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Biocultural approaches to the health and demography of Africans in colonial New York

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A biocultural, biohistorical and interdisciplinary approach has been applied to the interrogation of the physical quality of life for enslaved Africans in colonial New York City. The results shared here reflect a dialogue between historians and anthropologists at an advanced stage in the African Burial Ground Project. The skeletal recordation of 400 African Burial Ground remains is virtually complete. While historical research has been extensive to date, all phases of the archaeological, historical, genetic, and other data gathering will be completed in April of 1999. The following is an analysis of the demography and epidemiology of the New York African community of the 18th century. We are pleased to present these substantive results in a manner which accurately represents the integrative goals of our 5-year program of research.

DEMOGRAPHY OF AFRICANS IN EARLY NEW YORK

It has been estimated that at a minimum, 6800 Africans were imported into New York colony between 1700 and 1774, with approximately 2800 coming directly from Africa and 4000 from the Caribbean and Southern colonies (Lydon 1978:382-383). Perhaps one fifth to one quarter of them remained within the city of New York (*ibid.* p. 388). Many lived there for the rest of their lives, had children, and were eventually buried in the African Burial Ground. Some gained legal freedom, gradually building a free African population (which nevertheless had to fight to attain basic civil liberties), but most died enslaved. Our demographic analysis included the search for regional/ethnic origins of the New York African community, which has been discussed in another paper in this session (Medford et al.). We turn here to

questions of gender and age and how these demographic factors were related to the routing of captives to New York.

The sex ratio among New York City's African population appears to have been linked to changes in the port's slave trade. It is generally agreed that importation of Africans from the West Indies decreased substantially in the 1740s (see Lydon 1978, Kruger 1985, Foote 1991). The reduction in the proportion of males in the NYC African population in the 1740s may be linked to this change (Figure 1). The sex ratio had also shifted steadily downward between 1703 and 1723, with a noticeable "dip" in the proportion of men to women appearing in the 1723 census. This too may reflect spurts of African trading which occurred during the years 1705, 1710-12, and again in 1715-17, and 1721 (*Docs. Rel. Col. Hist. NY* 5:814; Lydon 1978:377). Finally, it is the case that between the census years 1756 and 1771, when the sex ratio went from 96.7 to 85.9, two large shipments of enslaved Africans had arrived from the continent (1763). Conversely, the sex ratio climbed the highest in the years which saw the heaviest importation from the West Indies (the late 1720s through 1740). The importation of slaves directly from Africa thus had the effect of shifting the sex ratio among New York City's enslaved population in favor of girls/women, while shipments of Africans from the West Indies shifted the ratio in favor of males.¹ Perhaps the shipments from the continent were more likely than West Indian cargoes to contain young girls, who then remained in the city because they were in demand as domestics in a characteristic urban market.²

The especially sharp (and permanent) decline in imports from the West Indies which occurred in 1742 was in all likelihood a reaction to the 1741 conspiracy trials. There was a general impression that West Indian consignments often contained individuals who were potentially threatening to the stability of the slave holding colony. In fact, after both the uprisings of 1712 and 1741, New York slavers turned to the direct African trade, and sought to lower the sex ratio of the city's enslaved population. The lowering of the sex ratio thus should not be interpreted as a simple side effect of trading practices. In the West Indies, after seven years of intensive fighting which resulted in maroon sovereignty over large regions of Jamaica under the treaty of 1739 (see Edwards 1994, Agorsah 1994 [**need references**]), the British sought to stem the importation of Ashanti captives because they viewed them as potential rebel leaders (78% of Africans imported into Jamaica were shipped from the Gold and Slave Coasts [**reference?**]). In New York the solution may have been to stem the West Indian trade and reduce the relative number of enslaved men. The increasing preference for girls, boys, and young women in New York may have been due to the relative vulnerability and nascent socialization of these gender and age groups, reflecting a perceived need for improved social control.

Although there is evidence of "dumping," or the sale in New York of older, unhealthy, or troublesome individuals who had been hard to sell in the Caribbean or

¹It should be noted that Foote reached the opposite conclusion, citing the overall low sex ratio for the entire colonial period and attributing it to West Indian "dumping." But our analysis examines the pattern of change in the sex ratio *in relation to the pattern of change in sources* of Africans brought to NYC, and suggests West Indian imports may have included fewer girls/women.

²It bears repeating here that young women sold as domestics did not face an easier work regime; they were engaged in strenuous physical labor, as is borne out by the skeletal data (see Mack et al., this session). See Higman (1991, 1984) on low black sex ratios in West Indian towns, and Morgan (1984) on Charleston, which also had a preponderance of women in many years.

whose expulsion was desired, the demography and health of New York Africans was also affected by the fact that “unseasoned” Africans direct from the continent could be bought at lower prices than enslaved people from the West Indies. All of these effects coalesced to characterize New York’s importation of human cargo.

Before examining data from the African Burial Ground population, a brief note on mortality statistics for the 17th and 18th centuries is in order. The county of New York kept no official death records prior to the early 19th century. The quantitative data available, therefore, are from church records, and are for the European rather than the African community -- only 9 deaths of Africans appear among thousands recorded in the surviving New York church records. Most of the available church records are limited in the information they provide. Age at death, for instance, is given by only a few denominations, and for limited time periods. Demographic research on the Middle Atlantic colonies is severely limited, and patterns of mortality have barely been considered by historians. One goal of the present research is to compile comparative data on mortality for the various components of the 18th-century New York population.³

Contemporary observers believed that black mortality throughout the northern colonies, especially among infants, was so high that only importations could prevent the black population from gradually dying off (Anthony Benezet, writing in 1773, cited in Nash 1988:33; Nash also cites Benjamin Franklin in 1751 and a Bostonian chronicler in 1775 on this). Bills of mortality for Philadelphia in the period 1767-1775 indicate an average of 75 burials of Africans per year; this represented about 7 burials for every 100 blacks per year, a rate about 50% higher than among whites (Nash 1988:34). If a similar death rate is applied to New York, about 219 individuals would have been buried per year in the same period (based on the 1771 census count of 3137 blacks).⁴

At the African Burial Ground, 89 adolescent males and men and 62 adolescent girls and women between 15 and 60-plus years of age are believed to have been most accurately assessed for both sex and age (Figure 2). This is a sex ratio of 143, a much lower frequency of women than the historical data contained in censuses indicate.⁵ This may be due to sampling error (an underrepresentation of women in the burials excavated) or to errors in our sex determinations. The latter problem has been scrutinized throughout the project. The high robusticity of many women’s skeletons in this population could bias the assessment of females and males, and indeed, we believe that the field assessments were skewed toward designation of males. Wherever possible, laboratory assessments privileged sex indicators which were

³The largest body of data on mortality for New York is in the burial registers of the Dutch Reformed Church. From this source total of 4,788 deaths of white New York residents has been tallied for the period 1727 through 1775 (the period of the Revolution, when New York was occupied by the British, and the immediate post-Revolutionary period were not examined). The Dutch ethnic group comprised a substantial proportion of the city’s colonial population -- still 39.4% in 1730 (Goodfriend 1992:153) - - and thus their church burial register can be taken as a representative sample of white New York deaths.

⁴It is possible the deaths of Africans in Philadelphia were underreported, however, for there, as in New York, a separate burial ground was in use and may not have been closely monitored.

⁵It is worth noting for comparison that the Dutch Reformed burial population adult sex ratio was 88.72 for the period 1740-1776 (n=1423), which is closely compatible with the overall sex ratio for the white population reported in the censuses.

based on reproductive anatomy or which were least affected by musculoskeletal development due to arduous labor. The distinctly different age-related mortality patterns shown for those we have assessed as men and women encourage confidence in the accuracy of our sexing of this population (see below).

Age

The youth of new imports appears to have been a selling point in the slave market of New York City. Jacobus Van Cortlandt wrote in 1698 that the New York market was for Negroes aged 15 to 20 (cited in Foote 191:82). A number of somewhat later sources suggest those in their pre-teen and teen years were particularly desired, though younger children (presumably born in America? rather than imported from Africa) were bought and sold. Lydon (1978:392-3) examined 15 newspaper advertisements (from the 1730s on) for sales of newly-arrived human cargoes, half of which stressed youth.⁶ Perhaps the New York market shifted from one largely concerned with agricultural and dock labor to one which also was driven by the need for domestic servants, best obtained while quite young. One often-cited ad from the *New York Mercury* (June 16, 1760) read “Just imported from Africa... A Parcel of likely Negro Boys and Girls, from 9 to 12 Years of Age, on board a schooner.” John Watts wrote in 1762 that for the New York market enslaved laborers “must be young the younger the better if not quite Children” (*Coll. NYHS, John Watts Letter Book*, p. 31). John Van Cortlandt wrote to his slave-ship master in 1771, reminding him that he desired an active 20-year-old man and that Mr. Nicolas Bayard also wanted one, about 14 years old “for his own employment” (i.e. not one to be hired out as a day-laborer, perhaps a servant?). In another instance which probably reflects the typical market, Cadwalader Colden wrote to a correspondent requesting to purchase a Negro girl about 13 years old for his wife, to keep the children and sew, and two young men about 18 years old, strong and well-made for labor (*Coll. NYHS, Colden Papers, Vol. I*, p. 51). It is possible girls were considered to be “ready” for productive domestic work in urban households at younger ages than boys, who were more likely to be needed for physical labor. Kruger (1985:278-284) examined 75 sale ads and 101 bills of sale (from six counties in New York Colony) for which the age of the individuals was given. 29 of the ads and 41 of the bills of sale were for children 14 and under. Kruger notes that in general, there was brisk buying and selling of children in the 6 to 12 year-old group. Ads which specifically sought young slaves mentioned 7 or 9 to 12 years of age as desirable. It is possible that African shipments, controlled by New York merchants well aware of the local market, would be more likely to contain youths than West Indian shipments.

