364 of these locations, representing 376 individuals. Of this sample, there were 58 neonates and infants, eight juveniles, 58 individuals between ages 16 and 35, 58 middle adults (35–50 years old), 106 middle/older adults (30+), and 16 older adults (50+). Of the adults, 111 were estimated to be male or probable males, and 61 were estimated to be female or probable female (Nystrom et al. 2017). Antemortem trauma was common in adults (32.4%)—especially in males—and less so in subadults; two infants showed evidence of antemortem rib fractures (Byrnes 2017; Muller et al. 2020). Childhood stress appears common in the sample. Not only do 14% ($n = 8$) of infants show signs of cribra orbitalia but enamel defects, a common sign of childhood stress embodied on adult dentition, were also common (54.5% of adults with dentition). Entheseal changes, hypothesized to result from the hard labor faced by inmates, were also common in this sample (Odien 2015). Like signs of physiological stress, poor dental health was also widespread and linked to these individuals' marginalized status (Knowles 2016).

Archaeological excavations in 1990 at the Dunning Poorhouse, also known as the Cook County Poor Farm (Chicago, Illinois), recovered the remains of a minimum of 120 individuals from 114 grave features (Grauer et al. 2017). The sample consists of 61 adults, 34 of which were estimated to be female (56%), and 27 of which were estimated to be male (44%). Sixty-five percent of the sample was estimated to be 25 years old or younger (including 35% of the sample under 15 years old; Grauer et al. 2017). Grauer and colleagues (2017) note the high frequency of both children and females in the sample, which is counter to the predominate narrative that poorhouses catered mostly to itinerant male laborers. The authors also note extensive pathological conditions suggestive of hard labor and physiological stressors such as infections and nutritional stress.

The Albany County Almshouse (Albany, New York) was excavated (salvage) in 2002, resulting in the recovery of the remains of 1,427 individuals (903 of which were preserved enough for analysis). Of this subset, 283 were estimated to be females, and 441 were estimated to be males. Lowe notes that "the Albany County Almshouse Cemetery sample had few children under the age of 19 and several adults over 50 years of age, a somewhat atypical mortality profile. A typical human age pattern for mortality is high for infants, declines around 5–10 years, and then begins to increase again around age 40" (2017:315). Solano (2006) finds that OA was common in the sample and relates the high incidence rates and overall symmetry of the lesions to the unskilled repetitive manual laborer performed by the majority of those buried at the almshouse. These data are supported by the higher rate and elevated severity of traumatic injuries present on male skeletal remains—who were more likely than females to have been employed as manual laborers at the time (Solano 2006).

Archaeological excavation in the late 1980s of the Uxbridge Almshouse (Uxbridge, Massachusetts) resulted in the recovery of 32 total burials. The sample included the remains of six infants, one child, three young adults, 11 middle adults, and 10 older adults. Of the adults, 10 were estimated to be male, and 14 were estimated to be female. Ancestry estimation suggests that most of the individuals were likely of European ancestry (Wesolowsky 1991). There was evidence of osteoarthritis (including fused vertebra) in eight individuals (all aged 40–50+) that Wesolowsky (1991) suggests is likely related to age rather than to stress or injury. Schmorl's nodes were noted on three individuals, and periosteal reaction and osteomyelitis were present but rarely severe on multiple individuals. However, multiple individuals in the sample showed signs of antemortem fractures, including four individuals with multiple fractured elements. Dental pathologies including antemortem tooth loss, carious lesions, and abscesses were also common in the sample (Wesolowsky 1991).

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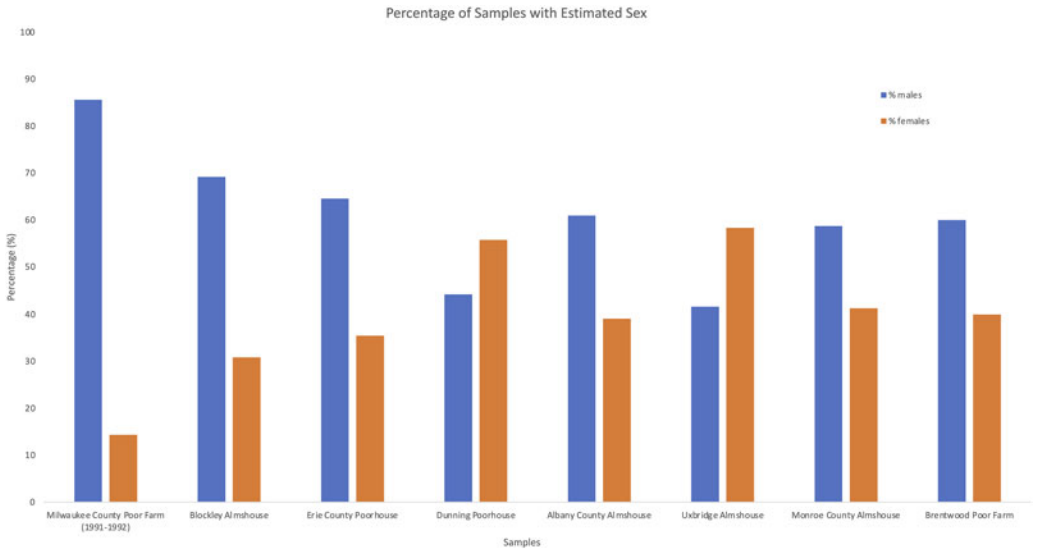

