New York City Hall Park:
Analysis of Partial, Scattered, and Incomplete Human Skeletal Remains Recovered during the 1999 Renovation of the Park

2004

Submitted by
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Acknowledgments

Several individuals are thanked here for their assistance, support, and professional contributions.

Erica B. Jones served as my replacement me when I could not be present at City Hall Park during the renovation. Erica also documented and scored all the dental remains from the site, and assessments of individual age, dental wear, and dental pathology are attributed to her.

At the Smithsonian Institution Department of Anthropology, there were many people who made the project and the analysis of the skeletal material possible. Douglas W. Owsley suggested my name to Parsons Engineering Sciences, Inc., and the Landmarks Preservation Commission of the City of New York. Doug also provided me with guidance and direction for the analysis of the materials and the writing of the report. David R. Hunt found work and storage space in the National Museum of Natural History for this project, including his own work space, at times. Dennis Stanford and Pegi Jodry loaned me their laboratory space while they were in the field. Steve Ousley and Erica Jones digitized the craniometrics on the cranial materials where measurements were possible. Karen Everest donated many hours of work reassociating bone fragments into individual bones. Laura Bullen assisted me with the inventories of features and areas of the site, and Hope Williams helped with the bone inventories. Rebecca Kardash is thanked for hours of data entry, reading handwriting from a variety of hands, and for generating the reports based on the data. Kari Bruwelheide provided moral support, and found copies of important reference reports when I was in need. Erica Jones, Dawn M. Mulhern and J. Christopher Dudar all provided moral support, and were all generous with their professional comments and ideas.

David A. Jackson provided moral support and graphics. He also withstood many months of having his spouse living and working 250 miles away, with the peculiar travel arrangements, long-distance finances, bizarre scheduling, and many sacrifices associated with the two-residence situation.

Introduction

The report that follows serves as fulfillment of a contract between the Parks and Recreation Department of the City of New York and Marilyn R. London, physical anthropologist, for the analysis of human skeletal remains recovered from the New York City Hall Park from January 1999 through August 1999. The report will supplement the archaeologists' report, which will include maps and analyses of the artifacts found in the Park. All human skeletal remains discussed below were recovered during the renovation of City Hall Park under the direction of the Landmarks Preservation Commission and through the City's Parks Department. The renovation was to restore the City Hall Park to its 19th century stateliness (see Figure 1) and to install several new safety features.

New York's City Hall Park is located just south of Chambers Street, between Broadway and Centre Street. The Brooklyn Bridge is directly east of the park. Only two buildings were standing on the park in 1999, the City Hall and the New York City Court House (Tweed Courthouse). A subway station (City Hall) is present on the northeast corner, and a station that is no longer in service is south of City Hall.

The cultural resource management of the Park was the responsibility of Parsons Engineering Science, Inc. (10521 Rosehaven Street, Fairfax, VA 22030). Parsons employed a Principal Investigator (Petar Glumac), Field Supervisors (Julie Abell and Sean Fitzell), Archaeology Supervisor (Charles McNutt, Jr.), and Physical Anthropologists (Marilyn R. London and Erica B. Jones), as well as local field archaeologists (see Appendix I). Parsons was responsible for the planning and excavation of test pits, trenches, and advance excavation in areas of City Hall Park where impact on historic materials might be expected. The team excavated the test areas and documented artifacts, historic architectural features, skeletal materials, and the presence of intentional burials. The test pits and trenches were excavated in areas where construction might impact any archaeological or historic materials. In addition, the team was responsible for monitoring the work done by construction crews (backhoe operators, electricians, plumbers, cement workers), and to stop the construction whenever artifacts, architecture, or remains were located. At no time was the Park treated as an archaeological site *per se;* no testing was done in areas of archaeological interest, only in areas of potential impact by construction. Many of the test pits and trenches were actually part of the construction process, with the pits later used for the placement of lamp posts and some of the trenches used for laying pipes or electrical cables.

The southern part of the Park was not a focus of recovery of artifacts or remains, as it had been extensively excavated and rebuilt several times previously, and much of the area had been occupied by a large Post Office. However, the construction in that area was periodically checked by team members to insure that important artifacts and structures were not damaged. No human remains were found south of City Hall.

Artifacts were collected, numbered, bagged, mapped, and recorded in field records, and sent to Fairfax, VA for storage while awaiting analysis. Historic architectural features were mapped and compared to historical maps and records to

allow for adjustment in the test planning and in the architectural plans for the Park renovation. When bones of any kind were found during construction, excavation, or screening of soil, the physical anthropologist was responsible for determining immediately whether the bones were human or not. Any human bones removed from the soil were bagged separately and given into the custody of the physical anthropologist for later analysis.

Excavation of Human Remains in the New York City Hall Park

When complete or partial burials were found, the excavation was performed by a senior archaeologist with the assistance of the physical anthropologist, by the physical anthropologist alone, or by senior archaeologists and crew members under the guidance of the physical anthropologist. The extent of each burial, or partial burial, was determined using standard archaeological procedures and using standard tools, including small trowels and brushes. Complete burials or partial burials that were clearly *in situ* were not removed from the ground, as directed by the Landmarks Preservation Commission. They were exposed or partially exposed (to determine the extent and completeness of the burial), documented as much as possible, photographed, and covered initially with protective materials. At the end of the construction period, the burials were protected and covered with soil under the guidance of a conservator, Gary McGowan (see Figure 2). Limited information is available from these burials, since measurements could not be made and normal anthroposcopic observations were obscured by the surrounding matrix.

In some cases of *in situ* burials, exposure of one burial resulted in the exposure of one or more additional burials beneath the skeleton nearest the surface. These earlier burials were sometimes in the same orientation as the later ones, and sometimes in completely different orientations. This was true in the northeast quadrant only. Maps provided by the archaeologists will indicate the location and orientation of these superimposed burials, found in the Triangle area in the northeast quadrant of the Park (Figure 3). The burials that were found below others had very little analysis done, if any, due to inaccessibility and condition.

Many of the areas containing human remains were given feature numbers so that they could be excavated as whole bones or assemblages of bones without respect to the arbitrary grid lines assigned. If the remains were determined to be secondary (partial and not in anatomical position), the bones were removed from the construction area.

Materials and Methods

While the recovery of historic and archaeological materials was ongoing, the physical anthropologist spent a great deal of time assisting the archaeologists with excavation and screening, identification of *in situ* materials, and surface recovery in the areas to be impacted by the construction. When any bones were encountered, the physical anthropologist was called in immediately to determine whether they were human or not.

Initially, all bones were documented at the site, in the storage shed used by Parsons, or in the physical anthropologist's lodgings. In the beginning of March, 1999, the Landmarks Preservation Commission and the Parks Department made a facility available for the analysis in the closed (for renovation) New York City ("Tweed") Courthouse, which was accessible only through a security check. This facility was a large lavatory, with a sink and enough space for tables. All bones were laid out overnight to dry in this secure room, soil was brushed off if necessary, and the physical anthropologist sorted human from nonhuman bones. The nonhuman materials were bagged, numbered, and sent along with the artifacts to Fairfax, VA to await analysis. The human bones were kept on site.

When Tweed Courthouse was closed at the end of March 1999, a construction trailer was assigned to the physical anthropologist (Figure 4). The trailer had a desk area along one end, a drafting table along the other end, and storage space between. No water was provided, but the trailer had electricity. This trailer was used for the analysis and storage of human remains, and was secured at all times when the anthropologist was not inside. Some of the field team members were assigned to aid the physical anthropologist in dry-brushing and labeling the bones.

In August of 1999, the renovation of the Park was near completion, and the field work of the archaeologists and physical anthropologist was considered to be completed as well. The human remains stored in the construction trailer at the site were transported to the Smithsonian Institution in Washington, DC, through an agreement with the Department of Anthropology in the National Museum of Natural History, so that analysis could continue. Space was provided by Department members in various labs, as available.

The site maps, field notes, and field drawings made by the archaeologists (and by the physical anthropologists themselves) were not available to the physical anthropologist during the analysis of the skeletal materials, nor was any information about artifacts found in association with the human bones. Personal notes made by the physical anthropologists and photos taken at the site were used to enhance the information obtained from the bones themselves. However, since there was no geographical or artifactual context, the interpretation of the bones as representations of individuals is limited. An effort has been made, in the following section, to give a historic context to the remains found at New York City Hall Park, to suggest who may have been buried there in the past few centuries. Following that section is the analysis of the skeletal material.

Certain terms used in the report are defined here. "Partial" skeletal elements are incomplete; "complete" bones are whole or nearly whole; and "fragmentary" indicates extensive damage to the bone or the presence of only small pieces. "Adult" refers to an

individual whose skeletal development is complete; "subadult" can refer to anyone with incompletely developed bones or teeth. "Infant" is used for individuals under the age of two years.

In many individuals, there is a green staining on the bones. This copper oxide staining was often caused from contact with shroud pins, as indicated by the presence of shroud pins with many of the stained bones.

Skeletal elements were analyzed using a variety of standard publications and techniques. The most comprehensive publication is the Buikstra and Ubelaker edited volume (1994), which documents standards used for determination of age and sex, and descriptions of pathological conditions. Manuals by Bass and Ubelaker supplemented the Standards book. Fazekas and Kósa's book (1978) was used for the determination of age for the fetal to newborn individuals found in the Park. Several published methods for determining ancestry from cranial remains were used, depending on the condition and completeness of the cranium. Some of these methods are based on cranial measurements (e.g., Howells, 1973; Jantz, 2001), and others are based on observations of morphological traits (Gill and Rhine, 1990).

Where possible, all measurements and observations were made to help define the individual. Since most of the analysis was performed on incomplete individuals, a variety of techniques were used to document age, sex, and ancestry, depending on the bone(s) present. Individuals were assigned codes designating male, female, possible/probable male, possible/probable female, and unknown sex. Age was assigned as accurately as possible; in cases where there was sufficient information, a very narrow age range was assigned. For most of the adults represented by single or fragmentary bones, age was usually assigned into "young adult" or "older adult" categories. In cases where an individual was represented by a single bone or tooth, sex and age were sometimes indeterminate or only suggested. Forms used for the collection of information on the skeletal elements can be found in Appendix II.

Information on the History of City Hall Park

The land occupied by City Hall Park has been used over the past three centuries for a variety of social services. Figures 5 and 6 are maps showing the location and superimposition of buildings in the Park during the 18th and 19th centuries. The Park land was located on the northernmost edge of New York City, and was used as common grounds (Figure 7). In the 18th century, livestock grazed there, and public meetings were held. Public facilities to house the poor, the sick, and the criminal were built on the land, away from the general population of the city. Many of the people who were housed in these institutions represent "groups considered marginal in New York society, for whom few first-hand documents survive" (Harris et al., 1993). In an effort to determine which populations may be represented by the human remains found in the Park, and by the artifacts also found in the Park, a timeline has been produced below. The remains found during the 1999 construction are most likely from the two Almshouses built on the Park grounds, the first one in 1734 and the second one in 1796. A moratorium on human burials south of Canal Street began in 1813. Therefore, the time frame represented by the burials probably extends from 1734 through 1813, unless there were burials associated with some of the earlier uses of the Park, such as the public gallows.

Seventeenth Century

1684, a powder-house was constructed on the site where the first Poor House, and later the current City Hall, were built (Macoy, 1875). The site of Tweed Courthouse was used "in early times" for "hanging slaves and others guilty of heinous crimes" (Macoy, 1875). Windmills were constructed on the site during the middle and late seventeenth century (Pearson, 1993).

Eighteenth Century

The poor were cared for in 1720 by their families, private charity, or by the vestry (Wilson, 1893). In 1727, a public gallows was constructed at the upper end of City Hall Park (Wilson, 1893). In 1728, there were no buildings standing on the commons.

An almshouse was built in 1734, during Mayor William Cosby's administration, in the rear of the present City Hall (Lossing, 1884). The very poor were sheltered in the almshouse, and slaves were placed there for correction. The almshouse was supplied with spinning wheels for women and shoemakers' tools and other implements of labor for men, so that they could spend their days in an industrious manner (Booth, 1859). A description of the building and its functions is given in Booth (1859, p. 347):

> The building was forty-six feet long, twenty-four feet wide and two stories high, with a cellar, and was furnished with implements of labor for the use of the inmates. The churchwardens were appointed as overseers of the poor, and all paupers were required to work under penalty of receiving moderate correction. Parish children were to be taught there to read, write and cast accounts, and to be employed in some useful labor; and as the building was also a house of correction, it was used as a sort of calaboose for unruly slaves, their masters having permission to send them thither for punishment. A large vegetable garden was laid about the house, which was cultivated by the inmates, and the produce devoted to the use of the institution.

In 1741, the city experienced many fires and extensive destruction due to a slave uprising, and the prisons were filled with Negroes (Lossing, 1884). In 1775, the Bridewell (Figure 8) was erected on the site of the first Liberty-Pole (Booth, 1859). A

Bridewell is something of a work-house, often housing prisoners waiting for sentencing or punishment. In colonial America, miscreants were not usually incarcerated for long periods of time. Instead, they were publicly whipped, or fined, or executed, depending on the judgment of their crimes (Katz, 1984). The jail or gaol (sometimes called the provost) is shown on maps of the Park from 1776 (Macoy, 1875); this building later became the Hall of Records.

Booth also describes the layout of the Commons in the later part of the century (1859, p. 581):

> On the north side, was the Alms House and House of Correction. The Bridewell stood at the west end of the present City Hall, and the New Jail, now the Hall of Records, occupied its present position. Between the Alms House and the Bridewell was the public gallows, which, transferred in 1756 from its place near the lower end of the Park to the foot of Catiemut's Hill, in the vicinity of the Five Points, had been removed once again to the Commons in 1784. In 1796, a new Alms House was built on Chambers Street in the rear of the old one, now so dilapidated as to be unfit for further use, into which the inmates were removed in the course of the following year.

In 1789, maps indicate the presence of the Bridewell, the City Alms House, and the Prison, all in a row on the north end of the Park (Wilson, 1893). The population of the City at that time was 23,000. In 1790, the New York City Dispensary, for the medical relief of the sick poor, was built on the northeastern side of the Park, to the rear of the present City Hall, fronting on Tryon Street and between Chambers and Chatham Streets (Lossing, 1884; Belden, 1851; Booth, 1859). Also, some of the first sidewalks in the city were laid, including along the fence of the Bridewell facing Broadway (Booth, 1859).

In 1796, the new almshouse was built to the rear of the old one (Booth, 1859). Figure 9 shows this building after it was converted to a museum in 1817. By 1797, maps (Figure 10) indicate that the Bridewell, the "work house" (almshouse), and the gaol (prison) were still in place on the north side of the park (Wilson, 1893). A common sewer for the three buildings was built in 1797-98 (Duffy, 1968).

Yellow fever outbreaks were recorded about 1750, then in 1791 (Barber, 1841), 1795 and 1798 (Haswell, 1896). From July through November of 1798, it is estimated that 2400-2500 residents of the city died of yellow fever, despite the fact that a third to a half of the population had fled the city to escape the epidemic (Barber, 1841). Yellow fever epidemics returned in 1803, 1805, and 1822. It is possible that some of the victims of these epidemics may have been buried on the City Hall Grounds, if they had been placed, for instance, in the hospital section of the Almshouse or had become sick while living there.

Nineteenth Century

In 1800, the city government approved $30,000 for the Alms House, $5,000 for the "Bridewell or Workhouse," and $3,000 for prisoners (Wilson, 1893). There was a hog pen in the rear of the building (Barber, 1841), which contained hundreds of swine fed on the garbage of the Bridewell, the almshouse, and the prison.

In 1802, the Kine-Pock (cow pox) Institution vaccinated 500 poor children, including many in the Almshouse (Duffy, 1968). In 1803, the paupers numbered less than 400 (Barber, 1841).

Gallows Hill, where American prisoners were executed during the Revolutionary War, was located between Chambers Street and the Fresh-Water Pond in records from

1803 (Macoy, 1875). The cornerstone for the current City Hall was laid in September of 1803, and the building was completed in 1812 (Belden, 1851).

A "lunatic Asylum" was opened in 1808 as part of New York City Hospital. Some insane inmates of the almshouse were transferred to this asylum. Those inmates who were not expected to recover were left at the almshouse and the Bridewell (Duffy, 1968).

In 1813, burials were prohibited in the city south of Canal Street (Booth, 1859:617). Presumably, this ended the practice of burying the dead from the Almshouse in the Park. Interment of human bodies was prohibited below Grand Street in 1823 (Haswell, 1896).

The second Almshouse building was reused many times by the City. The Scudder Museum moved from Chatham Street to the west end of the New York Institution (almshouse) in 1817 (Haswell, 1896). In the basement of the New York City Institution (the almshouse building), a bank opened in 1818 (Haswell, 1896). A map dated 1818 shows that Bridewell, the Alms House, and the jail/debtor's prison still present in the Park (Haswell, 1896). The New York Institution for the Deaf and Dumb occupied a room in the almshouse.

Other social services were provided in the 19th century. A soup house was established by the Commissioners of the almshouse at the corner of Cross Street and Tryon Row in 1818 (Haswell, 1896). The buildings were modified to accommodate the different types of inmates being housed therein. For instance, in 1821/22 a twenty-five-foot long and six foot wide treadmill for the grinding of corn was installed in the penitentiary (Haswell, 1896).

Imprisonment for debt was abolished in May 1832 (Haswell, 1896), possibly reducing the number of prisoners held at City Hall Park. In that year, the Asiatic cholera struck the city, killing nearly 3500 residents in four months (Barber, 1841).

In 1848, paupers were moved to Blackwell's Island, and the Bellevue "almshouse" became the Bellevue Hospital. Twelve hundred patients were housed there. The administration of this facility, which was considered to be part of the City Alms House, was under the charge of the Commissioners of Public Charities and Correction; financial support came from the City treasury.

In 1857 the economy was bad, and many were unemployed and homeless. The city distributed free food to the poor. City Hall Park was graded by laborers hired by the city; these men also pulled down and removed the former almshouse. These activities provide probable explanations for the burials near the surface (see Triangle Area, below) and the small ossuaries near the courthouse, which stands on the site of the former almshouse.

An Eyewitness Account

In 1813, Reverend Ezra Stiles Ely published a year's worth of entries from his diary of 1811. Reverend Ely provided religious services and support to the almshouse, the Bridewell, and the prison on City Hall Park for several years. There is general information about the number and kind of inmates found in the almshouse (e.g., on January 1, there were 200 people inhabiting the almshouse). Ely also documented cases of individuals to indicate the need for reform in the treatment of the poor.

Ely's diary provides a first-hand account of the inhabitants of the almshouse in 1811 and their activities. Some of his descriptions provide direct explanations for the materials found during the restoration of the Park. For instance, several bone buttons were found in the north end of the Park. In addition, cow ribs with circular pieces of bone removed (to be made into buttons) were also found (Figure 11). Ely's diary contains this entry from August 2, 1811 (p. 142):

> In the blind ward I found Wm. Mc D--, an old man, blind ever since his remembrance, turning out button moulds. Commonly he is found at this business; for he is allowed the profits of his labour. He purchases huck-bones of the cooks, splits them with a hatchet, and prepares them, by boiling, to come under the operation of his turning machine. He can make two gross in a day; and they are far superior to any of the imported button-moulds.

There were 30 blind persons in the almshouse during this year.

Some of the inmates' stories are recounted in Ely's diary over the course of the year. Several of these are stories are given below to indicate the demographic makeup of the population at the alms house, at least during 1811. There were separate wards for different kinds of paupers, although it appears that the divisions were sometimes arbitrary. On February 14, the ward for the aged and infirm contained 200 individuals. In March, there was a ward full of poor mothers with their children which included "50 Babes."

- A middle-aged woman, a regular attendant of Trinity Church who had led a "good, moral life" as an "upper servant," was living in the alms house because she had spent all her money on physicians' fees.
- Christiana Ritchie Webb, a woman born in Berwick upon Tweed who moved to New York City "long before" the Revolutionary War, died at age 103 in 1812.
- Catharine Welsh, aged 96, had become like a child (although she still enjoyed taking her snuff), and was cared for at the alms house.
- A "woman of colour" who was stabbed multiple times by her drunken husband was visited many times by Ely. She was admitted on January 24. On February 2, Ely described her as a "mess of putrefaction." By February 10, a large part of her skull had been exposed due to destruction of the soft tissue, and "several parts of the cheek bone have come away."
- A man who had gone to see a tiger exhibition, whose arm was mauled by the animal, was "bereft of reason."
- A group of eight to ten boys, orphaned and abandoned, occupied themselves by singing in the almshouse.

In the Bridewell, Reverend Ely visited prisoners who had been condemned to death for murder. One of these men, a 77 year old German named Sinclair, claimed his innocence. Another, a "man of colour" named Johnson, admitted to attacking his victim but said he hadn't meant to kill. These men were dressed in white garments and caps, trimmed in black, for their hangings in January of 1811.

Ely frequently visited those who were confined to the hospital. In February of 1811, he commented that the hospital was "unusually full," with 60 lunatics and 240 patients. This building was quite crowded, as there were also many servants and nurses on the premises at all times. Many of the sick suffered from consumption, or tuberculosis. In one instance, Ely states that over a period of three weeks, the make-up of a hospital ward population changed almost entirely over a three week period due to death and "restoration."

Postmortem Treatment of Individuals

Information regarding coffins, burial goods, and orientation of the burials will be available from the archaeologists' notes, maps, photographs, and reports. However, some details may be gleaned from the partial remains removed from the Park, and from notes taken regarding the complete burials.

Along Chambers Street, on the west side of the Park, three complete burials were uncovered (Features 8, 12, and 45). All three burials were supine, oriented with the heads to the south.

Feature 105 was found near the southeast corner of Tweed Courthouse. The burial was oriented with the head to the north-northwest.

Some of the burials in the Triangle Area were exposed enough to determine the orientation of the burials. Feature 118 was found with the head oriented to the northwest. Feature 122 is an east-west burial, with the head on the west extremity of the feature. Feature 126 consisted of at least six individuals, buried one on top of another in the same shaft. Feature 127 was found with the legs higher than the thorax, and the head and right shoulder girdle missing. Feature 130 was the burial of a child, found with the head oriented to the west. Feature 133 contained two burials, a young adult male, supine, with the head to the west, and an adult female directly below the first burial, in the same orientation. Features 136, 139, and 141 contain several burials, superimposed. Feature 140 is a primary burial, but the bones of the left arm had been rearranged in non-anatomical position. The individual was extended and supine, with the lower legs elevated. Feature 144 is an adult burial with the head oriented to the east. The head and lower legs are elevated, compared to the rest of the body. Both fibulae are out of anatomical position; the left is fragmentary and found perpendicular to and east of the left femur, and the right is found below the right femur. Feature 146 consists of at least four individuals in the same grave shaft, with the heads to the south. The map of the Triangle Area (Figure 3) indicates how dense the burials were in that area.

Feature 137 contained the remains of one adult and at least 24 children, most of whom were under the age of six years. It is not clear if these children died over a short period of time and were buried together, if this was a designated area in the graveyard for children, or if the remains were disinterred elsewhere and reburied in this spot. This last hypothesis is unlikely, given the limited age range of the children.

These burials may have spanned several decades, and burial practices may have changed during that time. Some of the burial procedures – burying several individuals in one shaft, for instance – may have been designed to use the space efficiently. We do not have information on the geographical limits of the graveyard, and the time span during which it was used is not well documented. Further research is required to determine how and why individuals were buried in various parts of the Park.

The incomplete burials recovered from the Park offer a different kind of information. These are secondary burials, and evidence of their previous excavation is present on many of the bones in the form of shovel marks and probe holes. In Feature 53, there are almost no small bones present, suggesting that whoever removed the burials from their original sites merely pulled out the large, recognizable elements. In a few cases, such as individual 67-800, several articulating bones were apparently moved together, suggesting that soft tissue was still present, holding those elements together.

Many of the cranial elements throughout the park, and some postcranial bones, have green staining on them. Short, straight pins were found associated with several of these stains; these are presumably shroud pins. This indicates that although the people who died in the Almshouses were poor and sick, they were given proper attention after their deaths. In many of the complete burials, evidence of wooden coffins and metal nails was also present, and there were a few circumstances where coffin hardware was found.

The fact that so many of the remains in the Park were found very near the ground surface – some directly below asphalt – is probably the result of landscaping procedures, including grading. Many of the burials, especially the stacked burials, were probably not six feet below the surface at the time of interment, and modifications to the surface removed much of the infill above the bodies.

Demography

A minimum number of individuals (MNI) found in City Hall Park is determined by a count of individual bones or bone fragments. This count does not include the burials that were left in *situ* in the Park. Inventories of the long bones were scored according to the part(s) of the bones present, so that counting fragments did not overcalculate the number of individuals in the site. For instance, a separate count of femoral heads was made, left and right, giving the minimum number of individuals represented by that portion of the bone. Minimum number of individuals was then calculated using the number of complete bones plus the number of partial bones. Table 2 shows the long bone inventory by age and sex. Since most individuals were represented primarily by postcranial material, using the large bones of the arms and legs provides the most accurate count of individuals. The highest count of individuals – and thus the minimum number at the site – comes from the right femur, with 26 complete bones and 21 incomplete bones, giving an MNI of 47 individuals. The cranial bone inventory shows that there are 39 frontal bones and 38 mandibles (Table 1).

Calculating the minimum number of individuals from City Hall Park, however, does not take into account the area covered by the Park and the differential distribution of the remains. In addition, because the count was made on the bones removed from the site, any complete burials (unexcavated) were not included. Therefore, a maximum number of individuals was also estimated. The remains fell into three categories: those that were identified as features or part of features (including all complete burials in the Park); secondary remains found among the complete burials in the Triangle area; and scattered remains found throughout the northern end of the Park in various test trenches and pits.

Table 3 shows the demographic distribution of individuals found in the defined features. There are 58 immature individuals (under age 21), only one of whom was old enough to be assigned to a sex category (in this case, male). There are 51 adult males and 30 adult females, plus incomplete remains of 90 individuals with little or no information about sex. Many of these features were located in the Triangle area of the Park (see Figure 3), which is part of a cemetery associated with one or both of the Almshouses built on the site (see history section above).

The Triangle area where many of the *in situ* burials were found also contained scattered remains (outside of numbered features) of 44 individuals; age and sex for these individuals can be seen in Table 4. There are 28 adults represented (12 male or probably male and two probably female; the rest are unknown sex) and 16 subadults, 10 of whom are under the age of 3 years.

Other remains found scattered (again, outside of numbered features) through the Park – often a single bone or tooth – represent seven males, three females, and 30 individuals where sex is unknown (see Table 5). Fifteen individuals are under the age of 21; of these, six are infants (2 years old or less).

Combining these three categories of burials, a maximum number of individuals found at the site is estimated to be 256 individuals, including 71 males, 35 females, and 150 of unknown sex, many of whom were immature. This may be an overestimate, as it was not possible to reassociate single bones and teeth found dispersed throughout the Park into individuals.

