NAVIGATING THE DEATH OF A CHILD: AN ANALYSIS OF 19th AND EARLY 20th CENTURY CHILD COMMEMORATION RATES IN RURAL CAMBRIDGESHIRE, ENGLAND

NAVIGATING THE DEATH OF A CHILD: AN ANALYSIS OF 19th AND EARLY 20th CENTURY CHILD COMMEMORATION IN RURAL CAMBRIDGESHIRE, ENGLAND

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A Thesis Submitted to the School of Graduate Studies in Partial Fulfillment of the Requirements for the Doctoral Degree

Doctor of Philosophy (2024)
Anthropology

McMaster University
Hamilton, Ontario

TITLE: Navigating the Death of a Child: an analysis of 19th and early 20th century child commemoration rates in rural Cambridgeshire, England

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NUMBER OF PAGES: x, 253

Lay Abstract

The death of a child evokes pain and loss that is, in part, reconciled through the grieving process. For Victorian and Edwardian parents in rural Cambridgeshire, England, this process involved burying their child in a local churchyard or cemetery and, in some cases, erecting a stone monument over the grave or having the child's name carved on an existing monument. But comparison of burial and monument inscription records would indicate that only some children received this relatively expensive and permanent marker at their passing. This study explores differences in commemorative decision-making as a product of the child's age at death, gender, the socioeconomic class of the family, the year they passed away, and the family structure. While the stone monument is unsurprisingly more common among children of the higher socioeconomic classes, I found that social change, such as shifts in gendered expectations, were also expressed in commemorative practice.

Abstract

In Victorian and Edwardian England, the grieving process involved numerous mortuary practices but the final and longest lasting of these is the stone monument placed over the grave or an engraving on an existing monument. However, comparison of burial records to monument records in rural Cambridgeshire, England would indicate that not all individuals received such a monument at their passing. This study explores the root of this variation through one of the most psychologically difficult deaths to navigate: that of a child. In this study, I compare those children who did not receive a stone monument to those that did as a function of the family's socioeconomic class, the year of death, as well as the child's age, gender, and place in the birth order at time of death. With a database of 11,578 individuals between the ages of 3 and 25 from 114 parishes in Cambridgeshire, this study is the largest of its kind and thus permits the exploration of interactions between these different factors.

Using logistic regression modeling, I illustrate that the decision to erect a stone monument is demonstrably related to the child's lived experience and the role they played in their household and community. Although rate of commemoration is not commonly explored in historical cemetery studies, this measurement offers valuable insight on the following themes: the emergence of adolescence and the 'New Woman', the drop in child fertility and mortality, the rise of the lower class over time, the role of girls within the household, the shift from conceptualizing children as economically useful to economically useless but emotionally priceless over time, the impact of major events like the agricultural depression and the First World War, and the impact that primogeniture had on the likelihood of commemoration.

Acknowledgements

This section is admittedly one of the more difficult to write because I simply do not have the space to properly express my gratitude to the people who have been instrumental to my success over these past years. I will structure this in a series of short individual acknowledgements, but know that I am very fortunate to have received support from so many others that I will not be able to name specifically here.

First and foremost, I would like to thank my supervisor and committee members. To Aubrey Cannon: I could not be more thankful for your unwavering support. You consistently challenged me to think about a problem from every angle and you were always ready and willing to talk throughout this process. To Katherine Cook and Andy Roddick: thank you for offering such different perspectives and for your consistent insightful comments. I appreciate the breadth of knowledge you brought. I would also like to thank Jane Eva Baxter, who was an amazing external reviewer that made me excited to think about where I could take this work further.

To my incredible partner, Antonio Machado: you have been here for me through everything and I can't thank you enough for it. You never failed to find some way to quietly make my work easier and to ensure that I always had the time and mental capacity to do what I needed to. Truly this would not have been possible without you. To my brother, Eric: it's very impressive how you could come up with such interesting and insightful perspectives on a discipline you know nothing about. I loved every one of our talks and may they continue to go way longer than we intended. To my parents: thank you so much for being such massive cheerleaders. You were there every step of the way and I can't thank you enough for it.

I also would love to thank the many friends I made along the way who have provided comments on drafts and presentations throughout these years and made sure I was staying

healthy and happy. You know who you are and I wish I could thank you all personally here, but a massive thank you to Akacia, Brianne, Michael, Marie-Hélène, Creighton, Jess, Loa, Bei, and Sarah. You were a perfect support network.

Finally, this research was made possible by a fellowship from the Social Sciences and Humanities Research Council (SSHRC) as well as a SSHRC Insight Grant awarded to Aubrey Cannon, McMaster University. I would also like to thank the Cambridgeshire and Huntingdonshire Family History Society for their efforts in compiling the transcription records utilized in this chapter and the numerous research assistants that worked on constructing this database.

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Declaration of Academic Achievement

I declare that I am the main contributor to this dissertation. This project uses a section of a larger database initiated and designed by Dr. Aubrey Cannon. Numerous research assistants worked to compile the database before I began my doctoral study and I finished the construction of the database from which my sample is derived. I am solely responsible for checking the database for errors and continuity, designing the methodology, completing the statistical analysis, preparation of the figures, and writing the first draft. Subsequent drafts were completed based on revisions and comments suggested by my supervisor and committee members.

Chapter 1: Introduction

Large stone crosses, granite copestones, and gothic headstones comprise the landscape of the typical English Victorian and Edwardian churchyard and lawn cemetery. In a variety of shapes, decorations, and states of decay, these stone monuments stand testament to the losses accrued by local families. They permanently mark the final resting places of loved ones and record their name, age at death, and family relations for all imagined future generations. However, not all individuals buried in these cemeteries and churchyards received such a monument over their grave. In some cases, family members elected to put up less permanent markers (such as wooden crosses or glass domes for fabric flowers) whereas others did not mark the grave in any manner. This study explores the nature of this variation through a form of loss that grief scholars consider particularly traumatic: that of a child (Murphy et al. 2014; Rosenblatt, 2000; Wijngaards-de Meij et al., 2007).

Numerous archaeologists have utilized evidence from historical cemeteries to explore children in the past. McKillop (1995) excavated a 19th century Anglican churchyard in Ontario, Canada and found that children's coffins could be distinguished from those of adults by elements such as the length of the coffin and number of handles. She also found there were motifs specific to the coffin hardware in child burials that represent how they were conceptualized at this time. In their summary of the work of Farrell (2003) and Degner (2007) on 18th and early 20th century Australian cemeteries, Muller et al. (2019) similarly found gravestone decorations and motifs were specific to children and developed this into a new concept: 'childness'. They use this term to refer to "…the manner in which childlike characteristics are conceptualized and attributed to the deceased using material culture" (Muller et al., 2019, p.6). Baxter (2013, 2019, 2020), whose work explores 19th century American rural garden cemeteries, has written extensively on topics

such as the emotional context of child death and the impact this had on parents and siblings, the analytical assumptions that inform archaeological work in historical cemeteries, and the experience of death in the 19th century more broadly.

Of these authors, McKillop and Muller et al. clearly indicate that there is some connection between the mortuary treatment of children and the conceptualization of them in life and Baxter similarly found this to be the case in her own work. However, she further challenges scholars to question their assumptions when treating the mortuary record as reflective of life or the experience of death. The point that mortuary practice does not necessarily correlate to lived experience was raised in Parker Pearson's (1982) widely cited work but has since emerged in other studies of mortuary practice (Keswani, 2005; Meskell, 1998; Tarlow, 1999, pp. 22-23). It is therefore not novel to consider the differences that emerge in mortuary practice when compared to lived experience. Where this study diverges from earlier mortuary archaeological work is in forming and testing hypotheses based on the simple assumption that treatment in life equates to comparatively similar treatment in death to illustrate in which circumstances this assumption fails. I would therefore argue that although this study looks specifically at commemorative decision-making for children, it addresses a relationship that is fundamental to mortuary archaeology more broadly. Elements of this study do speak to the conceptualization of childhood in Victorian and Edwardian England, but it is also designed to address how this conceptualization, demographic shifts, and social change is expressed in mortuary practice and would thus be of interest to mortuary archaeologists more broadly.

Using a much larger database than has been explored previously in the archaeology of childhood, this study will compare the number of children[1] who received a stone monument at

[1] This includes all individuals aged 3 to 25 to assess change through childhood as well as the transition into adulthood

death with those who did not (ie. the commemoration rate) in rural Cambridgeshire, England from 1845 to 1925. Through this medium, I will explore how parents in the Victorian (1837-1901[2]) and Edwardian (1901-1914[3]) periods as well as those who lost children during the First World War (1914-1918) and Interwar period (1919-1939) conceptualized their children[4] and evaluate the assumptions that archaeologists make when studying historical gravestones. The first step to understanding the variability inherent in this form of mortuary expression, however, is to examine what childhood was like in Victorian and Edwardian England.

To define childhood in these periods is an impossible task without reference to the dramatic changes that occurred over the course of the Victorian and Edwardian eras and the high level of demographic variability that encapsulates this deceptively simple term. The gender of the child, their socioeconomic class, their age, and even where they fell in the overall structure of the family resulted in considerably different lived experiences. Here, I will briefly outline this variability to develop a picture of what life was like for children of the Victorian and Edwardian eras to set up a more detailed discussion of what their untimely loss might have meant to the family and why some ultimately decided to preserve that child on a permanent stone monument.

The legal definitions of childhood in England during the Victorian and Edwardian periods vary across different measures and through time. In 1833, just prior to the accession of Queen Victoria, the Royal Commission used puberty to declare that the end of childhood was the age of 13 (Hendrick, 2015). The Juvenile Offenders Act of 1847 was the first to distinguish juveniles from adults, allowing all children under 14 to be tried by magistrates with relatively

[2] These dates encompass the reign of Queen Victoria but see Poston, 2014 for a discussion about the difficulties in defining the beginning of the Victorian era

[3] There is less scholarship on the definition of the Edwardian period but this acts as a transitionary period between the Victorian era and the First World War (Darwin, 2009)

[4] For the purpose of this study, I will focus on social change during the Victorian and Edwardian periods, but there will be some discussion of change over the First World War and Interwar periods.

limited sentencing power when they committed non-indictable offences (Arthur, 2010, p. 5) while the Juvenile Offenders Act of 1854 further extended this age to 16 (Hendrick, 2015). For girls, the age of consent rose from 12 to 13 in 1875 and then to 16 in 1885 (Murdoch, 2014). However, the age of majority in England throughout the time period considered in this study was 21 (Frost, 2009, p. 4). An individual was therefore not fully automatous (ie. they could not take possession of inherited property or marry without the consent of their parents) until a number of years after the previously discussed cut-off ages (Frost, 2009; Vanden Bossche, 2014).

The definition of childhood in the Victorian and Edwardian periods is then further complicated by social practices that act outside of legally recognized boundaries. For example, although young adults could marry without the permission of their parents once they were 21, the average age of marriage was older yet. In the general report for the 1911 census for England and Wales, the proportion of unmarried, married, and widowed men and women was published by age group. While nearly one third of the population was married in the 20-25 year-old age group, it was only until the 25-30 year-old group that the majority were listed as being married (Census of England and Wales, 1911. General Report, 1917, p. 90). In 1851, the average age of marriage for England and Wales was 25.8 (Teitelbaum, 1984/2014) and while it is possible that this age increased slightly through the 19th century (Bennett et al. 2020; Ogle, 1890), there was no significant change in this measure of adulthood through Victorian and Edwardian England (Branca, 1975/2013; Teitelbaum, 1984/2014, p. 67). However, Branca (1975/2013) notes that the middle class was marrying at an older age than the general population and men typically married at a later age than women. This suggests that while young adults may have gained their independence at 21, they did not typically start families of their own until later and this varies by both socioeconomic class and gender.