Africans from the continent who were more than four years of age were subject to an import tax passed in 1732 (*Col. Laws.*); presumably, any younger children who somehow were included in cargoes were not taxed because of their slim chances of survival, while older ones were considered valuable commodities. Overall it appears that enslaved Africans were put to work by their pre-teen years. This was certainly the case for domestic workers; males in their late teens would have been put

⁶McManus (1965:44) notes the following ads for cargoes made up exclusively of slaves under the age of 20: *NY Weekly Post-Boy* 31 July 1749, 13 May 1754, 25 July 1757, 21 August 1760, 22 June 1772; *NY Mercury* 9 July 1759, 16 and 30 June 1760, 18 August 1760, 5 January, 20 September, 15 November 1762, 27 June 11 July 1763, 24 June 1765.

to work at the most demanding types of physical labor on the docks, in construction, hauling, etc.

The skeletal data from the African Burial Ground show particularly high mortality for the ages associated with new arrivals, who frequently included a disproportionately large number of adolescent girls and young women. An unusual mortality peak occurs in 15 to 24-year-old boys and men, and is much more exaggerated in 15 to 19-year-old girls and women in this archaeological population (Figure 2). These data are consistent with the preferred ages for importation, sale, and perhaps intensified labor regime. Females also experience the onset of reproductive maturity during these ages, with all of the attendant health risks.

When compared with Rankin-Hill's (1997) data on predominantly free African Americans in early 19th-century Philadelphia, the African Burial Ground population emerges as distinct (Figure 3). The New York African Burial Ground's gender-specific adolescent and early adult mortality peaks do not occur in the 19th-century Philadelphia group. The Philadelphia population shows an increase in female deaths that begins dramatically at age 21-30 and an equally remarkable decline after 51 years of age. This peak in mortality is neither as early nor as exaggerated as for the New York population. While its mortality patterns should reflect many of the same stresses of fertility, ill health, and work as in New York, for specific historical reasons, the Philadelphia First African Baptist Church population is likely to have had very few new arrivals from Africa or the Caribbean. The African Burial Ground population's distinctive early spurt in mortality is consistent with the importation of young women, newly exposed to the risks of enslavement and winter weather. Philadelphia men, like those in New York, show a later mortality peak than for women, rising at 31-50 years of age and declining rapidly at 60. Unlike New York, however, Philadelphia male mortality is very low at 15-24 years of age. We conclude that the early peak mortality observed in the African Burial Ground is a distinctive pattern of newly enslaved arrivals who, in New York, are heavily loaded with adolescents and young women in the years surrounding menarche.

Fertility and child mortality

Kruger (1985:403-420) has made the most ambitious attempt to date to analyze scanty data pertaining to childbearing and fertility in New York's enslaved African population. Almost no data are available on the ages of African women when they bore children. In 1796 an individual named "Africanus" proposed emancipation of all female slaves born after 1796 at age 17, along with all the children they already had. He estimated that 3/5 of them would already have born children that age (*Daily Advertiser*, January 26, cited in Kruger 1985:405). Information on births of enslaved Africans is available for the period after the 1799 emancipation act, when births had to be registered; these data are problematic, however, because since slaveholders often changed it is difficult to track women over time. Kruger calculated median birth spacing at 28 months, and inferred that breastfeeding appears to have continued for about 16 to 18 months in the period from 1799-1826 (*ibid.*, pp. 410 to 412).⁷ Our skeletal data show an increase in post-infancy mortality from 3 to 4 years of age

⁷Anecdotal evidence on childbearing within rural slaveholdings in southern New York Colony (not New York City) suggests that separate residence of mates may have affected birth spacing (Kruger 1985:407-409).

(Figure 4a). This may be associated with completed or nearly completed weaning because in marginally nourished populations weaning often places the child at risk of immune susceptibility, malnutrition, disease encounters and accidents (due to increased mobility and independence). These ages seem inconsistent with Kruger's estimates, based on sporadic post-1799 historical documentation, of early (16-18 months) weaning, which are closer to the early weaning ages shown for other 19th-century African American populations. A later weaning age consistent with traditional African practices, suggested by our skeletal data, would have had a much greater anovulatory impact on fecundity and fertility. Change over time in weaning practices from the 18th to the 19th centuries may be indicated.

Low child-to-woman ratios (a proxy for direct fertility data) derived from census data attest to the absence of natural increase in the New York African population (Figure 5 and table below). The 1746 peak is due, we think, not to births in New York, but to importations by slavers of girls and boys under 16 years old. The numbers of children

per woman of child-bearing years dropped very markedly as importations abated.

year	women	children
1703	276	225
1712	320	334
1723	476	478
1731*	607	371
1737*	609	436
1746	735	1154
1749	701	1016
1756	695	911
1771	1085	1120

*Under 10 counted as children.

Other years used 16 as cut-off age.

Noting low child-to-woman ratios, Foote asserts that

[t]he most likely explanation for the absence of natural increase among the blacks of colonial Manhattan despite the preponderance of females in their childbearing years was the high level of morbidity. Involuntary black

immigrants from Africa had suffered the hardships of the ocean passage to the New World, and black newcomers from the West Indies had endured the rigor of work on the Caribbean sugar plantation. The health of black women immigrants from Africa and the West Indies had, doubtless, been compromised during their enslavement, and this circumstance perhaps explains why colonial Manhattan's black female adult cohort failed to produce and abundance of children or even a modest measure of natural increase.⁸

Age-related mortality in the African Burial Ground population sheds new light on the dearth of natural increase among New York Africans (Figure 2). We have already discussed very high mortality among women at the beginning of their fecundity, eliminating the vast majority of their fertile years. Women's mortality remains high and reaches its maximum between 30 to 34 years, with the vast majority of women having died by the age of 40. The fecundity of New York's African population was severely compromised by this high mortality. Fecundity was also reduced by the amenorrhea effects of arduous labor, evident from exaggerated muscle attachments in most women in the skeletal population, as well as abundant evidence of early arthritic changes and occasional evidence of work-related fractures. The evidence of nutritional inadequacy and infectious disease loads discussed below also indicates reasons for reduced fecundity of African women in New York.

But the ill-health of mothers is only part of the story. The very high infant mortality (Figure 4) -- 18 percent of all mortality in the skeletal population -- and high mortality between 3 and 4 years of age, meant that even when women were fertile only the most modest natural increase would occur. Child mortality in the 18th century was extremely high among all peoples. 40.81 percent of all individuals identified as to age in the African Burial Ground were under 15 years old (Figure 4b). During the years 1740-1775, between 50 and 60 percent of all burials recorded in the Dutch Reformed Church were of children (age unspecified), with even higher child mortality during epidemic years.⁹ It is likely that the higher frequencies of adults in the African skeletal population compared with the Dutch Reformed burial population reflects the skewing of African demographic patterns (due to importations), rather than a lower child mortality rate among Africans.¹⁰ Dutch American women were having (and losing) more children than African women, but the deaths of African children would have had a greater impact on their overall population. European enslavers had no incentive for encouraging fertility or intensive care-giving of infants, who demanded high investment but could do little work. Though the abusive practices of the British Caribbean colonies, where infants might be taken from their mothers immediately so that loss of labor would be minimized, are not documented for New York, this city's slaveholders showed no desire to possess young African children. The trade in Africans was open in the 18th century; laborers could be

⁸It is by no means clear that most Africans who came to New York from the West Indies had worked as sugar plantation laborers. Many were those from Africa whom slavers had failed to sell in the West Indian ports, and some were probably domestic servants or urban laborers rather than field hands. Foote also cites lengthy breastfeeding and concurrent sexual abstinence, discussed above, as contributing to a hypothesized low fertility rate among black women in colonial New York.

⁹Unfortunately, the burial registers list neither precise age at death nor presumed cause of death.

¹⁰The Dutch American population would no longer have been subject to the "skewing" effects of immigration by the mid-18th century.

replaced without consideration of their reproduction (or many other basic human motivations such as the maintenance of family life).