Ancestry

Determining ancestry from human skeletal remains requires adult cranial material in good condition, comparative data, and a variety of reference resources for interpretation. Morphological traits must be documented and described, measurements must be taken, and statistical formulae must be applied. The statistical formulae available have been developed using late 19th/early 20th century individuals of known age, sex, and ancestry (as from the Terry Collection at the Smithsonian Institution and the Todd Collection in the Cleveland Museum of Natural History), archaeological and historical collections from museums around the world (Howells, 1973), or late 20th century documented and identified individuals from forensic cases (University of Tennessee-Knoxville).

All of the researchers who have developed these methods caution that statistical formulae developed on one group of people should not be used on other groups, including groups from different time periods and geographic areas. It has been established that even within the same demographic group, there can be significant change from one century to the next (Angel, 1976; Jantz, 2001). One researcher (Steve Ousley, personal communication) advised me that the use of FORDISC, a computer program developed from modern populations, is inappropriate for the analysis of this late 18th/early 19th century population, except possibly the use of the Howells data incorporated into that program.

Statistical analysis of the cranial measurements from individual 53-V04 exemplifies some of the problems inherent in using unmatched populations for analysis. FORDISC 2.0 gives conflicting information: comparison to only modern females indicates a Black female; and comparison to multiple historic and prehistoric populations suggests a male from the southern hemisphere. The morphological traits indicate European ancestry.

Unfortunately, most of the available formulae require many cranial measurements taken from a complete or nearly complete skull. No single specimen from this population provided all the possible measurements, and most provided only a few. No specimen provided all possible observable traits. Therefore, no single method for determination of ancestry could be used across the board. Table 6 shows those individuals for whom some information about ancestry is available, and which traits or statistical methods were used to assign them to a category.

For many of the individuals analyzed in this report, ancestry is not determined. This was due to any of the following reasons:

Cranial material is fragmentary, damaged, or incomplete
Individual is too young to assign ancestry
Only postcranial material is present
Remains were left *in situ*, and analysis could not be performed.

For those individuals where cranial material was present, measurements were made (by computer digitation) where possible. Formulae developed by other researchers (e.g., Jantz and Moore-Jansen,1987) were applied where possible. Where discrete traits were present, these were also documented.

Overwhelmingly, where evidence of ancestry was available, the individuals were consistent with a European ancestry, some of them specifically corresponding to known

traits seen in Colonial or Historic period European individuals (Douglas W. Owsley, personal communication). According to Michael Blakey, PhD, in a lecture given in 2001, the burials in City Hall Park are "English paupers," and not part of the African Burial Ground that was discovered just north of this area (Blakey, 2001). This agrees with the historical information available for individuals housed in the two Almshouses in City Hall Park. There is historical evidence that some individuals of African ancestry spent time in an almshouse or one of the other institutions on the property (Ely, 1813), but these seem to be few. It is unknown if individuals of African ancestry could be buried in the Almshouse cemetery. Only a few individuals in the population analyzed here have any indications of African ancestry, and in these individuals (as with many in this population), the data are incomplete or conflicting.

Pathological Conditions and Trauma

Since bone is living tissue with blood and nerve supplies, it responds to stimuli just as soft tissue does. Humans are exposed to a variety of stimuli throughout their lives, both good and bad, and often the response is recorded in the bones. Bone responds in one of two ways: bone formation, or bone destruction. A healthy diet and the standard growth hormones will result in a normal skeleton, but an insufficient diet or exposure to pathogens may leave evidence in the skeleton. Injuries and trauma can cause fractures, and the healing of these fractures leaves scarring on the bone. Changes in hormones can cause osteoporosis or other bone diseases. Bone also responds to changes in soft tissue; the most commonly seen pathological condition in bone, osteoarthritis, is a response to a breakdown of soft tissue in the joints. The analysis of a human skeleton normally includes an evaluation of the individual bones, skeletal systems (such as the vertebral column or a particular joint), and the entire skeleton for evidence of pathological conditions or trauma. This allows the physical anthropologist to detect changes caused by a one-time event (such as a fracture), patterns of stress (such as arthritis in a single area of the skeleton due to repetitive movement), and systemic problems (such as osteoporosis or rickets).

The remains seen in City Hall Park were either primary burials (not analyzed) or fragmentary, incomplete, and commingled human remains. Because of this, no individual was systematically analyzed for pathological conditions or trauma. Only individual bones could be assessed in most cases, although sometimes there were several bones present from a single individual. The result is limited information and minimal interpretation of the abnormal bones. Examples of pathological conditions and trauma are seen in Table 7.

Arthritic changes are seen on many of the bones recovered from City Hall Park. These changes include osteophyte development at the margins of joints (spicules of bone, often called "lipping"), porosity of the joint surface (where the surface appears sponge-like instead of smooth), and eburnation (where there is a loss of soft tissue in the joint and the bones actually rub against each other, resulting in a polished surface). Most of these changes result from normal aging. Some may be due to repetitive stress on joints and heavy physical activity, and, in a couple of cases, may be the result of specific trauma to a bone.

There are several cases of periostitis and one case of possible osteomyelitis, all in the lower leg bones. The periosteum is a tough layer of soft tissue that covers the surfaces of bones, except the joint surfaces. This tissue provides a certain amount of protection for the bones, and carries the blood vessels and nerves into them. When the periosteum is compromised – through trauma or infection, or both – it can become inflamed, and the bone under it responds, usually by formation of new bone on the surface. This response is non-specific, and can be the result of a number of infections or traumatic events, even a deep bruise. A related pathological condition, osteomyelitis, is more severe, and invades the bone marrow cavity. There are often openings in the bone for drainage of fluids (pus), in addition to the periosteal inflammation. These two conditions can be chronic.

Two cases of possible infection are present. One is a case of widespread healed porosis on the surface of the parietals of an individual (137-V01), suggesting either infection (from a scalp wound, for instance) or possible nutritional stress (iron deficiency anemia). The other case is a manubrium where the posterior surface has a lace-like appearance. This may be a response to a disease process in the lungs, possibly tuberculosis.

Three individuals appear to have a condition called hyperostosis frontalis interna. In this condition, there is abnormal bone growth on the inner table of the frontal bone. This may be a manifestation of a condition known as Morgagni's syndrome, which can also cause obesity and virilism (becoming more masculine). This condition is most often seen in postmenopausal women. It may also be part of another syndrome, Stewart-Morel's, which is associated with mental illness in both sexes and all ages, although it is rare (Phillips, 1997). Some patients with this condition have problems with decision-making behavior.

There were several healed fractures recorded from remains in City Hall Park. Several of these are in the feet, including one in a metatarsal associated with the amputation of a toe. There is one healed cranial fracture (53-V01), on the frontal bone; there is no associated infection or other complication evident. Some of the fractures are in the wrist or fingers, and there is one fractured right clavicle. These locations are not rare, and can be expected in most populations.

One individual (67-800) is represented by most of the vertebral column and the pelvis. These bones were found articulated, suggesting that the remains were moved while they were still held together by soft tissue, but with no associated skull or limbs. There is some scoliosis, or curvature of the spine. There are extensive changes in the joints due to this curvature, with asymmetry in the joint sizes, and a compression fracture of T7. It is unclear whether the scoliosis is due to this fracture, or the fracture is a result of the scoliosis.

Dental Pathology

Teeth were scored according to presence, antemortem loss, caries (cavities), and abscesses associated with each tooth. The results of the scoring are seen in Table 8 (permanent teeth) and Table 9 (deciduous teeth). Because many of the crania were damaged and incomplete, this table cannot be considered to represent all individuals in the Park. In addition, the anterior teeth are less well represented due to damage and loss, and the higher percentages of disease in the premolars and molars is probably somewhat due to the uneven distribution of teeth recovered. Some comparison may be made to the skeletal population of subadults and adult females from Highland Park in Rochester, New York (Higgins and Sirianni, 1995), based on these dental data. In that population, 14.2% of the deciduous teeth found were carious (out of 445 teeth). Only a few (8) deciduous teeth were found in City Hall Park, and only one of them (a mandibular molar) was carious (12.5%). The Highland Park adult females had 37.4% carious teeth (compared to 20.5% carious teeth in all permanent dentition from City Hall Park); there was 23.2% antemortem loss of teeth in Highland Park compared to 25.1% at City Hall Park; and the Highland Park females had abscesses in 3.8% of their teeth, compared to 7.5% of the permanent teeth in City Hall Park. These are not direct comparisons, because only females were considered in the Highland Park study, and permanent teeth from subadults and males were considered in the City Hall Park collection.

Information was also collected on dental pathology (when present) for each individual in City Hall Park during the skeletal analysis. These data can be found in Table 10.

Several individuals had tooth wear suggesting the habitual use of (tobacco) pipes. In fact, many pipe stems and bowls were found in City Hall Park, both associated with remains and scattered around the Park. In one individual (Feature 118), a young adult male, both lower lateral incisors and both mandibular canines had extensive wear, suggesting pipe use with no side preference. In Feature 140 (adult male), the right mandibular canine had similar wear. The mandible of individual 53-V06 has wear consistent with a pipe facet on the distal two-thirds of the occlusal surface; the teeth also have black staining on the lingual surface, suggesting tobacco use.

Stature

The living stature of an individual is determined from skeletal material by measuring the long bones (bones of the arms and legs) and inserting the measurements into mathematical formulae. These stature formulae determine the average stature (height) of individuals whose measurements are equal to the specimens being measured, and a standard error of the mean (SE) is designated. Thus, a stature formula will compute a range of living statures. There will be individuals whose actual living stature will fall outside that range, despite the fact that their bones are equal in length. Formulae are available for all six major bones of the limbs (humerus, radius, ulna, femur, tibia, fibula), for both sexes, and for various human populations (Trotter, 1970). Using the incorrect formula may substantially change the accuracy of the result, as populations tend to vary systematically and the stature formulae take these variations into account.

In City Hall Park, the complete burials were left *in situ* and, for the most part, no measurements were taken. In some cases, stature was calculated in the field, but the measurements were not recorded. From the incomplete burials, only a few long bones were in good enough condition for measurement. For those bones, the maximum length was recorded. If the sex of the individual could then be determined or inferred (from size and robusticity), a formula for either males or females was used. Because the ancestral population could not be determined from the disarticulated long bones, and because there is considerable evidence from the cranial remains and the historic documentation that most of the individuals buried in the Park were of European ancestry, the formulae for "whites" were used in the calculation of stature. Table 11 shows the complete bones, their measurements, and the stature determined from them.

The table shows that females represented by complete bones in this population ranged in stature from 144.5 +/- 3.72 cm, based on a femur measurement (4'7" to 4'10" – quite small) up to 163.1+/- 4.45 cm, based on a humerus measurement (5'2.5" to 5'6"). Males ranged from 160.7 +/- 4.05 cm, based on a humerus measurement (5'2" to 5'5") up to 177.0+/- 4.05 cm, also based on a humerus measurement (5'8" to 5'11"). These ranges probably do not include many of the individuals buried in the Park because of the small number of measurable bones recovered. In addition, in most cases there is no way to tell if the measured bones should be counted as different individuals or if some of the bones belong together.

The average stature for females (n = 13) is 156.0 cm and the average for males (n = 21) is 169.8 cm. This is slightly shorter than the best estimates for stature in a nineteenth century poorhouse in Rochester, New York (Steegmann, 1991), where males were calculated to be 172.6 cm on average and females 160.0 cm. Note that the Rochester population is from a slightly more recent population, and that the researchers had multiple bones from most individuals to measure, and could choose the formulae that gave the smallest error estimates.

Analysis of Skeletal Remains

The following is a list of features and individuals from the ossuaries and other areas in City Hall Park. Analysis was made on parts of the skeleton that yield the most information regarding age, sex, and ancestry. Thus, cranial and pelvic remains, in addition to some postcranial elements that are useful for determining sex, are listed. Other bones were inventoried to help determine the minimum number of individuals. At least 172 individuals were identified.

In situ burials along Chambers Street

Three of the *in situ* burials (Features 8, 12, and 45) were found just south of Chambers Street in the northwest quadrant of the park. These are described in detail.

Ossuaries (secondary multiple burials)

Two large and two small ossuaries were found in the northeast quadrant. The bones from Feature 53 may have been moved from the cemetery associated with the second almshouse (1797-1857) on the site, which was located where Tweed Courthouse currently sits. These are mostly large bones, probably easily recognized as human by the layman, and they represent mostly adults. The bones from Feature 137 are more difficult to assess. These were found farther south, slightly east and about halfway between the locations of the first almshouse (1736-1797), where the City Hall is now, and the second almshouse. Almost all of the bones in Feature 137 represent children, from fetal through 7 years old. Features 67 and 68 were smaller deposits of bone containing the remains of several individuals each.

FEATURE 8

During excavation carried out February 1-5, 1999, scattered fragmentary human remains were discovered in various previously disturbed units of Trench 1. The Trench 1 Unit 25-30 unit excavation was extended to the south to determine the orientation and extent of an articulated human burial found there. A badly damaged cranium, partial mandible and maxillae, and left and right humeri were discovered in level A1 (4" to 18" below datum), but not exposed. The head was oriented to the south. The lower part of the skeleton had been destroyed, damaged, or removed during earlier construction. The individual was an adult, based on size of the bones and fusion of the epiphyses of the humerus. No evidence of ancestry was collected. Carpenters on the site built a wooden box to cover and protect this burial, and it was left *in situ*. In addition, other remains were found. Fragments of an adult right humerus are present. A partial immature frontal, occipital, left parietal, and a partial left mandible with five teeth, as well as one incisor and one canine (both deciduous, mandibular), were found associated with the remains.

FEATURE 12

A second articulated skeleton was found in Trench 1 Unit 25-30 on February 11, 1999, about 11" below the current curbstone top (Figure 12). The extent of the skeleton within the trench was determined by exposing the bones. Skeletal elements exposed included left and right humeri, radii, and ulnae; right scapula and clavicle, sternum (apparently previously crushed); several ribs (left and right); vertebrae T12 through S1;

and the anterior portions of both ilia. Left and right metacarpals and a few phalanges were also found. Orientation is south-north, with the cranial remains apparently still unearthed to the south of the trench. The body was supine, with the hands crossed over the pelvis. In the rest of the unit, a damaged proximal femur, a hand phalanx, and a right third metacarpal were discovered during screening. These were bagged with a 1998 U.S. quarter (to indicate intrusion into the burial) and reassociated with the articulated remains in Feature 12. The remains represent a young adult, probably a male based on the size of the bones. No arthritis was observed on the vertebrae. There is no apparent grave shaft, although the soil is stained for 1-2" on either side of the bones. There is no evidence of a coffin, and no grave goods or clothing were associated with the bones. Carpenters on the site built a wooden box to cover and protect this burial, and it was left *in situ*. No evidence of ancestry was collected.

FEATURE 13

This feature is a modern pit with stone slabs at the base in Trench 1, units 15-20 and 20-25. The maxillary right second incisor of an immature individual is present in this feature. The age of the individual is 4 to 5 years.

FEATURE 45

On March 26, 1999, a partially intact adult cranium and mandible were located between 12" and 29" below datum in the east perimeter of Trench 1A Unit 30-35, a unit where loose individual human bones had been recovered from the upper strata during screening (Figure 13) The remains consist of the cranium and mandible, ribs, sternum, clavicles, humeri, scapulae, and cervical vertebrae. The individual is supine, with the head oriented to the south and tilted to the right. The upper arms lie along the sides of the rib cage. The lower torso and inferior parts of the skeleton are under the sidewalk to the north, and were not exposed. The midface is fragmentary with the left maxilla missing (possibly in the soil inside the cranium). The teeth are in good condition except for the left lower first molar which appears to have lost its crown. Small rocks were found in the space between the teeth, but it is unclear whether these were secondary to the burial or part of the original interment. There is hypoplasia on the lower canines about 1 mm from the cemento-enamel junction, suggesting a period of illness or nutritional stress during the development of the tooth (before age 5). There are some morphological traits that are suggestive about the sex and ancestry. The superior margin of the right orbit is sharp, there is no supraorbital torus, and the anterior mandible is narrow; these suggest a female. Although the midfacial bones are damaged, it can be seen that the inferior rim of the nasal aperture exhibits no "guttering" (smooth transition from the horizontal surface of the nasal floor to the vertical surface of the anterior maxillae). There is no evidence of shoveling in the incisors present. These features are consistent with an individual of European ancestry, although other measurements and observations would be necessary to establish this. The burial was left *in situ* and, at the request of the Landmarks Preservation Commission, no further analysis was performed.

FEATURE 53

Feature 53 was discovered on April 7, 1999 along the asphalt drive, just ~~west~~ east of Tweed Courthouse. This feature was exposed when construction workers cleared a

trench. Test pits had been dug to the north and the south of this area, with no human remains found. When the trench was dug, however, human bones, non-human bones, brick, glass, ceramics, nails, slag, shell, pipe stems, a die, copper wire covered with fabric or leather, round metal objects, and a button blank were found in the east wall (on Island 9). The bones were not laid out anatomically, as in a primary burial, but were mixed and oriented in all directions. No complete skeleton was found in this feature. A tree had been planted over the area; the bones were excavated from beneath the tree roots (Figure 14). Not all remains were recovered, as the excavation was restricted by the presence of the large root formations. The remains were sorted in the lab into cranial and postcranial elements. The presence of apparent shovel cuts and damage to the remains before deposition and the presence of copper staining on most of the cranial remains (indicating that they might have been shrouded when first interred) suggests that these remains were removed from their original burial context and deposited in this secondary pit. Information on individuals, as designated by individual skeletal elements, is given below. The greatest number of individuals is represented by femora; there are 14+ adults, a subadult male (probably 15-19), a 2- to 4-year old, and an infant (newborn to 6 months). Combining the information from cranial and postcranial remains, the minimum number of 22 individuals (18 adults and 4 immature) was determined.

Feature 53 Cranial Elements

NYCHP-53-V01

This individual is represented by a partial cranium (frontal, parietals, and partial occipital) that has been warped due to ground pressure (Figure 15). There is an old probe hole (with discoloration from the soil on its perimeter) on the left parietal, measuring 13.5 mm by 10 mm. The direction of the probe is endocranial to ectocranial, indicating that the cranium was face up at the time the burial was probed. When found, however, the superior surface of the cranium was down. Cut marks on the bone and the probe hole were made before the cranium was placed in its secondary deposit. Moderate supraorbital ridges and a marked nuchal ridge indicate that this individual was male. Complete endo- and partial ectocranial suture closure and the texture of the bone give an age of 40 to 59 years. The ancestry is unknown, although the cranium is broad at the posterior, suggesting European ancestry. No measurements are possible due to the warping of the bones.

There is a trace of healed cribra orbitalia, often interpreted as a sign of nutritional stress. On the right side of the frontal bone there is an oval-shaped healed depressed fracture measuring 20 mm by 11 mm. An ossicle at lambda is present.

NYCHP-53-V02

This individual is represented by a nearly complete braincase (frontal, both parietals, occipital, and right temporal). Green stains representing shroud pin erosion are seen on the left superior frontal (approximately 38 mm by 20 mm) and the left superior occipital, near the lambdoid suture (vague outline) (Figure 16).

Sharp superior margins of the orbits, slightly developed supraorbital ridges, small mastoid process, parietal bossing, and slight development of the nuchal ridge and the supramastoid crest all indicate a female. Endocranial closure, endocranial etching, and thickening of the cranial bones indicate an age of 40 to 59 years. Ancestry is unknown. Some measurements were possible.

The right temporomandibular fossa exhibits slight porosity and erosion, suggesting injury or wear in this joint.

NYCHP-53-V03

A nearly complete braincase (frontal, parietals, temporal, and partial occipital) represents this individual (Figure 17). A green stain (approximately 33 mm by 19 mm), representing an eroded copper shroud pin, is seen on the superior mid-frontal.

Slight supraorbital ridges, small mastoid processes, a slight supramastoid crest, and a slight nuchal ridge with a small protuberance are all consistent with a female. Endocranial and ectocranial suture closure and the presence of large, deep Pacchionian depressions indicate an older individual, probably between 45 and 65 years at death. Cranial shape (narrow anteriorly and broad posteriorly) and the depression at nasion indicate an individual of European ancestry. Measurements of the cranium cannot be taken due to damage.

NYCHP-53-V04

This individual is represented by a nearly complete but damaged cranium (Figures 18, 19). The frontal bone is separated by a straight cut that appears to be evidence of a shovel cut, with the raw edges stained by soil. There are several old postmortem fractures in the cranium.

Features such as the moderate brow ridge development and large mastoid processes indicate a male. The presence of Pacchionian depressions and complete endocranial closure of all sutures, complete ectocranial closure of the sagittal suture, and partial ectocranial closure of the coronal and lambdoid sutures give an age estimate of 45 to 59 years at death. Features such as a depression at nasion, moderately prominent nasal bones, irregularity of the transverse palatine suture, zygomaxillary suture recurvature, a small, V-shaped maxillary dental arcade, narrow interorbital distance, and a sharp nasal sill are all consistent with an individual of European ancestry. No pathological conditions are seen on the bones.

This individual had lost his upper first molars during life, and the tooth sockets for these teeth are resorbed. The lateral incisors are carious, and several teeth have calculus deposits, with associated alveolar resorption.

NYCHP-53-V05

Left and right parietals, along with fragments of the occipital and the right temporal, are the only bones present. On the broken edge of the left anterior inferior parietal, there is a green shroud pin stain measuring approximately 23 mm by 17 mm.

A heavy nuchal ridge with a small protuberance, a moderately large mastoid process, and a moderately prominent supramastoid crest indicate a male. The sagittal suture is closed both endo- and ectocranially, and the lambdoid suture is closed endocranially and partially closed ectocranially; these features, along with the texture of the bone, suggest an age of 45 to 59 years. No measurements are possible, and there are no features indicating ancestry.

NYCHP-53-V06

This individual is represented by a nearly complete braincase and a mandible. Three green stains indicating the presence of shroud pins are seen on this skull. On the right superior frontal, the stain measures about 34 mm by 20 mm. On the anterior right parietal, at bregma, the stain measures approximately 24 mm by 24 mm; this stain may overlap the one on the frontal. The third stain is on the left parietal, just medial to the parietal bossing, and measures about 38 mm by 18 mm.

Sharp superior margins of the orbits, parietal bossing, and a small mandible with a narrow chin indicate a female. The age, based on tooth wear and texture of the bone, is 35 to 49 years. The V-shaped mandibular dental arcade, small teeth, and crowding of the anterior dentition are all consistent with an individual of European ancestry. A moderately wide interorbital distance, low relief of the nasal bones, and a long, moderately wide, low cranial vault with slight development of a nuchal bun are all consistent with Historic period European morphology.

The left mandibular canine exhibits wear consistent with a pipe facet on the distal 2/3 of the occlusal surface, and the teeth have black staining on the lingual surfaces, suggesting tobacco use. One mandibular molar was lost antemortem.

NYCHP-53-V07

This individual is represented only by the frontal bone, the right nasal bone, and a small fragment of the right parietal. There is a green shroud pin stain on the broken edge of the superior mid-frontal measuring approximately 33 mm by 20 mm.

The superior margins of the orbits are sharp, suggesting a female. The sutures are open endo- and ectocranially, and the outer table of bone is smooth, suggesting a young person. However, there is also moderately deep endocranial etching, so the age is estimated at 25 to 34 years. The nasal bone present is steeply angled, suggesting European ancestry.

NYCHP-53-V08

This individual is represented by a complete frontal bone and a fragment of the right parietal (Figure 20). The parietal fragment has a green stain measuring about 31 mm by 18 mm.

Sharp superior margins of the orbits and lack of development of the supraorbital ridges indicate a female. The age, based on deep endocranial etching, partial endo- and ectocranial closure of the coronal suture, and condition of the bone, is greater than 35 years. There is no evidence of ancestry.

NYCHP-53-V09

Fragmentary cranial elements represent this individual. A complete right parietal and partial left parietal and occipital, plus fragments of the frontal and the right temporal, are the only bones present.

The condition of the bones precludes any assessment of sex or ancestry. Based on thickening of the cranial bones and the texture of the outer table, the age appears to be greater than 40 years.

There is slight evidence of healed cribra orbitalia. The cranial bones are thickened.

NYCHP-53-V10

This individual is represented by the frontal bone only (Figure 21). There is a green shroud pin stain at the midline, just anterior to the coronal suture.

Frontal bossing and sharp superior margins of the orbits indicate a female. The thickness of the bone and a fairly smooth texture of the outer table suggest a young adult, probably 25 to 35 years. There is no evidence of ancestry.

The frontal exhibits slight metopism.

NYCHP-53-V11

Left parietal and temporal fragments are the only elements representing this individual. There is a green shroud pin stain on the temporal fragment at the squamosal suture, measuring about 30 mm by 13 mm.

ES Engineering Science

UNIT/TRENCH RECORD

EXCAV'R _____

DATE _____

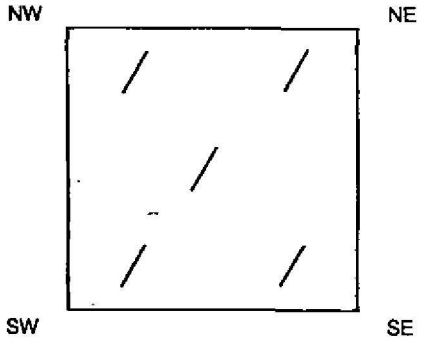
SITE _____ TRENCH _____

UNIT _____ GRID LOCATION _____ / _____ DIMENSIONS _____

STRATUM _____ LEVEL(S) _____

OPENING DEPTHS:

Lvl	NW	NE	SE	SW	C



SOIL TYPE:

MUNSELL:

ARTIFACTS:

NON ARTIFACTUAL MATERIAL:

DESCRIPTION AND INTERPRETATION:

#/TYPE OF SAMPLES _____

OF ARTIFACT BAGS _____

PAGE _____ OF _____
(per unit/trench)

ENGINEERING SCIENCE

PROJECT NAME NY City Hall Park

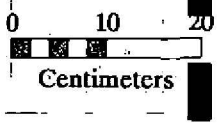
EXCAV'R

TEST NO.

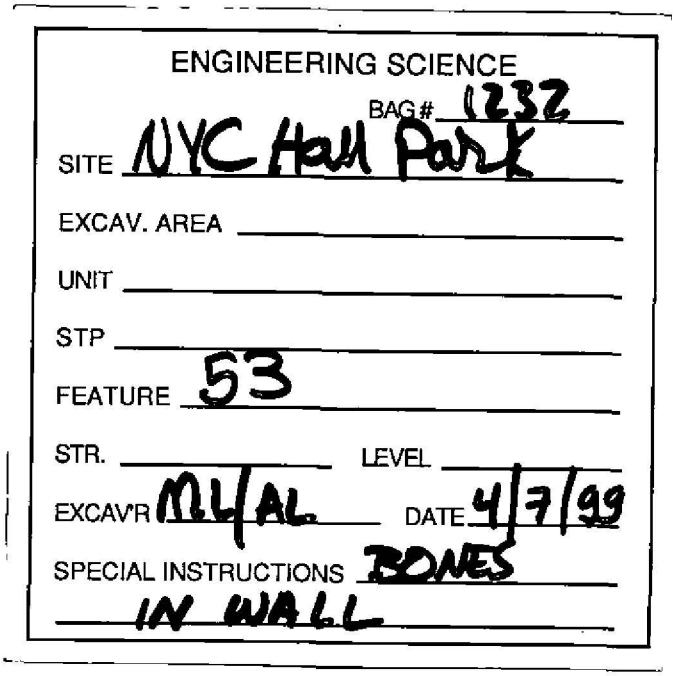
DATE

STRATIGRAPHY

ARTIFACTS



Example of label placed in collection bags.


