

Insights into Health, Life and Death in Victorian London's East End

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Introduction

In 2011, AOC Archaeology conducted an excavation under the playground of St. John's Church of England Primary School in Bethnal Green in advance of the construction of a new nursery school (Fig. 1). Documentary research showed that the playground was

formerly the site of a privately-owned burial ground managed by a pawnbroker, a Mr John Kilday.¹ Mr Kilday opened the burial ground in 1840 and ran it for 15 years prior to its closure by Act of Parliament in September 1855. Some 20,000 burials were interred at the site during those 15

years. Mr Kilday reportedly officiated as chaplain over the first burials himself prior to appointing a Reverend Temple for the remainder.² The Bishop of London was approached to consecrate the ground but he refused on the grounds that burials had already been made. The Bishop had lamented the lack of consecrated burial space available to the poor in the east of London due to the opening of many privately-owned grounds and the closure of overcrowded parish churchyards. He also criticised the slovenly and indecent funerary practices he believed were being performed in some of the unconsecrated East London burial grounds.³

By the 19th century, Bethnal Green had become one of the most impoverished parishes in London. The expansion of the urban population gave way to rapid speculative building often with insufficient or ineffective water and sewerage provision.⁴ The conversion of existing properties into subdivided multiple-occupancy homes also exacerbated pressure on existing services. The high density of the population encouraged the easy transmission of infectious diseases often with underlying or co-occurring challenges to the immune system stemming from poor quality diets.

"The parish of Bethnal Green has long possessed an unenviable notoriety on account of its neglected state and defective sanitary condition. It forms one of the eastern districts of the Metropolis – districts which are the most unhealthy of all comprised in the Metropolitan Registration Returns. They invariably suffer much more than the other metropolitan districts from epidemics and unusual causes of mortality".⁵

A total of 1033 burials were excavated from the site under the site code PGV10 (Fig. 2). Among these, 396 complete or partial coffin plates