Older Adults

There is no question that elderly enslaved people too were considered a burden by slaveowners. They were valued at lower rates for tariff and tax purposes, with age 50 generally used as a cut-off. Colonial laws also reflect anticipated problems with holders of elderly Africans. In 1773 (*Col. Laws 5:533*) *An Act to prevent aged and decrepit slaves from becoming burthensome within this Colony* was passed by the provincial Assembly. It cited “repeated instances in which the owners of slaves have obliged them after they are grown aged and decrepit,” to go about begging for “victuals, cloths, or other necessaries” as well as owners who by “collusive bargains, have pretended to transfer the property of such slaves to persons not able to maintain them, from which the like evil consequences have followed.” The penalty imposed was £10 for anyone allowing their slave to beg for necessities, and £20 for selling an enslaved individual to a person who could not support them (and the sale voided). In 1785, a certificate from the overseer of poor was needed to needed free an slaved person: slaveholders could only obtain the certificate for people under age 50.

Our skeletal data indicate that men, having chronically high mortality throughout their life spans, reached peak death rates at 45-49 years of age. From 50 years of age onward mortality declines as few survive to die in the 55-60+ age group. Women show a very different pattern of two separate mortality curves. Their peak mortality is during 30-40 years of age, although mortality at these ages is nearly equaled by the 15-19 year age group. After 35 years of age women’s mortality drops precipitously, reaching its lowest point at 40-44 years, at the end of both their reproductive and laboring ages. Women show a second curve in which mortality again increases from 45 until 55-60+ years of age. This suggests a second environment for a segment of older women who, if they lived past the age of 40, may hve had an advantage for living to and dying at more advanced ages. We are exploring whether older women might have been employed in less demanding tasks or were allowed healthier circumstances. The average age at death for females who reach the age of 15 (32.4 years) is lower than that of comparable males (36 years). Yet 9.6 percent of women (n=6) and 5.6 percent (n=5) of men found in the African Burial Ground lived to be 60 or more years of age by our estimation.

HEALTH OF AFRICANS IN EARLY NEW YORK

Infectious disease was the major cause of morbidity and mortality among all classes in colonial New York. That said, certain facts must be kept in view: 1) the poor were more likely to be exposed to disease agents through contaminated water and foods, and close and extremely unsanitary living quarters, and 2) other important health risks were linked to nutritional deficiencies and harsh labor regimes. It should also be remembered that Africans arriving in New York, would have been in poor health to begin with, possibly suffering from extreme malnourishment as well as from diseases which spread easily through the ships. The three hundred or so arrivals on the ship *Gideon* (from Loango via Curacao) in 1664 were said to be half-starved (*Docs. Rel. Col. Hist. NY* 2:430). Other cases of disease (particularly smallpox) on board ship prompted quarantines of human cargoes (e.g. *MCC* 1:208 [October 1689]). While passage to New York was hard on all immigrants, those who came across as cargo certainly fared the worst.

Living standards: housing, clothing, and medical care

Slaveholding in colonial New York was not subject to legal maintenance standards. The Dutch left the treatment of all bondspeople up to their masters, and it would seem that the English did likewise when it came to Africans. McManus (1965: 60) asserts that the English authorities “strove to keep the slave system as humane as possible,” but there is little evidence of this. Foote (1991:223) too has argued that New York City’s “black code” “accorded Negro slaves rights to humane use and treatment in order to reduce the sources of resentment among the blacks.” However, the laws themselves did *not* give bondsmen and women such rights. No colonial law ever specified minimum provisioning or housing requirements, and masters could treat their chattels as they saw fit -- short only of murder or dismemberment.¹¹ It is likely that great differences existed among households in how enslaved Africans were actually provisioned, housed, and exploited.

No hard evidence has come to light regarding the living quarters of the enslaved people of colonial New York City. Under the Dutch, the West India Company housed its enslaved Africans in barracks-type buildings. Scant anecdotal information suggests that some of those who were privately held were allowed to

¹¹Foote’s only examples of masters brought to court for “abuse” of slaves involve their murders of slaves (1991:224-225). It should be noted that minimum slave provisioning policies were not adopted until much later in other English colonies, even where mortality rates were extremely high. In 1686, Governor Dongan was instructed to make sure there was a law restraining “inhuman severities which by all Masters or overseers may be used towards their Christian servants, or slaves, wherein provision is to be made that ye wilful killing of Indians and Negroes may be punished with death,, and that a fit penalty bee imposed for the maiming of them” (*Docs. Rel. Hist. N.Y.* III:374). This instruction was repeated verbatim to Governors Andros in 1688 and Hunter in 1709 (*Docs. Rel. Hist. N.Y.* III:547; V:138). McManus (1966:59-60) has interpreted the instruction as a mandate “to see to it that private slave discipline was not unduly severe *and that the physical needs of slaves were not neglected*” (my emphasis), but this seems too broad a reading of the instruction. In any case, the existing law, which had been passed in 1702, making it lawful for masters to punish slaves at their own discretion short of murder or dismemberment, was considered sufficient.

sleep in cellars or attics or pasageways, while others were found space in separate structures such as rear outbuildings, referred to in one case as “Negro kitchens.” In the combined home-workshops of the colonial household, those requiring minimal space might include indentured servants and apprentices as well as slaves.

McManus (1966:55) asserts that “most slaves were well clothed, for it seems to have been the practice to buy new clothing for slaves rather than to pass along old clothes discarded by members of the slaveholder’s family.” But there is little or no evidence that the enslaved were routinely provided with new clothes, however, and it is more likely that, if anything, used clothes (either hand-me-downs or purchased) were provided. Advertisements and correspondence regarding sales of individuals suggest that whether or not they had adequate clothing was a negotiating point in the transaction. McKee (1935:122) cites a case from the Isaac Bobbin correspondence (1723) of his purchase of a “wench:” “I could not prevail upon her master to give her two Blankets so have bought her a couple... he has given her a pair of New Shoes and Stockings. I understand that she does not want for close [sic].” Evidence from estate inventories and account books indicates that “breeches, a shirt, a jacket and a cap for male slaves; a skirt, petticoat, blouse, and hat for female slaves; and, in addition, shoes for both sexes seems to have been the customary outfit of an adult slave” (Foote 1991:143). Domestic servants in well-to-do households would have had a minimum appearance of respectability to keep up, but other enslaved laborers may not have been provided with any clothing at all, and were simply expected to obtain their own clothing. Runaway advertisements certainly suggest that Africans took charge of their own wardrobes. Numerous court cases document thefts by Africans of cloth and items of clothing, also indicative of their need/preference for acquiring clothing on their own (*Minutes of the Court of General Sessions*). In a case cited by Goodfriend (1994:122, from *NY Colonial MS 60:117*), an 18-year-old woman admitted that she stole “as much Bristol Stuff as would make her a Gown and Pettycoat and also a Solk Muslin handkerchief and a Small piece of Callicoe” and brought them to a tailor to sew for her, explaining that “She was almost Naked & her mistress would give her no Clothes.”

Shoes appear to have been provided to at least some enslaved Africans. The ledgers of Charles Nicolls (Nicolls Ledger Books, New York Historical Society) indicate sales and repairs of shoes for blacks on their masters’ accounts during the years 1756 to 1765. As Foote notes (1991:144, 430), Nicolls, whose home/workshop was on Little Dock Street, counted some of New York’s elite among his customers. It is therefore possible the enslaved blacks obtaining shoes from him had a relatively high standard of living. Though some individuals were provided with new shoes frequently, most entries in the Nicolls ledger are for unnamed “Negroes” whose footwear thus cannot be tracked over time. Not surprisingly, the overall demand for shoes for Africans was seasonal, with the most pairs purchased during fall and winter. An enslaved laborer with frost-bitten toes would have had diminished value to his or her slaveholder.

Most medical care of Africans was probably provided by other Africans, whether family members, household members, or specialist practitioners. There is little evidence of the medical practices of Africans in the colonial town, though we know that Africans practiced as midwives, and that there were individuals known as doctors in the community.