ENGINEERING SCIENCE

BAG# 1232

SITE NYC Hall Park

EXCAV. AREA

UNIT

STP

FEATURE 53

STR. LEVEL

EXCAVR ML/AL DATE 4/7/99

SPECIAL INSTRUCTIONS BONES IN WALL

SKELETAL INVENTORY

COMPID:

SITE: | DATE:

FEATURE: | RECORDER:

BURIAL NO.:

RACE:

SEX:

AGE:

CRANIAL BONES	LEFT	RIGHT	SINGLE
FRONTAL			____
PARIETAL	____	____	
OCCIPITAL			____
TEMPORAL	____	____	
ZYGOMATIC	____	____	
MAXILLA	____	____	
PALATINE	____	____	
MANDIBLE			____
HYOID			____

POSTCRANIAL BONES	LEFT	RIGHT	SINGLE
STERNUM			
MANUBRIUM			____
BODY			____
XIPHOID			____
SCAPULA	____	____	
CLAVICLE	____	____	
INNOMINATE	____	____	
SACRUM			____
COCCYX			____
PATELLA	____	____	
FOOT BONES			
TALUS	____	____	
CALCANEUS	____	____	

LONG BONES	LEFT	RIGHT
HUMERUS		
RADIUS		
ULNA		
FEMUR		
TIBIA		
FIBULA		

JOINT SURFACES		
TEMPOROMANDIBULAR		
HUMERUS - PROXIMAL		
HUMERUS - DISTAL		
RADIUS - PROXIMAL		
RADIUS - DISTAL		
ULNA - PROXIMAL		
ULNA - DISTAL		
INNOMINATE - ACETABULUM		
INNOMINATE - SACROILIAC		
FEMUR - PROXIMAL		
FEMUR - DISTAL		
TIBIA - PROXIMAL		
TIBIA - DISTAL		

RIBS	LEFT	RIGHT	NO. COMPLETE LEFT	NO. COMPLETE RIGHT
1ST				
2ND				
3RD-10TH				
11TH				
12TH				

VERTEBRAE	SINGLE	
C1		
C2		
C3-C6		
C7		
T1-T9		
T10		
T11		
T12		
L1-L5		
L1		
L2		
L3		
L4		
L5		

Coding instructions for inventory

CRANIAL BONES

1 = complete or nearly complete (> 65%)
2 = partial (25-% - 64%)
3 = missing

POSTCRANIAL BONES

1 = complete
2 = partial
3 = missing

LONG BONES (diaphyses)

1 = complete
2 = proximal 1/3 missing only
3 = middle 1/3 missing only
4 = distal 1/3 missing only
5 = proximal 1/3 present only
6 = middle 1/3 present only
7 = distal 1/3 present only
blank = missing

JOINT SURFACES

1 = complete to 50% (rim present)
2 = missing > 50% of joint surface (rim present)
blank = missing all of the joint surface

SPECIAL CASES

Ribs (3^{rd} – 10^{th}), Vertebrae (C3 – C6, T1 – T9, L1 – L5)

Under "Left", "Right", or "Single" category, enter the number of bones present. Where applicable, under "No. Complete" category, enter the number of bones scored as complete. Blank = missing.

Otherwise:

1 = complete
2 = partial
blank = missing

SEX AND AGE CODE

Code	Sex
1.	male
2.	female
3.	indeterminate
4.	possibly male
5.	possibly female

Code	Age
1.	Born - 6 months
2.	6 months - 1.5 years
3.	1.5 - 2.5
4.	2.5 - 3.5
5.	3.5 - 4.5
6.	4.5 - 5.5
7.	5.5 - 6.5
8.	6.5 - 7.5
9.	7.5 - 8.5
10.	8.5 - 9.5
11.	9.5 - 10.5
12.	10.5 - 11.5
13.	11.5 - 12.5
14.	12.5 - 13.5
15.	13.5 - 14.5
16.	14.5 - 15.5
17.	15.5 - 16.5
18.	16.5 - 17.5
19.	17.5 - 18.5
20.	18.5 - 19.9
21.	20 - 24
22.	25 - 29
23.	30 - 34
24.	35 - 39
25.	40 - 44
26.	45 - 49
27.	50 - 54
28.	55 - 59
29.	60+
96.	Young adult (15-35)
97.	Old adult (35+)
98.	Unknown sub-adult
99.	Unknown adult

ADULT

SKELETAL INVENTORY

FEATURE:

	LEFT	?	RIGHT
Humerus			
Radius			
Ulna			
Femur			
Tibia			
Fibula			
Clavicle			
Scapula			
Temporal			
Maxilla			
Mandible			
Gladiolus			
Manubrium			
Innominate			
Patella			
Cervical 1			
2			
3-7			
Thoracic 1-9			
10			
11			
12			
10-11-12			
Lumbar			
Sacrum			
HAND			
Navicular			
Lunate			
Triquetral			
Pisiform			
G. Multangular			
L. Multangular			
Capitate			
Hamate			
Metacarpals 1			
2			
3			
4			
5			
H. Phalanges P			
M			
D			

		LEFT	?	RIGHT
FOOT				
Calcaneus				
Talus				
Cuboid				
Navicular				
Cuneiforms	1			
	2			
	3			
Metatarsals	1			
	2			
	3			
	4			
	5			
Phalanges	1			
	2-5			
Middle	1-5			
Distal	1			
	2-5			
Ribs				

AGE AND SEX DETERMINATION

Catalog no._____ Recorder _____ Date _____

SKELETAL AGING

1) *Dental development* Age _____

Deciduous

canine ____ m1 ____ m2 ____

Permanent

Maxillary I1	____	Mandibular Pm1	____
Maxillary I2	____	Mandibular Pm2	____
Mandibular I1	____	Mandibular M1	____
Mandibular I2	____	Mandibular M2	____
Mandibular C	____	Mandibular M3	____

2) *Epiphyseal union* Age _____

Metopic suture	___	Distal humerus	___
Mental symphysis	___	Humerus epicondyle	___
Lateral to basilar	___	Proximal radius	___
Lateral to squamous	___	Distal radius	___
Basilar suture	___	Proximal ulna	___
C halves of arch	___	Distal ulna	___
C arch to centrum	___	Ilium to pubis	___
C vert superior rim	___	Ischium to pubis	___
C vert inferior rim	___	Ischium to ilium	___
T halves of arch	___	Ischial tuberosity	___
T arch to centrum	___	Iliac crest	___
T vert superior rim	___	Proximal femur	___
T vert inferior rim	___	Greater trochanter	___
L halves of arch	___	Lesser trochanter	___
L arch to centrum	___	Distal femur	___
L vert superior rim	___	Proximal tibia	___
L vert inferior rim	___	Distal tibia	___
Scapula coracoid	___	Proximal fibula	___
Scap. glenoid cavity	___	Distal fibula	___
Scap. acromium	___	S1-S2	___
Scap. inferior angle	___	S2-S3	___
Scap. medial border	___	S3-S4	___
Clav. sternal end	___	S4-S5	___
Proximal humerus	___		

3) *Subadult Bone Measurements* Age _____

C vert max length	_____	Radius max length	_____
T vert max length	_____	Ulna max length	_____
L vert max length	_____	Os pubis max length	_____
Scapula max length	_____	Femur max length	_____
Clavicle max length	_____	Tibia max length	_____
Humerus max length	_____	Fibula max length	_____

4) *Pubic Symphysis and Auricular Surface* Age _____

	Left	Right	Score
Todd pubic scoring	phase ___	phase ___	_____
Suchey-Brooks pubic scoring	phase ___	phase ___	_____
Auricular surface scoring	group ___	group ___	_____

5) *Cranial suture closure*

(Ectocranial)	L	R		L	R	(Endocranial)	L	R
Midlambdoid	___	___	Inf. sphenotemporal	___	___	Sagittal	___	
Lambda	___		Sup. sphenotemporal	___	___	Coronal	___	___
Obelion	___		Incisive suture	___	___	Lambdoid	___	___
Ant. Sagittal	___		Ant. med. palatine	___				
Bregma	___		Post. med. palatine	___				
Midcoronal	___	___	Transverse palatine	___	___			
Pterion	___	___	Grt. palat. foramina	___	___	Age _____		
Sphenofrontal	___	___						

Range _____ Prob. Age _____

Min/Max _____ Code _____

SKELETAL SEXING

Sex designation ____
Code ____

Ventral arc	____	Nuchal crest	____
Subpubic concavity	____	Mastoid process	____
Subpubic angle	____	Supra-orbital sharpness	____
Ischio-pubic ramus ridge	____	Supra-orbital ridge size	____
Greater sciatic notch width	____	Mental eminence size	____
Preauricular sulcus	____	Mental shape	____
Auricular surface elevation	____	Femur head diam (F<42.5,47.5>M)	____
Curvature of the sacrum	____	Humerus head diam (F<43,47>M)	____

Notes:

POST-CRANIAL MEASUREMENTS

Catalog no _____ Recorder _____ Date _____

			R
1. Clavicle maximum length	(CML)	_____	__
2. Clav ant/post diam midshaft	(CSD)	_____	__
3. Clav. sup/inf diam midshaft	(CVD)	_____	__
4. Scapula maximum height	(SML)	_____	__
5. Sacpula maximum breadth	(SMB)	_____	__
6. Scapula spine length	(SLS)	_____	__
7. Scapula supraspinous length	(SSL)	_____	__
8. Scapula infraspinous length	(LSL)	_____	__
9. Scap glenoid cavity breadth	(GCB)	_____	__
10. Scap glenoid cavity height	(GCH)	_____	__
11. Scap glenoid to inf angle	(GIL)	_____	__
12. Manubrium length	(MML)	_____	__
13. Mesosternum length	(MSL)	_____	__
14. Stenebra 1 width	(S1W)	_____	__
15. Stenebra 3 width	(S3W)	_____	__
16. Humerus maximum length	(HML)	_____	__
17. Humerus prox epiph breadth	(BUE)	_____	__
18. Hum maximum diam midshaft	(MDS)	_____	__
19. Hum minimum diam midshaft	(MDM)	_____	__
20. Hum max vert diam of head	(MDH)	_____	__
21. Humerus epicondylar breadth	(EBR)	_____	__
22. Hum least circumf of shaft	(LCS)	_____	__
23. Radius maximum length	(RML)	_____	__
24. Radius maximum diam of head	(RDH)	_____	__
25. Radius ant/post diam of shaft	(RSD)	_____	__
26. Rad med/lateral diam of shaft	(RTD)	_____	__
27. Rad neck shaft circumference	(MCS)	_____	__
28. Ulna maximum length	(UML)	_____	__
29. Ulna pysiological length	(UPL)	_____	__
30. Ulna max breadth olecranon	(BOP)	_____	__
31. Ulna min breadth olecranon	(MBO)	_____	__
32. Ulna max width olecranon	(WOP)	_____	__
33. Ulna olec-radial notch	(ORL)	_____	__
34. Ulna olec-coronoid length	(OCL)	_____	__
35. Ulna ant/post diam @ max crest	(UAD)	_____	__
36. Ulna med/lat diam @ max crest	(UMD)	_____	__
37. Ulna least circumf of shaft	(ULC)	_____	__
38. Sacrum anterior length	(SAL)	_____	__
39. Sacrum ant/superior breadth	(SAB)	_____	__
40. Sacrum maximum breadth @ S1	(SMB)	_____	__
41. Innominate height	(INH)	_____	__
42. Iliac breadth	(ILB)	_____	__
43. Pubis length	(PUL)	_____	__
44. Ishium length	(ICL)	_____	__
45. Femur maximum length	(FML)	_____	__
46. Femur bicondylar length	(FOL)	_____	__
47. Femur trochanteric length	(FTL)	_____	__
48. Fem subtoch ant/post diam	(APD)	_____	__
49. Fem subtroch med/lateral diam	(MLD)	_____	__
50. Fem ant/post diam @ midshaft	(APS)	_____	__
51. Fem med/lateral diam @ midshaft	(MLS)	_____	__
52. Femur max vert diam of head	(VHD)	_____	__
53. Femur max horiz diam of head	(HHD)	_____	__
54. Fem ant/post diam of lat condyle	(APL)	_____	__
55. Fem ant/post diam of med condyle	(APM)	_____	__
56. Femur epicondylar breadth	(FEB)	_____	__
57. Femur bicondylar breadth	(BCB)	_____	__
58. Femur min vert diam of neck	(VDN)	_____	__
59. Femur circumference @ midshaft	(FCS)	_____	__
60. Tibia condylo-malleolar length	(TML)	_____	__
61. Tibia max breadth prox epiph	(BPE)	_____	__
62. Tibia max breadth dist epiph	(BDE)	_____	__
63. Tibia ant/post diam nutr for	(APN)	_____	__
64. Tibia med/lateral diam nutr for	(MLM)	_____	__
65. Tibia position of nutr foramen	(CFL)	_____	__
66. Tibia circum @ nutr foramen	(TCN)	_____	__
67. Fibula maximum length	(BML)	_____	__
68. Fibula maximum diam midshaft	(FMD)	_____	__
69. Calcaneous maximum length	(CLL)	_____	__
70. Calcaneous middle breadth	(CMB)	_____	__

SITE	COMPID
FEATURE	DATE
BURIAL NO.	PROJECT
RECORDER	

MAXILLA

RIGHT LEFT

	PRE	OCC	BUC	LIN	INT	RT	PE	ABS	ABR	CAL	RES
DI1											
DI2											
DC											
DM1											
DM2											
I1											
I2											
C											
PM1											
PM2											
M1											
M2											
M3											

	PRE	OCC	BUC	LIN	INT	RT	PE	ABS	ABR	CAL	RES
DI1											
DI2											
DC											
DM1											
DM2											
I1											
I2											
C											
PM1											
PM2											
M1											
M2											
M3											

MANDIBLE

RIGHT LEFT

	PRE	OCC	BUC	LIN	INT	RT	PE	ABS	ABR	CAL	RES
DI1											
DI2											
DC											
DM1											
DM2											
I1											
I2											
C											
PM1											
PM2											
M1											
M2											
M3											

	PRE	OCC	BUC	LIN	INT	RT	PE	ABS	ABR	CAL	RES
DI1											
DI2											
DC											
DM1											
DM2											
I1											
I2											
C											
PM1											
PM2											
M1											
M2											
M3											

Codes for Dental Scoring

PRE = presence
OCC = occlusal
BUC = buccal
LIN = lingual
INT = interproximal
RT = root
ABS = abscess
CAL = calculus

PRE (presence)
- 1 = tooth only
- 2 = tooth in socket
- 3 = antemortem tooth loss (socket remodeling)
- 4 = antemortem tooth loss (socket resorbed)
- 5 = postmortem loss
- 6 = erupting
- 7 = unerupted (includes impacted)
- 8 = agenesis

CARIES (score surface)
- 1 = pit, fissure
- 2 = < ½
- 3 = ½ - ¾
- 4 = complete destruction

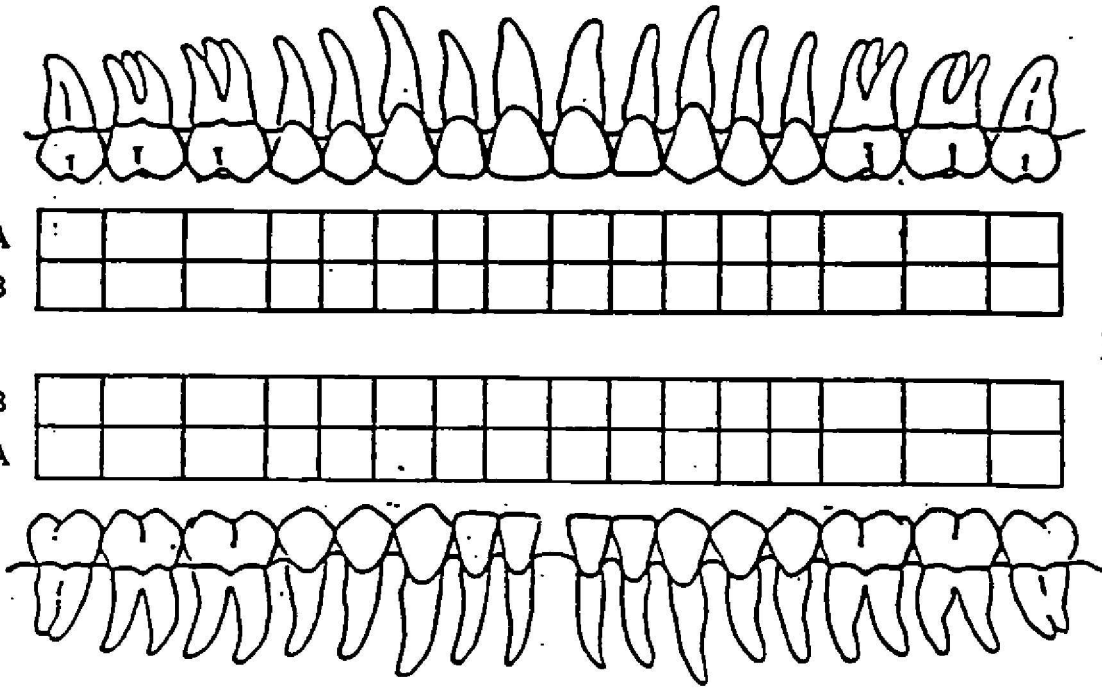
RT (root) – if carious, score as 5

SOCKETS
- 1 = healthy
- 2 = periodontal abscess
- 3 = periapical abscess
- 4 = AM tooth loss (socket remodeling)
- 5 = AM tooth loss (socket resorbed)

CALCULUS
- 1 = none
- 2 = flecks
- 3 = moderate
- 4 = moderate
- 5 = heavy
- 6 = heavy, 3-dimensional

DENTAL WEAR

Catalog no. _____ Recorder _____ Date _____



A = Stage of wear
(numeric codes 1 to 8 based on scoring stages by Smith 1984 [AJPA 63: 46])

B = Plane of wear
(recorded only for stages of dental wear 4 to 8)

1. flat
2. concave
3. buccal slope
4. lingual slope
5. mesial slope
6. distal slope
7. concave-buccal
8. concave-lingual
9. concave-mesial
10. concave-distal
11. buccal-lingual
12. buccal-mesial
13. buccal-distal
14. lingual-mesial
15. lingual-distal
16. distal-mesial

99 = unobservable.

STAGES OF WEAR

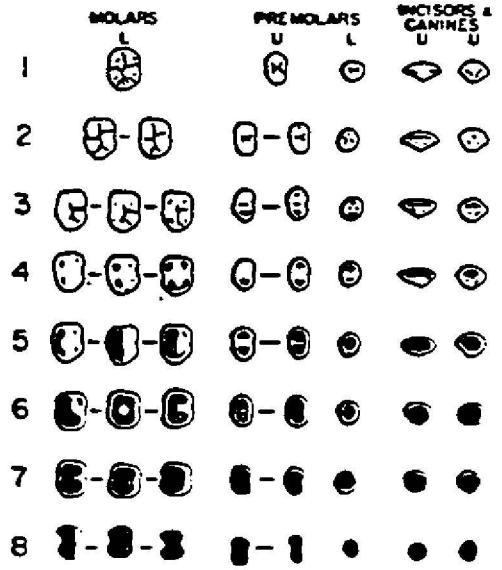
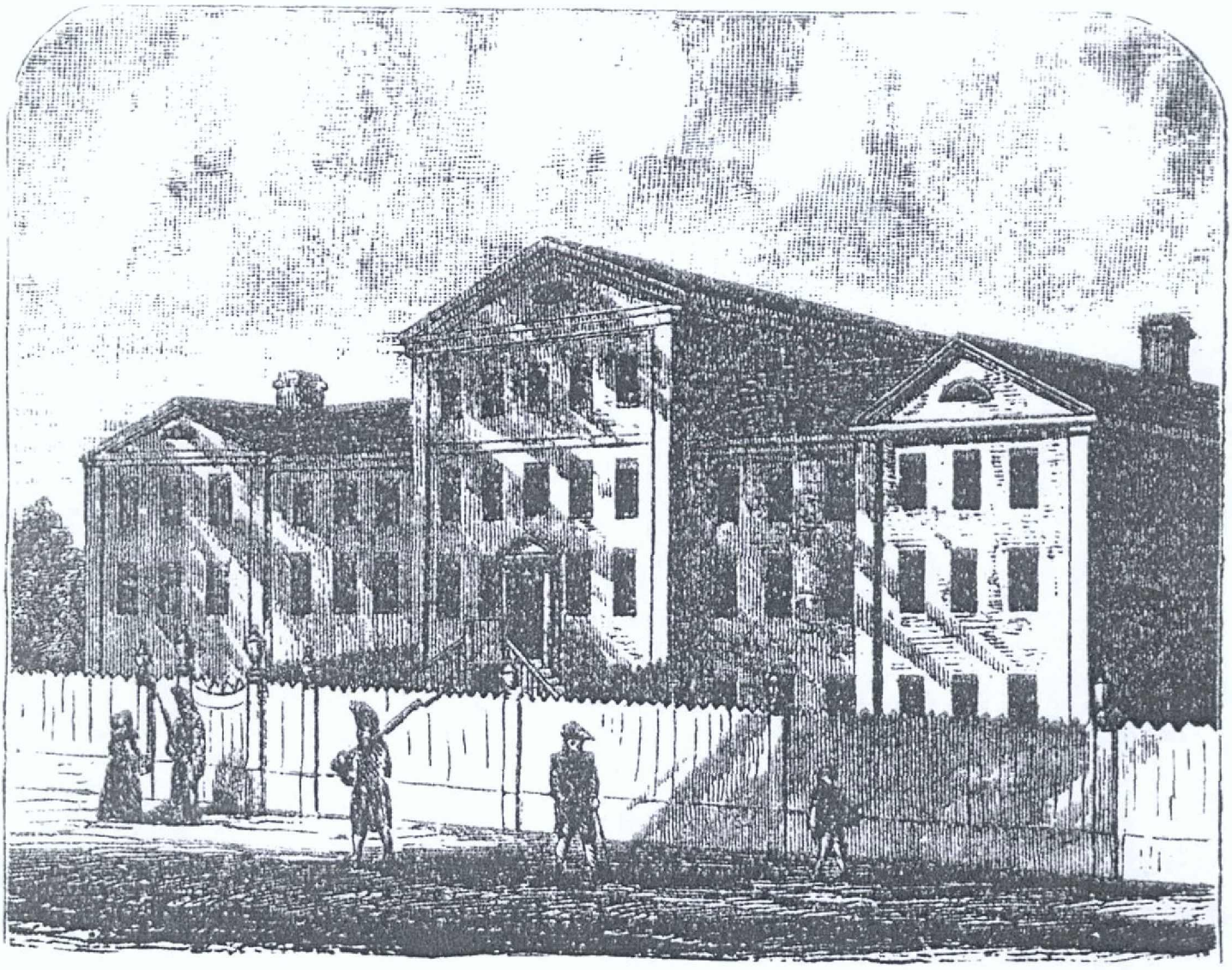
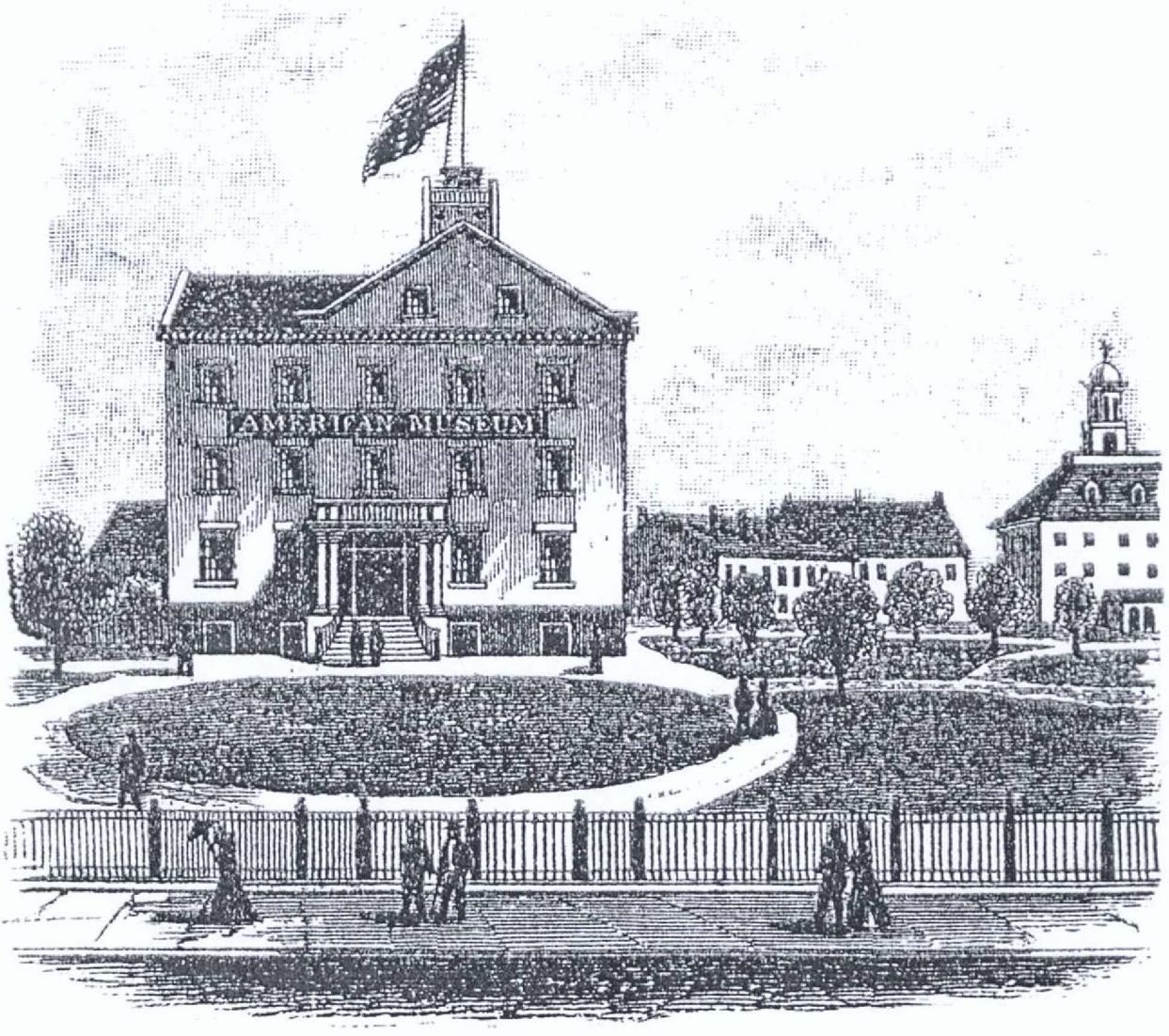


Figure 7. Map of Manhattan, 1729 (Lossing).
Much of the area was used as *common ground*.