We may also look at other markers of independence during this time period to answer what constitutes a child in Victorian and Edwardian England. Generally speaking, the children of lower class families would enter the workforce at a far earlier age than those of the upper classes. The children of labourers may have started work to contribute to the family income when they were under 10 years of age (Frost, 2009; Robin, 1980) and in some households, girls as young as 12 or 13 left home to enter domestic service (Murdoch, 2014, p. 184). Upper class boys, on the other hand, were sent to boarding schools sometime between the age of 7 and 10 (Frost, 2009, p.28; Gorham, 1982/2013; Nelson, 2014; Robin, 1980, p.159) and some would continue their education at university into their 20s. Parents of this socioeconomic class would typically invest heavily in the education of their sons and it was these children that would inherit both land and estate (Murdoch, 2014). Upper class girls were more often educated at home until later in the 19th century, when they were sent to local schools and then boarding schools in their teenage years, but they would not have been expected to work afterwards (Dyhouse, 1981/2013, p.41; Mitchell, 1996, p.185). Although they did not receive the financial investment in their schooling that their male counterparts did, girls spent more time in school rather than at home or domestic service later in Victorian period.

The young men of the upper classes would therefore enter waged labour at a far older age than the lower classes and while education shifted expectations placed on young girls, the upper class young women were not expected to work. However, the possibilities for young children of the lower classes to contribute to the family income were somewhat curtailed by the Elementary Education Act of 1876, which forbid children under 10 from being employed and only allowed children aged 10-13 to be employed if they maintained specified educational standards (Ellis, 1973). The following Education Act of 1880 introduced bylaws to enforce compulsory schooling

for all children (Mitch, 2019), but it was not uncommon for girls as young as 10 to be removed from school to help out at home (Murdoch, 2014). In fact, "Even by 1914 some 40 per cent of children left school before the age of fourteen." (Dyhouse, 1981/2013, p.105). The gender and socioeconomic class of the child therefore played a significant role in the experience that they had growing up and the expectations placed on them by their parents. This also changed over time with the introduction of new laws that limited child employment and enforced, at least on paper, a lengthening of the time a child spent preparing for their adult life before entering the workforce.

This is only a small selection of the laws and social conventions that make the definition of Victorian and Edwardian childhood a difficult task. To summarize, while the age of majority was 21, biological changes to the body as well as legal definitions of both childhood and consent suggest that childhood ceased far earlier than this age. The age at which a child went to work or married, however, was either a number of years before or after 21, depending on their gender or socioeconomic class. It could therefore be argued that based on the measure of childhood and when exactly the assessment is made, adulthood could have began at any age from approximately 10 to 25. The question of 'who is a child' in the Victorian and Edwardian periods is therefore not a simple one to answer, but understanding the conceptualization or experience of this part of the life course is even further complicated by the major demographic shifts as well as events that occurred through the Victorian and Edwardian periods. These include a significant reduction in child mortality and fertility over time. In the registrar's annual report of births, marriages, and deaths in 1914 for all of England and Wales, they reported a death rate of 8.7 per 1000 living persons in the 5-9 age group for the 1841-1845 time bracket. This had declined to a rate of 3.4 by the 1906-1910 bracket (Seventy-Seventh Annual Report, 1916, p. 28). At the same

time, births had declined from 32.3 per 1000 living persons in the 1841-1845 bracket to 26.3 by 1906-1910 (Seventy-Seventh Annual Report, 1916, p. 20). Across England, families gradually became smaller over time and fewer children passed away. This is particularly important for understanding parental response to the loss of a child because some have argued that when child mortality is high, parents may expect the loss of their young child and act differently than when their death is less likely (Cannadine, 1981, p. 217; Haveman, 1999; Jalland, 1996, p. 277).

There were also a series of economic changes in the Victorian and Edwardian periods that, while not as specific to childhood as the demographic shifts described above, would have had an impact on the lives of rural children. The first of these was the rural to urban migration that, in part, reduced the pool of agricultural labourers and subsequently improved their wages (Mingay, 1981, pp. 6-7, but see Chapman, 1893). However, while the start of the Victorian period saw agriculture (the sector in which many of the people of rural Cambridgeshire were employed) as highly profitable (Crouzet, 1982/2006, p. 159), this was not consistent through the 19th century and into the 20th. England experienced an agricultural depression through the 1870s and 1880s (Howkins, 1991) and by the 20th century, the role of agriculture in England's economy had been cut by approximately two-thirds (Crouzet, 1982/2006, p. 67).

The purpose of this study is to explore the variation in a family's decision to erect a stone monument following the death of their child, but it is clear that we cannot consider who the child was without reference to the extensive variation described above. The child's age and gender, their family's socioeconomic class, and when exactly the child lived altered the social expectations placed on that child and their family as well as their lived experience. One could therefore expect that a parent's response to the loss of that child would have varied based on these same factors. This study thus explores the following question: how is a parent's differential

investment in the commemoration of children in Victorian and Edwardian England a product of their, or their child's, age, gender, socioeconomic status, and birth order? I also considered the relationship between each of these variables and year of death to address a secondary question: what is the relationship between commemorative decision-making and change over time? To answer both of these questions, I analyzed a database of all children (N = 11,578) buried in rural Cambridgeshire from 1845 to 1925 which contains demographic information (gender, age at death, socioeconomic class, year of death) for each child, as well as whether they received a stone commemoration or not. I also took a subset of this database and created a second database with information on each child's place within their family's birth order. I then constructed a series of binary logistic regression models to explain the relationship between each of these variables and the likelihood of commemoration. From these models, I calculated predicted probabilities of commemoration and graphed these to visually represent the relationship between each variable and its interaction on the likelihood of commemoration.

To test the strength of these patterns in the mortuary environment, I developed hypotheses for each of the models scrutinized in this study based on the treatment of those same variables in comparable studies (such as Cannon and Cook, 2015) as well as studies based on other areas of the parent's and child's life (Frost, 2009; Dyhouse, 1981/2013; Gorham, 1982/2013; Howkins, 1991; Murdoch, 2014; Robin, 1980) and, in some cases, studies that specifically examine Victorian and Edwardian perceptions of death (Jalland, 1996; Strange, 2005). What I found was that the results of my analysis could be synthesized into themes relevant to the study of Victorian and Edwardian English childhood within the mortuary environment and beyond. These themes are: the emergence of adolescence and the 'New Woman', the drop in child fertility and mortality, the rise of the lower class over time, the role of

girls within the household, the shift from conceptualizing children as economically useful to economically useless but emotionally priceless over time, the impact of major events like the agricultural depression and WWI, and the impact that primogeniture had on the likelihood of commemoration.

In regards to the second question posed, the material of this thesis is well suited to addressing the nature of change. Change over time is, of course, a common variable of consideration in all archaeological study but it has also seen extensive consideration in the study of children outside of archaeology. Sociologists and sociocultural anthropologists studying childhood often explore how the socialization process, or children's interpretations of the socialization process, actually reflect change in the child's social or physical environment. These could include shifts in a governing body that spur educational reform (Chernyaeva, 2018; Fumurescu, 2018; Shoham, 2019), modifications in what is deemed normal or acceptable for adults that alter how children behave or are socialized (Adler and Adler, 1991; Harris, 2019; Scholliers, 2017; Toren, 2007), and even environmental changes that make specific forms of socialization more sustainable than others (Archambault, 2011). In fact, in her introductory text to the study of children and childhood, anthropologist Heather Montgomery remarks that, "Studying children is also a way of studying change, and it is often through looking at children's lives that these changes become most apparent" (2009a, p.234). Historical cemetery studies are also uniquely poised to answer questions regarding change over time because they not only cover a relatively long period of time, but also allow for fine-grained temporal control. They are relatively ubiquitous, the material easily identified and catalogued without excavation, and typically engraved with a year of death. This study therefore combines two foci, the study of

childhood and the use of historical cemetery data, which are most likely to produce results regarding the mechanisms behind change over time.

The two questions outlined above formed the basis of this study and guided the research process. However, in exploring these objectives, it became imperative to further address a third question: what does the stone monument actually represent in mortuary practice? In other words, what does a parent consider when electing to put up a stone monument and what role does it play in either the process of mourning or as a communicative device? Although I had set out to establish this prior to conducting analysis, I quickly found there was no satisfactory answer to this question that would emerge from extant writing on historical cemeteries and commemoration. Given that this is a fundamental material in historical cemetery studies, I would therefore argue that by clarifying what the stone monument represents in mortuary practice, this research will prove useful to the broader study of historical cemeteries. Very few studies explore commemoration rates and as such, it is rare that interpretive weight is given to the mere existence of the stone monument.

Although many interpretations for the stone monument exist, some of the most common are that it: 1) helps to alleviate grief, 2) is an expression of economic prowess and enduring legacy, or 3) is a reflection of the context of the loss itself. Using valuation studies, I illustrate that while the decision by any parent to erect a stone monument is a valuation process, the parameters of that process are not clear if the monument is presumed to serve any of these functions. As an alternative, I suggest that Sartre's serial collectives may be used to compare mortuary decision-making without reference to the parent's motivation(s). Parents are subsequently treated as members of serial collectives: either those who commemorated their children or those who did not. Their membership is analyzed through the serial categories that

these parents or their deceased children belong to: the child's gender, age, and birth order; the year of death; and the family's socioeconomic class. In this theoretical framework, parents within each serial category are presumed to have faced similar barriers, opportunities, and expectations which provide a means of understanding the serial collective that they are a part of.

The theoretical framework of Sartre does help navigate the difficulty in attributing meaning to the stone monument itself, but it is still important to make some assumptions about what the stone monument is in order to construct testable hypotheses. Although these assumptions are not meant to capture what the bereaved felt or wanted to express in erecting a stone monument over their child's grave, they do address the relationship between the mortuary setting and lived experience based on extant research from mortuary archaeologists. These assumptions are that: 1) the stone monument is an investment and when there is evidence that the parents had invested more in the life of their child, it could be assumed they would be more willing to invest following the death of this same child; and 2) the stone monument is a public and permanent memorial and therefore, if the child served a more public role, it would be more likely for the parents to permanently memorialize them as a member of their community. I then formed hypotheses for each logistic regression model based on these assumptions with the intention of testing the relationship between mortuary practice and lived experience.

What I found was that neither assumption expressed as expected. There was little to support the assumption that greater investment in life would equate to greater investment in death. Alternatively, it did seem to be the case that children who served more public roles would receive a stone commemoration in the public churchyard or cemetery at their passing, but that children who played particularly important roles within their households also saw an elevated predicted probability of commemoration. For this reason, I argue that the stone monument is

more likely to be found when either the community or the household *relies* on the child and they are *present* in that home or community. This emphasis on reliance and presence is not one that I have identified in previous studies of mortuary practice and as such, it offers a new interpretive possibility for understanding the purpose of the stone monument.

Organization of Dissertation

This study explores the answer to each of these three research objectives over the course of seven chapters. Chapter 2 details the construction of the database and the analytical methods used. The database itself, with the exception of the birth order variable, was designed by Dr. Aubrey Cannon and the data have been compiled by research assistants over the past seven years, including me in more recent years. In this chapter, I review the data collection process, the construction of the five socioeconomic classes analyzed, how the birth order variable was recorded, as well as how problems such as monument degradation and the opening of municipal cemeteries were mitigated.