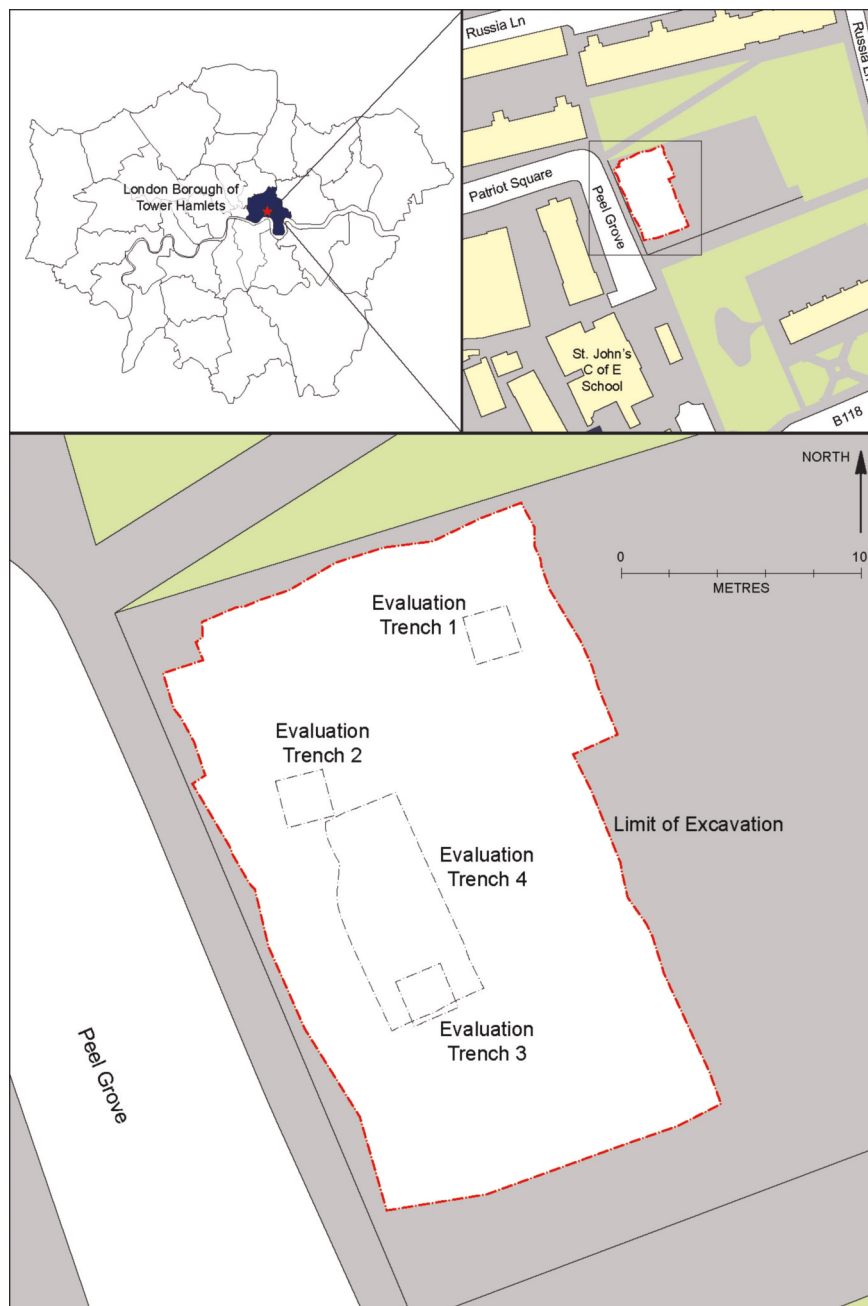


Fig. 1: site location, showing Bethnal Green in Tower Hamlets, the location of the site in Bethnal Green and the areas of archaeological fieldwork.

identifying the individual's name, date of death and age of death were recovered. A further 23 individuals were named on surviving gravestones and wooden gravemarkers.⁶ The burials date to just after the introduction of civil registration for births, deaths and marriages (1836–1837), which required the issue of a death certificate that stated the cause of death. While this system was imperfect and faced many challenges,^{7,8} there was potential to match the deaths of the identified burials with the registered certificates. This provided an exciting opportunity to examine the correlation between the evidence of an individual's health as assessed directly from their physical remains and contemporary interpretations of their cause of death. Collectively, this named sample allows a fascinating investigation into the identity and lives of some of those buried at this private burial ground.

Materials and methods

A research grant funded by the City of London Archaeological Trust allowed 306 death certificates to be accurately traced for the identified sample. The study sample showed that the majority of individuals had died either in Bethnal Green or in the immediate parishes, including Whitechapel, Shoreditch, Hackney, Stepney and Spitalfields. A further 41 certificates were found; discrepancies in the full name of the individual or date of death beyond that thought likely to be a simple error