BRIDEWELL, WEST SIDE CITY HALL, 1816

Figure 8. Bridewell, erected 1775 (Booth, 1859)



NEW YORK INSTITUTION OR ALMSHOUSE AND PART OF JAIL

Figure 9. Almshouse Building, shown converted into the American Museum, 1817.

Wilson, 1893

Figure 10. Map of Manhattan, 1797, from Wilson, 1893. The inset shows the Bridewell, the Almshouse, and the Gaol.

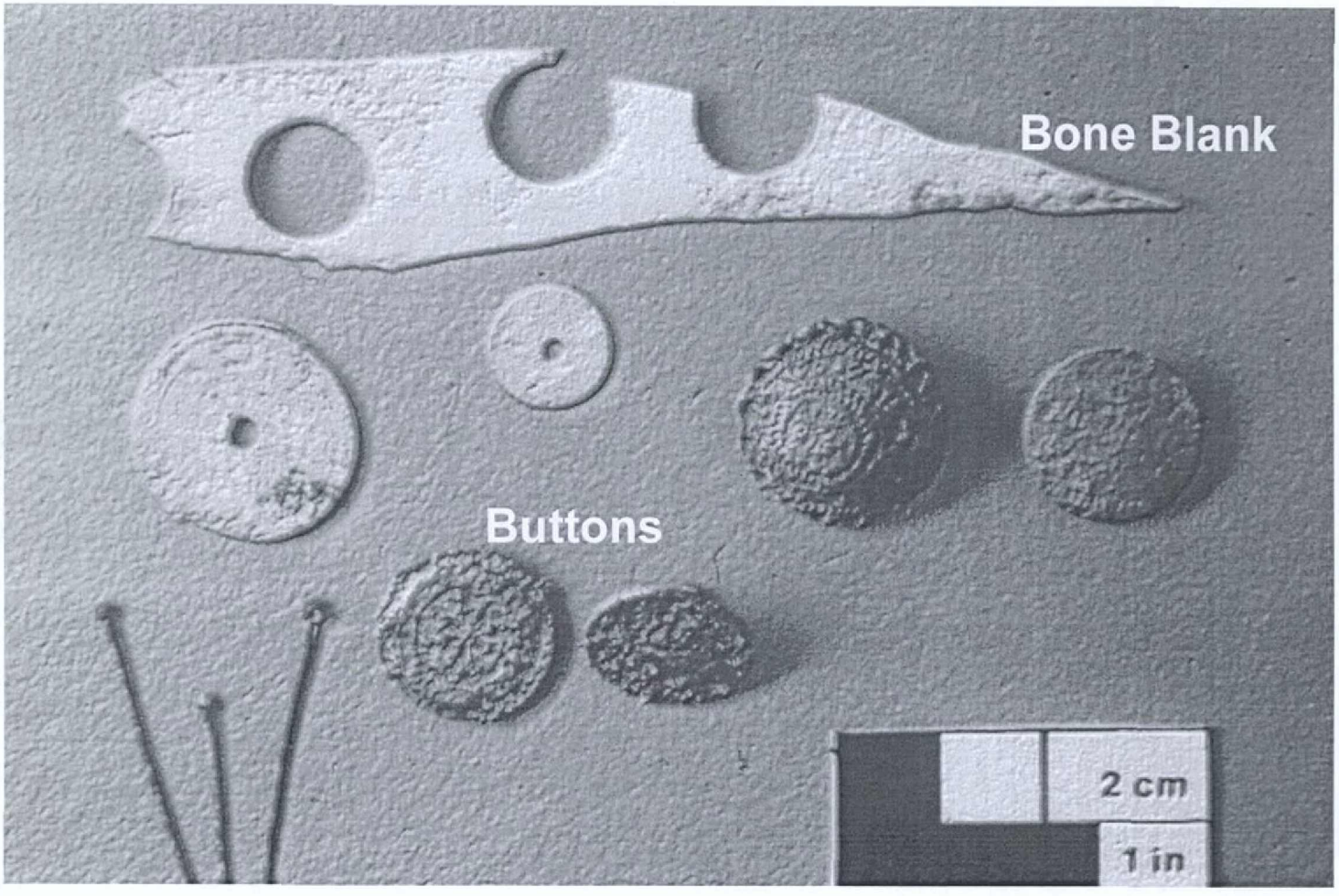


Figure 11. Bone buttons and button blanks (photo courtesy of A. Bankoff). Historical documents (Ely, 1813) state that some inhabitants of the Almshouses made buttons to earn an income. Several button blanks and bone buttons were found in 1999 in the Park.

Figure 12. Feature 12, an *in situ* burial just south of Chambers Street.

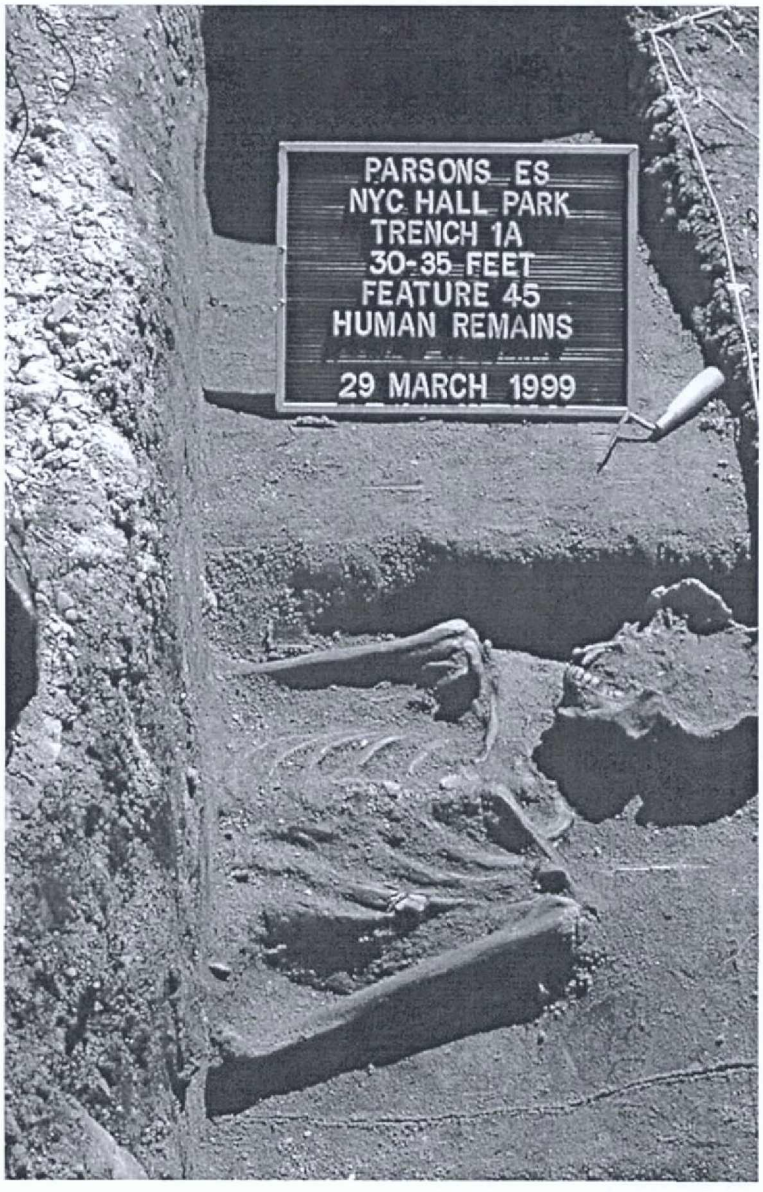


Figure 13. Feature 45, an in situ burial just south of Chambers Street.

Figure 14. Feature 53, an ossuary east of Tweed Courthouse. Most of the remains were recovered from under the tree roots; some bones were left *in situ* because of inaccessibility.

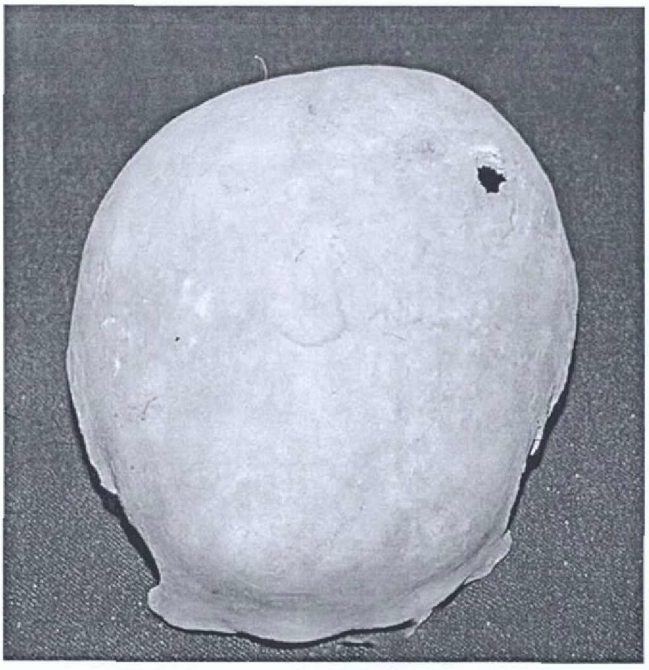


Figure 15. Individual 53-V01. Male, 40 to 59 years, unknown ancestry. An old probe hole is present in the left parietal.

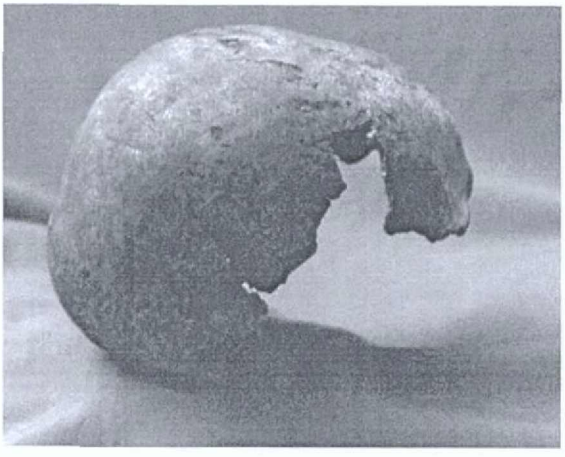


Figure 16. Individual 53-V02. Female, 40 to 49 years, unknown ancestry.

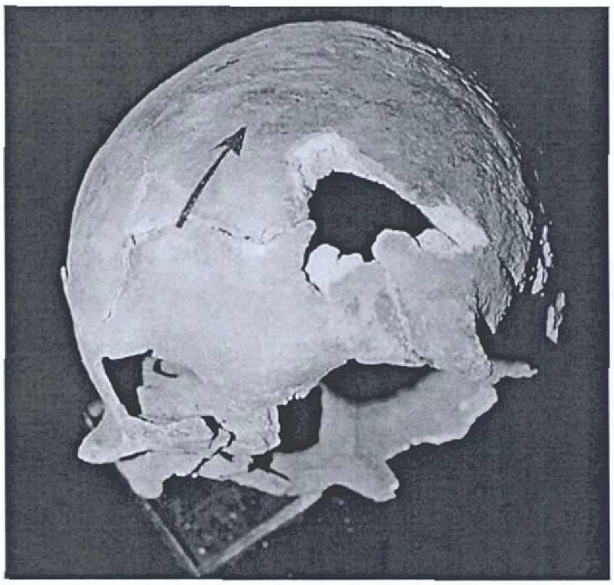


Figure 17. Individual 53-V03. Female, 45 to 65 years, European ancestry. A green shroud pin stain is seen on the left superior frontal.

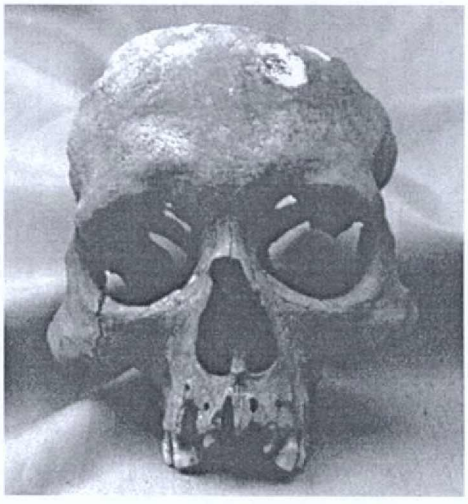


Figure 18. Individual 53-V04. Male, 45 to 59 years, probable European ancestry.

Figure 19. Individual 53-V04, profile.

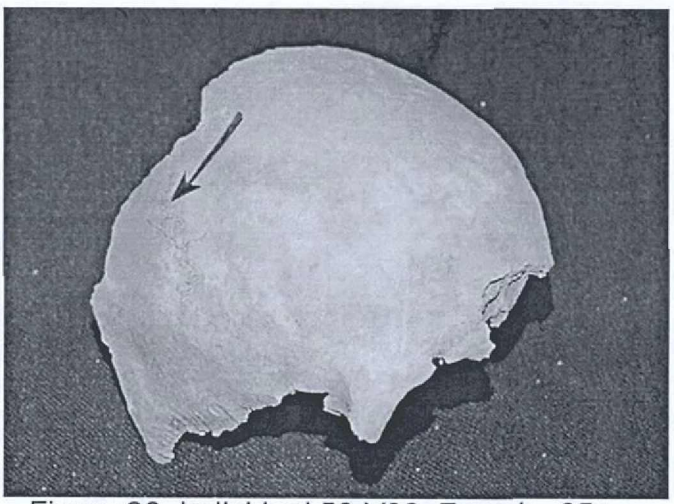


Figure 20. Individual 53-V08. Female, 35+ years, ancestry unknown. A green stain from a shroud pin is seen on the right pareital fragment (arrow).

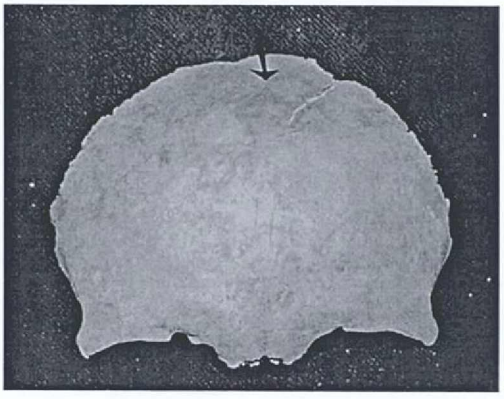


Figure 21. Individual 53-V10. Female, 25 to 35 years, ancestry unknown. A green shroud pin stain is present at the midline (arrow).

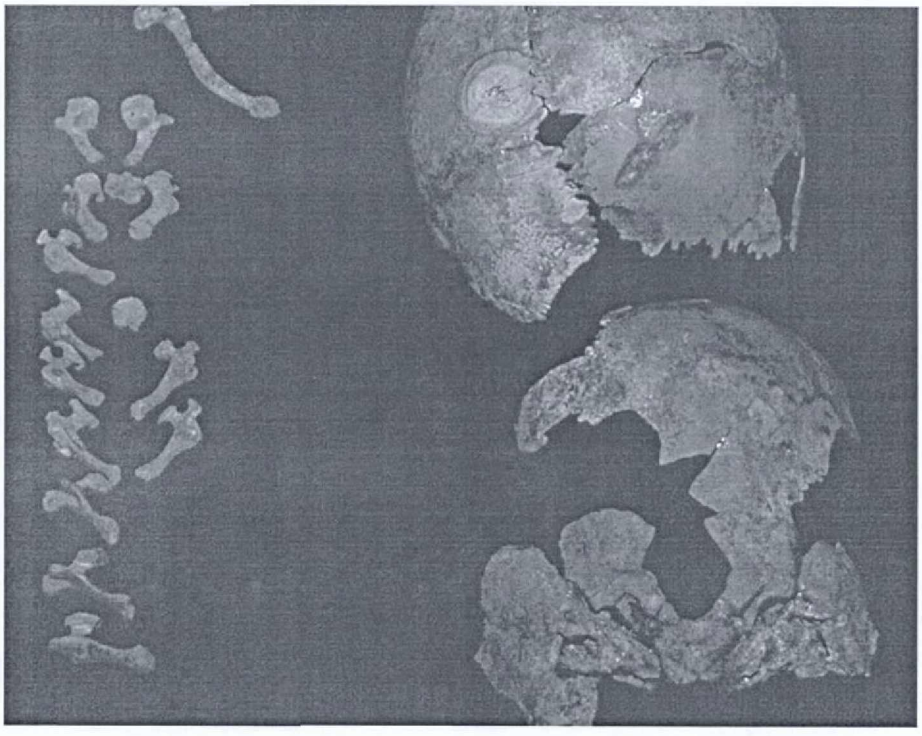


Figure 22. Individual 67-100. Vertebral and cranial elements of a nearly complete infant (6 to 9 months) skeleton. A circular green stain, possibly left by a metal button, is present on the left parietal.

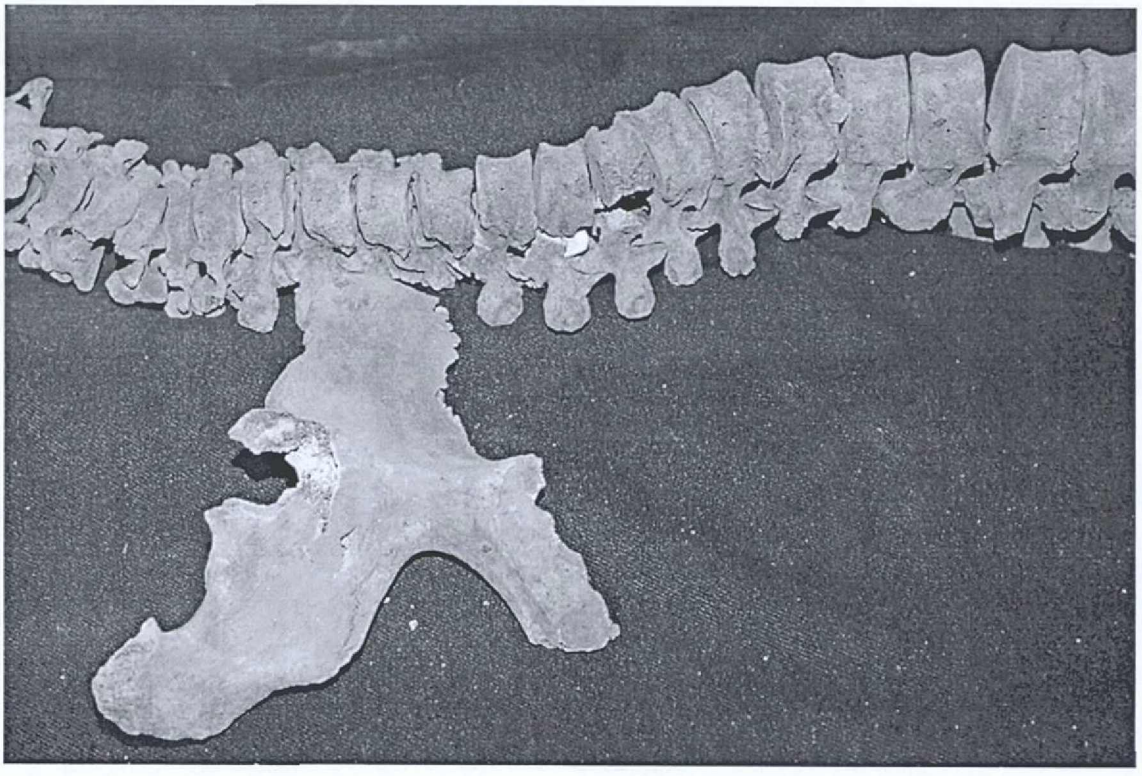


Figure 23. Individual 67-800. Female, 45 to 60 years. Only the articulated pelvic girdle, vertebral column, and ribs were found.

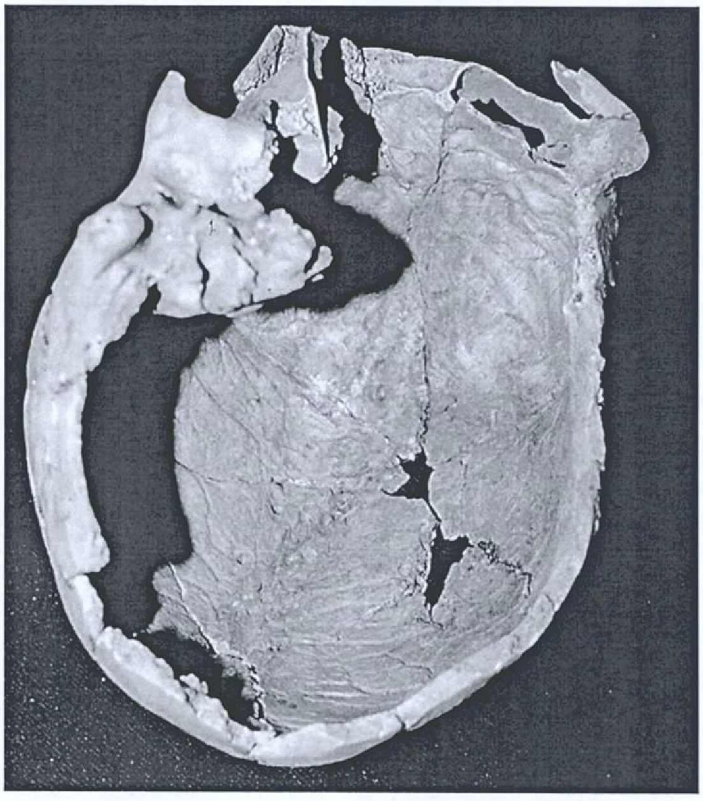


Figure 24. Individual 68-V01. Elderly female, ancestry unknown. The cranium has evidence of hyperostosis frontalis interna.

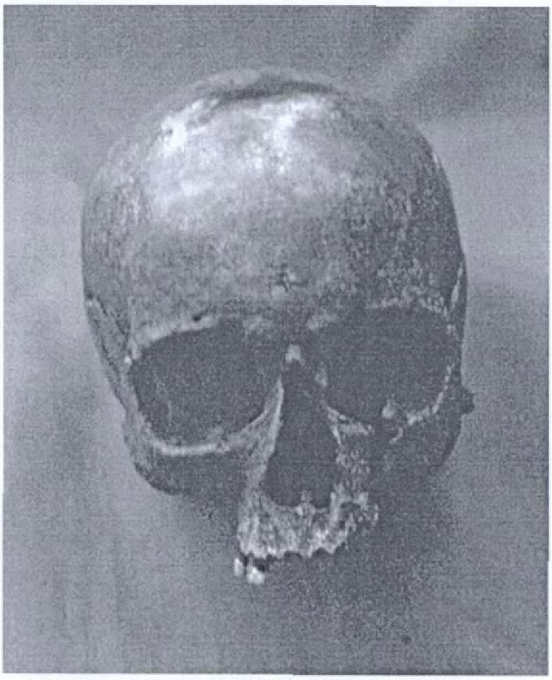


Figure 25. Individual 132-V01. Female, 50 to 65 years, European ancestry.

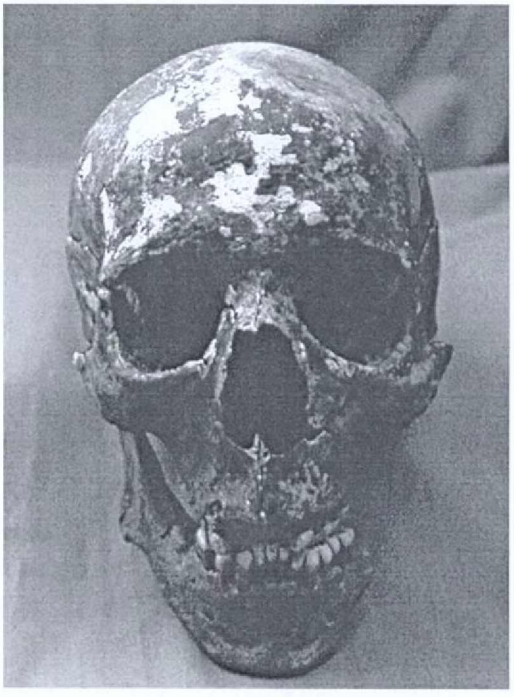


Figure 26. Individual 132-V02. Male, 45 to 54 years, unknown ancestry.

Appendix I

Parsons, Key Site Personnel

Petar Glumac
Julie Abell
Marilyn R. London
Charles McNutt, Jr.
Sean Fitzell
Erica B. Jones

Field Archaeologists

Kevin Barrett
Michael Barrett
Michele Besson
Kelly Britt
Noreen C*
Will Forbes
Tina Fortugna
Eytan K*
Adam Kelley
Agnes LeFlem
George Myers
Martin Nienstedt
Jesse P*
Jim Quinn
Connie Rocklein
Nancy Stehling
Gabriel Stein
Amy T*
Zell Watson
Jonas Wesley

Barney Skanska

Michael Classi
Mark McKasty
Joe Natale
Jorge Amparo
Sylvia Augustus

Landmarks Commission

Arthur Bankoff
Jennifer Raab
Amanda Sutphin
Ronda Wist

Parks Department

Parviz Mohassel
George Velonikas, architect

Other personnel on the site

Elizabeth Crowell, Parsons
Brian *, Parsons
Michael Petraglia, Parsons

Chris Travis (Botanist)
Amy Travis (student)

Gary McGowan (conservator)

Chris Ricciardi, visitor
Alysa Ricciardi, visitor

*Unknown last name; contact Parsons if needed.

APPENDIX II. Forms used for data collection

Feature Record
Unit/ Trench Record
Label placed in collection bags
Skeletal Inventory
Coding instructions for inventory
Sex and age code
Adult Skeletal Inventory (for commingled remains)
Age and Sex Determination
Post-cranial measurements
Dental score sheet
Codes for dental scoring
Dental wear

ES Engineering Science

FEATURE RECORD

EXCAV'R_____

DATE_____

SITE_____ FEATURE_____

TRENCH_____ UNIT(S)_____ GRID LOCATION_____ / _____

STRATUM_____ LEVEL(S)_____

SOIL TYPE: MUNSELL:

ARTIFACTS:

NON ARTIFACTUAL
MATERIAL:

FEATURE DESCRIPTION AND INTERPRETATION:

#/TYPE OF SAMPLES_____

OF ARTIFACT BAGS_____ PAGE _____ OF _____
(per feature)

Size, thickness, and condition of the bone indicate that the individual was a young child. There is no evidence for sex or ancestry.

NYCHP-53-V12

This individual is represented by the left zygomatic bone only. The bone is that of a fetus, and measurements of this bone indicate an age of about 7.5 months *in utero*.

NYCHP-53-M01A

This is a nearly complete mandible, with slight damage. A green stain is seen on the left lateral surface, anterior to gonion.

The bone is very robust, with slight flaring at the gonial angles and a squared mental eminence, indicating a male. Based on tooth wear, tooth loss, and resorption of the alveolus, this individual is an older adult. Lack of alveolar prognathism suggests European ancestry.