Chapters 3 and 4 outline my theoretical approach and the hypotheses for this study. Chapter 3 highlights a number of the problematic assumptions that have emerged in past studies of historical cemeteries and develops the theoretical underpinning of this study: Sartre's concept of 'series'. Chapter 4 traces the hypotheses for each of the binary logistic regression models with and without interactions. To form these hypotheses, as noted previously, I assumed that the decision to invest in a permanent stone monument in a public location would correlate with both investment in life and greater prominence in the public sphere. To assess these factors, I based my comparison largely on comparable studies of historical cemeteries in England, America, and the United Kingdom as well as historical studies of Victorian and Edwardian England from

outside the mortuary environment. Contemporary historical sources were also used to evaluate some of the claims made in these sources.

Chapter 5 will outline the basic premise of binary logistic regression and all other statistical methods (including Akaike information criterion (AIC), interactions, and how missing values were imputed) used to analyze the database and assess the results.

For Chapters 6 and 7, I outline the results of my analysis. Chapter 6 examines each visualization of the binary logistic regression models in turn, compares the AIC for each, and details whether the model supports, fails to support, or partially supports the hypotheses for that model. In Chapter 7, I synthesize each of these results into themes that are prominent in the study of Victorian and Edwardian England and were expected to be influential in predicting commemorative practice. For each theme, I detail which models support, fail to support, or partially support the theme based on the results described in the previous chapter and summarize its expression in commemorative decision-making.

Chapter 8 offers a series of caveats to the results presented in Chapters 6 and 7. The comparative method used to assess the regression models in this dissertation (AIC) offers only a relative comparison of fit to the data between two models tested on the same dataset. AS an alternative, I present the results of an *objective* analysis that illustrates how well my study captures the actual complexity found within the data. This provides an objective, rather than comparative, measure of how well my models predict the likelihood of commemoration. I then take a biographical approach to the commemorations of seven children that were not predicted to have been commemorated based on the results described in the previous chapters. This approach offers intriguing possibilities for future study and captures the limitations of big-data analysis.

This analysis is the largest of its kind and offers a unique perspective on the study of childhood in the past. It includes variables that are common in archaeological studies of both children and mortuary practice to permit comparison, but also outlines the limitations of these variables and the messiness inherent in mortuary data. The results of this analysis are of use to those studying mortuary practice in the Victorian and Edwardian periods but also offer insight on questions about the material of mourning that are inherent to the study of historical cemeteries and mortuary archaeology more broadly.

Chapter 2: Data Collection

The database utilized in this study includes all the children who passed away between the ages of 3 and 25 which is a subsection of a larger master database of all individuals buried in rural Cambridgeshire from 1845 to 1925. As noted previously, the average age of marriage for England and Wales in 1851 was 25.8 and this may have increased only slightly through the time period studied. 25 was therefore selected as a cut off age to capture the transition from childhood through to adulthood while ensuring that the majority of the database were not married and their parents were likely responsible for deciding whether they received a stone commemoration or not. In this chapter, I will outline the compilation of the master database, the logic behind how I coded the occupation categories, and the steps that I have taken to mitigate potentially problematic inconsistencies in the database. Although I was involved in the final compilation of the master database, this is a project that started over ten years ago and did not originally include the birth order variable. I will therefore also detail how I collected this for children who passed away between the ages of 3 and 21.

The reason for changing the cut off age in this smaller dataset is because I did not want to include the transition into adulthood. The relationship between the variables included in the full dataset was strong enough that I could consider the interaction of age with each of the other variables and as such, I could differentiate data on those entering adulthood from those that would be considered a child. This was not the case for the birth order variable and as such, only those that could be considered a child were included. It is well established that the end of childhood varies significantly based on the factors I have included in my database (gender, year of death, and socioeconomic class) (Crewe, 2018; Frost, 2009; McKerr et al., 2009; Murdoch,

2014). For this reason, I selected 21 because it was the legal age of majority in Britain through the time period studied (Frost, 2009).

Compilation of the Master Database

Data was collected from a combination of sources, but the primary resources utilized were as follows: transcriptions by the Cambridgeshire Family History Society (CFHS, which has since become the Cambridgeshire and Huntingdonshire Family History Society) of parish burial, marriage, and baptism records; monument inscription records for each parish that were completed by the same society; and census records for each parish collected every ten years between 1841 and 1911. Data on the following variables were collected for every individual in the database: the parish in which they were buried, the name of the church or cemetery in which they were interred (see Figure 2-1 of churchyard), family name, given name, gender, year of death, age at death, occupation, the historical record used to determine occupation, whether the commemoration was primary or secondary, and the family history society number for that commemoration. For every parish, the research assistants and I would first record the name, gender, age at death, and year of death for every individual included in the burial records for that parish between 1845 and 1925. We then cross-referenced this list of burials with the monument inscription records for that parish churchyard. For every individual that was included in the monument inscription records, we recorded whether the commemoration was primary (they were the first person recorded on the gravestone - it was assumed the stone was erected for this individual) or secondary (their name was included later on the monument - it was assumed they were added to the monument at a later date). For the purpose of this thesis, primary and secondary commemorations were not considered separately despite that it would have cost less to carve a name on an existing monument than erect a new stone. The reason for this is that the

assumption that the person is being commemorated on a permanent stone monument for decades to come is still met for both primary and secondary commemorations.

Figure 2-1. Churchyard with monuments. Photo credit to Aubrey Cannon

Furthermore, the carving would have, in most cases, cost comparatively more than the other options available to bereaved parents. For a new engraving on an old stone, a mason charged about 1d. per letter in the 18th and early 19th centuries (Burgess, 1963; Gittings, 1984; Houlbrooke, 1998 [all as cited in Snell, 2003]) and 9d. per dozen letters in 1913 (Strange, 2000 [as cited in Snell, 2003]). The cost of a new headstone was cited by Strange (2005) as being between 10 and 15 shillings in the 1880s whereas others have cited it at between 1 and 10 pounds in the 18th and early 19th centuries (Burgess, 1963; Gittings, 1984; Houlbrooke, 1998 [all as cited in Snell, 2003]). Although I could not find cost estimates for a glass covering, fabric flowers, or a wooden cross, these were not typically elaborate (see Figure 2-2 of simple wooden

cross; but see Renshaw and Powers, 2016, p. 163 who note that some wooden gravestones were made to mimic stone ones**)** and would presumably have not accrued the same costs.

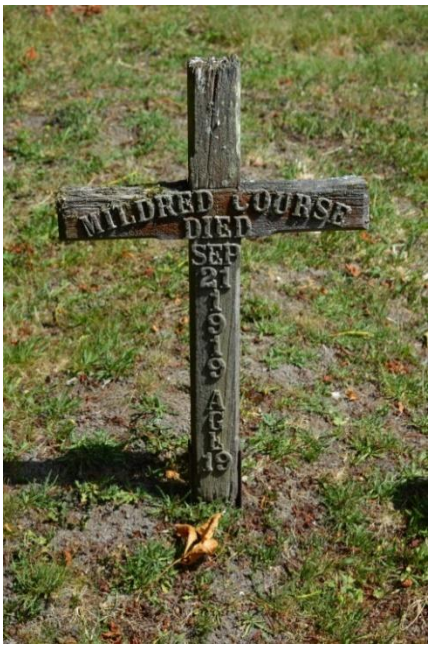


Figure 2-2. Example of a simple wooden cross. Photo Credit to Aubrey Cannon

We then looked up every individual in the census record taken before their death and recorded their occupation, or the occupation of the head of the household if this was not them, as well as confirmed the gender of the individual. During this time, census forms and instructions were provided to each household every ten years beginning in 1841. These were filled out by a member of the household and, apart from the 1911 census, returned to the enumerator who then transcribed the information from each form into a census enumerator book. In 1911, the General Registrar Office used the original household forms instead of transcribing them (Bennett et al., 2020, p.57-58). We accessed these enumerator books, and the original household forms submitted in 1911, through Ancestry.ca. We also recorded if the individual had servants in the household. While the number of servants diminished over the time period studied (Murdoch

2014, p.187; Robin, 1980, p.222), the ability to afford a servant is consistently cited as evidence for wealth and is useful in distinguishing between the lower and middle classes (Armstrong, 1972; Bennett et al., 2020; Gorham, 1982/2013; Frost, 2009; Robin, 1980). This was later utilized in categorizing the occupations. In some cases, individuals could not be located in the census record prior to their death. This was most common when the individual was born and passed away in the ten years between each census record or a married woman took her husband's last name but passed away before the new name could be recorded in the census records. In these cases, the burial record was cross-referenced with the baptism and marriage records for that parish. The registrar would frequently list the occupation of the father or husband in these records and therefore, these records could be used to cross-reference with the census records or in place of the census when no census record could be found. There were still some individuals who could either not be located in any of the records available or their occupation was not recorded. In the master database, their occupation was subsequently left blank and this information was later imputed in the child database. It was, however, relatively rare that no occupation information could be found, as about 92% of the individuals recorded in the burial records could be placed in an occupation category.

Categorizing Occupation

Once the database was complete, individuals were then placed in one of 27 categories based on the occupation listed for them or the head of their household (please see Appendix 1 for the detailed list of the occupations that were included under each of these 27 categories). These categories generally follow those laid out in Cannon (1986). There are, however, a few additions to Cannon's classification that are important to draw attention to. The first is that I added the semi-professional class based on Armstrong's (1972) recommendation to better capture those

individuals that are either performing important administrative roles or have received formal training but are not members of the upper echelon of society. I also separated out numerous categories (land owner, wealthy annuitant, farmers without acreage listed, gardeners, individuals listed as probably middle class, and those with multiple businesses listed, transportation, annuitant, and upper servant) because it was unclear how they should be categorized. I then calculated the commemoration rates for each category separately in the master database (including all infants and adults) so that I could see which group the ambiguous categories best aligned with (see Figure 2-3) and grouped these together when I simplified these categories into five socioeconomic classes.

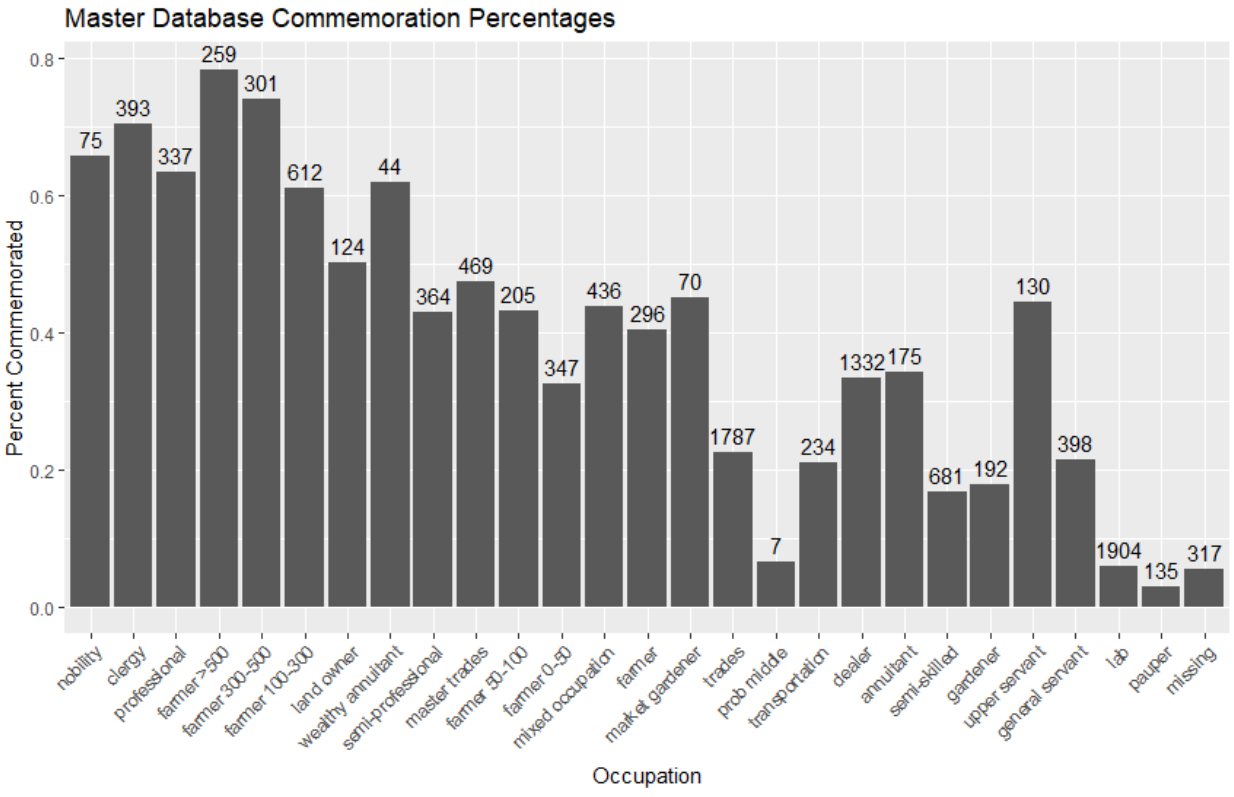


Figure 2-3. Commemoration rates for each occupation category, excluding military, including number of commemorations.