Figure 1. The percentage of male and female skeletal remains from eight poorhouse samples (Byrnes 2017; Crist and Crist 2011; Crist et al. 2017; Dougherty and Sullivan 2017; Grauer et al. 2017; Higgins et al. 2002; Lowe 2017; Milligan 2010; Muller et al. 2020; Nystrom and Mackey 2014; Nystrom et al. 2017; Wesolowsky 1991). Note that remains identified as male or probable male (and female and probable female) were collapsed into one category, and remains of ambiguous and indeterminate biological sex were excluded. (Color online)

Salvage excavation at the Monroe County Almshouse (Rochester, New York) resulted in the recovery of the remains of 296 individuals. This sample included 67 subadults and 229 adults. Of the adults, 83 were estimated to be female or probable female, and 118 were estimated to be male or probable male (Higgins et al. 2002). Higgins and colleagues (2002) do not note specific age breakdowns, but they do comment that the average age at death for subadults was three years old, and the average for adults was 40 (44 years old for males, 35 years old for females; Higgins et al. 2002:169). The authors go into detail about the presence and frequency of various signs of systemic physiological stress and other pathological conditions within the sample, including periosteal reaction, cribra orbitalia and porotic hyperostosis, dental caries, calculus, hypoplasia, and DJD. Higgins and colleagues (2002), using the health index developed by Steckel and colleagues (2002), suggest that these individuals scored just above average; the authors note that this may be the result of individuals dying of infectious diseases that did not impact skeletal tissue, or it could suggest that their health was not impacted by their institutionalization.

Demographic Comparison

Using the subsample of remains from each skeletal collection where sex was reliably estimated yields an average of 39% females and 61% males for these eight samples (see Figure 1 for a breakdown of sex estimation percentages by sample). There is a well-established bias toward male sex estimation in osteological data collection, which could explain the high proportion of males in these datasets (Nakhaeizadeh et al. 2020; Weiss 1972). However, historical records suggest that men were more likely to be a part of the seasonal itinerant labor force that would frequent almshouses, so the sex differences seen here could reflect this male-focused phenomenon. However, Rockingham County poorhouses took in many women, particularly during economic downturns; or as Oesterlin (1992:iii) states, "Many women had to turn to the towns for support when their husbands would become sick or unable or work or care for the family." Only the Dunning Poorhouse and the Uxbridge Almshouse had more females than males identified in their skeletal assemblages. Grauer and colleagues (2017) note this fact with surprise, given the historical pattern mentioned above. Brentwood, despite its small sample ($n = 5$ individuals with estimated sex), follows the trend described here (3:2 male to female). Age-at-death

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profiles are harder to compare between samples because of the variation in how age ranges were reported, but a few general trends emerge. Multiple samples (Milwaukee County Poor Farm, Erie County Poorhouse, and Uxbridge Almshouse) have high percentages of infants and children, with the Erie County Poorhouse and Milwaukee County Poor Farm samples consisting of 15% and 29% infants, respectively. Across the samples, there are few adolescents and few remains identified as young adults. Middle and older adults and remains identified simply as adults make up the majority of the samples. This trend holds true for the Brentwood sample as well.