It is also the case that normally the master or mistress of a household was expected to see to the medical care of all dependents, including children, apprentices, indentured servants, and enslaved servants and laborers. Such care might mean the attendance of the mistress of the house or her proxy (a free or enslaved servant) on the sick during epidemics. It might also mean calling in a medical practitioner in the event of injury or illnesses requiring drugs or other treatment. In the 17th and 18th centuries, much of Western medical practice consisted of attempts to regulate or alter the relationship between the internal body and its external environment. Emphasis was placed on removing disease from the body through its natural orifices or through the skin. Treatments for all manner of illness focused on sweating, blistering, bleeding, vomiting, and evacuation. In addition, palliatives were given, bones set, teeth pulled, and wounds dressed. The day book of a physician/pharmacist covering a period from April 1743 to April 1744 includes numerous entries for services and/or medicines provided for blacks in New York households. All are listed as “for ye Negro” under the name of a client, presumably a European master or mistress. The following treatments charged for “Negroes” were recorded (in order of frequency):

# of Entries	Treatment or drug	Notes
28	dressing	many were repeat visits to patients
16	phlebotomy (bleeding)	bleeding
16	vomit	
10	unspecified cathartic	to induce bowel evacuation
7	febrifuge	for fever reduction
6	alexipharmic	Antedote for poison, or, more generally, to cause sweating
6	diuretic	
4	Emp'm.	Emplastrum; plaster
1	Emp'm. oxyero.	“saffron” plaster made with various ingredients
4	Hyster.	antihysterical; treatment for “spleen,” “vapors,” “the hysterical disease” in women; all here were for women, 3 of 4 treatments for the same woman
3	Balsam anod.	mixture of opium, camphor, wine, oils, used mostly as topical analgesic (sometimes used internally)
3	emetic	to induce vomiting

3	Linctus	a medicine licked with the tongue (apparently often for throat?)
1	Pot of pectoral linctus	
1	L.L.	Linctus Leniens? a sucker made with gum arabic, amygdala oil, aqua cerasi for sore throats (for “a Negro girl” -- presumably a child)
3	pills	unspecified
3	Spt. C.C.	
2	cordial	mild drug to raise spirits
2	Ol. Amig.	Amygdala; oil of bitter almonds, used internally as sedative, antispasmodic, expectorant
2	Rhei	Chinese rhubarb (or other species); mild cathartic, astringent, tonic, stomachic, antiemetic (still used as cathartic)
2	Spt. Tereb	Spirits of Terebintha, or turpentine; usually external application in unguents and linaments, or as styptic in nosebleeds (seldom given internally as gentle cathartic and diuretic).
2	Sudorific Bolus	to induce sweating; a bolus was a typical form of medicine, formed of clayey earth, which could melt in the mouth.
1	ague mixture	
1	Ex. Antimony [symbol]; Mechoa. (same patient?)	Elixir of antimonium; to induce vomiting, evacuation; sweating at small doses. Mechoacanna: root of wild potato; weak cathartic and diuretic
1	Balsam Sulph.; anis.	Sulphur boiled in olive oil; applied to running sores (sometimes internally as pectoral, but hazardous). Anisum (seeds of anise) used as tonic, pectoral, for gas or dyspepsia; also a lactagogue (to induce lactation).
1	C.C.C.	
1	Creat Turn.	Turner’s Create: unguent, made with calamine, cera flava, olive oil, unsalted butter

1	drawing tooth	
1	flo. cham.	Flower of [chamaedrys (germander), chamomile, chamaepithis (groundpine)?]; cathartic or diaphoretic, tonic, etc.
1	Hydrar powders	mercury (various forms)
1	unguent mercury [symbol]	
1	Oli. Elixir	?
1	powders	unspecified
1	Proprietatis elixir	Tincture aloes compound; warm stimulant, stomachic, cathartic, etc., also antihysterical, and emmenagogue (induces menstruation), but patient was a man; occasionally a surgical dressing
1	restorative	
1	restorative cordial	
1	Sem. Bardane	Bardana (Burdock) seeds, a diuretic.
1	Spt. Camp.	Spirits of Camphor; narcotic, analgesic, anti-inflammatory, diuretic, antispasmodic, soporific, etc.
1	Sy? [Syrup?] Balsam	
1	Sy? [Syrup?] Viol.	Viola: Fresh flowers of violets; gentle cathartic especially suitable for children, also an expectorant and diuretic; patient was a child
1	tulia unguent	?
1	vermifuge	for worms
Source: Physician/Pharmacist Day Book, Ms.. NYH-S; Estes (1990).		

It is thus clear that when the master or mistress saw fit to call in the apothecary, the sick Africans in these New York households were treated with the standard *materia medica* of the day. The frequency of dressings may indicate that Africans (and presumably other servants and laborers) were particularly susceptible to injury. Dressings included a man's thumb, a child's arm (twice), "sundry dressings"

for a child's neck, a man's finger, Caesar's hand, 5 visits for an unspecified dressing for man, and 12 visits for a man's toe (obviously a concerted effort to save the foot). One "plaster" was administered to a Negro boy's back, suggesting he suffered wounds from a whipping.

Living standards: diet and nutrition

Seventeenth and eighteenth-century diet, even for elites, is difficult to reconstruct, and as Rothschild points out (1990:140) in her study of the period, for New York "the documentary record on this subject is almost nonexistent". The Dutch and English relied on fish and shellfish, wheat, rye, root crops, maize (often boiled into porridges), and wild game. Sheep, cattle, and pigs also were raised for milk and meat. Vegetables (including potatoes, cabbages, peas, beans, turnips, and onions) and fruits would have been seasonal. The most important fruit was apples, commonly made into cider, and ale was probably the most important drink. Produce, meats and milk spoiled quickly in the summer months, and fresh produce was scarce in winter. Wildlife became less available over the course of the 18th century. Drinking water was obtained from public wells and the fresh water pond, but by the end of the 18th century the pond was very polluted and clean well-water in short supply. The famous "tea-water pump," located east of the Burial Ground, provided many households with their only potable water.

The basic fare provided by households to dependents (including enslaved and free servants, apprentices) centered on the 18th-century staples – bread, corn meal or other grain meal, and ale -- and probably only infrequently included meat, dairy, and green vegetables. A pilot macro-botanical study completed for the African Burial Ground abdominal samples turned up fragments of rye, wheat, barley and oats, possible evidence of porridge eaten prior to death. Further botanical and pollen studies are planned. No other direct evidence of diet is available for the Africans of early New York; because they normally lived in the same houses as Europeans, discrete archaeological deposits from their food-preparation and food-consumption sites are so far undiscovered.

We think that African New Yorkers potentially had access to a wide range of foods in addition to provisions, including meat from livestock, seasonal fruits and vegetables, fish and shellfish, and wild game; but that potential could be realized only if and when they had the opportunity to provide for themselves through husbandry, gardening, hunting, marketing, or pilfering.

In the 17th century free blacks who had land presumably ate some of what they produced in their gardens, and ate some of the meat from livestock and fowl that they raised. Shellfish, fish, and wild game would also have contributed to their diets. Other foods were purchased at the market. Free black artisans may have eaten mainly purchased foods, though some may have belonged to families with gardens and stock of their own. Presumably, free black servants and laborers ate what their employers provided, supplemented with food procured on their own account through purchase, hunting and collecting, gardening, or livestock raising. Likewise, the enslaved ate what masters provided and/or what they procured for themselves.

Depending on the level of surveillance by the master and/or mistress of the household, enslaved domestic servants saw and potentially had access to whatever food items came into a house. If they were responsible for purchasing or preparing food, their chances for obtaining “extra” rations were greater. Though stealth may have been required, taking food from the household probably would not have been regarded by slaves and servants as “theft,” but as a perquisite of their station. Foote (1991:142) notes that “because Negro women slaves were often employed as cooks, [they] probably controlled the distribution of prepared foods in the master’s house and were, therefore, able to obtain the minimum daily nutritional requirements for themselves and other household slaves.”¹² The degree of control exercised by African domestics would have depended on their own skills and on the individual masters and mistresses of their households. Food obtained in an “underground” household economy, which mirrored and was linked to the underground economy of the streets, would have helped offset deficiencies in the provisions obtained directly from slaveholders.

It can be assumed that enslaved New Yorkers supplemented their diets with food obtained through own-account procurement activities other than household “theft” as well. Through hunting, collecting, gardening, and raising fowl or small livestock during their “own” time, enslaved men and women would have been able to provide themselves and their families with additional food, at least during the 17th and early 18th centuries. Also, and increasingly as New York came to be market-fed (see Rothschild 1990:138), through other economic activities they would have been able to acquire money with which to purchase food.

The “extra” provisions which enslaved New Yorkers were able to obtain to secure their childrens’ survival and enhance their impoverished living standard should not be over-emphasized, however. Significant malnutrition characterized urban areas such as New York, where agricultural pursuits were giving way to commercial ones and market dependency was increasing. Nutritional deficiencies in turn would have contributed significantly to ill health, especially among the poor, including the enslaved.

Skeletal evidence is at this point the best available source of information on the nutritional status of New York’s African community. We have only begun the most systematic of these studies, including statistical analyses of observed cases of rickets and osteomalacia, enamel hypoplastic growth disruption, and a general index of malnutrition including cases in which long bone bowing, porotic hyperostosis, and/or flared metapyses are present. Some general findings, however, point clearly to the magnitude of nutritional problems.

Hypoplasias are growth disruption defects that occur in developing enamel (Figure 6). The incisors and canines that we have thus far analyzed in 100 individuals have a frequency of 80% in the deciduous teeth and represent a high frequency of metabolic stress due to malnutrition and/or disease during the infancies of those who

¹²Calculating the “minimum daily nutritional requirements” of working people in the colonial period is a matter of some difficulty. Such a concept was certainly not discussed (or calculable) by contemporaries. In places where maintenance of a slave population was a real problem, such as the sugar islands of the British Caribbean, adequate diet was not given serious attention until the abolition movement resulted in the supply of new slaves being cut off early in the 19th century.

died as children. This is comparable to the early 19th century African Americans of the First African Baptist Church skeletal populations (Blakey et al. 1997). These data indicate serious nutritional problems for those who died in childhood, especially since the deciduous teeth are less likely to show this kind of defect than adult teeth under similar stresses (Blakey and Armelagos 1985).