It is also important to note that there is some concern with grouping farmers according to acreage (see Mills, 1999). This is because there was both high variability between acreage and the number of people the farmer employed and acreage was inconsistently reported through the different census records. In fact, farmers were only explicitly asked to fill in the acreage of their farms in the census instructions for the 1851-1881 censuses (Bennett et al., 2020). However, acreage has been used in other studies to determine the farmer's relative wealth (Bennett et al., 2020; Howkins, 1991) and Armstrong (1972) notes that while it is problematic, acreage is the only practical measure of status available. Based on the commemoration rates (Figure 2-3), acreage does seem to offer a meaningful distinction. If acreage was a problematic categorization tool in this setting, I would expect commemoration rates to fluctuate randomly but instead, there is a clear linear relationship between commemoration rate and the categories I have created for farmers based on acreage in the full master database. I also took steps to mitigate some of the potential problems inherent in the data collection process that would bias these results. The first is that the children of farmers identified as such through the baptism records alone would not have acreage listed because this information was not included in the baptism records. For these individuals, I looked up the father in the census record closest to the death of the child and recorded the acreage from there. For individuals listed as farmers based on the 1841, 1891, 1901, or 1911 census records, when individuals were not instructed to include their acreage, I re-examined these individuals in earlier census records, or a member of their family in later census records, in an effort to find this information.

These 27 categories were then further reduced to five based, in part, on the classification scheme laid out in Armstrong (1972). In his chapter, "The use of information about occupation", Armstrong (1972) details how every occupation would be categorized in the 1931 *Registrar-*

General's Decennial Supplement as well as the 1951 *Classification of occupations* into five socioeconomic groups. I utilized this framework, as well as the commemoration rates for each occupation category outlined above, to group together those occupations that would share a similar degree of wealth, education required, and responsibility over others (see Table 2-1). The logistic regression would not be useful for any groupings with too few individuals and so size of the group was also considered. In particular, the upper classes were relatively small and therefore had to be grouped together to facilitate this analysis. Two of the 27 original occupation categories were excluded from the five categories outlined below. The first, military, was excluded because numerous people were included in the monument inscription records but not in the burial records. Particularly in the case of World War I, this is likely because the body was not recovered or was interred elsewhere. My study compares burial records with monument inscription records to determine the percentage of individuals who received a commemoration and as such, the military class must be excluded because we do not know how many individuals were buried elsewhere (or not buried at all) that did not receive a commemoration. The second excluded occupation category is the paupers. The reason for this is because these individuals were not working and would not fit in the five-tiered socioeconomic class system. I did initially include paupers as a separate socioeconomic class but their commemoration rates were so low that when I ran the analysis, the error bars were very large and the results were essentially uninterpretable. I therefore elected to remove them from analysis.

Table 2-1. Five-tiered socioeconomic class system

Occupation Category	Occupations	Characteristics
1 (lower class)	Labourers; probably middle class	These are unskilled workers who are employed by others.
2 (lower middle class)	Semi-skilled labourers; gardeners; general servants; tradespeople; transportation	These individuals are intermediate between groups 1 and 2. Their labour required some degree of training but they were not running their own business.
3 (middle class)	Innkeepers, publicans, and shopkeepers; annuitants; farmers of under 50 acres; market gardeners	These individuals all owned their own businesses and/or were trained in bookkeeping. There was a level of responsibility and organization required to manage their affairs or a level of training required so that they could manage the affairs of others. They would have likely relied on family labour to run their businesses.
4 (upper middle class)	Landowners and proprietors; semi-professionals; master tradespeople and employers; farmers with no acreage listed; farmers with 50-100 acres; farmers with 100-300 acres; multiple businesses listed; head servants; wealthy annuitants	These individuals are all employers of other people, in an occupation where they would be in charge of others, or in an occupation where they would require a greater degree of training than those of group 3.
5 (elite class)	farmers with 300-500 acres; farmers with over 500 acres; nobility; professionals; clergy	These individuals ran large scale businesses, received a formal education (i.e. at university), were in positions of authority at the church, or were titled members of the elite class

Mitigating Problems Inherent in the Data

My study examines the differences between those individuals included in the burial records for a parish church and the commemorated population as recorded by the Family History Society in the late 20th century. Problems therefore arise when external factors influence representation in either the burial or commemoration records and not the other. As with the military occupation noted above, there were similar issues that arose during data collection regarding differential representation between the two record types.

Municipal Cemeteries

Sparked by the introduction of the Burial Acts in the 1850s, many parishes began the process of closing their churchyards for burial and opening up municipal cemeteries to replace them (Rugg, 2013). The reason for this was because demand had begun to exceed available burial space in the churchyards and so, new areas were needed (University of Leicester Graveyards Group, 2012; Rugg, 2013). In some cases, new burials could be accommodated through extending the churchyard itself but in others, a new cemetery had to be built. Although the church was still likely involved in the burials within the new cemetery (Rugg, 2013), the cemetery was managed by a secular body, typically a local burial board (Mytum, 2002; Rugg, 2013; Strange, 2003, 2005). Some of these burial boards started compiling their own burial records separate from those of the church. This is particularly relevant in my study because the CFHS, with very few exceptions, only recorded monument inscriptions for churchyards and not for the local cemeteries. The transcribed parish records are also inconsistent between the parishes: some included just burials within the churchyard whereas others included both the churchyard and cemetery. If both are included, there is sometimes a note indicating whether the person was interred in the cemetery or churchyard, but this is not always the case. It is therefore

imperative that I not include individuals in my study that are in the burial records but may have been buried in the cemetery (for which I do not have monument inscription records).

Although municipal cemeteries were becoming increasingly common as the population boomed in urban areas, this was not always the case in rural villages. In fact, many of the parishes included in this study did not open municipal cemeteries prior to 1925 and so, the burial and monument inscription records could be considered complete. However, each parish had to be checked individually if a local cemetery had been constructed within the time frame considered in this study. In some cases, the CFHS included a note in either their transcriptions of the parish records or at the start of the monument inscription records for that parish that a cemetery had opened and provided a year for its start date. I also consulted Kelly's local directories for the parish. This was an annual directory of all businesses and streets for the parish and also included information on the village itself (Oliver, 1964). If it was unclear from these two sources whether or not a cemetery had been opened, I consulted either the local history page or contacted a local historian in that area. For all parishes that had a municipal cemetery opened between 1845 and 1925, I excluded all individuals from my analysis that had been buried on or after the year that the cemetery was opened if it was unclear in the parish burial register whether individuals interred in the cemetery were also included.

Churchyard Gravestone Clearing and Degradation of Monuments

Another practice that posed a problem to my analysis was that some churchyards had been cleared of most of the gravestones prior to the collection of monument inscription data by the CFHS in the late 20th century. In most parts of England, these clearances were performed in the 1960s and 1970s (Rugg, 2013; Streb, 2017) to both make groundskeeping easier and out of concern that the degradation and listing of the monuments may pose a danger to visitors

(University of Leicester Graveyards Group, 2012). In many cases, the CFHS indicated in the monument inscription records when a churchyard had been cleared but this was not always the case. In an effort to mitigate this problem, I calculated the overall commemoration rates for all parishes, including infants and adults, that had not been identified as cleared and constructed a box and whisker plot to identify outliers. There were no parishes whose commemoration rate fell below 1.5 times the interquartile range. Therefore, only those parishes that were indicated as cleared by the CFHS were removed from the analysis.

Although no parishes could be identified as outliers, it was clear from this analysis that there was a wide range in the number of surviving monuments. For example, only about 2% of the buried population in Hardwick were commemorated whereas about 33% of individuals buried in Stow Cum Quy had been. There were likely disparities in wealth and social prestige between communities, but there are also likely differences in how many monuments survived to be recorded by the CFHS. Differential preservation is not a unique problem, but it is particularly important in this study given that my analysis is structured around the differences between those individuals who received a gravestone and those that did not. Unfortunately, there is no way to control for this factor.

That being said, if differential preservation were to affect my results, it is more likely to conceal patterns rather than create them. There is no reason that I have encountered to argue that the gravestones that were removed or had degraded were more likely to be those of a particular gender, age, or socioeconomic class. While it is possible, as suggested by the University of Leicester Gravestones Group (2012), that more ornate monuments were kept while plain ones were likely removed, these monuments were not necessarily associated with any particular socioeconomic class. In her study of the York Cemetery, Buckham (2003) found that individuals

would select grave decorations that differentiated them from their neighbours but that the elite class still erected relatively modest stones that were in line with the rest of the community. Similarly, Little et al. (1992) found that the founding member of the single family cemetery they analyzed received a relatively plain burial. Although in Cambridgeshire, there are certainly examples where particularly wealthy families erected large monuments, these may have been more at risk of being removed or laid flat if they were at risk of falling over. For these reasons, I would anticipate that the effect of both differential preservation and churchyard clearing is not consistent and while it certainly will alter my data, it will not do so in a consistent manner.

Birth Order Database

Numerous scholars outside of archaeology have identified differences in parental investment based on whether the child was the oldest, youngest, middle, or only child (Hertwig et al., 2002; Keller and Zach, 2002; Mechoulan and Wolff, 2015; Pavan, 2016; Salmon, 1998) and in Victorian England, the principal of male primogeniture guided inheritance decisions at least until the 1880s (Stone, 1986). I would similarly anticipate that there may be differences in a parent's willingness to invest in a stone commemoration based on this same variable. Given that this is a preliminary study on a new variable, this was only measured on a small subset of the larger database and the analysis outlines directions for future research.

To construct a database for analysis of birth order, I primarily utilized census records to determine if the child was the youngest, oldest, middle, or only child at the time of death. First, I examined the census for the family taken after their death to determine the ages of the individual's surviving siblings and compared these with age at death for the child of interest to determine if they had surviving older or younger siblings that would have been alive when they passed away. I then consulted the census records taken of the family before the child's death to

see if there are older siblings that had moved out or passed away and were subsequently not in the later census record. On Ancestry.ca, it is normally indicated when the individual appears in other records and as such, I utilized this tool to consult the death index for that sibling as well as subsequent census records to determine if they were still alive or had passed away prior to the year of death for the individual of interest. If there was no information available on Ancestry.ca, I referenced the parish records collected by the CFHS to see if the sibling was included in either the death or marriage records. If no information could be found on the sibling's year of death but they were in the census taken prior to the individual's passing, it was assumed that they were still alive because it is frequently difficult to find both siblings who marry and change their name as well as those that pursue apprenticeships or schooling outside of the parish. For those children that died after 1911, no subsequent census record is available and as such, I consulted the baptism and death records transcribed by the CFHS for that parish to determine what siblings were alive at the time of death. In those cases where the year of death for the child was the same as the year of birth of death for another sibling relevant in determining whether the child of interest is the oldest or youngest, I listed that variable as unknown to be as conservative as possible.