Four of the posterior teeth were lost antemortem, and an abscess and caries are present on the root of the left second molar.

NYCHP-53-M01B

This is a nearly complete mandible with some teeth present. The bone is small, and the mental eminence (chin) is narrow, indicating a female. There is some antemortem tooth loss (right first and second molars and left first molar) with alveolar resorption, and limited wear on the teeth present. Based on these features, this individual was probably 25 to 35 years old at death. Lack of alveolar prognathism suggests European ancestry. Dental disease is exhibited by the presence of an abscess at the left first molar socket, caries, and calculus deposits on some posterior teeth.

NYCHP-53-M01C

This mandible was reassociated with NYCHP-53-V06 on the basis of shape, size, and morphology.

NYCHP-53-M01D

This is a partial mandible (anterior only) representing an older adult male. The bone is rounded and wide. Mental tubercles are present. There is extensive antemortem tooth loss (all molars and left first premolar) and resorption of the alveolus. The infection at the socket for the missing premolar was active at the time of death. Lack of alveolar prognathism suggests European ancestry.

NYCHP-53-M01E

This is a partial mandible representing an older adult female. The bone is very small and the chin is narrow. The teeth present have significant wear and moderate calculus deposits. The individual had a slight overbite, indicated by tooth wear. The size of the bone, relatively small teeth, and lack of alveolar prognathism suggest an individual of European ancestry. Wear facets present on the right canine and second premolar are probably related to occlusion rather than pipe wear.

NYCHP-53-M01F

This is a nearly complete mandible representing an adult male aged 40 to 59 years at death. Sex is based on the large, squared mental eminence. Mental tubercles and slight mandibular tori (primarily on the right) are present. Although most teeth were present at the time of death, only one, the right second molar, was found in its socket. This tooth has extensive caries and moderate to extensive occlusal wear. Age is based on dental wear, tooth loss, and resorption of the alveolar bone. The lack of alveolar prognathism suggests an individual of European ancestry.

NYCHP-53-X01R

This right maxilla and zygomatic represent a young adult female. The bones are small and gracile. There is very little occlusal wear but the alveolar bone shows slight resorption. The age is estimated at 25 to 29 years. The sharp nasal sill and narrow nasal aperture suggest European ancestry. Carious lesions are present on the first premolar and the first molar.

NYCHP-53-X01L/R

This partial left and right maxilla is that of an older adult, probably over the age of 60 years. Sex cannot be determined. Age is based on extensive tooth loss and extreme alveolar resorption. The sharp nasal sill and narrow nasal aperture suggest European ancestry.

NYCHP-53-X02R

This is a partial right maxilla of an elderly adult, sex unknown. There is evidence of dental disease, including a periapical abscess of the first molar and heavy calculus deposit on that tooth. No evidence of ancestry is present.

NYCHP-53-X03R

This is a partial right maxilla of an elderly adult, sex unknown. The teeth were lost antemortem. There is no evidence for the determination of ancestry.

An attempt was made to match cranial and mandible elements. Mandible B may originate from Cranium 2 or 3; Mandible C may originate from Cranium 6. The minimum number of individuals, based on the cranial elements, is 11.

Feature 53 Postcranial Elements

Several postcranial bones were found in significant numbers in Feature 53. Many of the innominates and sacra were reassociated into individual pelvic girdles, as listed below. Since these bones can provide significant information about age and sex, the pelvic girdles were documented extensively. The femora and humeri were documented and measured, where possible, for age, sex, and determination of stature.

NYCHP-53-P1

The nearly complete pelvic girdle (both innominates and sacrum) of a male, based on size and morphology, including the absence of a ventral arc and a narrow subpubic concavity. The age is estimated to be between 25 and 35 years, based on analysis of the pubic symphyses and the auricular surfaces. There is a postmortem fracture through the left ilium, but the bones are otherwise in good condition.

NYCHP-53-P2

The nearly complete pelvic girdle of a male, with damage to the left iliac crest and ischium, the right pubic bone, and the right side of the sacrum, is present. Sex is based on the absence of a ventral arc and a narrow subpubic angle. The age is estimated to be between 40 and 50 years, based on the pubic symphysis and the auricular surfaces.

NYCHP-53-P3

The partial pelvic girdle of a male, consisting of an incomplete left innominate, a slightly damaged sacrum, and L5, is present. The sex is determined by size and morphology, including a narrow greater sciatic notch. The individual was probably between 45 and 50 years of age, based on the auricular surface, extensive lipping on the superior margin of S1, and arthritic changes on the articular facets between L5 and

S1. The bones are also osteoporotic and fragile. Spina bifida occulta of the sacral elements S2 through S5 (and possibly S1) was also noted.

NYCHP-53-P4

The partial pelvic girdle of a male, consisting of a damaged left innominate and a fragment of the sacrum, is present. Sex is determined by size and a narrow greater sciatic notch. The individual was probably between 50 and 59 years of age, based on the auricular surface and arthritic changes seen on the centrum and left articular facet of S1.

NYCHP-53-P5

The partial pelvic girdle of a female, consisting of a complete left innominate, a damaged right innominate, and a fragment of the sacrum, is present. Sex is based on the presence of a ventral arc, wide subpubic concavity, female morphology of the ischiopubic ramus, very wide greater sciatic notch, and presence of a preauricular sulcus. The age is estimated at 40 and 44 years, based on the pubic symphysis and the auricular surfaces.

NYCHP-53-P6

Incomplete innominates of a female, with no associated sacrum, are present. The sex is based on the presence of a ventral arc, wide subpubic concavity, very wide greater sciatic notch, and female morphology of the ischiopubic ramus. The age is estimated at over 50 years, based on auricular surfaces and the pubic symphysis.

NYCHP-53-P7

The incomplete left innominate and damaged sacrum of a male are present. Sex is based on a narrow subpubic concavity, absence of a ventral arc, and narrow greater sciatic notch. The age is estimated to be over 50 years, based on the auricular surface. The first coccygeal element is fused to the sacrum.

NYCHP-53-P8

The partial left innominate and damaged sacrum of a male are present. The sex is based on size and the deep curvature of the sacrum. Age is estimated at 35 and 39 years, based on the auricular surface.

NYCHP-53-P9

The incomplete left innominate and partial sacrum of a male are present. Sex is based on size a very narrow greater sciatic notch. The age is probably between 45 and 49 years, based on the auricular surface.

NYCHP-53-P10

The partial innominates and a nearly complete sacrum of a male are present. Sex is based on size and a very narrow greater sciatic notch. The age is estimated to be 50 and 59 years, based on the auricular surface and the presence of arthritic lipping around the acetabular rims.

NYCHP-53-P11

The partial right innominate and a fragment of the left ilium of a probable male, with no associated sacrum, are present. Sex is determined from the depressed auricular surface and the size of the bones; however, the greater sciatic notch is fairly wide. Age is estimated at 45 and 49 years at the time of death, based on the auricular surface.

NYCHP-53-P12

The left and right innominates of a female, with no associated sacrum, are present. The left pubis is missing. Sex is based on the presence of a ventral arc, a wide subpubic concavity, female morphology of the ischiopubic ramus, and a very wide

greater sciatic notch. Age is probably between 30 and 34 years, based on the auricular surfaces and some information from the right pubic symphysis.

NYCHP-53-P13

The left and right innominates with no associated sacrum of a probable male are present. Both pubic bones are missing. The sex is based on size and robusticity; the greater sciatic notch is neither narrow nor wide. The age is 30 and 34 years, based on the auricular surfaces.

NYCHP-53-P14

The partial left innominate of an adult, probably male, is present. Sex is based on size and robusticity; the greater sciatic notch is neither naroow nor wide. Age is estimated at 45 and 49 years, based on the auricular surface.

NYCHP-53-P15

The partial left innominate (no pubis) of a female is present. Sex is based on a wide greater sciatic notch. The age is estimated at 25 and 29 years, based on the auricular surface.

NYCHP-53-P16

The partial left innominate of a male, consisting only of a partial ischium, anterior ilium, and acetabulum, is present. Sex is based on size and robusticity. Age is probably over 40 years at death, based on the condition of the bone and age related changes in the acetabulum.

NYCHP-53-P17

A fragment of a left ischium and partial acetabulum is present. This fragment does not correspond to any of the other pelvic girdles listed above. The individual is a young adult, based on the condition of the bones. No sex can be determined from this fragmentary bone.

NYCHP-53-P18

The sacrum of a female, probably over 30 years of age, is present. This sacrum does not correspond to any of the pelvic girdles listed above. Sex is determined from the morphology and size of the bone.

Other elements of the pelvic girdle were present which may or may not originate from one of the 18 discrete individuals. These were the pubic bones of a male, aged 35 to 39; the right ilium of a male, aged 35 to 44; the left pubis of a male, aged 35 to 39; and a sacrum of a male, over 30 years of age. Based on elements of the pelvis, the minimum number of individuals is 18 adults, including nine males, three probable males, five females, and one individual of unknown sex.

Feature 53 – Other bones

Other single and fragmentary bones found in Feature 53 represent at least 16 individuals. Bones with the highest frequency were the right femur (16), right humerus (12), left ulna (11+), right fibula (11+) and the right scapula (11+). Two fragments of right tibiae (not the same individual) have evidence of osteomyelitis. Two of the fibulae exhibited periostitis on the shafts, and a left fibula has a healed fracture on the distal shaft. One right clavicle has a healed fracture on the lateral extremity, with extensive remodeling and possible osteomyelitis. A right radius has probable traumatic arthritis on the distal end, with extensive remodeling. A left radius has a healed fracture on the distal third of the shaft. Another left radius has a badly healed fracture near the head;

the bone is slightly crooked. Three thoracic vertebrae are ankylosed on the anterior margins. One lumbar vertebra exhibits spondylolysis.

FEATURE 67

Human remains found at Island 9 Trench C in the south wall were assigned to Feature 67. Artifacts found in this feature include ceramic, glass, non-human bone, button blanks, three bone buttons, two coins, a copper artifact, pipe stems, nails, wood, a bead, two musket balls, and metal fragments. Some bones were left in the south wall of the trench. These skeletal elements were separated into individuals based on size, sexual dimorphism, condition, and duplication of elements.

NYCHP-67-100

This is a nearly complete infant skeleton aged 6 to 9 months, dentally. Shroud pins were found in association with the cranial fragments, and there is green staining on the left mandibular symphysis, the left and right parietals (Figure 22), the base of the occipital (left and right condylar segments), the right clavicle and scapula, and on the left side of five cervical (including C1 and C2), several thoracic (including T1 and T2), and some of the lumbar vertebrae. On the left parietal, the stain is circular, resembling a button, and measures 21 mm by 23.2 mm. The stain on the right parietal is amorphic and covers an area about 39 mm by 42 mm. No sex or ancestry can be determined from these remains. No pathological conditions are present.

NYCHP-67-200

This is the left and right humerus of an adult, probably male, and between 35 and 50 years old at death. The vertical diameter of the humeral head measures 46.1 mm. No information about ancestry is available.

NYCHP-67-300

This individual is represented only by the left and right femur. The vertical diameter of the femoral head measures 46.9 mm, indicating a male. The femoral head epiphysis is nearly completely fused to the bone, indicating an age of 17 to 20 years old at death. The proximal diaphyses exhibit slight platymeria. The linea aspera is slightly overdeveloped bilaterally. No information on ancestry is available.

NYCHP-67-400

This is the right femur, left and right tibia, and left and right fibula of an adult female aged 30+ years at the time of death. The vertical diameter of the femoral head measures 40.3 mm. There is green (copper) staining on the proximal posterior shaft of the femur; the stain measures 20 mm by 30 mm. There is a cortical defect on the distal left tibia, and bony spicules on the proximal tibiae. These changes probably indicate heavy physical activity. No information on ancestry is available.

NYCHP-67-500

This is the left and right femur of an adult male, aged 25 to 35 years at the time of death. The vertical diameter of the femoral head measures 47.4 mm. No information on ancestry is available. No pathological conditions are noted.

NYCHP-67-600

This individual is represented only by the right tibia and fibula. The bones are osteoporotic, suggesting an age of 60 or older at the time of death. The size of the bones indicates a male. There is slight arthritic lipping around the rim of the distal right tibia. The fibulae shows widespread slight to moderate periostosis on the diaphysis, which was active at the time of death. The tibia has slight, healed, fine subperiosteal bone formation due to periostitis on the diaphysis. On the distal ends of the bones there

are slight exostoses suggesting healed trauma to the ankle area. No information on ancestry is available.

NYCHP-67-700

These are the arm and shoulder bones of an adult male, aged 45 to 60 at the time of death. These bones were found in a box outline in the feature; this box was too small to be considered a coffin. Some foot bones were also present in the box.

The right lateral clavicle is thickened, and the joint surfaces between the lateral clavicles and the acromion processes of the scapulae are enlarged and porotic. Both clavicles have cortical defects at the rhomboid fossae, larger on the right than the left. The right humerus is also longer and larger than the left, with more developed muscle attachments. These features suggest a right-handed individual. The proximal right humerus has some arthritis; the left has none. The right radial tuberosity has slight enthesophyte development. There is slight arthritic lipping on the joint surfaces of the radius and ulna. The muscle attachments are moderately developed. The left scapulae is complete, with well-developed ventral surface ridging of the body. The humeri have moderately developed deltoid tuberosities (for attachment of the pectoralis major muscles) and shallow linear cortical excavations measuring 23 mm by 4 mm (left) and 21 mm by 4 mm (right).

No information on ancestry is available.

NYCHP-67-800

This is the partial skeleton of an adult female, aged 45 to 60 years at the time of death. The bones present include a partial right innominate, a nearly complete vertebral column, and several ribs (Figure 23). The greater sciatic notch is moderately wide and the auricular surface is depressed, indicating a female. There is slight development of a preauricular sulcus.

The vertebral column exhibits a considerable amount of scoliosis. Intervertebral facets are enlarged on the right side from C6 through T7. C7 has severe lipping on the right inferior facet, with expansion and marked gouging of the joint surface, microporosity, and moderate eburnation. The C7/T1 joints have compression of the facets with corresponding loss of disk space between the bones. There is lipping, porosity, and eburnation on the right superior and inferior joint surfaces. Lipping and eburnation are seen on the right facets of T1 and T4. There is a healed fracture of the spinous process of T3, suggesting a "clay shoveller's" fracture which occurs when an individual lifts a heavy load with the arms extended. There is moderate compression (fracture) on the left side of the body of T6, with a possible fracture of the left pedicle. T7 is markedly compressed (fractured) on the left side of the body, and the left intervertebral facets of T8 and T9 are enlarged. T9 has compression on the right side. Spicules are present on the upper and lower right facets of T10, and on the upper left facet of T11. T12 is lumbarized. The centra of T1 through T11 have moderate lipping. In addition, T10 has a syndesmophyte on the right inferior margin, and T11 has a syndesmophyte on the left superior margin. The lumbar vertebrae present have only slight lipping and mild porosity on the facets and centra. There are small Schmorl's depressions in several thoracic vertebral bodies, notably T7 (inferior), T8 (superior), T9-T10 (inferior), and T11-T12 (both superior and inferior). These pathological changes in the vertebral column suggest a life of hard labor or heavy physical activity.

There is copper staining in the acetabulum. No information on ancestry is available.

NYCHP-67-900

These upper and lower limb bones, including hand and foot bones, are associated on the basis of size and condition, represent an adult male aged 35 to 50 at the time of death. No information on ancestry is available.

NYCHP-67-M01

This is the nearly complete mandible of an adult male over the age of 50. There is some antemortem tooth loss and considerable alveolar resorption. No information on ancestry is available.

NYCHP-67-Sacrum 1

This is the complete sacrum of an adult male aged 30 to 45 years at the time of death. No information on ancestry is available. There are no pathological conditions evident.

It is possible that the bones from 67-500 may belong to individual number 67-200, and that the bones from 67-800 could belong to individual number 67-400, but there was no way to associate these parts with any certainty. Other single bones found in Feature 67 but not necessarily associated with any of the individuals mentioned above represent no more than two individuals. These bones may well belong to individuals 67-200 through 67-900, but cannot be reassociated with any certainty. Ossified thyroid cartilage from one elderly individual, possibly 67-600, is present.

Various unassociated postcranial bones represent the following categories: probable male aged 35+ years (right scapula), probable male adult of unknown age (left innominate, left humerus), a male aged 30+ years (right humerus), probable male aged 25 to 40 years (left humerus), and male aged 35 to 50 years (left femur). It is possible that these bones represent fewer individuals than categories.

In addition to various unassociated postcranial bones, there are foot bones from four individuals are present. These are designated as follows. NYCHP-67-Foot 1 is the nearly complete left and right foot bones of an older adult (50+) of unknown sex. The bones are osteoporotic, and may be associated with NYCHP-67-600. NYCHP-67-Foot 2 is a nearly complete right foot and partial left foot of a male over the age of 50. NYCHP-67-Foot 3 is the nearly complete right foot and partial left foot of a probable male over the age of 40. A fourth individual is represented by only a few foot bones, and these were not assigned a number.

FEATURE 68

The human remains found at Island 9 Trench B in the north wall were assigned to Feature 68. These secondary burials were found with a few artifacts, including a tobacco pipe, stoneware, and bottle glass.

NYCHP-68-V01

The partial skull of an elderly (50+ years) female was found in the feature. The superior orbital margins are sharp, and the mastoid processes are moderate in size. The cranial sutures are fused and Pacchionian depressions are present. There is evidence of hyperostosis frontalis interna, a pathological condition found most frequently in older women (Figure 24). The frontal bone becomes thickened on the interior surface, in this case to more than 13 mm, while the outer table appears to be normal. Clinical analysis of modern cases indicates that there is loss of judgment and decision-making skills in patients with this disease. Shroud pin stains are seen on the

right frontal on the temporal line (33 mm by 18 mm), the posterior middle right frontal (44 mm by 29 mm), on the left frontal (covering a large portion of this area), and on the left parietal and temporal at the squamous suture (39mm by 24 mm). There are no indications of ancestry in this partial cranium.

NYCHP-68-X01R

This right maxilla represents an adult, sex unknown, aged 30+ years at death. The individual had lost both premolars and at least the first molar, and the bone had resorbed where the teeth were lost. There is no evidence of ancestry.

NYCHP-68-X02R

This right maxilla represents an adult, probably female, aged 30+ years at the time of death. The second molar present has caries on two surfaces. There is no evidence of ancestry.

NYCHP-68-M01

This is the partial mandible of an adult, probably male, aged 25 years or older at the time of death. The left first molar was lost prior to death and the socket was resorbed. There is no evidence of ancestry.

Unassociated single bones from feature 68 represent at least four individuals, with four right humeri and four left femora. There are also four innominates representing, as follows, a right belonging to an adult male (30+ years old), a left belonging to an adult male (40+ years old), a left belonging to an adult female (30+ years old), and a left belonging to an adult of unknown sex (40+ years old). A fragment of a left tibia has periostitis, and a partial left fibula has extensive remodeling, suggesting a healed fracture.

FEATURE 70-71

This feature was uncovered just beneath the asphalt south of Island 10, when the backhoe removed the asphalt. At least three individuals are represented in the remains recovered.

The first individual consists of much of the right side of the appendicular skeleton, plus rib and vertebral fragments, and some hand and foot bones. The individual is male, based on the size and morphology of the bones present. The age is estimated at 35 to 50 years, based on arthritic changes in the joints.

The second individual is represented by long bones, a partial cranium, and part of the axial skeleton. Measurements of the long bones indicate that this individual was newborn at the time of death.

The third individual is also immature, approximately 1 year old at death. The remains include cranial, pelvic, vertebral, and rib fragments, as well as unerupted teeth in the mandible.

There are also miscellaneous bone fragments present which could not be assigned to any of these three individuals with any certainty.

FEATURE 72

This feature was also discovered when the backhoe raised the asphalt south of Island 10 at unit N540/E505. Most of the remains came from the back dirt which was removed from the trench. Artifacts include pipe stems and bowls, window and bottle glass, ceramic sherds, shell, and a piece of carved bone (possibly a chess piece).

Human remains from this feature were combined with those from Feature 113 to create Feature 126.

FEATURE 73

This feature is the remains of three individuals found beneath the asphalt south of Island 10 when the asphalt was removed by backhoe. Feature 73 is just east of Feature 72. Artifacts found in the features include shell, ceramic sherds, window and bottle glass, pipe stem, a coin, rubber, and fabric (possibly felt).

In level 1, there is a right tibial shaft, a manubrium, a partial right clavicle, and a right rib. There is initial fusion of the manubrium to the sternal body, so this is probably an older adult. Sex cannot be determined.

A second individual was found in level 2/3, represented by a partial left innominate, some long bones fragments, and a foot bone. Analysis indicates a female individual, of unknown age.

The third individual is represented by fragmented or incomplete leg and foot bones, a manubrium, and partial right clavicle and right innominate. Measurement of the femoral head indicates that this individual was male. Age is estimated at 35 to 50 years.

FEATURE 76

This feature is a possible builder's trench, on the north side of Feature 63 (a stone wall), in DL3-3 south, levels 1-2. A fragmentary distal left femur and one hand phalanx are present. The individual is adult, of unknown sex.

FEATURE 77

This feature consists of human remains found at Island 9 Trench C in the north wall. Some bones appeared to be in anatomical position but others were disturbed or placed in the ground randomly (first rib found with finger bones, teeth were found in pelvic area, etc.) Unassociated bones indicate at least three individuals, from the presence of five proximal thumb phalanges and three left first metacarpals. Cranial fragments cannot be reassembled due to their condition, but there are elements from two individuals present. A right femur present represents an infant, probably newborn to six months old. Maxillary teeth found loose in this feature have no caries but exhibit moderate calculus deposits. A proximal phalanx from an adult toe exhibits a healed fracture. An incomplete lumbar vertebra present has a Schmorl's depression on the superior surface. This bone also exhibits spondylolysis, with the right neural arch separated from the rest of the bone below the superior articular facet; this may be the result of a traumatic event.

NYCHP-77-100

This adult male is represented by bones from the shoulder and pelvic girdles, and from the arms and legs. The subpubic angle is narrow, as is the greater sciatic notch. The vertical diameter of the left femoral head measures 53.7 mm. These traits indicate a male. Scoring of the pubic symphyses falls into the highest age group (elderly), and lipping is present in the sacroiliac joints, femoral heads, and proximal ulna. The age at death was 45+ years. Osteophyte development at the distal right radius and ulna probably indicates an injury to the wrist.

FEATURE 78

These are human remains found in the catch basin designated as CB-5 at the southeast corner of Tweed Courthouse, at 62" below datum. Bone fragments from the pelvic area and a fragment of a left humerus were found directly above two partial crania (no mandibles). No other bones were found in this area. The postcranial bones are adult, but there is no indication of age or sex.

NYCHP-78-V01

This individual is represented by a nearly complete but warped cranium, minus the mandible.

A slight nuchal ridge, small, delicate zygomatic bones, and medium-sized mastoid processes indicate a female. Slight meningeal artery impressions, partial endocranial closure of the coronal and anterior sagittal sutures, and zygomatic suture closure suggest an age of 30 to 49 years. The nasal sill is sharp and the dental arcade is small and V-shaped, suggesting European ancestry. The vault shape is long, low, and moderately narrow, which is consistent with Historic period European morphology.

There is some antemortem tooth loss with alveolar resorption, and evidence of several periapical abscesses.

NYCHP-78- V02

A partial braincase represents this individual. The slight nuchal ridge, slight supramastoid crest, parietal bossing, small to moderate sized mastoid process, and small occipital condyles are consistent with a female. The sutures are open endo- and ectocranially, and the outer table of bone is smooth; these indicate an age of 23 to 30 years. The presence of a Pacchionian depression suggests that the age was closer to 30. A comparison of measurements taken from this individual to modern populations, using FORDISC 2.0 (Ousley and Jantz, 1996) indicates that the remains represent a female of European ancestry (designated as "white female" in that program). No evidence of pathological conditions is present.

FEATURE 85

This feature was located in unit MB1-1, level B2. It is a dark, gritty pit or post hole, surrounded by Feature 86, in the trench east of the new island. A single right rib of an adult, unknown sex, is present.

FEATURE 86

This feature is a lighter-colored pit surrounding Feature 85, in the trench east of the new island. The right distal tibia and fibula, two tarsals, and a metatarsal of an elderly adult were found in this feature.

FEATURE 98

This feature is stone rubble found to the south of Feature 97 (a probable stone wall) in PB2-1. The left first maxillary molar of an adult, age and sex unknown, was found in this feature, along with a fragment of the left second metacarpal.

FEATURE 100

This feature is located in the area excavated for a pneumatic bollard, PB2-1, south of Feature 97, and contains mortared flagstones. Adult hand and foot bones, plus a partial left rib, are present. Sex is unknown.

FEATURE 103

This feature consists of human (probably adult) and non-human bones found at the southeast corner of Tweed Courthouse approximately 18" below the newly laid curb. The feature was exposed by a backhoe. Ceramic sherds, pipestems, copper alloy (in association with the bones), and iron fragments were found in the feature. The buried remains, of unknown age, sex, and ancestry, were left *in situ*.

FEATURE 105

These human remains were found south of CB-5 at 20" depth, during monitoring. Materials found with the burial include a non-human tooth and non-human bone, ceramic sherds, brick, mortar, nails, metal fragments, shell, glass, and possible textile. The individual is probably female, based on cranial morphology (sharp superior margins of orbits, no supraorbital torus, and generally small facial features). Extensive tooth loss and alveolar resorption is evident, but the teeth present are in good condition with minor occlusal wear. The cranial sutures are nearly completely fused, endocranial etching is moderate, and Pacchionian depressions are present. The frontal bone is thickened, suggesting a mild case of hyperostosis frontalis interna. The individual was probably 30+ years old at the time of death. No evidence of ancestry was collected. The burial was covered with a wooden box, over which a thin layer of concrete was poured, and the remains were left *in situ*. On June 8, 1999, this burial was paved over.

FEATURE 106

These human remains were found in the electricians' trench just south of the curb line at the intersection of trenches B and C (Island 9). A mandible found a few days later in the back dirt from this area was reassociated with these remains. The material was reburied with minimal analysis. The individual was an elderly male, with extensive dental disease. There is no evidence of ancestry. Ceramic sherds, pipestem, metal, nails, wire, and bottle glass were found in association with the burial.

FEATURE 107

This feature is located in unit N550/E505, level 1 (pipe trench). Only one damaged adult foot bone is present. Sex is unknown.

FEATURE 108

A left talus of an adult, sex and age unknown, was recovered from the south wall of this feature, located in unit N550/E505, Level 1.

FEATURE 109

This features is located in a pipe trench in unit N550/E505, level 1, in the south wall. It contained remains of several individuals. The materials were removed in a block of soil to facilitate construction.

The first individual is represented by a partial skeleton, disarticulated (a secondary burial). The bones were removed in a block of soil to expedite construction. Cranial fragments parts of the shoulder and hip girdles, incomplete long bones, and numerous elements from the rib cage and vertebral column are present. Measurements

of the bones and analysis of the unerupted teeth indicate that this individual was newborn at the time of death.