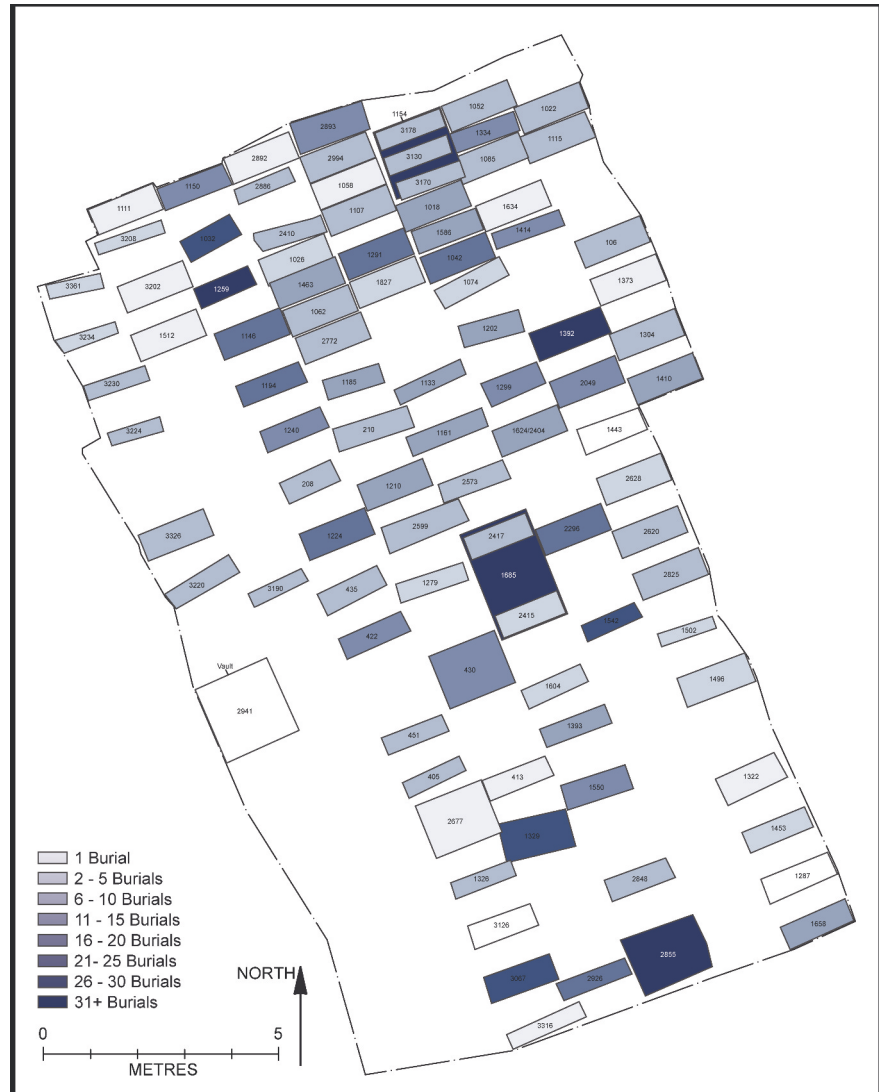


Fig. 2: area of excavation underlying the footprint of the proposed development showing the distribution of grave-shafts and number of burials found per grave-shaft.

meant that these were discounted from the final dataset.

It is known that despite efforts made

to make death registration compulsory, there was some degree of non-compliance⁹ and it is possible that



Fig. 3: composite image of examples of the documented cause of death recorded across a sample of death certificates from the identified burials. Examples of deaths shown include: Hooping cough [sic] and pneumonia, consumption after 5 years illness, scarlatina, small pox without previous vaccination after 10 days illness, measles 1 month pneumonia 2 weeks, and accidental death from a fall.