The collection of the birth order data for each individual was highly labour intensive and was therefore only carried out on a subset of the child database. First, only children from socioeconomic categories three to five were included in this analysis. The reason for this is because there are a large number of children in categories one and two but a relatively low commemoration rate for both of these classes. I would therefore need to collect information on a much larger number of individuals in these classes to extract meaningful comparative data. Given that this variable has not been explored in previous historical cemetery research, I elected

to gather data for only the higher socioeconomic classes as a form of pilot study into its possible effect on commemoration rates.

Chapter 3: The Stone Monument and Mortuary Archaeology

In this study, I analyze and compare those who did not receive a stone commemoration after their death with those that did. It would therefore seem that a central question in my thesis is: what meaning did bereaved Victorian and Edwardian parents attribute to stone commemorations and how did they decide in what circumstance it was appropriate to erect such a monument?

Although mortuary archaeological analyses of gravestones do not typically explore commemoration rates, they do examine factors such as the spatial layout of the monuments (Brown, 1993; Walls, 2011) or, more commonly, the decoration or style of the monument itself (Cannon, 1989; Dethlefsen and Deetz, 1966; Mytum, 2004; Tarlow, 1999). Angels, lambs, and other religious iconography, as an example, are typically argued to represent the child's innocence and the 'sacralization' of childhood (Haveman, 1999; McKillop, 1995; Rainville, 1999, p.572). The implication here is that parents selected appropriate symbology based on the cultural values associated with the deceased child. Within the archaeology of childhood more broadly, this is a common interpretive framework and the child is frequently understood to be indicative of cultural values associated with childhood (Ardren, 2011; Baxter, 2013, 2019, 2020; Muller et al., 2019). For example, some authors have found that children's toys and ceramic dishes designed for children include messaging and material features that reflect the values parents wished to impart on their children (Crewe, 2018) or broader social patterns (Eiselt, 2018).

However, while scholars have attributed meaning to various decorative styles, little has been said in historic studies of childhood about what the monument itself could have meant to people in the past as very few studies have considered this as the basis for analysis. There are,

however, significant differences between the buried population and those that received a stone commemoration. In fact, when comparing burial registers for York Cemetery with demographic information gathered from the gravestones, Buckham (2003) found that children (individuals aged fourteen or lower in this study) were commemorated much less frequently than adults despite that approximately twice the number of adults were buried. This would suggest that while commemoration rates are not commonly examined in mortuary archaeological studies of historical cemeteries, they could differ based on age and may offer intriguing interpretive possibilities specifically when exploring child mortuary practices. In their study of infant commemoration in Cambridgeshire, using a smaller database than that of the current study, Cannon and Cook (2015) alternatively observed relatively low rates of commemoration across all age categories, especially for infants aged three and younger, but also for older children and adults. Extant research therefore suggests that age may be an important variable in determining who received a stone commemoration in Victorian and Edwardian England, but this does not provide any insight on the meaning that may have been attributed to such monuments.

In this chapter, I use valuation studies to illustrate why it is not actually fruitful to attempt to answer this question. I found numerous problems if we focus on meaning as derived from the material or the bereaved themselves. A stone monument does not have a universal meaning that is shared among the bereaved community nor do the bereaved want the same thing when they decide whether or not to erect such a monument. I subsequently demonstrate how Sartre's 'series' may be utilized to form a better understanding of the process that resulted in some children receiving a stone commemoration. Whereas valuation studies are rooted in the valuator and how particular contexts and materials serve their desires, series are formed subconsciously through shared action. The people of a series have their own goals, motivations, and needs and

do not come together intentionally, yet they form a series by executing the same action despite these differences (Sartre, 1960/1991). This framework provides a more fruitful means of understanding commemorative behaviour and mortuary practice, more broadly, than has been utilized in previous mortuary archaeological study.

Valuation and the Stone Commemoration

Although not a new field, valuation has seen a relatively recent resurgence in interest including a new journal, *Valuation Studies*, dedicated to its study (Krüger and Reinhart, 2017; Helgesson and Muniesa, 2013). As a concept, valuation is intrinsically tied to value. However, as Heinich (2020) rightly notes, the definition of 'value' has not been adequately explored. The reason that she gives for this is, in part, because 'value' does not fit any single definition but can take different interpretations in different settings. For example, in different fields of study, value may refer to price, ethics, norms, or policies (Heinich, 2020, p.86-87). Gu (2021) similarly points out that value has a number of definitions and could refer to the intrinsic value of an object (the value-worth) or a mental representation of worth shared by a group (value-statements) among others. Heinich therefore argues that we should shift focus from examining values to what Dewey (1939) terms 'valuations'. These are social acts that attribute and produce worth or value and can take a myriad number of forms. In fact, Dewey notes that "All conduct that is not simply either blindly impulsive or mechanically routine seems to involve valuations" (1939, p.3). It is therefore appropriate to conceptualize the decision to commemorate one's child within the framework of valuation.

The valuation process is more clearly laid out in John Dewey's (1939) seminal work on the topic. He notes that to understand the valuation process, we must consider both 'prizing' and 'appraising'. 'Prizing' refers to what the valuator holds in high esteem and the emotional

connections they have with what is being valued. 'Appraising' involves deliberation on the desired end of the valuation process and the means available to achieve that end (Dewey, 1939). This appears to offer a useful means of defining the role that the deceased and the monument play in determining the mortuary decisions the bereaved person makes. The valuator, or the bereaved in this case, undergoes a valuation process where they consider who was lost and what they would like to do about that loss in the framework of what is available to them both as a member of a particular society and as an individual with specific financial (and other) constraints. Working within this framework, mortuary archaeologists could consider what the bereaved may have wanted, and this *should* provide some insight as to how certain mortuary materials were utilized in accomplishing those ends.

I would, however, argue that one of the major pitfalls of mortuary research is to treat mortuary decision-making as necessarily connected to motivations of the bereaved. This is, as one example, the central feature of Kus' (1992) as well as Tarlow's (2000) seminal work calling for emotion to be considered in archaeological settings. Many archaeologists have subsequently given particular consideration to how aspects of the mortuary setting may have been utilized by the bereaved to alleviate their grief (see Ackers, 2019; Beats, 2019; Chunga and Butters, 2015; Croucher, 2018; Murphy, 2011; Weiss-Krejci, 2013; Walls, 2011 for examples). Outside of the emotional setting of the loss, others have considered how the mortuary environment can be mobilized as 'costly signalling' (Binford, 1971). Oestigaard and Goldhahn (2006), in their 'death as transactions' model, argue that studies of mortuary practice should turn their attention from the dead to the living. They see mortuary practice as primarily serving the purpose of developing ties between the family of the deceased and others while the deceased is largely a medium for this expression. In particular, some have argued that mortuary decision-making may have been

informed by a desire to preserve some sense of legacy and establish enduring kinship ties (Keswani, 2005; Perry, 2017; Thomas, 2016). Middleton (2017), for example, notes that the vast tomb of what was likely a Mycenaean king was, in part, an attempt by the king and his subjects to preserve his memory. Headrick (2007) similarly notes that the inhabitants of Teotihuacan constructed ancestral bundles as a means of establishing the prominence of their lineage. In each of these examples, the bereaved are motivated by particular desires and act to fulfill those desires. These are common interpretations in mortuary archaeology and as such, I will discuss each in turn within my specific context to demonstrate the problems that arise out of taking motivation as a starting point in analysis.

The Monument as a Response to Grief

If we think of the decision to erect a stone monument following death as derived from the emotional response of bereaved parents, we should expect to see unending diversity. This is because we simply do not know in what way the monument serves to alleviate grief. Current research on modern populations regarding the importance of a monument has found that in small groups and niche studies, a monument did seem to play a role in managing grief as a comfortable and familiar ritual, but these findings are at times contradictory and limited in their scope (Rumbold et al., 2020). Although the public stone memorial was still valued among some groups, others had shifted to more private practices, such as online memorials or keeping the ashes of the deceased in an urn within the home (Rumbold et al., 2020). It is therefore difficult to attribute the decision to place a stone monument over the grave to any particular experience of grief because not only is the process of grief incredibly variable between bereaved parents, but the role of materials within that process is also highly diverse. While some scholars have assumed that grand public commemorative displays or comparatively more grave goods are

indicative of an elevated sense of grief (Ackers, 2019; Binford, 1971, p.22; Chunga and Butters, 2015; Joyce, 2001, p.19), the actual relationship between comparatively lesser or greater commemorative displays and the experience of grief has not been sufficiently explored (Barclay and Reynolds, 2016, p.5; MacDonald, 2001). In fact, other studies have even found these assumptions to be incorrect (Cannon, 1989; Meskell, 1998; Weiss-Krejci, 2013).

In older psychological scholarship, grief was believed to follow a stage model that focused on the conclusion of that grief (Kübler-Ross, 1973). However, more recent scholarship has acknowledged that every bereaved individual may not have the same goal, nor may they approach their grief in the same way. For example, both Walter (1996) and Klass et al. (1996) argue that while the bereaved still need to accept the reality of death, they may receive comfort in finding a secure role for the memory of the deceased in their own lives. In other words, the goal of the bereaved parents may not be to sever their relationship with their child but to remake it in a way that accounts for the death. Klass et al. (1996) termed this theory of grief 'continuing bonds'. An alternative theory of grief is the dual-process model (Stroebe and Schut, 1999). Noting the diversity in which bereaved individuals around the world experience and cope with grief, this model suggests that the bereaved will oscillate between restoration-oriented coping mechanisms and loss-oriented coping mechanisms. Restoration-oriented coping mechanisms involve attending to aspects of one's life outside of the grieving process and avoiding thoughts of the deceased whereas loss-oriented coping mechanisms involve facing grief by actively engaging in thoughts about the deceased (Stroebe and Schut, 1999).

The gravestone could serve very different functions based on these different models of grief. Following continuing bonds theory, the monument plays an important role in simultaneously reminding the parents that their child is indeed gone and providing a space to

return to so that they may continue their relationship with the deceased in some fashion. In fact, ethnographic studies on cemetery visitors have identified numerous activities, such as talking to the stone, sharing a meal at the gravesite, or leaving presents for the deceased at holidays, that suggest the bereaved utilize the gravesite and monument as a place for communicating with the deceased and maintaining a relationship with them (Francis et al., 2005; Hallam and Hockey, 2001; Woodthorpe, 2011). In the dual-process model, these activities would fall under loss-oriented coping mechanisms, but the monument could just as well serve restoration-oriented coping mechanisms. Erecting a monument is the final step in the funerary process and marks the end of the liminal period between the death event and the formal removal of the deceased from the realm of the living (Holloway, 2007). Without this end point, the funeral and burial rituals are incomplete, and it is for this reason that service providers within the funerary industry interviewed by Rumbold et al. (2020) argue that failure to erect a monument is associated with poor adjustment. It is therefore possible that the parents may elect to put up a monument, the endpoint of the formal rites, when they are ready to move on with their life without the deceased. The monument could therefore serve as a loss-oriented (continuing bonds) coping mechanism, restoration-oriented coping mechanism, or both depending on if the bereaved fluctuates between grieving styles.