An examination of adult teeth, for which enamel develops from birth to 6.5 years old, indicates that from 73.4% (males) to 82.9% (females) of sexed adults in the African Burial Ground show hypoplastic evidence of previous childhood malnutrition or disease. These figures are actually low: 19th-century African American populations from the Middle Atlantic and Southern U.S. show frequencies more in the range of 100% for males and 71% for females (Rathbun, 1987; Blakey et al., 1994). Our historical data have shown that a high proportion of Africans in colonial New York were brought from Africa after early childhood. The low hypoplasia frequencies in those who died as adults probably represent the healthier conditions of their natal African communities where they had lived prior to their enslavement. On the other hand, those who died as children in New York were likely to have been born there under the conditions of enslavement.

Rickets is a vitamin D deficiency disease with implications for calcium sufficiency that causes abnormalities of shape in long bones. Its etiology involves low intake of vitamin D and calcium (through meat and dairy products and some leafy green vegetables) and/or inadequate exposure to sunlight. We have combined our

Our estimate of rickets is based on all left femurs with lateral bowing (Figure 7), and we have tried to separate these from treponemal diseases, which tend to show up as anterior-posterior bowing. Six cases of possible rickets were found in subadults, or 6.6% of all infants and children buried in the African Burial Ground. Four of the six were between the ages of 3.5 and 5 years old (although we will need to examine cases of the arms for effects in crawling infants). Among the adults, there are 15 men and 10 women displaying lateral femoral bowing, representing only 5.5 % of men and 5.3 % of women. This indicator is more consistent with childhood onset rickets than adult osteomalacia (Aufderheide and Rodreguez-Martin, 1998).

A more general index of nutritional deficiency involves bowing, flared metaphyses, evidence of anemia (active porotic hyperostosis, healed porotic hyperostosis, or diploic thickening of the skull), and/or infantile cortical hyperostosis. Individuals displaying these indicators comprise 75.9% of those under the age of 16 and 84.6% of those 16 years old or older in the African Burial Ground population. This represents a very high level of nutritional deficiency in the population as a whole. The anemia indicators are also obviously affected by genetic anemia (sicklelema), but this probably involves only a minority of children and a very minor component of the adult population given the high childhood mortality of sicklelema. Sicklelema occurs today in 2% of West African and 1 % of Jamaican live births (Seargent, 1981). It is more likely that limited access to meat and dairy foods and leafy green vegetables resulted in a high incidence of deficiency disease. Porotic hyperostosis (or anemia) cases alone comprise 47% of subadults and 55-56% of adults.

Parasitic loads were a common cause of anemia in enslaved communities in the Caribbean. The most prevalent parasites were round worms (*Ascaris lumbricoides*),

tapeworms (*Taenia solium*), Guinea worms (*Dracunculus medinensis*), and hookworm (*Hector americansus*). The Caribbean plantation environment, with poor sanitation, dirt floors, and chronic damp, was an ideal breeding ground for such organisms. Geophagy, often observed among Africans on West Indian plantations, was also frequently cited as the means by which worms were ingested. The presence of the disease was detected from one of the many symptoms, which included “an enormous appetite, extreme lethargy, generalized swelling, and retarded mental, physical, and, among children, sexual growth. [references for Caribbean material? end of quote?] Infected West Indians brought as captives to New York would have carried their parasites with them. Incidence of infection in New York would have been much reduced due to the climate. Remains of intestinal parasites did not show up in the parasitological study completed on a small number of soil samples from the pelvic area of skeletal remains at the African Burial Ground. Preservation factors may account for the complete lack of remains, since parasitic infections were not uncommon.

Disease: epidemics

Finally, we turn to the evidence for epidemic and endemic diseases among African New Yorkers. Evidence of disease outbreaks in the colonial city -- most importantly smallpox and yellow fever, but also measles, diphtheria, probable influenza, and other unspecified fevers -- comes from historical sources rather than the skeletal data. Anecdotal accounts narrate the visitation of specific diseases, and for some periods burial records show clearly the sharp rise in death rates in epidemic years. In the Dutch-American community (recorded for the years 1727-1775), and probably the overall population, noticeable peaks in mortality occurred in 1731, 1743, 1745, 1747, 1752, the decade 1756 through 1767, and 1770. For most years, the highest death counts were recorded in the late summer and early fall, the season when disease spread most rapidly. Over 50% of all deaths recorded in the Dutch Church occurred in July-October. The wealthiest New Yorkers left the city during this season, often taking their household servants, enslaved and free, with them. African day-laborers (who accomplished the manual work of the city) and enslaved members of middling households would have remained in town, and free Africans were probably unable to leave because of their work and because they had no place to go.

Smallpox was the greatest single epidemic killer during the period of the African Burial Ground (see Duffy 1968; reporting in *The New York Gazette*, August-October 1731; and data contained in the Dutch Reformed Church *Register of Deaths*). It was reported in the 17th century in 1679-80, 1689, and 1690 (Duffy 1968:34-35). An outbreak also occurred in 1702 (*Docs. Rel. Col. Hist. N.Y.* 4:959), along with a yellow fever epidemic (see below), and New York newspapers record killer smallpox epidemics in 1731, 1745-47, and 1752; in the 1756-67 period it is likely that smallpox accounts for a good portion of the death toll, appearing as a fatal childhood disease rather than as an epidemic (see Duffy 1968:53-58).¹³

An examination of the deaths reported in the 1731 smallpox epidemic

¹³The appearance in New York of diphtheria accounted for part of the death toll in 1745 (Duffy 1968:58-59).

indicates that both European and African New Yorkers suffered considerable losses. The 1731 bills of mortality are actually numbers buried at the city's church cemeteries, tallied by denomination. The number of "Blacks" buried is then given, with no church denomination. This indicates that burials at the African Burial Ground were being counted somehow.¹⁴ It is not known how or by whom. During the period of smallpox reporting, 477 Europeans (6.77% of their population) and 71 Africans (4.50% of their population) died. The overall death toll for August-December of 1731 was 7% of Europeans and 5% of Africans. This difference in frequency may indicate an under-reporting of black burials, not surprising since it is believed the burial ground was most often utilized without direct observation by whites. As noted above, Philadelphia records indicated an average death rate of 7% per year among blacks in the 1767-1775 period, with a rate of about 5% for whites -- a similar differential probably characterized general mortality in New York.

Date	Whites	Whites of smallpox	Blacks	Blacks of smallpox
Aug. 23	12			
Sept. 6	20	7	6	3
Sept. 13	28	11	8	7
Sept. 20	32	13	6	4
Sept. 27	69	41	7	6
Oct. 4	79	59	14	10
Oct. 11	70	61	9	8
Oct. 18*	69		12	
Oct. 25	55			
Nov. 1	20		7**	
Nov. 8***	15		0	
Nov. 15	8		2	
Total when smallpox reporting ceased	477		71	

¹⁴Each church provided a count of those interred in their cemeteries. After the church burials were enumerated, the number of "blacks" buried during the week was given. It is assumed that virtually all of the Africans were buried in the African Burial Ground, not in the church cemeteries. A review of available church burial records in fact indicates that Africans were only very rarely buried in New York's churchyards.

Nov. 22	7		4	
Nov. 29	4		1	
Dec. 5	1		1	
Dec. 13	4		0	
Dec. 21	0		2	
Total reported	493		79	
Total population	7,045		1,577	
<p>* Cause was not specified from this date on, though the report indicates “most of smallpox.”</p> <p>** Includes last 2 weeks.</p> <p>*** The Gazette reported that no new cases of smallpox had appeared in the last week.</p> <p>Source: <i>The New York Gazette</i>, Aug. 23-30 through Dec. 13-21 1731; <i>Century of Population Growth</i>.</p>				

Although Africans may have been underreported, there is another reasonable basis for a lower African death rate from smallpox. African societies, most notably the Akan peoples, practiced smallpox inoculation extensively. It was a “Guaramantese” or Akan man, who had been given the name “Onesimus,” who taught the technique to a Boston clergyman who shared it with physicians in Boston and London. One of these physicians, Zabdiel Boylston, used the technique in time to greatly reduce the impact of a Boston epidemic in 1721-22 (Cobb 1981:1199-1200). While smallpox inoculation came to be practiced in colonial New York, it was controversial among the English, who feared it could spread the disease and prolong its presence in the city. Since the Ashanti and perhaps other Africans knew of inoculation (and appear to have invented it), it is likely that it was practiced by some in the black community of New York, with or without the knowledge of slaveholders. The fact that many African New Yorkers had survived smallpox in their youth (whether in Africa, in the West Indies where inoculation was standard procedure, or in the city) is attested by the frequent citing of smallpox scarring in descriptions of runaways from the city which we have compiled for the period, and as a selling point in sale advertisements.