The second individual is older than the first, and is represented by fragments of a femur shaft, a partial left tibia, part of a thoracic vertebra, and a right deciduous mandibular canine, with the apex nearly closed and moderate wear on the occlusal surface. The age is less than three years. These bones were found in association with Feature 117, an infant younger than six months old.

Several unassigned adult bones, of unknown sex, are also present. These include a fragment of a right humerus, two left rib fragments, and portions of three vertebrae. Several adult foot bones are also present.

FEATURE 110

Remains from this feature in the northeast corner of unit N550/E505, level 1 were assigned to Feature 117.

FEATURE 111

This feature was located in unit N540/E505, level I1. The individual is represented by a partial left innominate only. From this bone, the age was determined to be over 35 years, and the sex is probably male.

FEATURE 112

This feature is a secondary burial found above Feature 118 in unit N545/E495. The remains are disarticulated, and two individuals are represented.

The first individual is represented by one cranial fragment, parts of the shoulder girdle and pelvis, long bone fragments, ribs and vertebral elements, and several bones of the right hand. There is green staining on the ribs and iron staining on the right temporal bone. The sex of this individual is male, based on size and morphology. The age is 50+ years, based on arthritic changes in the vertebrae. There are also ossified ligaments and Schmorl's depressions in the vertebrae, suggesting heavy physical activity.

The second individual consists of the left and right partial clavicles, a cervical vertebra, and a foot bone of an adult. The sex is probably female.

FEATURE 113

This feature (secondary remains) was combined with Feature 72 to make Feature 126. The remains were found in unit N535/E495, in the southwest corner.

FEATURE 114

Feature 114 is located in the northeast corner of N535/E495, and contains the remains of two individuals. The first individual is male, over the age of 50 at death. There is evidence of arthritic change in the rib cage, the vertebrae, the left femur, and the arm bones present. The age is based on the arthritis and on dental wear, which is extensive on the only tooth present, the left third mandibular molar. Probe holes on the left femur indicate an earlier excavation and a secondary burial.

The second individual is represented by a left third mandibular molar, a partial right scapula, portions of the left arm and leg, ribs, and vertebrae. There is arthritis on the lumbar vertebra present. The molar has some calculus deposit and significant wear

on the mesial chewing surface. This individual is estimated to be elderly, based on the condition of the tooth, and sex is male, based on size and robusticity.

FEATURE 115

This feature consists of secondary remains (skeleton and skull) of an infant aged 1.5 to 2 years. The remains were found within a curvilinear outline in the east center area of unit N540/E490.

FEATURE 116

This feature consists of the secondary remains of one individual found in very dark clay, possibly within a shaft outline in the southeast corner of unit N540/E490. No analysis was performed on this individual, of unknown age, sex, and ancestry, and the burial was left *in situ*.

FEATURE 117

This is a partial and disarticulated infant skeleton, represented by the right zygomatic, partial mandible, ribs, vertebrae, tibiae, the left radius and ulna, and right ischium, plus a metatarsal and a hand phalanx. Two incisors are present, unerupted. The age of the individual is estimated at newborn to six months old at death, based on the teeth and measurements of the long bones. Some green staining is seen on a thoracic rib, and part of a shroud pin is present, oxidized and green. The cranium was cut through during a previous (historical) excavation on the site; this secondary burial was found within the outline of a pipe trench. The feature, located in unit N550/E500, was removed in a block and excavated by the physical anthropologist in a lab setting. It was originally assigned to Feature 109, because it was within a pipe trench in that feature, and then to Feature 110, but was finally determined to be a separate feature.

FEATURE 118

This individual was found in unit N545/E495 in the south wall within a box outline in the soil. Some of the field notes indicate a more precise location at N537.6/E488.8. It was left *in situ* as a primary burial. The head is oriented to the northwest. The skeleton is supine, with the head dropped to the right (approximately south). A coffin nail or other hardware is seen at the left shoulder. The pelvic girdle is situated below Feature 146. The bones are large, the mandible is squared with flaring at gonion. These traits are consistent with a male. The bones and teeth are extremely fragile, but the joint surfaces suggest a fairly young individual (20 to 35 years). There is slight shoveling on the first left upper incisor. The first left lower molar was missing before death. There is unusual wear on the lower second incisor and canine, bilaterally, suggesting habitual use of the teeth as a tool or with a pipe. An estimate of the length of the humerus (approximately 31.7 cm) suggests a stature of 5'6". Field notes indicate the shoulder of a smaller, possibly female, adult individual below this individual. A tooth of an older individual, possibly this second individual, was recovered during screening. The wear on the tooth suggests an age of 35 years or more.

FEATURE 119

This feature is located in unit N540/E490. This is a secondary burial of one individual outside of a box (Feature 115) and includes a scapula and clavicle of an elderly adult, probably male. There is also a right rib of an immature individual.

FEATURE 121

This feature is located in unit N530/E495, on the east side. Scattered remains represent three individuals.

The first individual is represented by one cranial fragment, a partial pelvic girdle, incomplete long bones, several rib and vertebral elements, and hand and foot bones. Age is estimated at 45+ years, based on arthritic changes in the joints, and sex is male, based on size and morphology. The left tibial shaft has evidence of periostitis. There is green staining on the left fibula.

Individual 2 is a child, aged approximately 2 years old at death. This individual is represented by a left maxilla , two proximal hand phalanges, and a long bone shaft . Sex is unknown.

The third individual is represented by a partial frontal bone and a right femur shaft. Measurement of the femur indicates that this was a fetus.

FEATURE 122

This individual, left *in situ*, as a primary burial, is represented by a mandible, shoulder girdles, vertebrae, ribs, and arm bones, with the hand bones found separately. The remains were found in unit N545/E495 in the north half. The burial was located inside a box stain with several nails, with an east-west orientation, head to the west. The skeleton was supine and the hands were probably over the abdomen at burial. Size and shape of the bones indicate a male. An estimate of the size of the left humerus (approximately 34.0 cm) suggests a stature of 5'9". On the left side of the mandible, the molars have extensive wear and caries at the cemento-enamel lines. These teeth are all supererupting, suggesting that the corresponding upper molars had been lost during life. The tooth wear indicates an older adult. No evidence of ancestry was collected.

FEATURE 124

This feature is the secondary remains of an individual found within the wood line box of Feature 109 in the south center of unit N550/E500. The individual is preadolescent, based on the size and development of the long bones present.

FEATURE 125

This feature is located in unit N550/E500, in the southwest corner, outside of Feature 109. The secondary burials of at least two individuals are present.

The first individual is represented by a partial left fibula and left and right foot bones of an adult. The size of the bones suggests that the individual was probably male.

The second individual is another adult represented by foot bones and a right rib. The individual is an adult, but sex cannot be determined.

FEATURE 126

Features 72 and 113 were combined to designate this feature in unit N530/E495. At least six individuals were found very near the surface of the site, in extremely compacted and concrete-like soil. The bones are in very poor condition, despite the best efforts of the archaeologists and physical anthropologists to preserve them. Some of the remains were possibly intact burials, but were not recognized as such due to the condition of the bones.

The first individual is represented by cranial, pelvic, and long bone fragments, plus several hand bones. Analysis indicates an adult male, over the age of 40 years. There is no evidence of ancestry.

Individual 2 is represented by cranial, pelvic, and hand and foot elements. This individual is female, and over the age of 40 years. There is no evidence of ancestry.

The third individual is approximately newborn, and is represented only by cranial fragments and a partial left ulna. Sex is undetermined.

Individual 4 is slightly older than the third individual, but still less than two years old. This individual is represented by cranial fragments, ten teeth, and several right rib fragments.

The fifth individual is another adult, represented only by cranial fragments. These bones are not consistent with Individuals 1 and 2, as they are from a young adult. Sex and ancestry are undetermined.

The sixth individual is represented by cranial fragments, a partial scapula, left and right femur fragments, the left patella, and several small rib fragments. The frontal fragment has indications of hyperostosis frontalis interna, a disease that affects older adults, females more frequently than males. From this information, and the size and morphology of the bones, it is determined that the individual is probably female, and over 45 years old. There is no evidence of ancestry.

The hands, feet, and left patella of a very large individual, plus fragments of the right parietal, the shoulder girdle, the distal left tibia, ribs, vertebrae, and the innominate, were also found. This is probably a seventh individual, since the size of the bones is not consistent with any of the other individuals. The sex is male, and the age is over 35 years.

FEATURE 127

This individual was left *in situ* as a primary burial. The skeleton was found in a wood line box in unit N545/E495, in the southwest corner. The legs are higher than the thorax, and the head and right shoulder girdle are missing. The legs and feet are exposed in two units. The cervical vertebrae are also missing, although one cervical vertebra was found in the southwest corner of the feature. The vertical diameter of the right femoral head is estimated to be 43.6 mm; the distal epicondylar breadth measures 68 mm; the greater sciatic notch is wide and the auricular surface is depressed. These traits are all consistent with a female. There is some arthritic lipping on the anterior centra of the thoracic and lumbar vertebrae and on the distal femora, suggesting an age of 35 to 50 years. Measurement of the right tibia *in situ* gives a stature estimate of 5'2". No evidence of ancestry was collected.

FEATURE 128

This individual was left *in situ* as a primary burial found at the bottom of an electricians' trench adjacent to Locus C (west of the C-Pole box) on Island 9. The superior margin of the (exposed) left orbit is sharp; the chin is narrow and pointed; the greater sciatic notch is wide. These traits are consistent with a female. The occlusal surfaces of the teeth are worn down into the dentin, and osteophytes are present on lumbar vertebrae L3 through L5. These conditions indicate an adult over 35. The length of the right humerus is estimated at 313 mm, suggesting a stature of approximately 5'4". No evidence of ancestry was collected.

FEATURE 129

These are human remains (skull fragments) found in the area designated as WF-1 (water fountain excavation) on top of a 6" pipeline. Two individuals are represented.

NYCHP-129-V01

This individual is represented by a partial braincase and face, including some teeth.

The slightly developed supramastoid crest, medium-sized mastoid processes, slight development of the temporal lines, and small occipital condyles are all consistent with a female. The coronal suture is open endocranially, and the incisive suture is fused; there is moderate occlusal wear of the teeth. These suggest an age of 25 to 34 years. The slightly raised nasal sill and recurvature of the zygomaxillary suture suggest European ancestry. Hypoplasia on some of the teeth indicates nutritional or pathological stress during the early childhood of the individual.

NYCHP-129-V02

This individual is represented by a nearly complete but damaged braincase. Two adjacent probe holes are present in the mid-frontal, the one on the left measuring 13 mm by 18 mm and the one on the right measuring 12 mm by 13 mm. Beveling indicates that the probe entered the left side of the cranial vault and almost immediately exited the right side, forming an hourglass-shaped hole, suggesting that the skull was positioned on its right side in the ground when the probing took place. There is a possible shroud pin stain (green) on the left parietal.

Sharp superior orbital margins, small mastoid processes, no supramastoid crest, and the lack of nuchal ridging are all consistent with a female. The sagittal and lambdoid sutures are open endo- and ectocranially, and the coronal is partially closed endocranially. There are no Pacchionian depressions and the meningeal grooves are slight. The surfaces of the bones are smooth. The cranial bones are somewhat thickened. These features are consistent with an adult, and the age is estimated at 30 to 34 years. There is no evidence of ancestry.

FEATURE 130

This feature is located in unit N530/E495, and consists of a box outline with skull fragments within it. This is a nearly complete primary burial of a child aged 2.5 to 3.5 years. The head was oriented to the west, and the lower leg bones are fragile or missing. There is green staining on the left ilium and on the hand bones, the right ribs, and the cranium near bregma. The burial was left *in situ*.

FEATURE 131

This feature was located in WF-1, water fountain excavation 1. There was a box outline and a human skull in the feature. An earring was found in center of the unit, 34 inches below the surface, north of the pipe trench. This feature was later assigned to Feature 133, and "Feature 131" was reassigned to the middle deposit adjacent to and above the burial/box outline.

FEATURE 132

Two skulls and an innominate were found during excavation of an electrician's trench just southeast of Tweed Courthouse, immediately adjacent to Island 9 Trench C (Feature 67), at C-Pole 21. Postcranial material found with the two skulls included a left innominate from a female aged 30+, a thoracic vertebra, fragments of five or more ribs, and two hand bones.

NYCHP-132-V01

This individual is represented by a nearly complete cranium with face (Figure 25). The bone surface has a black mottled appearance. There is a probe hole on the middle anterior left parietal, immediately posterior to the coronal suture. The maximum size of the hole is 12 mm by 9 mm on the external surface. The skull was resting on its base, on the right side, with a slight inclination of the vault to the right when the probe pierced the bone. Several shroud pin stains are seen; on the posterior superior frontal at the midline, the stain measures 45mm by 27 mm; in the middle posterior right parietal, the stain is 45 mm (measuring superior-inferior) by 25 mm (transverse width measuring immediately superior to the mid-lambdoid suture); on the left parietal, adjacent to the posterior squamosal suture, the stain measures 24 mm by 17 mm.

Sharp superior orbital margins, slightly developed nuchal area, small mastoid processes, and the lack of a supramastoid crest are consistent with a female. Extensive occlusal wear of the teeth, tooth loss, alveolar resorption, complete endocranial and partial ectocranial suture closure, and the texture of the bone surface indicate an old adult individual, aged 50 to 65 years. The wide inter-orbital distance, narrow nasal aperture, trace of a nasal sill, V-shaped dental arcade, and the shape of the cranial walls are all consistent with Colonial (historic) period European cranial form.

Tooth loss, alveolar resorption, an abscess on the left first premolar, and calculus deposits exemplify the dental disease in this individual. In addition, hypoplasia (right canine) suggests a period of stress when this individual was immature and this tooth was developing.

NYCHP-132-V02

This individual is represented by a nearly complete cranium and mandible (Figure 26).

Moderate brow ridge development, moderately large mastoid processes, marked gonial flare, a high mandibular symphysis, and moderately developed supramastoid crest and occipital protuberance are all consistent with a male. Tooth wear, alveolar resorption, and tooth loss, complete endocranial and partial ectocranial suture closure, and presence of Pacchionian depressions, along with the texture of the bone surface, suggest an adult aged 45 to 54 years. The sharp nasal sill, slight depression at nasion, moderate nasal aperture width, anterior crowding of the mandibular dentition, moderately low relief of the nasal bones, and a fairly long, low cranial vault are all consistent with Historic period European morphology.

Hypoplasia on the teeth suggests stress while the individual was immature and the teeth were developing. An overbite caused some wear on the anterior/occlusal surfaces of the mandibular incisors. A Stafne's defect is present on the right mandible, posterior to the third molar and measuring 12 mm (superior-inferior) by 9 mm (anterior-posterior).

FEATURE 133

This feature is in WF-1, the water fountain 1 excavation, below the midden (Feature 131) and north of the pipe trench. There were two primary interments in this feature, and they were left *in situ*.

The first individual was lying supine, and the skeleton was exposed enough to determine that an entire individual was present. The individual is male, based on the narrow subpubic angle. The age is estimated at 22 to 25 years at death, based on the unfused acromial process, partial fusion of the epiphyseal rings of the vertebrae and vestigial billowing on the pubic symphysis. *In situ* measurement of the right humerus gives a stature estimate of 5'8". No evidence of ancestry was collected.

The second individual is an adult female, buried directly below the young male. The right femur, left innominate, vertebral columns and ribs, left arm bones, and the anterior mandible were exposed during the partial excavation of the first individual. Measurement of the left humerus *in situ* gives a stature estimate of 5'1". A gold colored earring was present and probably associated with this female. No evidence of ancestry was collected.

FEATURE 134

This feature is located in C-Pole 21 within the triangle area, near Feature 67. One adult individual is represented by long bones in a box outline, a probable primary burial. The remains were left *in situ*, and no evidence concerning age, sex, or ancestry was collected.

FEATURE 135

This feature is located in unit N525/E495, in a box outline. The remains are those of a six to seven year old individual. The child had carious lesions on the right incisors. Sex is undetermined. The burial was left *in situ*.

FEATURE 136

This feature is located in unit N530/E490, and contains four individuals. Parts of a primary burial were inadvertently removed to the lab before the bone deposit was determined to have three secondary burials mixed in with the primary interment.

The first individual is the primary burial, elements of which were brought into the lab. Combining the information from the field notes and the laboratory analysis, a fairly clear picture of the individual is developed. Age is estimated at 45 to 50 years at death, based on scoring of the pubic symphysis and presence of arthritic changes in the bones. The coronal suture is fused ectocranially. Sex is female, based on size and the morphology of the pubis and cranium. Measurement of the humerus *in situ* gives a stature estimate of 5'2". The nasal sill is sharp but not vertical. There is a green stain in the center of the right parietal, suggesting a shroud pin had been placed there. The manubrium has an old cut mark, possibly from a shovel, on the posterior surface. This

may have been made during the deposit of the other individuals. No evidence of ancestry was collected.

Individual 2 is an adult of unknown age, sex, and ancestry. This individual is represented by a left fibula shaft, rib fragments, a partial hyoid, two teeth, and the manubrium, plus hand and foot bones. There are pathological changes on the tibiae and fibulae (periostitis), well-healed, and the manubrium has a lacey appearance on the posterior surface suggestive of tuberculosis or other infection. One of the distal toe phalanges is also pathological, with a remodeled appearance.

The third individual is a child. This individual is represented by vertebrae, a left rib, and a deciduous molar only. The age is estimated at 1 to 2 years.

There are hand bones and a rib fragment present from a second immature individual; partial fusion of the epiphysis on the rib head indicates a late adolescent.

FEATURE 137

Feature 137 was discovered on June 9, 1999 in the northwest quarter of the excavation for Water Fountain 2. Feature 138 was determined to be part of Feature 137 when excavated, as there was no discontinuity between the two; "Feature 137" is used as the designation for all remains found in both features. Upon excavation, Feature 137 was found to contain the remains of at least one adult male (represented by a skull and postcranial remains) and at least 24 subadults. The remains were not recovered as discrete individuals; the bones were commingled within the pit, requiring sorting in the laboratory. The remains were reconstructed into individuals as accurately as possible, using information on dental and skeletal development. The placement of all these immature individuals into one burial area may be explained by the status of children during the 18th and 19th centuries. Often, children were not considered to be fully human individuals, especially if they were stillborn or not baptized. References to child burials in London from the same time period occasionally include the mention of an "infants' pit" within a graveyard (Harding, 1998). This ossuary may reflect similar thinking on the part of the Almshouse administration. There is some documentation about the deaths of children in the Almshouse (Farrell, 1999a, b, c, d; Farrell, 2000). Many infants were orphaned or abandoned by their parents at the Almshouse, and wet nurses had to be found for them. These wet nurses were apparently responsible for feeding several infants at once, and few of these children thrived. In addition, placing small children into an environment where many adults were suffering from tuberculosis and other infectious diseases guaranteed that many of them would die. Therefore, the ossuary may have been the result of an epidemic situation, where many children died at the same time, or it may have been a designated area where children were routinely buried.

NYCHP-137-V01

A fairly complete braincase and face as well as postcranial remains represent this adult individual.

Rounded superior orbital margins, well-defined supramastoid crest and nuchal region, moderately developed brow ridges, and moderately large mastoid processes are all consistent with a male. Complete endocranial suture closure, complete ectocranial closure of the sagittal suture, partial ectocranial closure of the lambdoid and coronal sutures, presence of Pacchionian depressions, occlusal wear on the tooth present, and the texture of the bone surface suggest an age of 40 to 55 years. The

moderately wide interorbital breadth, the long, low, and wide cranial vault, sharp nasal sill, and narrow nasal aperture are all consistent with Historic period European morphology.

The surface of the braincase exhibits slight but widespread healed ectocranial porosis, on both parietals. There is slight erosion and moderate porosity on the left temporomandibular joint. The left lateral incisor was lost antemortem, and there is considerable resorption of the alveolar bone in that area.

NYCHP-137-200

The mandible and partial postcrania of an infant are present. Measurement of the long bones suggest a body length of 26.8 cm, consistent with a fetus of about 7.5 lunar months (lunar months = *in utero*).

NYCHP-137-300

The mandible and partial postcrania of an infant are present. Measurement of the long bones suggests a body length of 34.3 cm, consistent with an small newborn or fetus of 9.5 lunar months.

NYCHP-137-400

The mandible and partial postcrania of an infant are present. The calculated body length of 33.5 is consistent with a small newborn or fetus of 9.5 lunar months.

NYCHP-137-500

The right mandible and partial postcrania of an infant are present. The extent of development suggests an age of newborn to 3 months.

NYCHP-137-600

The left mandible and partial postcrania of an infant are present. The calculated body length of 38 cm is consistent with an infant aged newborn to 3 months.

NYCHP-137-700

The left mandible and partial postcrania of an infant are present. The calculated body length of 38.8 cm and the extent of dental development (dm2 = cusp outline complete) is consistent with an age of newborn to 3 months.

NYCHP-137-800

The mandible of an infant is present. The stage of development of the dentition (dm2 is between crown complete and initial root formation) is consistent with an age of 6 to 16 months.

NYCHP-137-900

The mandible of an infant is present. The stage of development of the dentition (dm1 = root 1/4 to 1/2 formed) is consistent with an age of 6 to 16 months.

NYCHP-137-1000

The partial mandible of an infant is present. The stage of development of the dentition (dm1 = root 1/4 formed; canine between initial root formation and root 1/4 formed) is consistent with an age of 6 to 16 months.

NYCHP-137-1100

The partial mandible and maxilla of an infant are present. The extent of dental formation is consistent with an age of 6 to 16 months.

NYCHP-137-1200

The mandible of an infant is present. The extent of formation of the dentition (dm1 = root complete; dm2 = root 3/4; M1 = between crown 1/2 and 3/4 formed; C = crown 1/2 formed) is consistent with an age of about 1.75 years.

NYCHP-137-1300

The mandible of an infant is present. The extent of formation of the dentition (dm1 = root complete; dm2 = root 1/4 formed) suggests an age at death of about 1.4 years (1-1.75 years). Copper staining is present on the bone in the area of the right M1. A copper-stained pin is also present.

NYCHP-137-1400

The partial mandible of an infant is present. The extent of development suggests an age at death of between 6 and 15 months.

NYCHP-137-1500

The partial mandible of an infant is present. The extent of dental formation (dm1 = crown complete; dm2 = crown 1/2) is consistent with an age at death between 3 and 9 months.

NYCHP-137-1600

The maxilla and mandible of an infant are present. The extent of dental formation (dm1 = apex 1/2 closed; canine = root 1/2; Canine = crown 1/2; M1 = crown complete) suggests an age at death of about 2 years.

NYCHP-137-1700

The partial maxilla and mandible of an infant are present. The extent of dental formation (dm2 = root 3/4; M1 = crown complete; canine = root complete) suggests an age at death of about 2 years.

NYCHP-137-1800

The mandible of a child is present. The extent of dental formation (canine = apex 1/2 closed) suggests an age of between 2 and 3 years.

NYCHP-137-1900

The mandible of a child is present. The extent of dental formation (canine = apex 1/2 closed; M1 = crown complete) suggests an age at death of 2 to 3 years.

NYCHP-137-2000

The complete mandible of a child is present. The extent of development suggests an age of about 6 to 7 years.

NYCHP-137-2100

The left side of the mandible of an infant is present. The extent of dental development (dm1 = apex almost closed) is consistent with an age at death of around 2 years.

NYCHP-137-2200

The partial right mandible of an infant is present. The bone is consistent with the size of a newborn.

NYCHP-137-2300

The partial right mandible of an infant is present. The extent of formation of the dentition (dm1 = crown 3/4 formed) is consistent with an age at death of newborn to 6 months.

NYCHP-137-2400

The right radius and left tibia of a fetus are present. The calculated body length of 33.1 cm is consistent with an age at death of 6.5 lunar months. It is possible that these postcranial remains originate from Individual 200.

NYCHP-137-2500

A left mandible fragment of an infant is present. The size of the bone is consistent with an age at death of newborn to 3 months.

Note that almost all of the children represented by the remains in Feature 137 are aged 5 years or younger. (The exception is Individual 20, aged 6-7.) These remains were not carefully laid out as individuals, but were found in all orientations, superimposed upon one another, and with limited evidence of burial preparation. Further analysis of archival information is necessary to determine why these children's remains were deposited in such a manner. Suggestions to explore include removal and reburial due to construction or re-use of cemetery land, and an epidemic that required quick removal of the bodies.

FEATURE 138

Human remains found in the southeast quarter of the excavation for Water Fountain 2, adjacent to the utility pipe trench. The remains, along with metal hardware found in the feature, were combined with those of Feature 137.

FEATURE 139

A primary burial was found in unit N530/E490 and assigned to Feature 139. This burial is below Feature 136 and to the west. The skeleton of the upper torso and arms, plus the mandible, was exposed. The individual is an adult, based on size and fusion of epiphyses. The mandible is narrow anteriorly, indicating a female. Several teeth have hypoplasia indicating multiple stressful events (illness or nutritional stress) during the development of these teeth. The left lower canine has a double root, with the second, smaller, root located on the lingual side of the tooth. Tooth wear suggests an individual over the age of 30 years. This burial was left *in situ*, and no evidence of ancestry was collected.

FEATURE 140

This feature is located in unit N520/E495. This was a primary burial, having leg and foot bones in good condition, the upper torso in fair condition, and the cranium in fragments. The skeleton is extended and supine, with the lower legs arranged so that the feet are higher than the femora. The remains have been disturbed, as the arrangement of the bones of the left arm is anatomically impossible. The individual is male, based on size and morphology of the bones. The mandible is square, the mastoid process is large, and the humeral head measures 48.1 mm; the subpubic angle is narrow. There is considerable antemortem tooth loss, suggesting an older individual. The right canine has unusual wear, suggesting a pipe smoker. Measurements of the long bones *in situ* give a stature estimate of 5'9". The muscle and ligament attachments on the bones indicate that this individual was robust. A round copper object was found near the right ischium. The burial was left *in situ*, and no evidence regarding ancestry was collected.

A partial vertebra from an infant is also present.

FEATURE 141

This feature is located in unit N535/E490 west of Feature 136, and 2 inches deeper. Three individuals are represented.

The first individual is a primary burial that was left *in situ*. Some analysis was done on the bones but measurements are estimated. The brow ridges are slightly raised, the subpubic angle is narrow, the greater sciatic notch is very narrow, the

sacrum is large, and the vertical diameter of the femoral head is 45.4 mm. These features are consistent with a male. The cranial sutures visible are fused, there is no billowing on the pubic symphysis, and there is slight osteoarthritis on the thoracic vertebrae, suggesting an age over 35 years. The ancestry of this individual may be mixed European and African, because the facial features are not diagnostic for either. There is no depression at nasion, the maxillae recede below the orbits, the nasal sill is rounded (but there is no "guttering"), and there is alveolar prognathism. The nasal bones are narrow and "tented" and the nasal index is 62 (wide).