Furthermore, a *stone* monument is not required to perform any of these activities. Strange (2005) notes that as long as the bereaved remembers where the deceased was buried, they can still leave mementos at the gravesite even if no monument is present. The mementos themselves could also serve to mark the burial place and serve as a site for the activities outlined above. If a marker was put up, wooden markers could have also worked just as well as stone ones to serve each of the purposes outlined above. While it is unknown how common wooden markers were

during the Victorian and Edwardian eras (see Renshaw and Powers, 2016; University of Liecester Graveyards Group, 2012 for opposing arguments), the parents could just as easily hold conversations, touch, and leave mementos at gravesites marked with wooden crosses and monuments as they could with stone ones. Similarly, placing a wooden marker could just as easily mark the end of the funeral and burial rites as a stone one. If the parents did not intend to put up a marker, the burial itself could have marked the end of this process.

As evidenced above, the valuation process is simply not clear if we take the alleviation of grief as an end goal for the bereaved parents. The stone monument, specifically, does not seem necessary in the grief models outlined above nor does a monument serve any consistent purpose in the alleviation of grief. We therefore cannot understand the appraisal process. This is likely why archaeologists have had difficulty attributing differences in commemorative display to grief itself. A stone monument may have aided the bereaved Victorian and Edwardian parents in managing their grief, but because of the various ways it could have served this desired end and the possibility that the same coping mechanisms could be applied to other mourning materials, it is impossible to make any claims as to the relationship between the decision to erect a stone monument and the grief the bereaved parents experienced.

The Monument as Expression of Economic Value and Enduring Legacy

As per the archaeological examples cited above, it is also possible to interpret the decision to erect a monument as costly signalling by the bereaved parents to other members of the community in an effort to establish social prominence. In the Victorian and Edwardian periods, an engraving on a stone monument to commemorate the deceased is a relatively expensive commodity, as detailed previously. Although the cost of a new gravestone or an engraving on an old stone is highly variable depending on the size and embellishment of the

stone as well as the length of the epitaph, the fact that an engraved stone exists indicates that the bereaved did spend money. Furthermore, when compared with the other materials available that could have served the same purpose, it is clear that parents who put up a gravestone invested more money than they could have in erecting a monument following the death of their child.

Death in the Victorian and Edwardian eras incurred several costs to the bereaved. For each element of the burial and funeral process, there is incredible variability in terms of cost, and the means of marking the gravesite is no exception. The bereaved could have, as mentioned earlier, erected a wooden marker. Alternatively, they may have put up a metal marker, which became more common in the 19th century (Mallios and Caterino, 2011), or some other makeshift memorial. Early 19th century burials were also typically marked by a raised mound over the grave itself and some bereaved would place artificial flowers and other mementos underneath glass domes or wire baskets on top of these mounds (Rugg, 2013; University of Leicester Graveyards Group, 2012) or leave the mound on its own to mark the location of the deceased. Of course, it is possible that the bereaved erected an expensive and elaborately carved wooden monument or spent a lot of money on various mementos for the mound or makeshift memorial, but these would not have generally been as costly as a stone engraving or a new stone monument. The stone engraving is therefore a more costly option for marking a gravesite than the other markers available at the time.

That being said, as one component of the funerary process, it is very difficult to claim that the monument, specifically, was utilized in costly signalling. There are many parts of the funeral that the bereaved could spend money on to demonstrate their financial capabilities to the other members of the community. Among other things, the bereaved would need to purchase a coffin as well as any other funerary accoutrement (which could include a carriage, mourning

gear for the family, flowers, and a variety of other embellishments) they believed appropriate (Cassell's Household Guide, 1869-1871; Curl, 1972; Murdoch, 2014; Strange, 2005). The bereaved would also need to pay a burial and interment fee to the gravedigger and member of the clergy presiding over the funeral (Cassell's Household Guide, 1869-1871; Strange, 2005; Rugg, 2013). Furthermore, the cost of the monument, while greater than other forms of commemoration, would not be nearly as prohibitive for a doctor, large-scale farmer, or member of the clergy as it would be for an agricultural labourer. As such, without knowing any details of the monument itself or other costs the funeral and burial incurred, it would be extremely difficult to claim that its mere existence is indicative of the bereaved person's desire to communicate their wealth to the external community.

Not only is the gravestone the costlier option of the gravesite commemoration devices but it is also made of the most durable material. An engraving in stone could be expected to survive long after any of the individuals who actually knew the deceased have passed away. In fact, although the stone will degrade over time, scholars writing on gravestones have even referred to stone monuments as permanent markers particularly in reference to their impermanent wooden counterparts (Francis et al., 2005; Holloway, 2007; McKillop, 1995; Mytum, 2020; Rainville, 1999). The permanence of the gravestone is also notable when compared to other funerary practices. As argued by Petts, "The memory of a specific funeral will be limited to those who participated in it, but the presence of a memorial serves to provide knowledge about the dead individuals and the context of their burial to those at a distance, both physical and chronological" (2003, p.195). With a permanent stone memorial, the bereaved may anticipate that those not in attendance at the funeral and even future family members who did not personally know the deceased will be able to read the engraving and learn about the deceased for generations.

The stone monument was typically, but not exclusively, inscribed with the name of the deceased as well as their birth and death date. Additionally, the bereaved may elect to include information such as: the relation of the deceased to other members of the community (e.g., wife, father, daughter), the occupation of the deceased, regional affiliation, or an epitaph. Some scholars have subsequently concluded that because the stone is highly durable, placed in a public space, and contains identity markers, the stone monument served to permanently mark the individual's place within both their community and family (Inall and Lillie, 2020; Muller et al., 2019). In this manner, the younger generations are able to 'meet' and 'visit' with the older ones (Francis et al., 2005), a practice that is facilitated by surviving materials. That being said, although the stone is indeed made of durable material and placed at the centre of the community, the bereaved may have no intention of sharing the monument's existence with future generations. In fact, it could very well be the case that the bereaved simply erected a monument at the time because it seemed like the right thing to do, or they felt that others would judge them for leaving it unmarked, and subsequently neglected the grave. The argument that the bereaved party may have been motivated by a desire to demonstrate their wealth and create a lasting legacy is more firmly rooted in the materiality of the stone itself; however, the fact that other elements of the funeral and burial setting and the monument itself is unknown highlights the problems that emerge when conducting analysis of commemorative behaviour based on this factor. Once again, the appraisal process is not clear because the relationship between the stone monument and the desire to create a lasting legacy or communicate one's wealth to the external community is not known.

The Monument as a Reflection of the Context of the Loss

The monument has also frequently been interpreted as indicative of some wider context that played an influential role within the valuation process. For Dewey (1939), the valuator develops desires that are particular to a certain cultural context. The primary interest in understanding the valuation process is knowing what the valuator might want (what motivates them) and so, we need to consider the context in which those desires arise. Heinich (2020) similarly argues that we need to consider the choices that the valuator makes within a context that determines the possibilities for action. 'Valuation situations', a concept developed by Krüger and Reinhart (2017), also refers to the specific spatial and temporal context within which the valuation occurs. In each of these studies as well as others (Gu, 2021; Mennicken and Power, 2015), the valuation occurs *within* a particular social context and mortuary archaeologists have similarly explored how the historical context has played a role in commemorative decision-making. However, its problems become apparent when examining these studies through a valuation framework.

For example, many have argued that the massive number of casualties in the First World War resulted in a simplification of mortuary practice because this mode of expression was more appropriate when so many could not experience a 'good' death. Cannadine (1981) agrees, in part, with this assertion but notes that the change to more reserved funeral settings had begun to take place prior to World War I and intensified as a result of this conflict. He would therefore attribute the initiation of this change to factors outside of World War I. The more common interpretation regarding the effect of World War I, however, is that the massive number of casualties, the horrific nature of many soldier's deaths, and the fact that only some bodies could be returned for burial meant that the pomp and circumstance of the Victorian funeral was no longer appropriate (Jalland, 1999; Mallios and Caterino, 2007; Mytum, 2004, p.83; Parker

Pearson, 1982; Tarlow, 1999). This is a logical conclusion, however, if we wish to claim that the valuators were *influenced* by a particular context, it becomes necessary that we explore the nature of that influence. At the core of valuation studies is the valuator themselves and the thing, or in this case the lost individual, being valued. However, there is nothing in these studies of the effect of World War I on commemoration practices to illustrate *how* this context altered what the valuator may want. Presumably, even during World War I, the bereaved would have still used the stone commemoration to alleviate their grief, illustrate their economic wealth, and/or produce an enduring legacy of that person and their family. These authors do not attend to how World War I would have altered these desires and ultimately selected a different form of commemoration. In this case, the bereaved individual is merely part of a wider pattern of commemorative behaviour and the valuation process is impossible to assess.

Similarly, in their much-cited study of New England historical gravestones, Dethlefsen and Deetz (1966) conclude that the replacement of the death's head (or winged skull) motif by cherub heads is indicative of the 'Great Awakening' of the 18th century, a religious movement that saw the replacement of orthodox Puritan values with the belief in resurrection and life after death. They argue that the era when cherubs became popular, "…was characterized by a newly placed stress on the joys of life after death and resurrection of the dead, rather than the earlier stern emphasis on judgement and mortality" (Dethlefsen and Deetz, 1966, p.508). While these observations may very well have characterized the age, it is unclear to what extent the individual bereaved adopted the proposed meaning of these symbols and included them in the valuation of the deceased. Did those individuals who did not select a cherub design disagree with the belief in resurrection and life after death? In both of these examples, the prizing and appraisal processes are simply not clear. Although it is demonstrably the case that stone commemorations reduced in

size after World War I and symbology shifted from death's heads to cherubs in 18th century New England, the authors have not addressed how this would have altered the process of selecting a stone commemoration for individual bereaved parents. This is problematic as the individual was present and their exclusion from analysis may erroneously imply that they played an active role, through valuation of their historical context, in constructing the patterns outlined above.

Although these studies do not attend to the relationship, archaeologists have long probed the role that the individual plays in structuring patterns visible at a higher level of analysis. These studies typically invoke Giddens' theory of structuration and Bourdieu's praxis theory in illustrating that agency and structure work in dialogue with one another (Dobres and Robb, 2000; Joyce and Lopiparo, 2005; Robb, 2010). This same point has also been made in valuation studies. Simmel (2005 [1900], p.57) suggests, in his work on the value of money, that reality does not exist beyond valuations but is, in fact, structured by them. Quéré similarly argues that "Rather than being fixed apart from practices, criteria or standards are shaped by their situated uses…" (2015, p.174). For both of these scholars, there is no context that influences individual action but instead, and this becomes visible to us as external observers, a consistency that emerges from a collection of individual actions that form reality. Following this logic, we should not turn to some wider context to explain the behaviour we are interested in but instead explore how individual actions construct that context. Paradoxically, many of the scholars cited above, as well as other valuation scholars, have applied this thought process to 'value'. Dewey calls any attempt to apply a priori values or ideals to a particular valuation process a 'foolish quest' (1939, p.57); Gu (2021) specifically criticizes Heinich for adopting, as part of her theory of valuation, pre-existing value-principles that exist outside of the individual valuator; and Krüger and Reinhart (2017) argue that valuation structures only exist as produced through valuations. In the

examples described above, it is this *agential production* that is missing from analysis. A pattern of mortuary decision-making is indeed identified and logically linked to broad social change, but the production of this pattern is not clear. Whereas in the previous sections, I illustrated how mortuary studies that have centred their discussion around the motivations of the bereaved have failed to attend to the full appraisal process, these studies do not include appraisal or prizing at all and the bereaved individual is subsequently lost.

What is the Valued?