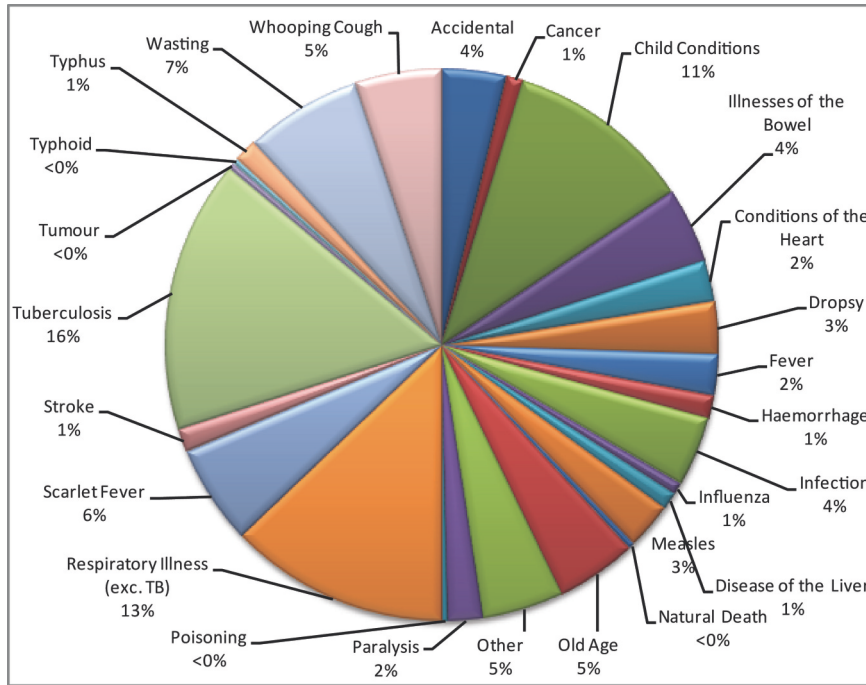


Fig. 4: summary of the broad categories of cause of death across the identified assemblage (1840–1855).

some of the deaths of the identified burials from the Bethnal Green sample may not have been formally registered. An advertisement for the burial ground reproduced by a medical officer, George Paddock Bate, in 1883 stated that papers (i.e. copies of death registration) were to be shown at the office of the burial ground when commissioning the funeral.¹⁰ While this outwardly implies compliance with death registration, the extent to which funerals may have been undertaken without registration remains unknown.

Results and discussion

There was a very high success rate in finding death certificates that matched the identified individuals (306 certificates found from 419 identified individuals, 73%). In the juvenile sample there was an 82% success rate in retrieving death certificates (161) for a total of 196 coffin plates that showed both juvenile age and sex. There was an 86% success rate in matching death certificates (145) retrieved for a total of 169 complete adult coffin plates.

Examples of the causes of death shown on the death certificates are shown in Fig. 3 and a summary of the categories of cause of death across the sample is shown in Fig. 4. The most frequently reported causes of death were tuberculosis (16%) and other respiratory infections (13%), childhood

illnesses (see below) (11%), wasting conditions (see below) (7%), scarlet fever (6%), whooping cough (5%) and accidents (4%). This compilation is necessarily broad and various categories have been grouped in some instances; respiratory conditions here include conditions such as bronchitis, asthma and pneumonia, but exclude the specific condition tuberculosis (TB) in order to better illustrate the high number of deaths associated with the latter infection, despite forms of TB being a pulmonary infection. These categories are also illustrative and so do not offer the scope to discuss possible contemporary mis-recordings of diseases (e.g. whether tuberculosis was accurately differentiated from pneumonia). Further broad groupings used include childhood conditions represented by convulsions, croup, hydrocephalus, rubeola and teething, as well as wasting conditions that include atrophy, marasmus, mesenteric disease and starvation, although it is highly likely that there was some degree of overlap among these conditions during life. The death certificates in some instances recorded multiple illnesses as present at the time of death and, for the purposes of this broad summary, no attempt has been made to separate multiple conditions and the first condition recorded has been compiled to create Fig. 4. Further considerations

of these aspects of the project will be discussed in more detailed future publications.

The results of the study have provided immense insight into the overall health and lifestyle of individuals in the East End of London during the Victorian period. The study aimed to investigate factors influencing perinatal mortality and childhood growth, infections, accidents and the causes of post-mortem investigations in the identified burials. Several insights from the project are outlined below and the project results will be published in greater detail in the near future.