Paleopathological Comparison

Given the variation in how paleopathological data is presented, it is difficult to quantitively compare the various poor farm and almshouse samples to one another. However, several qualitative trends emerge. DJD—in this case, osteoarthritis—is present and common in three of the five comparative samples with paleopathological data available. Higgins and colleagues (2002) note that at the Monroe County Almshouse, there is substantial DJD in many of the older male remains, which they state is unsurprising given the hard labor many of these individuals were subjected to (Higgins et al. 2002:177). OA of the vertebral column was particularly common and often severe in these comparative samples (3/5 samples noted widespread vertebral osteophytosis and other degenerative changes to the vertebral column), and the Brentwood sample analyzed here is no different. Markers of systemic biological stress are variably common across the samples. Cribra orbitalia and porotic hyperostosis were present or rare in three of five samples; one individual in the Brentwood sample showed characteristic signs of HFI, a related condition but not indicative of systemic stress. The presence of linear enamel defects was common across all samples but not comparable to the Brentwood sample due to the near lack of a dental dataset. Periosteal new bone growth was also common across the comparative samples but was rare in the Brentwood sample, which suggests that the Brentwood individuals could have suffered less from nonspecific infections than individuals in the other samples (Weston 2012). The lack of formal excavation and the taphonomy and postmortem damage may also be biasing these findings. Dental pathological conditions such as AMTL, carious lesions, and abscesses were common across the samples. The Brentwood sample is notable for extreme AMTL. Furthermore, the only tooth present had a large carious lesion. It is unsurprising that poor dental health was common across these samples given their status and the time period. Traumatic injuries that resulted in fractures were present but not common across the samples, and the Brentwood remains did not have any evidence of antemortem or perimortem injuries resulting in fractures. This could be the result of less violence or injury in this sample, or it could be the result of the incomplete nature of the remains. In sum, although there is variation in the severity and frequency of various pathological conditions, all these samples show, in various incarnations, how marginalization, poverty, and inequality negatively impact the health of those held down by the structures of society. Although Brentwood may have been more rural than many of these comparative samples, the hardships faced by its poorest residents were similarly embodied in their skeletal and dental tissues.

Conclusions

The remains of those interred at the Brentwood Poor Farm were not formally excavated but rather salvaged from a construction project; no visible burial markers are present at the original burial site. Fortunately, the landowners have collaborated with the authors and the state to seek reinterment in the precise location of the original burial. Through consultation with the authors and the New Hampshire state archaeologist, the landowners understand the gravity of the site and are aiding in the cemetery's protection in perpetuity.

It is unclear from historical sources how, or if, the residents of the Brentwood Poor Farm experienced interpersonal violence throughout their stay or before entering the farm. The state of being both poor and institutionalized likely resulted in the residents existing in a precarious state during the last stages of their lives, and in feeling the negative impacts of otherness and structural violence (Voss 2018). Hegemonic control—often ethnic and economic—skews the production and recordation of history (Stoler 2008; Trouillot 1995). As a result, the deaths of marginalized individuals, deemed

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unworthy or meaningless by those in power, were often not recorded or reported due to neglect, ambivalence, or erasure (De León 2015). The paupers of Brentwood were buried in hasty graves—possibly unmarked—and their final resting place was forgotten over time as the poor-farm model for social welfare was dissolved and the land passed into private ownership. Records from the poor farm are ephemeral and incomplete, often highlighting the day-to-day operations of the farm in terms of costs and product, not human lives. Here, the authors envision this lack of documentation for residents (although not for goods, services, and labor) as purposeful neglect and a form of posthumous violence enacted upon an already aggrieved population. Given the lack of individualized burial records, observable gravestones at the site, or any surviving documentation about the people who lived and worked on the farm, this bioarchaeological analysis is one of the few ways to reconstruct the experiences of the poorest residents of the state.

All individuals deserve a respectful final disposition. Chamoun (2020) and others (see Muller 2020) make the case that bioarchaeologists have a duty to care about those that we study and to make their descendants' needs a higher priority than our own research questions. To that end, the authors have attempted to identify one individual using FIGG (results in progress) as part of a larger effort to encourage bioarchaeologists to—when possible—use similar methods to advocate for the unidentified individuals in our care. Working to humanize individuals is necessarily a collaborative endeavor in modern bioarchaeology, with practitioners increasingly researching alongside local community members, historians, and descendants. Bioarchaeologists can work with local communities to explore the lives of former inhabitants of their town by utilizing a broad swath of resources, including new methods such as FIGG, to assist with a respectful final disposition in an efficient and timely manner. Although the Brentwood Poor Farm sample is small, and the story is unfortunately familiar, this work nonetheless underscores that marginalized groups in the past have the right to a final resting place and that their stories must be re-centered in the historical narrative. Although aspirational, this work hopes to show that bioarchaeology can do good rather than simply not do harm.

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