In each of the sections above, I have demonstrated how it is impossible to link the means, the commemoration itself, with the desired end that the valuator holds. However, I will now return to what Dewey terms 'prizing'. He notes that the valuation process is directly related to the emotional relationship that the valuator has with the valued. Up to this point, I have treated the valued as the deceased individual themselves but what should now be clear is that this is very likely not the only element being valued in the decision to commemorate one's child. Furthermore, on its own, the child as the valued object poses a number of theoretical challenges.

An ongoing problem in valuation studies and one that has been the subject of numerous fascinating discussions is how does one place value on life itself? For example, some studies have compared financial compensation claims following injury or loss between individuals as a means of capturing how value is variously produced in this setting (Bobier and Dodier, 2015; Jeacle, 2022; Zelizer, 2010,1985). The parents of a deceased child do consider the child themselves in their decision to commemorate them or not and as such, part of what is being valued here is the child. As demonstrated in these valuation studies, however, a person can be valued in many different ways and some of these have presented analytical challenges. While it is relatively easy to calculate lost wages, there is much greater difficulty in understanding the

value placed in elements such as companionship or emotional trauma. Furthermore, if we return to the potential motivating factor of establishing an enduring legacy, it is clear that the child themselves is not the only thing being valued in the decision-making process. Whereas wrongful death and life insurance claims are made in relative privacy, the gravestone is a public and lasting monument. The parents must, therefore, also consider such things as the potential for themselves and future generations to visit the gravesite and read the epitaph or what others in the community may think if they leave it unmarked. It is not only the child that is valued in this practice but also, as two examples, family bonds and public opinion. As such, the decision to commemorate one's child does not relate solely to the worth and value placed in that child but also the worth and value the bereaved place in these other elements. It is therefore impossible to know the emotional connection or degree of esteem that the valuator places in the valued and so, we cannot discuss 'prizing' in this practice.

The problems illustrated up to this point are certainly formidable. The decision to commemorate one's child is a valuation process, but we cannot know what motivated the bereaved, we do not know the extent of what is being valued, and if we treat the context as influential in this process, we must outline how this influence plays out on an individual level (thus forcing us once again into considering motivation). I would, however, argue that a solution is feasible if we reconsider how we include the motivated bereaved individual in mortuary decision-making.

Application of Sartre's Serial Collectives

Although Dewey's work on the valuation process as a combination of prizing and appraising does help demonstrate why those mortuary studies that examine materials as a product of either a motivated bereaved individual or social context are likely to fail, it does not

offer a useful means for archaeologists to understand the valuation process inherent to mortuary studies. This is because the individual and their desires are central to his understanding of what valuation is and, as archaeologists, we simply cannot know what this motivation might have been or how the means are connected to that motivation. We do not even know what exactly is being valued. I would alternatively suggest that archaeologists can turn to 'series' as theorized by Jean-Paul Sartre as a means of analyzing individual action within their social context without attending to their particular motivations for performing that action.

Sartre's writing has not seen widespread use in archaeological theory, but it is not entirely unknown to the discipline (see Cornell and Fahlander, 2007; Fahlander, 2003, 2011; Mímisson and Magnússon, 2014). Alongside Foucault's 'archaeology', Lacan's psychoanalysis, and Giddens' structuration theory, Sartre's theory of serial collectivity is one of the theoretical pillars of Fahlander's 'microarchaeology' (Fahlander, 2003). Fahlander argues that Satre's serial collectives offer a means of avoiding the 'trap of structural-functionalism' by shifting the analytical focus to executed practices rather than essentializing identity or social structures (2003, p. 166). Along with the theories previously mentioned, he examines the burial settings at two sites to illustrate that, "Materialities and practice are very much related to the changing constitution of contemporary symbolic orders and ideologies, but there are yet *patterns* for us to retrieve and discuss" (Fahlander, 2003, p. 170). In this section, I will detail 1) the basic structure of series as defined by Sartre, 2) how it relates to archaeological theory and practice, and 3) how I use series in this study to bypass the problems typical to mortuary studies outlined above.

Sartre and Series: Overview

The basic premise of Sartre's 'series' is laid out in his seminal work, *Critique of Dialectical Reason*. For Sartre, individuals act in their own interests but unknowingly form

series: ensembles of individuals that relate to one another through common circumstance and/or materials (1960/1991). The most commonly cited example that Sartre uses of a series is people waiting together at a bus stop. Despite that these people may be of different genders, socioeconomic classes, or ages, they are still united by the common action of deciding to take the bus that day. Unlike 'groups', which are formed of individuals with common interests (Sartre, 1960/1991), members of a series may be aware of others within that series but do not coordinate their actions alongside other members. Instead, their actions that placed them within that series "…are lived separately as identical instances of the same act" (Sartre, 1960/1991, p.262). Sartre also points out that there are underlying structures and material, which he terms the 'practico-inert field', that make the formation of this series a possibility. The bus itself and public transportation infrastructure allow such a series to form and prefabricate its construction by structuring where people will stand, the number of seats on the bus, and how to buy a ticket (Sartre, 1960/1991, p. 259, 265).

Furthermore, one's position within the series is fleeting in nature and as a person moves through their day, Sartre argues that they move in and out of different series. If the individual takes the bus to work, they will shift to a new series that includes all other employees at their workplace that day. If they decide to listen to the radio, they will be part of the series that is hearing that program (Sartre, 1960/1991). Series are therefore formed based on executed practice rather than a predetermined social category or shared thought process and are theoretically infinite in number (Fahlander, 2003, p. 16). Social categories may, however, become relevant in the analysis of that series. For example, among the individuals waiting for the bus, it may be the case that more women are waiting for the bus if their husbands typically take the family car to work (Fahlander, 2003, p. 34). Although Sartre does not directly address the shared

characteristics of members of a series, a point that McBride (1981) specifically criticizes, his discussion of class could be expanded to include it. While he recognizes class as a social reality, he notes that it is not a homogenous entity that can be defined but is created and made intelligible through the combination of other social units, which include series (Sartre, 1960/1991, pp. 65-67). Others, however, have thought through these social categories using this theoretical framework and while this is not exactly as Sartre imagined, it does provide a useful means of thinking about the relationship between, for example, gender ideology and individual action.

In her widely cited work, Young (1977) notes feminist concerns that when scholars treat 'women' as a gender identity they normalize elements of womanhood and exclude others. She alternatively suggests that we treat 'women' as series formed around similar structural constraints that set them in opposition to 'men'. Women do not necessarily act in the same way but their experiences within the world are conditioned in a similar fashion (Young, 1994). Fahlander (2003) terms this extension of series into social categories *serial categories* and notes that these are formed by fleeting *serial actions.* Womanhood, for example, would be termed a serial category (and is comparable to the serial category of manhood) whereas the collection of people waiting for the bus would be a serial action. Series therefore operates on multiple analytical levels and helps explain the relationship between individual actions and decisions in relation to wider superstructures.

Sartre's Serial Collectives and Giddens' Structuration

As mentioned previously, the role of the individual agent within social structure is a problem that archaeologists and others outside the discipline have tackled for some time. However, Sartre's approach to this problem has seen far fewer citations in archaeological writing than Giddens' comparable theory of structuration. In this section, I will outline the similarities

between each of these approaches as well as their differences. This brief discussion will not outline and compare all elements of Sartre's and Giddens' theoretical writing, but I will touch on those points that are important for understanding my approach.

In his seminal work, *The Constitution of Society*, Giddens' states that "The basic domain of study of the social sciences, according to the theory of structuration, is neither the experience of the individual actor, nor the existence of any form of social totality, but social practices ordered across space and time" (1984, p. 2). The basic premise of structuration theory thus includes both an individual agent and social structure but as examined through social practice. Sartre's 'series' similarly takes as its starting point the actions of individuals and notes how they are similarly ordered either within or across a space. At its core, the basic premise of both theories is therefore very similar, if not the same. Both Giddens and Sartrealso see that overarching structure as not existing outside of practice but as being produced through that practice. Just as Sartre argues that class can only be constructed as meaningful by reference to the practices and materials that constitute it, which he terms the totalization process, Giddens notes that "Analyzing the structuration of social systems means studying the modes in which such systems, grounded in the knowledgeable activities of situated actors who draw upon rules and resources in the diversity of action contexts, are produced and reproduced in interaction" (1984, p. 25). Seeing his work in opposition to functionalism, Giddens argues that knowledgeable actors are simultaneously responding to and constructing, albeit unintentionally, their social system. He terms this relationship the 'duality of structure'. Although not constructed in direct reference to the field, these scholars outline a familiar problem in archaeology. An old and often-cited critique of processualism is that its practioners sought to outline generalized patterns of social structure without sufficient reference to the individual actors that created those

structures. Sartre and Giddens instead seek to include the individual in their analysis and do so by theorizing the relationship between the individual and the wider social structure as reciprocal in nature.

One difference, however, between how Giddens and Sartre write about this relationship that is identified in Fahlander's (2003, pp. 34-35) outline of microarchaeology is how each uses material. Although both recognize its importance, Sartre treats the development of series as integrally tied to material. The bus and bus stop, for example, form crucial nexus points at which series emerge. Giddens (1984), on the other hand, only discusses materials in terms of how they constrain individual action. Fahlander (2003, p. 34) and Barrett (1988) argue that Giddens does not pay particularly close attention to the physical character of objects as determinants of action but instead, offers largely general observations of their role as non-specific 'material'. Seeing as archaeological inquiry is intrinsically tied to material, Sartre's approach would then offer more interpretive possibilities and is indeed closer to actor-network theory than what is proposed by Giddens.

Furthermore, while there are certainly similarities in how Giddens and Sartre theorize the relationship between the agent and social structure, there is a significant difference in how they talk about that agent. In thinking through the data of this study, I found Sartre's series to be more helpful than Giddens structuration theory because the core of Sartre's discussion is a collection of individuals performing the same action to form a serial collective. Although the individual is still present within the serial collective, it is that collection of individuals in physical or metaphorical space that serves as a unit of analysis for understanding structural principles. Giddens, on the other hand, centers his discussion around the knowledgeable and reflexive subject (Fahlander, 2003, p. 19). He does not attend to how groups or collectives form in the

same way that Sartre does but rather, focuses on the relationship between individual actant and social structure. This is not a critique of Giddens' work, but it does make it less useful in a study that compares groups of people who elected to commemorate their children with those who did not.

Series in the Study of Victorian and Edwardian Mortuary Practice

The theories posited by Giddens and Sartre both help circumvent the problem outlined above that mortuary decision-making involves too many inaccessible components to properly assess the motivations or intentions behind the individual bereaved. In basing structural theory, in part, on unintended consequences, Giddens notes that while individuals act with motivation and intent, structuration theory deals with the outcome of action and not "…the experience of the individual actor…" (1984, p. 2). Sartre (1960/1991) similarly theorizes that serial collectives, as noted above, consist of individuals that are diverse in their motives and lived experiences but are united via their performance of the same action. This focus on the actions of the individual rather than their intentions of motivations is beneficial in a mortuary setting, where these are often inaccessible to archaeologists and highly diverse. However, as noted above, Sartre is more attentive than Giddens to the material conditions that unite collectives of individuals and for this reason, I have adopted the theoretical position of Sartre as a means of understanding commemorative decision-making. In this study, I combine serial collectives with serial categories, as explained by Young (1977) and Fahlander (2003), as a means of understanding mortuary decision-making in Victorian and Edwardian England.

At its core, the purpose of this study is to understand the difference between two serial collectives: those who elected to commemorate their children and those who did not. Every parent included in this study is a part of one of these collectives that is fundamentally united

through the same executed action (or inaction). However, because the serial collective itself does not preclude any unification of its members, the analysis of these actions is performed through *comparable* serial categories. The decision of any individual parent to commemorate their child only becomes an intelligible social reality when aggregated with members of the same serial category and compared with those of a different one. As noted in valuation studies (De Munck and Zimmerman, 2014; Dewey, 1939) and described by Young (1977) in relation to gender, bereaved parents that belong to a particular socioeconomic class are similarly constrained by external structures and these are different than those faced by members of another socioeconomic class.