Maternal and perinatal mortality

During the excavation seven adult females and one adult male were found with juvenile skeletal remains also buried inside the adult coffin. All of the juveniles were aged by measured lengths of the long bones as between 34 and 39 foetal weeks. Without any further means of information, such female burials are often likely to be interpreted as reflecting instances where conditions occurred during pregnancy and childbirth that may have affected the child and mother’s health. The death certificates illuminated a complex range of causes of death in several of these cases. Rather than a specific pregnancy-related complication, Ann Cowper (PGV2804) had died from tuberculosis. An accidental fall caused an uncontrollable haemorrhage leading to the death of Maria Gray (PGV2373). As Maria’s death was a sudden accident, the death certificate showed that the coroner had been informed, although there was no skeletal evidence of post-mortem cut marks. Mary Slater (PGV2712) died from uterine haemorrhage. As the estimated age of the foetal remains found in her coffin were near full term (38–39 weeks) it is likely that both the maternal and child deaths occurred during or shortly after childbirth. Sarah Wetherilt (PGV2743) died from peritonitis. This may have developed due to an infection or perforation of soft tissues possibly linked to premature birth of the 35 week old foetal child. If complications had developed during labour, manual help or the use of tools during an internal examination may have led to trauma. This term was also often used

to record the development of puerperal fever or septicaemia resulting from the passing of an infection to the soft tissues often by doctors or midwives.¹¹ The census records confirmed that this was not Sarah's first pregnancy. As such, it is possible that a complication had developed resulting in a premature birth and possible intervention and subsequent localised trauma and/or infection. The unidentified male adult found with neonate remains may have been a family member potentially affected by a contagious illness, such as an infection or fever. Alternatively, midwives reportedly removed stillbirths for burial and it is possible that juveniles may have been buried as a matter of convenience with an adult burial.¹²

Childhood health

A total of 658 well-preserved juvenile skeletons (over 25% complete) were osteologically analysed. An overwhelming majority of the juveniles (79%) died before the age of three years. There were peaks in young infants dying between the ages of one to six months and children dying between one and five years. Death certificates were found for a large proportion of the juveniles (24%, 160). The records show that young infants were dying from convulsions, pneumonia, diarrhoea and atrophy. These deaths may have been related to underlying nutritional deficiencies as vitamin C and D deficiencies were noted on skeletons within this age group. Child deaths occurring in those aged between one and five years were from measles, scarlet fever, whooping cough, diarrhoea and fever. Vitamin deficiencies, specific infections such as tuberculosis, and accidental trauma were identified on the skeletal remains of individuals in this age group.

In some instances, specific conditions rapidly cause death for which there is no skeletal response. For example, there was no clear evidence of smallpox infection in the osteological assemblage, yet the death certificates identified two cases that had developed after the 1840 Vaccination Act in which infants were freely infected with cowpox in an attempt to protect against smallpox. The death certificates stated that neither individual had been

vaccinated, supporting some historical interpretations of the ineffective implementation of this Act, resulting in the compulsory Vaccination Act of 1850.¹³

The skeletal record often represents the cumulative sequence of pathological changes that had affected an individual. The contemporary aim of certification was to provide a means of categorising the immediate cause of death to allow a better insight into the management of public health. The combined evidence is exceptionally enlightening in terms of reconstructing personal health. An example of severe and long-standing tuberculosis leading to gross vertebral destruction and notable postural deformity had occurred in Elizabeth Ann Lawson (PGV2004) who died aged three years and six months old. The acute cause of death was measles. This provides an interesting reflection on the gaps that clearly exist where only one source of information is studied and emphasises how a holistic approach across all available data can maximise our interpretations of past life and health.

Initial results showed there were significant delays in skeletal growth in some infants, often due to poor nutrition, illness and contemporary socio-cultural practices. In one notable instance the coffin plate of Emma Freebain (PGV2520) identified that she died aged one year and five months old. Her death certificate showed under-reporting of her age, which was given as one year and gave her cause of death as atrophy. Her dental development suggested she was 1 year and four months old. Yet the size of her long bones, excluding those clearly pathologically-affected, suggested she represented a child aged between 1.5 and 3 months old, indicating her long bones were growth-stunted for her age. Emma had experienced a severe episode of vitamin D deficiency shortly before she died. Her skeleton showed changes of active or recently active rickets, which had led to pathological fractures throughout the long bones and ribs. A lack of sunlight exposure and a diet without oily fish or eggs will predispose to a vitamin D deficiency¹⁴ and it is likely that Emma was kept indoors or her skin was covered when she was outside and her diet was

limited in quality. Emma's death certificate showed that her mother was a domestic servant, who were often expected to live with the family being served and were discouraged from marrying and having their own family.¹⁵ The 1851 census identified Emma as a nurse child registered with the Watkins family who also had the care of a second nurse child, Alfred Gosling. Baby-minders often had a poor reputation for the care of infants and frequently provided low-quality food together with opiate-based remedies that would keep the infant quiet.¹⁶