Yellow fever, caused by an infectious virus, is endemic to the west coast of Africa. Therefore it is assumed that some of the Africans brought to the Americas had been exposed to the disease in their youth, thus acquiring some resistance. In New York, a 1702 epidemic killed hundreds of residents within just a few months

(Duffy 1953:146; the Society for the Preservation of the Gospel account of 570 deaths probably included all deaths rather than just yellow fever deaths). No data on European vs. African deaths was recorded. The provincial census for 1703 indicated a drop in the overall population of New York City which historians have long attributed to the yellow fever epidemic; the drop in the African population from 700 in 1698 to 630 in 1703 (by one count) has also been interpreted as a result of yellow fever deaths (see, e.g., Goodfriend 1994:113). A tally of the African population of the city in 1703 based on the household-by-household count, however, puts the total number of Africans at 799 (*Century of Population Growth*); thus it would appear that their mortality from the epidemic was lower than among Europeans. No “ethnic” breakdowns of the overall New York mortality figure of 217 (*Boston Weekly Post Boy*, Oct. 31, 1743) were recorded for the 1743 yellow fever outbreak; in that year the disease months of August and September saw 53 individuals buried in the Dutch Reformed Church alone, mainly children. Another yellow fever outbreak was reported in August of 1791 (Duffy 1968:86).

Other diseases, less widespread but also deadly, visited the town over the course of the 17th and 18th centuries. A number of outbreaks of unspecified diseases occurred in New York in the 17th century; Duffy (1968:19, 34) suggests these may have included smallpox, whooping cough, and malaria or typhoid. A few cases of measles were reported in 1713, and it appeared again in epidemic proportions in 1729 (Duffy 1968:58, *Colden Papers* I:274, 280); measles made a third appearance in the fall of 1788. Diphtheria, mentioned above as a major cause of children’s death in 1745, reappeared in 1755 and late in the 1760s (Duffy 1968:59). Influenza was a killer in 1789-90 (*ibid.*, p. 86). Both influenza and whooping cough (pertussis) ravaged European and African populations in the West Indies, and were considered to be more prevalent in colder climates; they may have been present in New York to a greater extent than the records suggest.

Often an illness would spread throughout a household, with all residents at equal risk. James Alexander of New York City wrote in March of 1729 that the measles were in his house, with the children and his enslaved man Jupiter all sick. Within a week four of his enslaved Africans had the potentially-fatal disease, another was coming down with it, and one woman had recovered (this was an unusually large slaveholding). Two weeks later all were on the road to recovery except Jupiter, who was not expected to survive (*Colden Papers* I:274, 280). In one of the anonymous physician/apothecary’s (1743-44) cases, a course of mercury powders was prepared for the entire Noble household (husband and wife, their 2 sons, 2 daughters, and the “Negro girl” were each given 12 doses) -- doubtless all had fallen victim to the same agent, probably the yellow fever epidemic which visited the city in the summer of 1743. It is important to bear in mind that servants (free or enslaved) had a particularly high risk of exposure to infectious disease. Charged with attending the sick, changing soiled linens and clothing, and disposing of bodily wastes, servants had little chance of escaping infection by microorganisms transmitted by direct contagion, air, or wastes.

Disease: endemic illness

Epidemic diseases, which tend to be acute, are often not represented by skeletal indicators. They may be seen archaeologically as mass graves, but it is notable that no evidence of mass graves appears at the African Burial Ground. We are assuming that most of the skeletal evidence of infectious disease represents endemic disease.

Indicators of endemic disease are usually quite general. The occurrence of infectious disease is reflected in the human skeleton as abnormal bone formations, mainly resulting from inflammatory and other immunological responses to infection. For a basic assessment at this stage of the project, we are concerned with three major categories of abnormal bone formation due to infection. These are reactive woven bone that is most clearly a new response to disease (RWBO), sclerotic reactive bone, much of which has undergone a healing process that represents longer-standing and possibly recently subsided infection (SCLE), and a general category of lamellar reactivity for cases that could not be placed solely into one of the other two categories (LARE) (Figures 8, 9, and 10). Each of these reactions occurs in the outermost layer of bone, the periosteum, which is the most readily reactive aspect of the skeleton. Of initial concern is the frequency of individuals with any evidence of these conditions anywhere in the skeleton.

The age distribution of men and women with SCLE follows the same pattern as mortality in the African Burial Ground population. Our interpretation is that sclerotic pathologies are among the most related to death at all ages in the life cycle. In fact, sclerotic periosteal reaction is among the most numerous of observed pathologies.

A different pattern of sclerotic infection occurs in children (Figure 10). While high during middle childhood and adolescence, early childhood shows low frequencies relative to the mortality curve. This is interesting when compared with the age patterns for RWBO and LARE, which show a drop in frequency during these latter ages. These are indicators of far more active and initial infection than SCLE, and they are most frequent in the category 5 years of age and younger, when most children were dying. Sclerosis, becoming cumulatively more frequent in later childhood and adolescence, may represent the accumulation of healed and chronic disease lesions.

SCLE is by far the most frequent indicator in adults compared with LARE and RWBO, the latter representing active lesions (many of which indicate disease onset). The adults with evidence of chronic or healed infection represent the cumulative effects of infectious disease as well as survival of such diseases for an extended period prior to death. Deaths during early childhood in this population are far more likely to be associated with a new, active infection.

We have also observed one potentially important difference in women's health. Recall that high mortality occurs in the 15-19 age group and that this is particularly pronounced in women (Figure 8). LARE and RWBO show an unusually high, excessive occurrence in young women and adolescent girls, unlike their pattern in men (Figure 9). These indicators, which include newly active infection, decline in later adulthood, unlike SCLE, which continues to increase with chronicity and age. Clearly this pattern is associated with the beginning of fertility in women. Women were experiencing a new round of infectious disease during their late teens and early

twenties that men were not exposed to. As we have suggested, these young women probably include a larger sample of newly enslaved arrivals in New York who encountered multiple stressors of climate, work, malnutrition (it should be pointed out that new arrivals may have had less access to the underground economy which enhanced the diets of long-term residents), disease and distress heaped upon their new biological risks of reproductive physiology.

The final pathology we discuss here is treponemal disease, including syphilis and yaws. Syphilis is a venereal disease which must have been prevalent in both the African and European populations of New York City. Yaws, a tropical disease contracted through skin contact, may have been prevalent in the city's African population as it was in the West Indies, where it was well documented. Of his experience with yaws, one West Indian medical practitioner wrote: "The disease almost always leaves a train of secondary symptoms behind it, which are never got rid of in after life. These swellings in the feet, pains in the bones, etc., which, generally act as the bringers on of other diseases and shorten life in one way or another... The negroes have a notion that this complaint preserves the constitution from others of a more formidable nature, an idea which has not the slightest foundation (22)."**(reference?)** We have identified a court case from 18th-century New York City in which a purchaser sought to return a yaws-infected African woman as misrepresented goods [**Reference?**]. Enslaved Africans in the West Indies were known to have attempted to inoculate for yaws (20). Syphilis (newly evolved in Europe and globally rampant during this period) was considered a major source of infertility among West Indian plantation populations and was addressed through a kind of quarantine (10). In one chronicle, Africans attempted to "cure venereal disease by attention to diet and drink (11)."

The most specific indicator of treponemal disease is platycnemia, or medial-lateral flattening of the tibiae, associated with striated periosteal lesions and anterior-posterior bowing ("sabre shin") (Figure 11); we included in our counts all left tibiae with anterior-posterior bowing, thinning, and infection to come up with a conservative estimate of the frequency of treponemal disease. In the African Burial Ground population studied, 17 men (21% of men identified) and 7 women (13.2% of women identified) had sabre-shin. No subadult cases were found, though 4 cases are counted if we expand the indicators to include thinning with no bowing of the tibiae.¹⁵ Whether these individuals had yaws or syphilis, the frequencies are lower than among a population of enslaved people of late 18th-century New Orleans reported by Owsley (1987), perhaps due to the more conservative, specific indicators of treponematosi s used in our study.

Conclusion

Our research indicates that the demographic and mortality profile of Africans in early New York was shaped in large measure, and for a long time, by the continuation of the slave trade. The specific labor needs of the colonial town of New York influenced the nature of human cargoes coming into the port, and it appears to

¹⁵It should be noted that in known cases, syphilis will be evident in the skeleton about 15% of the time, and yaws shows up in 40% of skeletons (Aufderheide and Rodriguez-Martin, 1998).

have been the labor regime which most markedly impacted morbidity and mortality. Adolescent girls were sought to fill the need for domestic labor, suffering the triple consequences of transportation to a harsher environment, forced, physically demanding labor, and the onset of reproductive maturity with associated health risks. They died in their teens or, if they survived, faced another mortality peak in their early 30s, when work, disease, and the continued physical risks of reproduction caught up with them. Men died in large numbers in their 30s too, but unlike women, continued to face very high mortality into their late 40s. Adult men were especially important to the colony, performing the heavy labor of a frontier settlement and later that of a growing port town. Their over-representation in the burial population might be expected on the basis of that role. But the preponderance of adult men is surprising in light of sex ratios recorded in censuses, which indicate fairly equal numbers of women and men.