The second individual consists of a partial right ulna and a fragment of right femur, several rib fragments, a cervical vertebra, part of a sternum, fragments of the shoulder girdle and pelvis, four teeth, and several hand and foot bones. Glass and porcelain fragments are present. The size and morphology of the bones indicate a female. The age is 40 to 45 years, based on the pubic symphysis, arthritic changes in the joints, and dental wear. One of the ribs has a healed fracture, and the right foot has evidence of trauma, including evidence for the amputation of a toe (atrophied proximal phalanx) and a healed fracture of the fourth metatarsal.

The third individual is represented by a partial (right) mandible with one tooth, part of a sacrum, and a right femur shaft. The age is estimated at 3 to 9 months. Sex is undetermined.

FEATURE 142

This feature is mostly in unit N540/E495. It was initially included as part of Feature 114, but excavation revealed two distinct matrices of soil/artifacts, and the area was split into two features, with Feature 142 in the southeast corner and Feature114 west of Feature 142. The feature contained the partial remains of one individual.

Present are a partial cranium, fragments of both ulnae, the right humerus, and the right femur, two ribs, and several foot bones. The skull has a heavy brow ridge, rounded superior margin of the orbit, and a large mastoid process, and the humeral head measures 49 mm. These features are all consistent with a male. The condition of the bones and joints indicates an age of 40+ years at death. No evidence of ancestry is present.

FEATURE 143

This feature is located in unit N520/E495. Human remains include a distal left fibula, one long bone fragment, and foot bones. The size of the bones indicates a male. There is no evidence of arthritis on the joints suggesting that the age is less than 35 years. A copper (plated?) coffin handle was found in this feature.

FEATURE 144

This feature is located in unit N520/E495, and consists of a partial primary adult burial, which was left *in situ*. The remains are oriented with the head to the east, going into the west wall of the next unit. Most of the cranium is missing; there are no maxillary teeth or facial bones, and only a thin outline of the braincase. The torso, pelvis, arms, hands, and upper leg are in good condition. The tibiae, however, were removed from their anatomical position and placed perpendicularly across the grave shaft at the level of the foot bones. These foot bones and the tibial shafts are all at a higher level than most of the bones, but approximately at the same level as the head. The right fibula is

found below the right femur, and the left fibula is fragmentary and found perpendicular to and east of the left femur. The left arm is flexed slightly and the right arm is flexed across the abdomen so that the right hand is near the left elbow.

The mandible has a squared chin, and the pelvis has a narrow subpubic angle and narrow greater sciatic notches. These features are consistent with a male. The medial clavicle is fused, and there is slight lipping on the distal femora, but there is little tooth wear, so this individual was probably over the age of 30 years but not elderly. Measurement of the left tibia *in situ* gives a stature estimate of 5'7". No evidence of ancestry was collected.

There is also a distal humerus of an infant aged less than 6 months in this feature.

FEATURE 145

This feature is located in unit N515/E480. An adult skull and box outline were found within a trench in this unit. This was one of three burials (see Features 158 and 159) in the area. Age, sex, and ancestry were not determined, and the burial was left *in situ.*

FEATURE 146

This feature is located in unit N545/E500. There are (at least) four individuals in a single grave shaft. All individuals are in very fragile and fragmentary condition, so that little analysis could be done. The teeth that are visible have extensive wear, indicating at least one elderly individual. The uppermost individual has pathological changes to one of the tibiae, with abnormal bone formation and extra foramina. This may indicate osteomyelitis of the bone. There are nails and a wood line, suggesting that these are overlapping primary interments. Some of the foot bones may belong to Feature 125. These individuals were left *in situ* and no further analysis was performed.

FEATURE 147

This is an adult individual of undetermined age or sex. This concentration of bone was found just under the cobblestones on the wets end of a test trench adjacent to ET-2/0-5 (electrician's trench). It is unclear whether the deposit was primary or secondary. The remains consist of a partial skull and face, fragments of long bones, ribs, and vertebrae, and a partial right innominate. Several hand bones are also present. Facial features, including a sharp nasal sill, a projecting nasal spine, and the angle of the maxilla receding below the orbit, suggest European ancestry.

FEATURE 148

In this feature, located in unit N520/E490, there was a concentration of (adult?) human bones associated with Feature140 and representing a second individual. Excavation and field drawings were made June 17-18 and June 22, 1999 and turned over to the archaeology team.

FEATURE 150

This concentration of disarticulated and disturbed human bone was found above Feature118 in N540/E495-N545/E495 (in the common wall between these units).

NYCHP-150-100

The bones are in poor condition. The individual was 25 to 30 years old at the time of death, based on the analysis of the pubic symphysis. The vertical diameter of the left femoral head measures 52.3 mm. The greater sciatic notch is narrow, as is the subpubic angle. There is no ventral arc, and the auricular surface is depressed. These are all consistent with a male. There is moderate development of the deltoid tuberosities, slight development of the insertion of the pectoralis major, and moderately developed lateral supracondylar ridges on the humeri, suggesting heavy physical activity. The right humerus and scapula are larger than their left counterparts, suggesting right-handedness. The femora have strongly developed and prominent linea aspera and moderate platymeria. There is a Schmorl's depression on the inferior end plate of a lower thoracic vertebra (approximately T8). Moderately sized Poirier's facets are present on the femoral necks.

The teeth are relatively small, the mastoid processes are moderate in size, there are no raised brow ridges, and the medial margins of the superior orbits are sharp. These features are more consistent with a female, and may indicate that the cranium came from a different individual. There is no evidence of ancestry.

FEATURE 151

These remains were found in unit N535/E490, in a stone-filled trench which cuts across the triangle unit southwest to northeast. The individual is represented by the right maxilla and teeth and a left rib fragment. The tooth roots are very large, suggesting that this individual is probably male. There is some occlusal wear on the teeth, so the age is probably over 35 years. The right second molar has an apical abscess. The nasal sill is sharp at the base of the nasal aperture, suggesting European ancestry.

FEATURE 155

These bones were found in unit N550/E495.

NYCHP-155-100

This is the partial skeleton of an immature individual aged late fetal to newborn, based on measurements. Cranial fragments, a complete mandible, bones of the right arm, the left shoulder girdle, and several ribs and vertebrae are present in varying conditions. A non-human rib was found with these bones.

NYCHP-155-200

This is the partial remains of an adult, age unknown, probably male, based on robusticity. Damaged leg bones and a nearly complete right foot are all the bones present. The bones were surrounded by box outlines with nails; this may have been a primary burial that was disturbed multiple times. There is no evidence of ancestry.

FEATURE 157

These human remains were found in unit N550/E495. The deposit stretches across several units but was assigned to this location as most bones were found here.

NYCHP-157-100

This individual is represented by a mandible only. The size and shape of the bone indicates a female, and the loss of teeth and alveolar resorption suggests an individual over the age of 50 years. There is no evidence of ancestry.

NYCHP-157-200

This individual consists of the partial and damaged arm and leg bones of an adult male, probably over the age of 50 years at the time of death. The maximum diameter of the femoral head measures 49.2 mm, indicating a male. The cortex of the bone is thin in some areas, and the bones are somewhat osteoporotic. One metacarpal was found below the femur, and middle and distal phalanges (one each) from the hand are present. These are extremely fragile and fragmentary. The left femur was found with its head to the north, running along the box line of Feature 146. Nails, possibly from a coffin, are present. There is no evidence of ancestry.

FEATURE 158

This feature is located in unit N520/E475, and was initially excavated as part of Feature 145. Further excavation showed that upper part is Feature 145; this is the middle box outline with nails and most of the remains in the unit; a third individual is below it. These are primary burials that were left *in situ*. The individual is a child aged 1.5 to 2.5 years at death. Sex is unknown. There is hypocalcification of the teeth, giving them a white-yellow appearance. This may suggest some nutritional stress during the calcification of the teeth.

FEATURE 159

This is an adult skull found in unit N520/E475, below Features 158 and 145. It is the third burial in same location, and there may be faint box line associated with it. The skull is in good condition, and was left *in situ*. No further analysis on age, sex, or ancestry was performed.

FEATURE 160

This concentration of disarticulated human bones was found in PB2-4 (an excavation for a pneumatic bollard), near the Tweed Courthouse at Chambers Street. There are at least two individuals represented, but the fragmentary nature of the bone precludes further sorting than that.

Elements of most parts of the skeleton are present for one individual. Several of the bones have cut marks from a trowel or shovel, consistent with a reburial. The size and morphology of the bones indicate a male. Age is estimated at 35 to 40 years, based on the pubic symphysis and dental wear. One tibial fragment has extensive periostitis, indicating an infection or inflammation of the bone.

The second individual is an adolescent represented by only four teeth. Sex is undetermined.

FEATURE 167

This feature is located in unit N525/E490, in the northwest corner of the unit. It is a small box outline with nails and containing child/infant bones. The burial was left *in situ*.

FEATURE 168

This feature is located in unit N530/E485 in the south center of the unit. It consists of an adult skull and mandible within a box outline, with nails. The burial was left *in situ*. No evidence of age, sex, or ancestry was collected.

FEATURE 169

This feature is located in unit N530/E500. It was recognized as a probable box outline with nails. The feature was mostly truncated by some previous activity, and may be related to scattered remains from Feature 121. Fragments of an adult pelvis are present. Sex is undetermined.

FEATURE 173

This feature is in unit N530/E470 and contains a concentration of human bone. The individual is represented by a partial mandible and incomplete arm bones. There is previous excavation damage to the proximal left humerus, indicating that this was a secondary burial. The individual is an adult, probably over 40 years old at the time of death, based on dental wear and the condition of the joints. Sex is probably male. Stature is estimated at 5'5" to 5'8" based on measurements of the arm bones. There is no evidence of ancestry.

FEATURE 181

This feature, located in unit N515/E465, Level 1, contains the partial remains of two individuals. The first individual is an older adult, sex unknown, represented by a nearly complete right femur. The second individual is represented by the shaft of a left femur, and is determined to be about 10 years old at death based on measurements of that bone.

ISLAND 9, TRENCH C

This secondary burial area contained the partial remains of at least four adults and five immature individuals.

Several bones from one immature individual were found together; measurements of the left tibia indicate an age range of six to 18 months, or slightly older. Four other immature individuals are represented by a few fragmentary bones each. One is possibly a newborn, and the other two are six months or slightly older.

Loose teeth found in this area have caries and calculus deposits.

NYCHP-Island 9, Trench C-X01R

This right maxilla represents an adult over the age of 40 years at death, and probably male. There is extensive occlusal wear on the teeth, moderate calculus deposit, and alveolar resorption measuring up to 4.8 mm. Green staining is seen on the first molar. There is no evidence of ancestry.

NYCHP-Island 9, Trench C-X02

These maxillae represent an adult, aged 35+ years at death, and probably female. Several teeth were lost antemortem, with alveolar resorption. There is no evidence of ancestry.

NYCHP-Island 9, Trench C-X03L

This partial left maxilla represents an adult aged 30+ years at death, and probably female. Several teeth were lost before death, with alveolar resorption. There is no evidence of ancestry.

NYCHP-Island 9, Trench C-M01

This mandible represents an adult male, over the age of 50 years at the time of death. Most teeth were lost before death, with complete resorption of the sockets. There is no evidence of ancestry.

NYCHP-Island 9, Trench C-M02

This partial mandible represents an adult over the age of 30 years at the time of death, sex unknown. A single tooth is present (third right molar), with others (first and second right molars) having been lost before death. There is no evidence of ancestry.

This secondary burial area contained the partial postcranial remains of at least four adults. These bones may represent the same individuals as the cranial remains, but cannot be directly associated with them.

A left clavicle, very long and gracile, represents a probably female over the age of 35 years at death. This individual had broad shoulders, as indicated by the size of the clavicles. A second left clavicle is also probably female, and adult. There are two separate facets on the lateral end of the bone where it articulates with the acromion process of the scapula. A third left clavicle represents a probable female, ages 25+ years at the time of death. A fourth left clavicle represents an adult male, 35+ years old at death, with slight arthritis on the lateral facet.

Two right clavicles are present as well. One represents an adult of unknown sex. There is a deep cortical defect at the rhomboid fossa. The second right clavicle represents a female aged 25+ years at death, with a defect at the rhomboid fossa. These right clavicles do not match up with the left clavicles present.

Three left innominates are present. The first represents a male, aged 35 to 50 years. The second is a female aged 30+ years at death. A fragment of a third innominate represents a female over 40 year old.

A left tibia represents a male, aged 30 to 40 years at death; there is a squatting facet on the anterior inferior margin of the bone. A right tibia represents a slightly younger male (25 to 35 years old). The distal third of a tibial shaft (side, age and sex unknown) is also present; this bone has periostitis, a reaction on the surface of a bone which may indicate infection or inflammation. The midshaft of a fibula (side, age, and sex unknown) with periostitis is also present; these two bones may represent the same individual. The proximal and middle phalanges of a toe, fused together, are present, and a proximal hand phalanx with remodeling on the distal end (possible healed fracture) was also found in this feature.

The "Triangle" Cemetery Area

In one section of the park near the subway station on Centre Street, a large, triangular area with a high density of human remains was defined. The area was determined to be a cemetery, and was gridded. Individual burials were assigned Feature numbers, and are described earlier in the report. However, a great number of individual bones, bone fragments, isolated teeth, and small collections of disarticulated bones were found in this area. The minimum number of individuals represented by these remains is seven adults and four immature individuals. However, taking into account the deposition of the bones in different parts of the triangle and the age and sex analysis possible on these remains, it appears that a greater number of individuals, 28 adults and 16 immature individuals, are present. (See Table 4.)

Another individual was exposed by a backhoe operator on the west part of the triangle area. This individual was probably female and greater than 35 years old at death.

Isolated Human Remains from throughout City Hall Park

Individual bones and teeth, fragments of bones, and small assemblages of bones were found, usually during the screening of the soil, in several areas north of City Hall. Some of these remains were found in the test pits and trenches, in the pits dug for the pneumatic bollards, during monitoring of construction work, and in the catch basin excavations. These remains were removed and given to the physical anthropologist, who cleaned them by dry-brushing, did an initial inventory, and placed them into labeled plastic (or paper, if there was a threat of mold or mildew damage) bags. These isolated bones may provide the least amount of information on the individuals buried in City Hall Park, but they cannot be ignored. An attempt has been made here to determine the minimum number of individuals in discretely defined areas of City Hall Park, such as the individual trenches. There is no guarantee that a single individual is not represented in more than one area, but as the areas of excavation were separate and distant from each other in most cases, and since much of the Park was left unexcavated, it is likely that any individual's remains were distributed in more than one of these areas. At least 40 individuals are represented by these partial and fragmentary remains. Table 5 lists these individuals by age and sex.

Trench 1 (near Chambers Street)

At the end of January 1999, excavation of Trench 1 began with clearing of ivy from the area along a fence at Chamber Street, in the northeast corner of the Park. The removal of the ivy exposed a plaque which had been placed in the Park in honor of social reformist Jane Addams, which was immediately housed in a protective box by the carpenters on the site. The trench was marked in 5-foot increments from the eastern extremity to the west, and excavated by levels dictated by the deposition (not by arbitrary strata). Three *in situ* burials were exposed in this trench (see Features 8, 12 and 45). Fragmentary remains recovered from Trench 1 include elements from at least six individuals. Three of these are adult (a 20 to 25 year old, unknown sex; a probable female, unknown age; and a probable male, unknown age) and three are immature (a 6 to 10 month old infant; a 4 to 6 year old child; and a 16 to 20 year old subadult). The right clavicle of the infant has a healed fracture, with remodeling, on the lateral extremity. Trench 1 was 105 feet long.

Trench 1A (near Chambers Street)

At least two individuals, an adult of unknown age and sex, and a subadult, are represented by skeletal elements from Trench 1A. Trench 1A was 95 feet long.

Trench 2 (near Chambers Street)

Fragmentary skeletal elements in Trench 2 represent at least four individuals. These include two adults (unknown age and sex), an infant less than one year old, and a 15 to 18 year old subadult. Trench 2 was 75 feet long.

Trench 5

At least two individuals, an adult of unknown age, sex, or ancestry, and an immature individual of unknown age, are represented by skeletal remains from Trench 5, which was 20 feet long. In addition, at least two individuals are represented by

skeletal elements south of Trench 5. One is an adult male, over the age of 35 at death; the second individual is immature but of unknown age.

Test Trench 1 (TT1)

An adult male of unknown age is represented by skeletal elements found in Test Trench 1.

Test Trench 3 (TT3) backdirt

At least one individual, an adult over 35 years old at death, of unknown sex, is represented by remains in the Test Trench 3 backdirt.

CMP-1

Fragmentary remains in CMP-1 represent an adult (age and sex unknown) and an infant less than two years old.

C Pole 21

At least two individual are represented by remains in C Pole 21. One is an adult male, over 35 years old at death, and the other is an adult of unknown age and sex.

Drain Line 1 (DL-1)

An adult, sex unknown, over the age of 35 years, is represented by remains in DL-1.

Drain Line 2 (DL-2)

At least one adult, sex unknown, aged over 35 years at death, is represented by remains in DL-2

Drain Line 3 (DL-3)

At least two individuals are represented by skeletal elements in DL-3. One is an adult of unknown age and sex, and the other is an individual aged 13 to 16 years at death.

Electrician's Trench 1 (ET-1)

At least one adult individual, sex unknown, is represented by remains in Electrician's Trench 1, which was over 25 feet long.

Electrician's Trench 2 (ET-2)

At least four individuals are represented by skeletal remains in Electrician's Trench 2. The first is an adult male, over the age of 35 years at death. The other three are immature; one is aged late fetal to six months old; the second is older but less than two years old; and the third is of unknown age. ET-2 was 10 feet long.

G1-5

At least one adult, of unknown age, sex, and ancestry, is represented by skeletal elements in Unit G1-5.

MB1-1

One adult, of unknown age and sex, is represented by skeletal elements in Unit MB1-1.

Pneumatic Bollard 2 (PB-2)

At least four individuals are represented by skeletal elements in PB-2. Three are adult; one is a male, over the age of 35 years; one is a female of unknown age, and the third is an adult of unknown age and sex. The fourth individual is an infant.

Test Unit 50

A single tooth, representing an adult of unknown age and sex, was recovered from Test Unit 50.

Monitoring

During any construction activity on the site, at least one archaeologist was assigned to the construction crew to monitor the activity and prevent any damage to human remains and/or historically important artifacts. At least two adults, one male and one probable female, and both over the age of 35 years, were recovered during monitoring.

SUMMARY

It is estimated that more than 250 individuals are represented by the human skeletal material exposed in the New York City Hall Park during the remodeling and construction of 1999. Historical records suggest that many more burials are present in the Park. Since the remains were not uncovered in a systematic, archaeological fashion, it is difficult to hypothesize where other burials might be located and how many were not impacted by the construction. It is likely that the Triangle area was a section of the Almshouse cemetery or graveyard for decades, and that other burials might be found around the margins of this area. Future construction and excavation in the City Hall Park should take this into account.

The analysis of the skeletal remains suggests a population that is not inconsistent with the Almshouse records. Males and females, young and old adults, infants and children are all represented. Many of these people had poor dentition, arthritis, and possibly infectious diseases. Analysis of the few individuals with cranial remains suggests that most of the population had European ancestry.

Artifacts found at the site support the historical records about industry in the Almshouses, including button-making from animal bones. Multiple buildings and institutions have stood on this land, and artifacts were found virtually everywhere in the northern end of the Park. It is quite probable that when the artifacts found in association with the human remains are analyzed and the field notes and maps are coordinated with this report, a much more complete picture of this population will emerge.

This analysis of the human remains from New York City Hall Park, along with archaeological and historic research, will provide a glimpse into the history of a forgotten segment of the population of eighteenth and nineteenth century New York City.

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Table 1. Cranial bone inventory by age and sex

SEX/AGE	FRONTAL		PARIETAL				OCCIPITAL		TEMPORAL				ZYGOMATIC				MAXILLA				MANDIBLE	
			L		R				L		R		L		R		L		R			
	C	P	C	P	C	P	C	P	C	P	C	P	C	P	C	P	C	P	C	P	C	P
Children Birth-14	2	5	2	3	2	5	3	7	3	4	2	7	4	1	2	0	2	1	2	3	2	7
Males 15-34	0	1	1	0	0	1	0	1	0	1	0	1	0	0	0	0	0	0	0	0	1	1
Males 35+	4	8	5	6	3	5	1	8	3	4	3	3	5	1	3	1	2	1	4	1	7	5
Females 15-34	5	0	2	1	2	2	0	3	3	0	2	2	1	0	1	1	0	1	1	1	1	0
Females 35+	8	0	6	1	6	1	3	3	5	1	6	0	1	1	3	0	1	3	2	3	3	3
Unknown (sex and/or age range)	0	6	1	5	2	2	0	4	1	5	0	3	1	0	0	0	2	1	1	5	0	8
Total	19	20	17	16	15	16	7	26	15	15	13	16	12	3	9	2	7	7	10	8	14	24

L = Left
R = Right
C = Complete
P = Partial

Table 2. Long bone inventory by age and sex

SEX/AGE	HUMERUS				RADIUS				ULNA			
	L		R		L		R		L		R	
	C	P	C	P	C	P	C	P	C	P	C	P
Children Birth-14	1	2	2	3	3	2	3	4	2	2	2	3
Males 15-34	1	0	1	0	0	0	0	0	0	0	0	0
Males 35+	6	6	4	4	4	2	4	3	5	5	7	3
Females 15-34	0	0	1	0	0	0	0	0	0	0	0	0
Females 35+	1	0	2	1	0	0	0	0	1	0	0	2
Unknown (sex and/or age range)	6	3	6	12	4	3	3	1	5	7	3	5
Total	15	11	16	20	11	7	10	8	13	14	12	13

SEX/AGE	FEMUR				TIBIA				FIBULA			
	L		R		L		R		L		R	
	C	P	C	P	C	P	C	P	C	P	C	P
Children Birth-14	3	4	6	6	1	3	3	0	1	1	1	0
Males 15-34	3	0	3	1	0	1	0	1	0	1	0	0
Males 35+	7	5	8	5	1	4	2	3	1	3	2	4
Females 15-34	1	0	0	0	0	0	0	0	0	0	0	0
Females 35+	1	3	2	1	1	0	1	0	1	0	1	0
Unknown (sex and/or age range)	0	8	7	8	0	3	2	3	2	4	0	6
Total	15	20	26	21	3	11	8	7	5	9	4	10

L = Left
R = Right
C = Complete diaphysis
P = Partial diaphysis

Table 3. Individuals represented in Features 8 through 181, plus Island 9 Trench C. Only one immature individual was considered to be old enough to determine sex. Many adults were represented by partial and fragmentary remains, and sex could not be determined.

	Male/ Probable Male	Female/ Probable Female	Sex unknown
Immature age unknown	0	0	2
Fetal/infant (less than 2 years)	0	0	41
2 to 12 years	0	0	13
13 to 20 years	1	0	1
Adult age unknown	2	4	24
20 to 34 years	9	8	3
35 to 50 years	25	12	4
50+ years	15	6	2
Totals	52	30	90

Table 4. Scattered remains from Triangle Area (Cemetery)

	Male/Probable Male	Female/Probable Female	Sex unknown
Immature age unknown	0	0	2
Fetal/infant (less than 2 years)	0	0	7
2 to 12 years	0	0	7
13 to 20 years	0	0	0
Adult age unknown	4	1	0
20 to 35 years	0	0	2
35 to 50 years	8	1	11
50+ years	0	0	1
Totals	12	2	30

Ages are based on available material, and included dental development and eruption, long bone growth measurements, and, for adults, degenerative changes.

Table 5. Individuals represented in isolated excavations throughout the Park. Many adults were represented by partial and fragmentary remains, and sex could not be determined.