An accidental history

A large number of individuals excavated from Bethnal Green had been affected by trauma. One hundred and eighteen adults had one or more fractures as did 16 juveniles. Many injuries would have been caused by accidental falls due to slippery and uneven pavements and roads, exacerbated in places by poor street lighting and poor weather conditions.¹⁷ Falls could also occur at home and



Fig. 5. Example of multiple fractures occurring through a vertebra and an amputation through the forearm of Mary Felpts likely caused by accidental crushing by a railway carriage.

injuries could further result from accidents suffered at work. Trauma may also have resulted from collisions with vehicles. Several death certificates provided wider insights into the causes of skeletal injuries. In one example, Mary Felpts (PGV2387) died following accidental crushing by a railway carriage. Mary's skeleton had severe fractures throughout the spine (Fig. 5) as well as new bone formation over her legs and feet, possibly in reaction to soft tissue trauma. Mary had received medical intervention as an amputation had been performed on her right forearm (Fig. 5) perhaps as a result of a crushing injury. The upper-middle portion of her radius and ulna had been cut through removing the remainder of the forearm and right hand. As there was no evidence of any bone reaction at the cut surfaces it is likely Mary died soon after the procedure. The death certificate showed that Mary had died in the London Hospital in 1852 and it is most likely that the amputation had been performed there. A survey of 400 operations carried out at the London Hospital between 1852 and 1857 identified 142 were amputations with notably more males affected (121) than females (15) with sex not recorded in six cases.¹⁸ This may reflect a higher accidental injury rate in males compared to females. A post-mortem investigation had been performed (craniotomy and thoracotomy) following Mary's death, probably to examine any internal injuries and to gauge if any other factors had influenced her death.

Despite the wealth of skeletal evidence for trauma, in some instances an injury may occur that only affects soft tissue, or causes death rapidly before the skeleton can respond. The complementary documentary analysis has helped to provide a more complete

insight into accidental deaths among the Bethnal Green burials. William Flatman (PGV1707), for example, died aged 10 years old from an accidental death having been run over by an omnibus. There were no fractures on William's skeleton and it is likely that he died from a crushing internal injury soon after the accident. John Edward Brooke (PGV1731) died aged 7 years old from having drowned accidentally in Sir George Duckitt's Canal in Bethnal Green in 1852. Sir George Duckitt was permitted by an Act of Parliament to make a navigable canal joining the River Lee Navigation in the parish of St. Mary Stratford Bow to the Regent's Canal near Old Ford Lock in Bethnal Green. There were no pathological changes on John's skeleton that could be related to this cause of death. In one further instance, Joseph William Jacob Miller (PGV2003), a painter and glazier, died from wounds to his intestines having fallen from a window onto the iron spikes surrounding the area below. Joseph's death certificate indicated that a post-mortem had been performed, but this was limited to his soft tissues as there were no cut marks on his skeleton.

Conclusions

The integrated study of death certificates together with an osteological analysis has provided a wealth of new insights into life, health and causes of death across burials made in the privately-owned burial ground at Peel Grove in Bethnal Green by the mid-19th century. The documentary results make a significant contribution to allowing us to better understand the bioarchaeological record and allow us to reconstruct a much more vivid account of past life in the Victorian city. The results highlight the scope of a holistic approach using documentary

and physical sources to offer perspectives of both chronic and acute illnesses by which a wider view of the impact on an individual's health can be gauged.

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