Very young children were not brought in to the colony, as slave-trading merchants could not hope to make a profit on them. Africans born in New York, like Europeans, were likely to die in infancy or early childhood. The inability of the town's African population to achieve a decent rate of natural increase was due to the combination of this high infant mortality rate and the probable reduced fertility of physically stressed women.

Epidemics, which do not show up archaeologically and kill too quickly to leave osteological evidence, were probably the most significant cause of death in the colonial town. Physical evidence of health and illness among those buried at the African Burial Ground, however, does point to nutritional deficiencies such as rickets resulting from limited diet, the presence of endemic, infectious disease, and a few cases of possible syphilis/yaws. Enamel hypoplasias have been analyzed in light of known differences in diet between typical sending regions of Africa and colonial New York. Those who born in Africa may have had better childhood nutrition than those born in the colony.

Traces of infection appearing in the hard tissue include those from active lesions at the time of death, most common among young children at the African Burial Ground, or chronic and healed lesions which increase in frequency with age in this population. Adolescent girls and young women also exhibit an excessive rate of newly active infection, suggesting again that they were susceptible to multiple stresses related to their arrival in New York, enslaved, at the time they reached reproductive maturity.

The issues raised in this paper demand rigorous study through many different fields of inquiry. Data from the site give us new ways to examine and understand demographic patterns which appear in the bare categories contained in early censuses. The data on health and disease lead us to new questions about the origins of those buried here. Differences in health and mortality among men and women, children and adults, allow us to look at gender and age within the African community in ways that were not possible before. We are sent back to the documentary record with new questions and new insights, and in turn historical records raise questions which spur new kinds of physical analysis. The African Burial Ground has given historians and anthropologists by far the most important body of data yet available on the physical lives of Africans in early New York. We have repeatedly argued, and here hope to have demonstrated, that an integrated, multidisciplinary approach will provide the

best means of interpreting these data and incorporating them into the body of knowledge about our past.

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Figure 11. Example of “sabre shin” indicating treponemal disease

photograph

Population of New York County, 1698 - 1800				
Year	Total	Black	White	% Black
1698	4,937	700	4,237	14.2
1703*	4,391	799	3,592	18.2
1712	5,841	975	4,886	16.7
1723	7,248	1,362	5,886	18.8
1731	8,622	1,577	7,045	18.3
1737	10,664	1,719	8,945	16.1
1746	11,717	2,444	9,273	20.9
1749	13,249	2,368	10,926	17.9
1756	13,046	2,278	10,768	17.5
1771	21,863	3,137	18,726	14.3
1786	26,614	2,107	21,507	7.9
1790	31,225	**3,092	28,133	9.9
1800	57,663	***5,867	51,796	10.2

Source: Foote (1991:78) and White (1991:26), except 1703. Both Foote and White have corrected the raw figures. See also Kruger (1985:131), though there are some discrepancies in the percentages for 1786, 1790, and 1800.

* From census of of households in New York City (see below). These figures differ from those given in the 1703 census of the colony of New York, which listed only 630 blacks.

** Includes 1,036 free and 2,056 enslaved blacks

*** Includes 3,333 free and 2,534 enslaved blacks

African population by age and sex, 18th century censuses

year	"Adults "	"Adults "	"Children "	"Children "			
	(male)	(female)	(male)	(female)	age cutoff	label in census	notes
1703	298	276	124	101	<>16	"negroes "	
1712	321	320	155	179	<>16	"slaves"	
1723	408	476	220	258	not given	"negroes and other slaves"	presumed <>16
1731	599	607	186	185	<>10	"blacks"	
1737	674	609	229	207	<>10	"black"	
1746	721	735	419	735	<>16	"black"	black adult males includes 76 males over 60
1749	651	701	460	556	<>16	"black"	black adult males includes 41 males over 60
1756	672	695	468	443	<>16	"black"	black adult males includes 68 males over 60
1771	932	1085	568	552	<>16	"black"	black adult males includes 42 males over

							60
1786	males	females					
	896	1207				"slaves", "negroes" "	
<p>Source: <i>Century of Population Growth</i>, checked against <i>Docs. Rel. Col. Hist. NY</i>. Some discrepancies in the Kruger and Foot numbers have been corrected.</p>							

Adult Sex Ratio in African Population of New York County, 1703 - 1800	
1703	107.9
1712	100.3
1723	85.7
1731*	98.7*
1737*	110.7*
1746	98.1
1749	92.9
1756	96.7
1771	85.9
<p>Source: <i>Century of Population Growth</i>. Discrepancies were found in Foote's and Kruger's numbers, and have been corrected. The numbers in <i>Century of Population Growth</i> were checked in <i>Docs Rel. Col Hist. NY</i>.</p> <p>*Note that in 1731 and 1737, the censuses counted persons over or under 10 years of age; thus "adults" were not all of child-bearing years. The overall sex ratio for these years was 99.1 for 1731 and 110.6 for 1737.</p> <p>The 1786 state census and the 1790, 1800, and 1810 federal censuses do not count blacks by sex. According to Kruger, local censuses for the early 19th century indicate ratios declining from 72.3 in 1805 to 65.8 in 1819 (Kruger 1985:370).</p>	