	Male/ Probable Male	Female/ Probable Female	Sex unknown
Immature age unknown	0	0	5
Fetal/infant (less than 2 years)	0	0	6
2 to 12 years	0	0	1
13 to 20 years	0	0	3
Adult age unknown	2	2	11
20 to 35 years	0	0	1
35 to 50 years	5	1	3
50+ years	0	0	0
Totals	7	3	30

Table 6. Ancestry based on cranial traits

Number	*In situ*	Ancestry	Observed Features	Metric
Feature 45	X	European	No "guttering" of nasal aperture; no shoveling of incisors	–
53-V01		Consistent with European	Broad posterior cranium	–
53-V03		European	Broad posterior cranium; narrow anterior cranium; depression at nasion	–
53-V04		European	Depression at nasion; moderately prominent nasal bones; irregular transverse palatine suture; V-shaped maxillary dental arcade; narrow interorbital distance; sharp nasal sill	See Ancestry text for analysis of this individual
53-V06		European	V-shaped dental arcade; small teeth; crowding of anterior dentition; moderately wide interorbital distance; low relief of nasal bones; moderately wide, low cranial vault; nuchal "bun"	Comparison to historic populations indicate a central European female
53-V07		Consistent with European	Steeply angled nasal bone(s)	–
53-M01A		Consistent with European	Lack of alveolar prognathism	–
53-M01B		Consistent with European	Lack of alveolar prognathism	–
53-M01D		Consistent with European	Lack of alveolar prognathism	–
53-M01E		Consistent with European	Lack of alveolar prognathism	–
53-M01F		Consistent with European	Lack of alveolar prognathism	–
53-X01R		Consistent with European	Sharp nasal sill; narrow nasal aperture	–

Table 6. Ancestry based on cranial traits (continued)

Number	*In situ*	Ancestry	Observed Features	Metric
53-X01L/R		Consistent with European	Sharp nasal sill; narrow nasal aperture	–
78-V01		European	Sharp nasal sill; small, V-shaped dental arcade; long, low cranial vault	–
78-V02		European	–	Comparison to historic populations indicates a central European
129-V01		Consistent with European	Slightly raised nasal sill; recurvature of zygomatic suture	–
132-V01		European	Narrow nasal aperture; wide interorbital distance; trace of a nasal sill; V-shaped dental arcade; cranial shape	Comparison to historic females indicates a north European female
132-V02		European	Sharp nasal sill; slight depression at nasion; moderate nasal aperture width; anterior mandibular dental crowding; moderately low relief of nasal bones; long, low cranial vault	
137-V01		European	Sharp nasal sill; narrow nasal aperture; moderately wide interorbital breadth; long, low cranial vault	–
Feature 141	X	Undetermined; burial left *in situ* and measurements were not made	Maxillae recede below orbits; nasal sill is rounded; alveolar prognathism; nasal bones narrow and "tented"; nasal index wide; no depression at nasion	–
Feature 147		Consistent with European	Sharp nasal sill; projecting nasal spine; *maxillae* recede below orbit	–
Feature 151		Consistent with European	Sharp nasal sill	–

Table 7. Pathological conditions and trauma

Specimen	*In situ*	Pathological condition	Comment	Trauma	Comment
53-V01		Healed cribra orbitalia	Evidence for anemia	Healed depressed fracture, right frontal	
53-V02		Erosion on right temporomandibular joint	Injury or mechanical stress at TMJ		
53-V09		Healed cribra orbitalia; thickened cranial bones	Evidence for anemia		
53-P3		Arthritic lipping; spina bifida occulta in sacrum	Age related changes; congenital defect		
53-P10		Arthritic lipping	Age related changes		
Feature 53 postcranial elements		Periostitis on two fibula shafts; osteomyelitis on two tibia shafts (two individuals); ankylosis of three thoracic vertebrae	Inflammation due to trauma or infection; fusion may be disease-related	Healed fracture, right clavicle, with possible complications; healed fracture, proximal left fibula; traumatic arthritis, right distal radius; healed fracture, distal left radius; badly healed fracture, proximal left radius (head); spondylolysis, lumbar vertebra	Physical stress
67-600		Periostitis, fibulae and tibia	Inflammation due to trauma or infection	Exostoses on distal tibia and fibulae	Possible ankle trauma
67-700		Arthritic lipping	Age related changes		
67-800		Scoliosis; lipping, porosity, eburnation on joints in vertebrae	Scoliosis may be congenital; stress from scoliosis and heavy physical activity	Compression between C7 and T1; healed fracture of T3 spinous process	Heavy physical activity

Table 7. Pathological conditions and trauma (continued)

Specimen	*In situ*	Pathological condition	Comment	Trauma	Comment
Feature 67 postcranial elements		Ossified thyroid cartilage	Age related changes		
68-V01		Hyperostosis frontalis interna	Possible diminished mental capability		
Feature 68 postcranial elements		Periostitis on tibial fragment	Inflammation due to trauma or infection	Healed fracture, left fibula fragment	
Feature 77 postcranial elements		Schmorl's depression and spondylolysis, lumbar vertebra fragment	Physical stress	Healed fracture, toe phalanx	
77-100		Arthritic lipping	Age related changes	Osteophytes on distal right radius and ulna	Wrist injury
Feature 105	X	Hyperostosis frontalis interna, mild case	Possible diminished mental capability		
Feature 112		Ossified ligaments, arthritic lipping, Schmorl's depressions in vertebrae	Age related changes, physical stress		
Feature 114		Arthritic lipping, lumbar vertebrae	Age related changes		
Feature 121		Arthritic lipping; periostitis on left tibial shaft	Age-related changed; inflammation due to trauma or infection		
Feature 126		Hyperostosis frontalis interna	Possible diminished mental capability		
Feature 127	X	Arthritic lipping on anterior thoracic and lumbar vertebrae	Age related changes		
Feature 128	X	Arthritic lipping, lumbar vertebrae	Age related changes		
Feature 136		Periostitis on tibiae and fibulae; lace-like bone formation on posterior manubrium	Inflammation due to trauma or infection; possible *tuberculosis or* other infection	Remodeled toe phalanx	Healed fracture

Table 7. Pathological conditions and trauma (continued)

Specimen	*In situ*	Pathological condition	Comment	Trauma	Comment
137-V01		Widespread healed ectocranial porosis on parietals	Possible nutritional stress		
Feature 141 (1)		Slight lipping on thoracic vertebrae	Age related changes		
Feature 141 (2)				Healed fracture, rib; healed fracture of right fourth metatarsal and amputation of a toe	
Feature 146	X	Abnormal bone formation and extra foramina, tibial shaft	Possible osteomyelitis		
150-100		Schmorl's depression, lower thoracic vertebra	Physical stress		
157-200		Osteoporosis	Age related changes		
Feature 160		Extensive periostitis	Inflammation due to trauma or infection		
Island 9 Trench C postcranial elements		Periostitis, distal tibia, midshaft fibula	Inflammation due to trauma or infection	Fused proximal and middle toe phalanges; remodeled proximal hand phalanx	

Table 8. Dental pathology in permanent dentition

Teeth and Arcade	Number of Teeth	Number of Carious Teeth	% Carious	Number of Sockets	Antemortem Loss	% Antemortem loss	Alveolar Abscesses	% Alveolar Abscesses
Incisors								
Maxillae	18	3	16.7	49	8	16.3	4	8.2
Mandible	25	2	8.0	60	6	10.0	2	3.3
Canines								
Maxillae	9	2	22.2	25	4	16.0	0	0.0
Mandible	13	1	7.7	34	2	5.9	2	5.9
Premolars								
Maxillae	25	3	12.0	50	16	32.0	4	8.0
Mandible	34	8	23.5	73	10	13.7	3	4.1
Molars								
Maxillae	30	7	23.3	54	17	31.5	12	22.2
Mandible	41	14	34.1	98	48	49.0	6	6.1
TOTAL	195	40	20.5	443	111	25.1	33	7.5

Table 9. Dental pathology in deciduous dentition

Teeth and Arcade	Number of Teeth	Number of Carious Teeth	Number of Sockets	Alveolar Abscesses
Incisors				
Maxillae	0	0	7	0
Mandible	3	0	6	0
Canines				
Maxillae	1	0	4	0
Mandible	0	0	2	0
Molars				
Maxillae	2	0	4	0
Mandible	2	1	3	0
TOTAL	8	1	26	0

Table 10. Dental pathology descriptions

Specimen	Burial *In situ*	Arcade	Dental pathology	Comment
Feature 45	X	Mandible	Hypoplasia on the lower canines, about 1 mm from cemento-enamel line	Nutritional or pathological stress while tooth was developing
53-M01B		Mandible	Abscess, left first molar socket; carious lesions and calculus deposits on some posterior teeth	Poor dental hygiene
53-M01D		Mandible	Extensive antemortem tooth loss and alveolar resorption; active infection in alveolar bone at site of missing left first premolar	Poor dental hygiene
53-M01F		Mandible	Extensive carious lesions, right second molar	Poor dental hygiene
53-X01R		Maxillae	Carious lesions, right first premolar and first molar	Poor dental hygiene
53-X02R		Maxillae	First right molar has an abscess and calculus deposits	Poor dental hygiene
67-M01		Mandible	Some antemortem tooth loss and considerable alveolar resorption	Poor dental hygiene
68-X01R		Maxillae	Antemortem tooth loss and alveolar resorption	Poor dental hygiene
68-X02R		Maxillae	Right second molar has carious lesions on two surfaces	Poor dental hygiene
68-M01		Mandible	Left first molar lost antemortem with alveolar resorption	Poor dental hygiene
78-V01		Maxillae	Antemortem tooth loss with alveolar resorption; several periapical abscesses	Poor dental hygiene
Feature 106	X	Mandible	Extensive dental disease	Poor dental hygiene
Feature 114 (2)		Mandible	Calculus deposits, significant wear on the mesial (anterior) occlusal surface of the left third molar	Poor dental hygiene; possible use of teeth as a tool
Feature 122		Mandible	Left molars have carious lesions at the cemento-enamel line; supereruption	Poor dental hygiene; loss of opposing teeth allows for supereruption

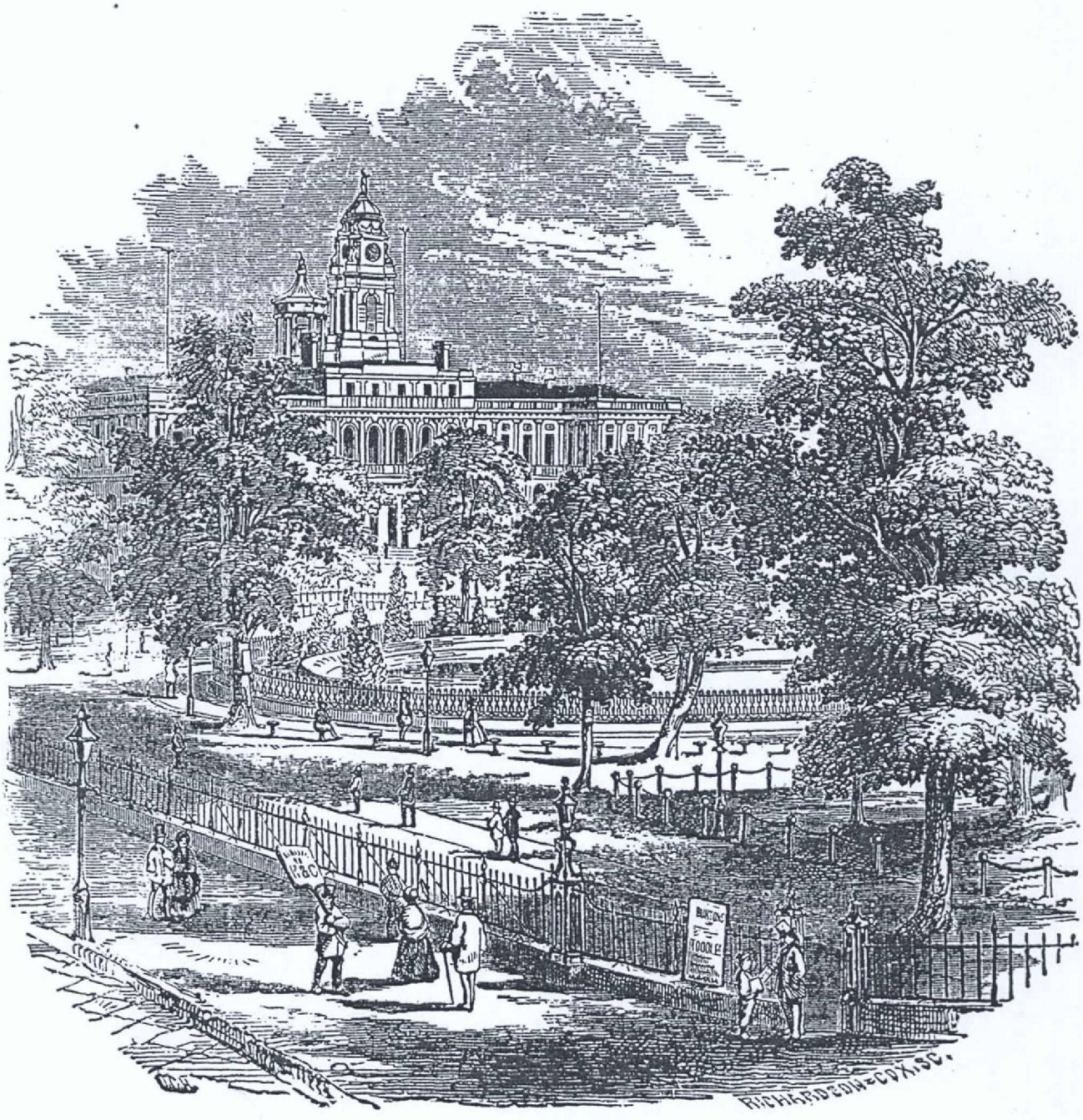
Table 10. Dental pathology descriptions (continued)

Specimen	Burial *In situ*	Arcade	Dental pathology	Comment
Feature 128	X	Mandible and maxillae	Occlusal wear down into the dentin	Coarse diet
129-V01		Maxillae	Hypoplasia on some teeth	Nutritional or pathological stress during childhood
132-V01		Maxillae	Extensive oclusal wear, antemortem tooth loss and alveolar resorption; abscess on left first premolar; calculus deposits; hypoplasia on right canine	Poor dental hygiene; nutritional or pathological stress while tooth was developing
132-V01		Mandible and maxillae	Hypoplasia on some teeth; tooth wear on anterior/occlusal surfaces of the mandibular incisors	Nutritional or pathological stress while teeth were developing; overbite
Feature 135	X	Mandible and maxillae	Carious lesions on right incisors	Poor dental hygiene
Feature 151		Maxillae	Apical abscess at right second molar	Poor dental hygiene
Feature 158	X	Mandible and maxillae	Hypocalcification and discoloration of teeth	Nutritional stress during development (calcification) of teeth
9C-M01		Mandible	Most teeth lost antemortem, with alveolar resorption	Poor dental hygiene

Table 11. Stature

Specimen	Sex	Bone	Measurement (cm)	Stature	S.E.
53-H05	M	Humerus	29.3	160.7	4.05
53-R1	M?	Radius	21.9	161.8	4.32
N540E500D1#2	M	Femur	41.7	162.4	3.94
53-H02	M	Humerus	30.7	165.0	4.05
53-C	M	Femur	43.4	166.4	3.94
53-R5	M	Radius	23.4	167.5	4.32
Feature 118	M	Humerus	31.7	168.1	4.05
53-B	M	Femur	44.2	168.2	3.94
53-R6	M?	Radius	23.8	169.0	4.32
53-H01	M	Humerus	32.1	169.3	4.05
67-700	M	Radius	24.4	171.2	4.32
150-100	M	Femur	45.6	171.4	3.94
53-U2	M?	Ulna	26.4	171.7	4.32
67-500	M	Femur	45.8	171.9	3.94
67-H01L	M?	Humerus	33.3	173.0	4.05
53-F03L	M	Femur	46.3	173.0	3.94
67-F01L	M	Femur	46.5	173.5	3.94
53-R4	M	Radius	25.0	173.5	4.32
Feature 122	M	Humerus	34.0	175.2	4.05
53-A	M	Femur	47.8	176.5	3.94
53-H07	M	Humerus	34.6	177.0	4.05

Specimen	Sex	Bone	Measurement	Stature	S.E.
53-F09R	F	Femur	36.6	144.5	3.72
53-F	F	Femur	38.0	148.0	3.72
53-H03	F	Humerus	27.9	151.7	4.45
9C-F01C	F	Femur	41.0	155.4	3.72
67-400	F	Tibia	32.6	156.1	3.66
53-F08R	F	Femur	41.4	156.4	3.72
53-R7	F	Radius	21.5	156.8	4.24
53-F04L	F	Femur	41.6	156.9	3.72
53-F07R	F	Femur	42.3	158.6	3.72
53-H10	F	Humerus	30.2	159.4	4.45
53-F06R	F?	Femur	42.7	159.6	3.72
53-R3	F	Radius	22.4	161.1	4.24
Feature 128	F	Humerus	31.3	163.1	4.45



City Hall and Park.

Figure 1. Nineteenth Century City Hall Park (Booth, 1859).

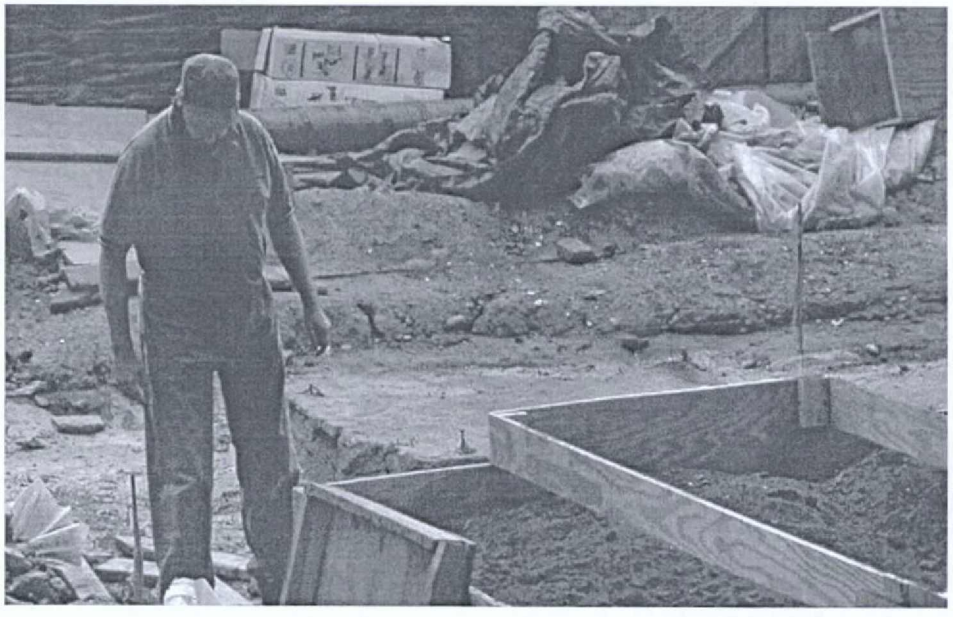


Figure 2. Conservation of remains at City Hall Park, 1999. Complete burials were left in place, protected, and covered.

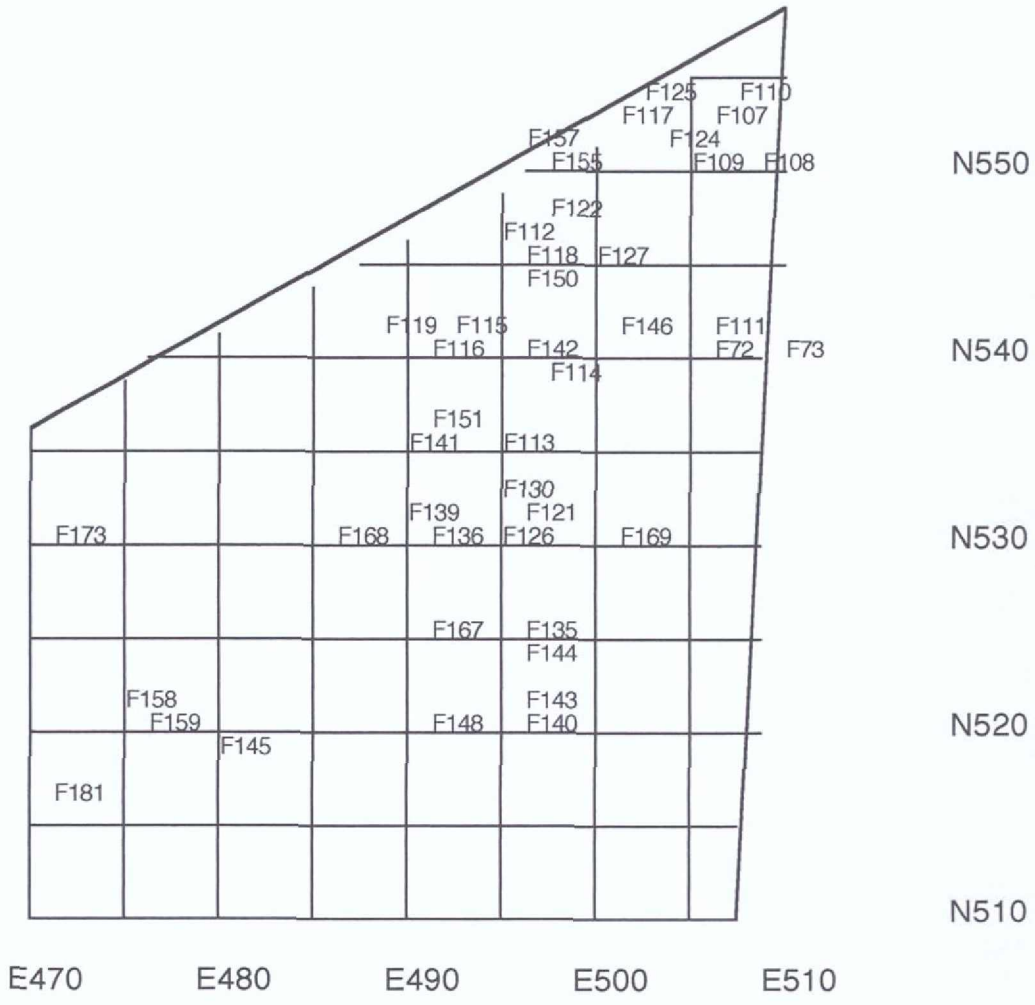


Figure 3. Features found in the "Triangle Area." Each feature shown represents at least one burial; this area is thought to be part of a graveyard associated with one or both of the Almshouses.

Figure 4. Physical anthropology laboratory at City Hall Park, 1999. The built-in drafting table was used for sorting and cleaning bones.

Figure 5. Eighteenth century structures in City Hall Park (adapted from Harris et al., 1993).

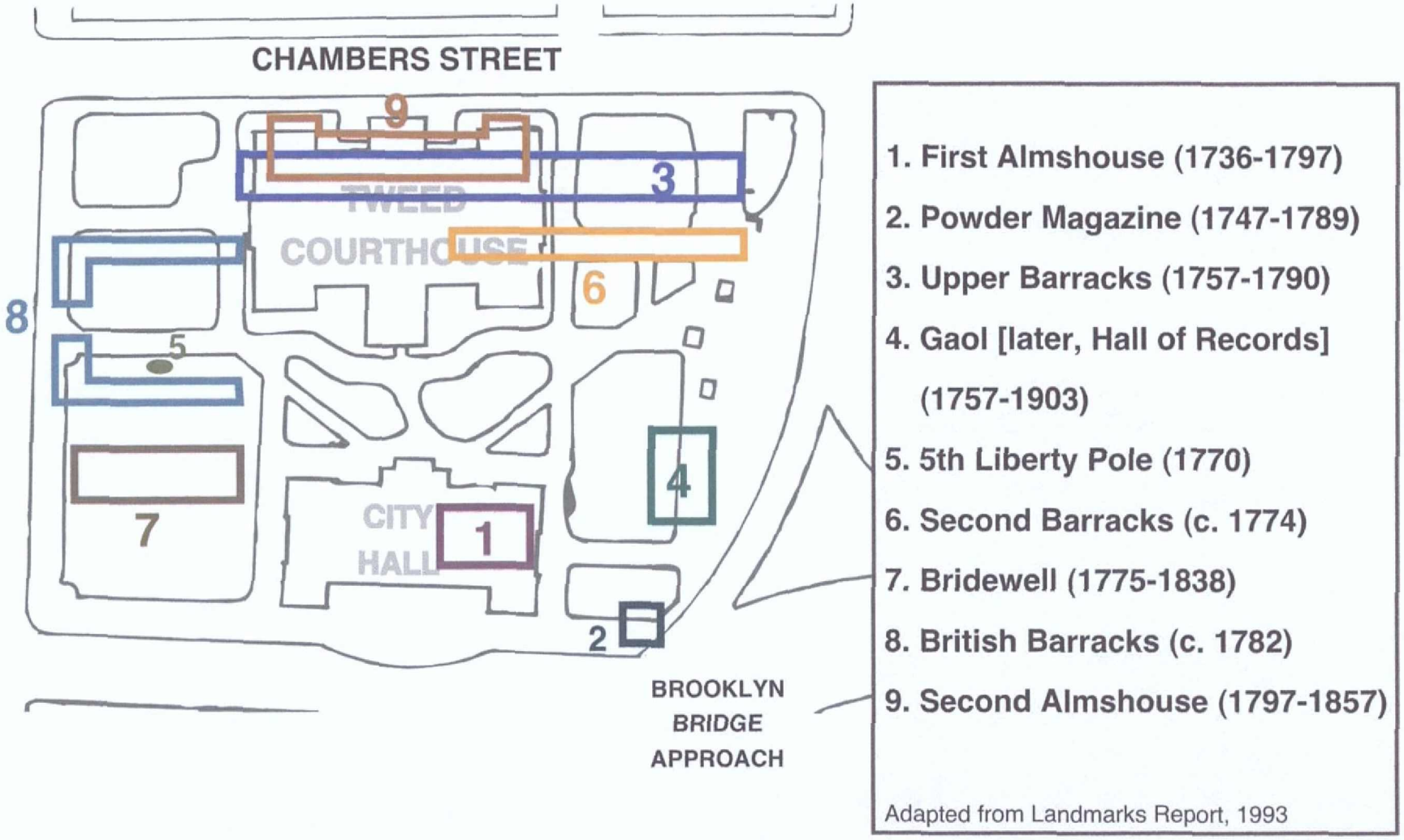
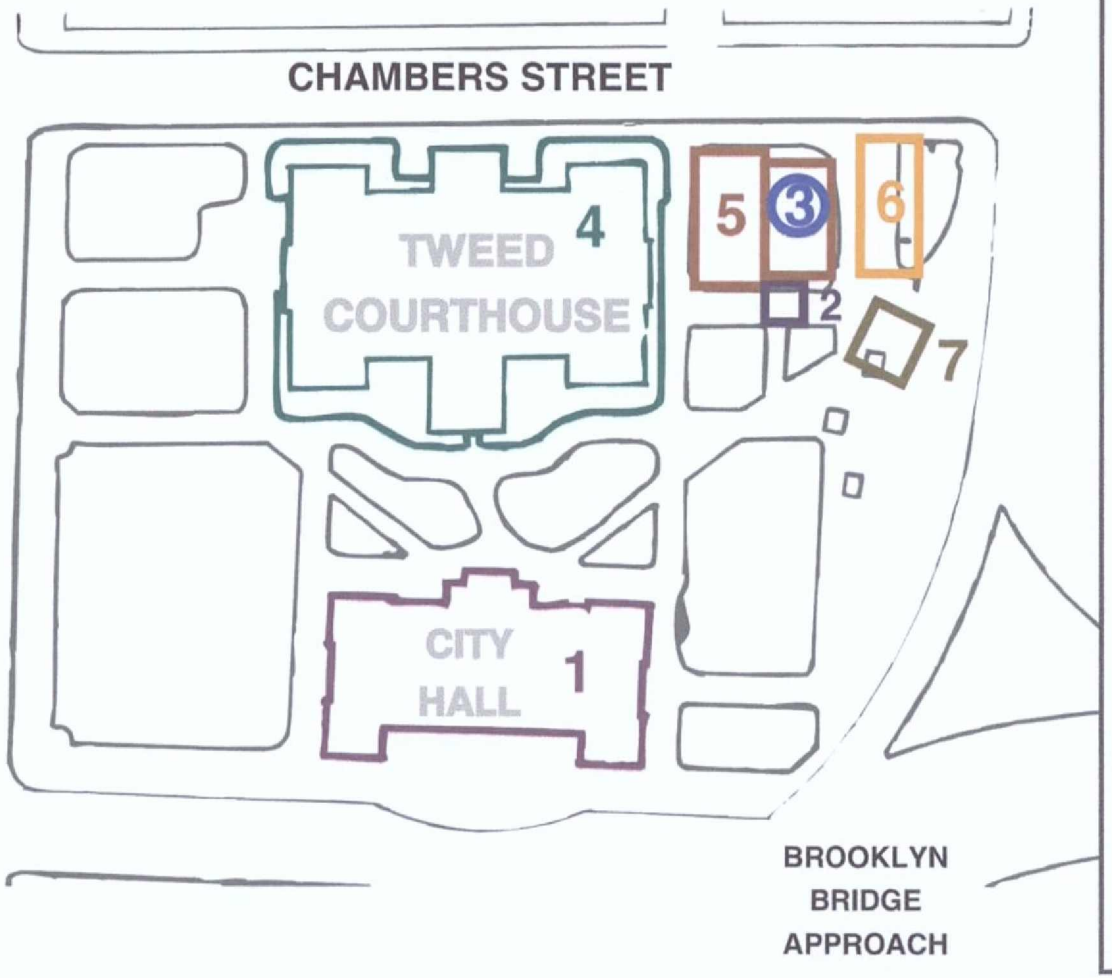


Figure 6. Nineteenth century structures in City Hall Park (adapted from Harris et al., 1993).



1. City Hall (1803/11)
2. Soup Kitchen (1807-1835) or Dispensary (1818-1829)
3. Rotunda (1818-1870)
4. New York County "Tweed" Courthouse (1860/81)
5. Firehouses (c.1842-1851); City Courthouse (1852-1928)
6. Firehouse (1851-1906)
7. Temporary Firehouse (1859- c.1870)

Adapted from Landmarks Report, 1993