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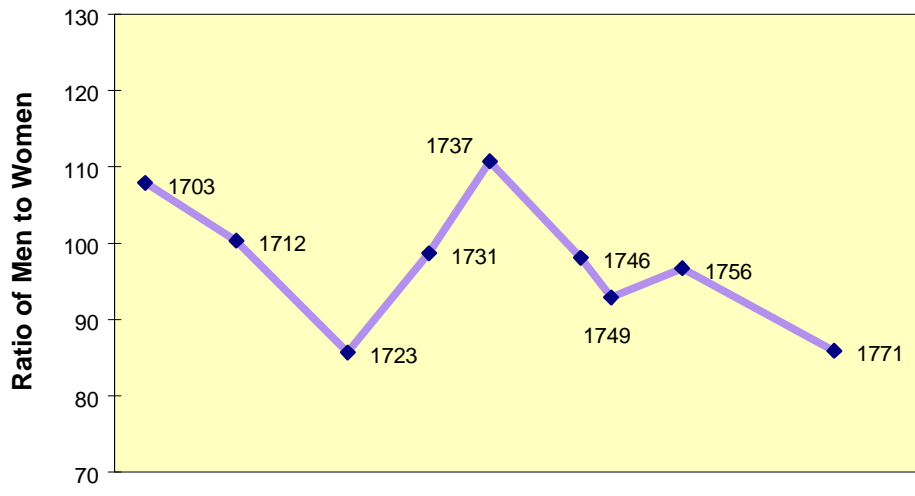
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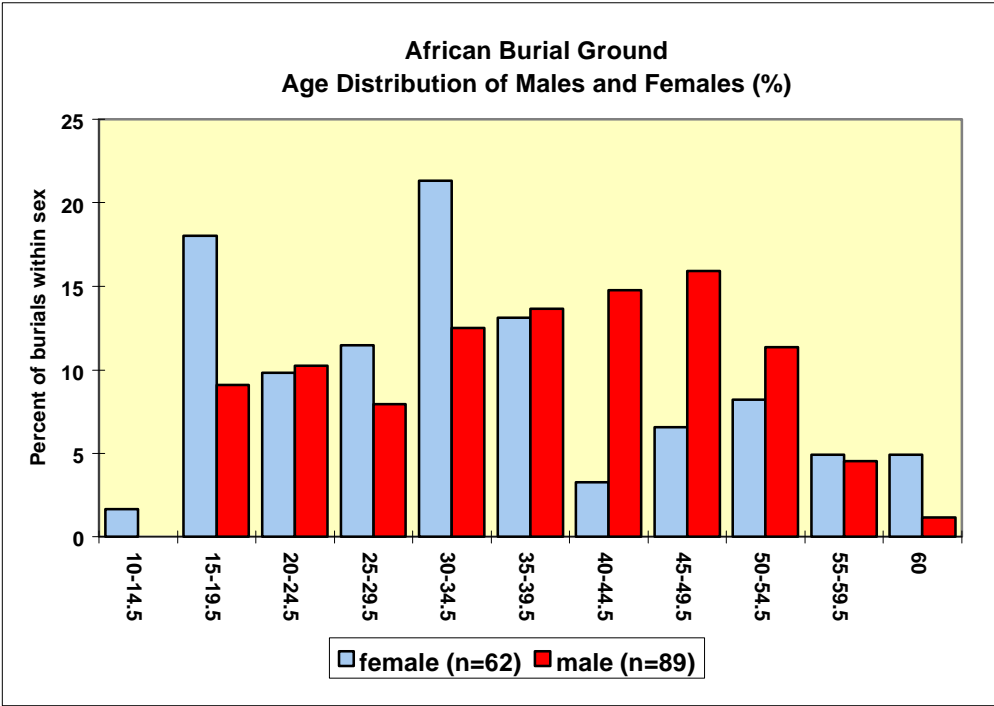
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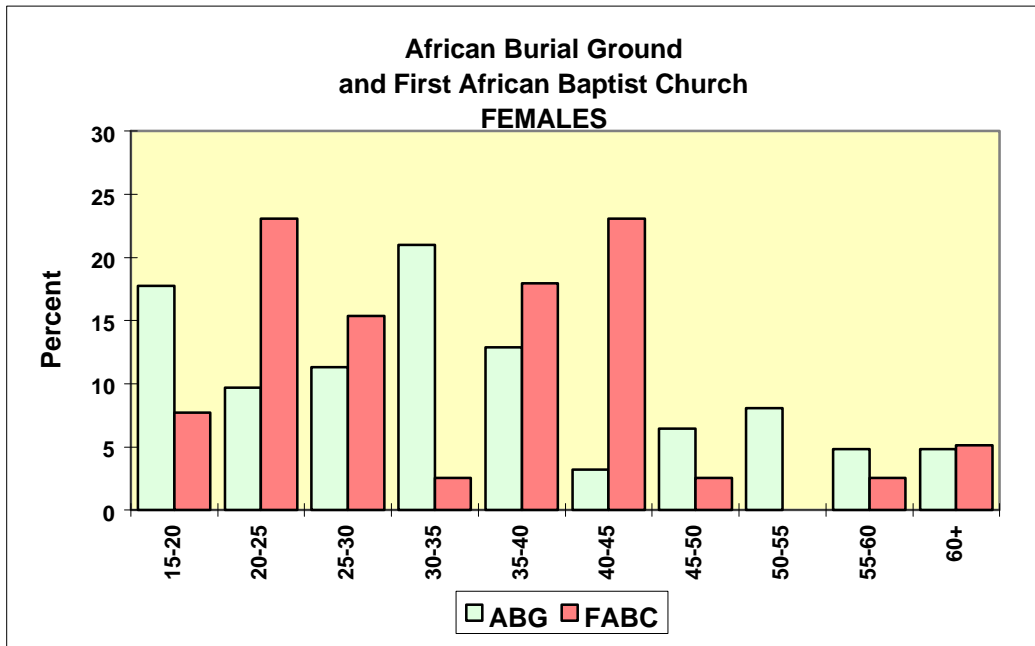
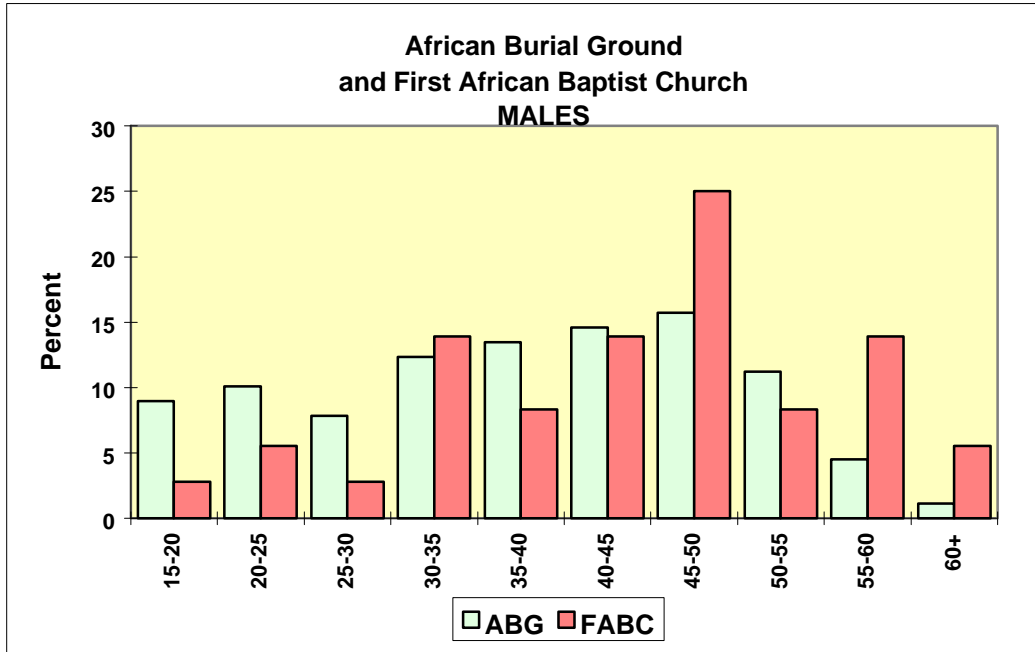
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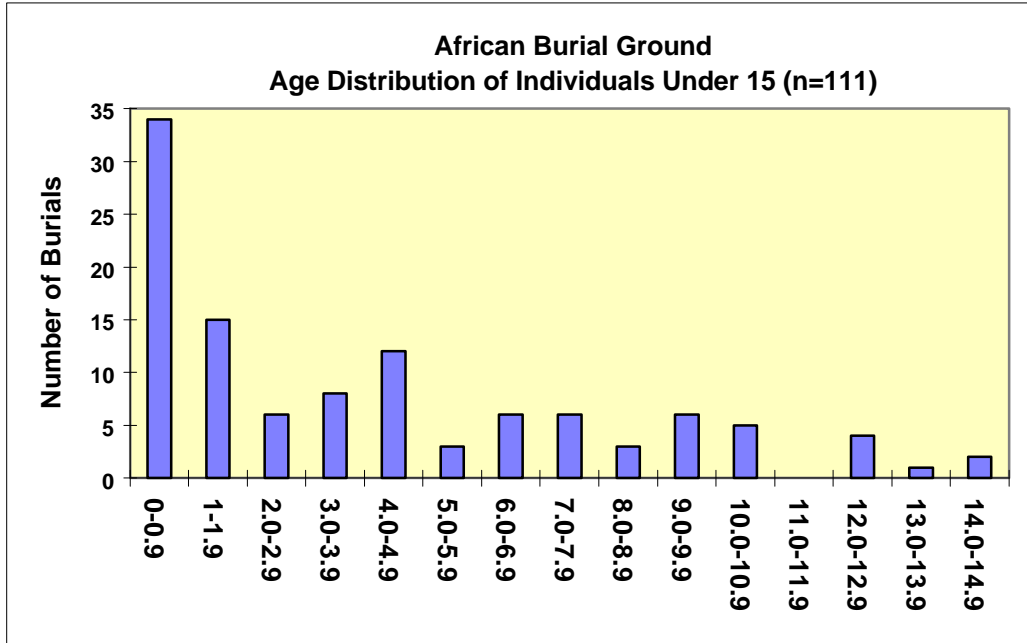
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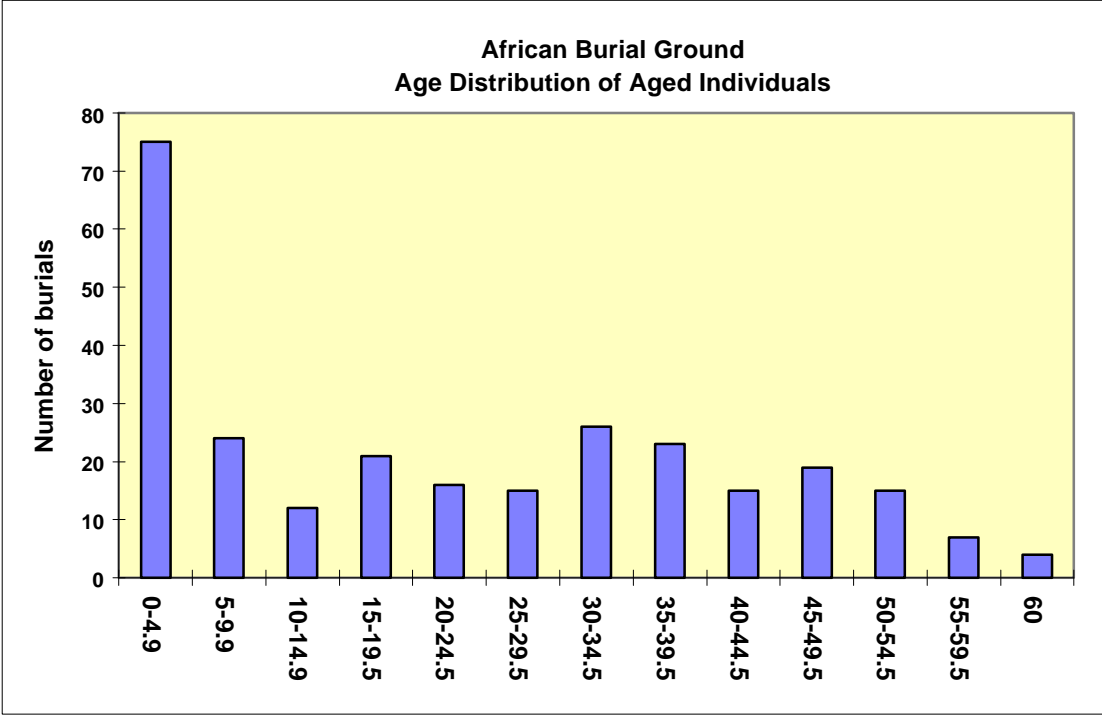
African Adult Sex Ratio 18th Century New York City











**Africans in 18th Century New York City
Ratio of Children Under 16 to Women 16 and Older**