Furthermore, while each parent included in this study belongs to a specific socioeconomic serial category, their children were also part of different serial categories that are, in part, constructed by the actions of those around them. Young (1977) notes that barriers and external structures are in place that differentiate the serial category of 'women' from that of 'men'. But for children, the construction and reinforcement of these barriers and structures are in part derived from the toys and clothes parents purchase, investment in their schooling, and education options available to them. I would therefore argue that just as the parents place barriers and respond to external structures that differentiate and produce different opportunities for children of different genders and ages in life, this may be similarly expressed in the mortuary setting. This is an extension of Young's argument in that I still consider these constraints, expectations, and barriers placed on members of these serial categories but it is not as experienced by those members. Instead, I examine these categories as conceptualized and constructed by their parents.

It is also important to consider the historical trajectories of these serial categories. As noted in multiple valuation studies, valuations are products of their specific temporal setting (Gu, 2021; Jeacle, 2022; Krüger and Reinhart, 2017; Mennicken and Power, 2015). Given that the decision to erect a stone monument is a form of valuation, this would suggest that what is meaningful at one time and place may not be so at another. By comparing commemoration rates within different serial categories over time, I am allowing the definition of what is 'meaningful' in commemorative behaviour to change over time. This historical-comparative method is what Gu (2021) advocates for in her paper highlighting the strengths of examining childhood within the context of valuation. She argues that more rich and meaningful studies of childhood would result if researchers included, among other things, historical context in their research (Gu, 2021). Valuations exist in particular temporal settings and series reflect that setting, but it is only by comparison through time that we can understand the historical trajectory of that serial category and the mutability of its existence and influence.

The purpose of this study is to explore and explain serial collectives in terms of how they relate to serial categories. Despite that the individuals within these collectives belong to, or are influenced by, the same serial categories live in completely different areas of rural Cambridgeshire and do not have any physical contact with one another, the shared circumstances of their lives and loss places them in a serial relationship with one another. These individual decisions are combined into serial collectives (those who commemorated their child and those who did not) that may be assessed by examining the intersection of multiple serial categories. The final section of this chapter will examine how the assessment of serial categories across different contexts may be applied to understanding mortuary decision-making and how this might differ from other studies of mortuary practice.

Understanding Serial Categories Beyond the Mortuary Setting

In order to analyze and predict the influence that serial categories would have on serial collectives, it becomes imperative to turn to other areas of Victorian and Edwardian life in which these same categories are produced as meaningful. In understanding gender, age, and socioeconomic class as sets of serial categories, it is presumed that members of each of these categories face similar barriers and constraints that may influence the likelihood of their parents belonging to one serial collective over another. Womanhood, for example, may be a meaningful serial category in such arenas as 'marriage laws', 'school curricula', and 'household chores'. The expectations placed on girls or women in their marriages, schooling, and households, may be quite different than that of boys and men. In this manner, I am able to compare how each serial category is expressed outside of the mortuary setting to predict or explain its use within mortuary decision-making. It is important to point out, however, that this is quite different than the problematic practice of examining the context of loss as a means to explain specific mortuary practices.

As mentioned previously, Dethlefsen and Deetz (1966) draw a relation between the 'Great Awakening' and changes in gravestone symbology while the shift to smaller gravestone forms is associated in many studies with World War I (Jalland, 1999; Mallios and Caterino, 2007, p.64; Mytum, 2004, p.83; Parker Pearson, 1982; Tarlow, 1999). Hill (2013) similarly argues that the switch to residential bench burials at Galindo, a Middle and Late Moche site on the coast of Peru, is related to the eroding trust individuals had with their central government. The problem with studies such as these, as noted previously, is that the relationship between the context and the mortuary environment is not intrinsic and we must then attend to its influence. I would alternatively argue that mortuary practice is but one practice of many in which the sets of

serial categories examined are evident, so it is appropriate to examine and compare how these *same* sets are expressed in each. Baitzel (2017), for example, examines grief and mourning among ancient Andean Tiwanaku society and compares this with modern Andean children's lived experiences. Here, the differential treatment based on age in the mortuary environment is compared and contrasted with differential treatment based on age during life in an ethnographically comparable modern population. The same logic could be applied to materials, although I would not argue that this could be termed a serial category. Keswani (2005) provides a good example of what this might look like in her study of copper grave goods in Bronze Age Cyprus. She not only discusses the presence of copper within different graves but also outlines the role that copper plays in the wider context. She notes that there is a wide exchange network for copper, local production in Cyprus, and generally few copper artifacts excavated from local communities (Keswani, 2005). The use of copper beyond the mortuary environment is thus compared to use within this environment to provide a more complete picture of how copper is utilized by Bronze Age inhabitants of Cyprus.

In this manner, the meaning of mortuary practice becomes clear by situating the serial category, or material, of interest within other contexts where the same serial categories or materials are meaningful. Those practices outside mortuary decision-making help explain why the bereaved made the decisions they did because they offer some insight as to how that serial category might be expressed in relation to others and when differences between serial categories might emerge. This is a more fruitful means of conducting analysis than those studies that presume some effect of a force external to the mortuary environment. While it may very well be the case that the Great Awakening or World War I did cause bereaved individuals to conceptualize their loss differently, this explanation requires us to attend to what that

conceptualization was and how it changed. On the other hand, by examining comparable serial categories that already exist within the mortuary environment, no assumptions are made regarding what the bereaved may have considered that is external to that environment. Parents are part of a particular socioeconomic class and, as such, are members of this serial category throughout their lives. They are constrained by particular social structures as members of this series and by examining other arenas where these constraints may also play a role, we can come to a better understanding of what these constraints actually are. Similarly, we do not know how serial categories within gender or age are expected to be expressed in the mortuary setting unless we examine other areas where those serial categories are found to have meaning.

Although it is not framed in this manner, this is not novel in mortuary archaeology; in fact, I would argue it is relatively common for mortuary archaeologists to compare and utilize serial collectives and categories as described above. Parker Pearson (1993), in his study of Danish Iron Age cemeteries, includes a number of comparisons including settlement topography and ceramic use (materials that could be equated with serial categories) within the household (one serial collective) to that within graves (another serial collective). Hodder (1984) notes the architectural similarities between long-houses and long burial-mounds in the 4th millennium BCE in central and east-central Europe and further compares how the decorations as well as use and division of internal space differs between the domestic and mortuary setting. Archaeologists have noted and compared similarities within and across relevant contexts throughout mortuary scholarship. However, the comparison between these studies and those that take historical events as explanatory is of particular importance.

The meaning of any particular serial category also becomes clearer by examining the historical trajectory of that category. By comparing the trajectories of comparable serial

categories (man or woman, different socioeconomic classes, different ages) that accrue or lose relevance in the mortuary environment to the trajectories of the same series in other arenas, we can better understand how the meaning we may attribute to that series also changed over time. Zelizer (1985), in her highly influential work, *Pricing the Priceless Child*, provides an excellent example of what this looks like in practice. She traces the shift in the value of American children from economically useful to emotionally priceless through a variety of fields, including wrongful death payouts, the earnings of child actors, and media coverage of accidental deaths. Based on a comparison across these fields, she argues that the economic and moral capital that parents and institutions would invest in children grew substantially as they became 'economically useless' but 'emotionally priceless'. The historical trajectory of age as comparable serial categories is made visible through comparison of age-based valuations in numerous arenas.

The decision by a bereaved parent or couple to either commemorate their child or not exists as one of thousands of such decisions that form serial collectives with others who made the same decision and these decisions become intelligible through serial categories. However, the mortuary setting is also one practice of many that involve the same serial categories. While the monument itself does not allow us to ascribe any particular meaning to the parents' decision to commemorate their child, the compilation of these contexts and comparison of meaningful serial categories between them does. By comparing the timing and nature of these shifts to those in other arenas, it is possible to establish a broader historical trajectory of that serial category and its expression. In adopting this theoretical framework, this study contextualizes the individual decision to commemorate one's child within the broader structuring principles that were important in the time. It is, however, important to point out that while the relationship between the individual and the large-scale is a theoretical focus of Sartre's work and has therefore

structured my approach to this subject, there are other means of categorizing and thinking about commemorative practice in Victorian and Edwardian England at different scales.

As noted above, everyone included in this study is a member of a variety of intersecting serial categories, but they are also members of communities and families. The church was a central feature of parish life in rural England (Strange, 2005, p. 168) and was where the funeral procession would end and where families erected headstones for their deceased family member. The burial process was therefore a public affair that both directly and indirectly involved other members of the community (Cannon and Cook, 2015; Howkins, 1991; Robin, 1980; Strange, 2005). Given that individuals were likely aware of how others in the community had buried and commemorated their children, there was also, as demonstrated by Cannon (1989), some degree of social emulation as parents would have wanted to achieve an acceptable standard of funerary accoutrement. Also, just as individuals were members of geographic communities, they were also members of emotional communities (Rosenwein, 2002). These could map on to geographic communities but may also include members of a particular church, neighbourhoods, or even trades that develop their own value systems and acceptable modes of emotional expression.

Similarly, family members (which could also be considered a form of emotional community) may elect to follow mortuary practices within the family group that are not practiced by those in the wider community. Baxter (2020) points out that the graveyard is a space in which family continuity may be established and the family itself reunited in death. This is likely why Mytum found that, "…identical memorials tended to be chosen by members of the same family as a very visible statement of solidarity against the widespread variability around them in the burial ground" (2016, p. 288). It is therefore certainly the case that while individual families did make their own decisions to commemorate their children, it was not just in relation to 1) their

own personal needs or desires and 2) the serial categories that they were a part of. Mortuary practice was also a product of this 'middle-scale'. It is, however, beyond the scope of this study to explore this middle-scale. Although there is extensive interpretive potential in exploring this scale of analysis, this study was designed to explore variables that were relevant on a structural level. The theoretical framework outlined in this chapter facilitates the inclusion of the individual, as will be explored in the next section, but it would require a different framework to sufficiently explore mortuary practice within both communities and families.

Returning to the Individual

In the framework outlined above, individual actions and decisions take on relevance through aggregation of their decisions into serial collectives and comparison of these collectives in reference to serial categories that constitute that collective and are expressed in other arenas of social life. The implication here is that individual action cannot be understood or explained by an external observer without reference to multiple levels of context. However, as described above, the basis of both structuration theory and series is to develop the relationship between individual action and social structures. To this point, Sartre argues that investigation "…will start out from the immediate, that is to say the individual fulfilling himself in his abstract praxis, so as to rediscover, through deeper and deeper conditionings, the totality of his practical bonds with others and, thereby, the structures of the various practical municipalities and, through their contradictions and struggles, the absolute concrete: historical man" (Sartre, 1960/1991, p.52). Sartre further clarifies that what he means by 'abstract praxis' is that the sense of the action taken by the individual is incomplete because its importance in placing this individual as an agent of history is yet to be revealed. As the investigator widens the lens of their analysis, they are able to identify connections between different members of society that are not visible from an individual

perspective. However, once that connection is determined, it becomes clear that their action or decision is part of a wider pattern. This means that each individual action has the *potential* to have relevancy when aggregated with others. For this reason, it is possible to examine individual actions and decisions for *potential* serial categories that may hold relevance when aggregated with others.

Up to this point, I have treated series as self-evident. I aggregated individual decisions to commemorate one's child on the basis of socioeconomic class as well as the gender and age of the deceased child without demonstrating why these particular serial categories were selected as potentially meaningful. This is derived, in part, from contexts external to the mortuary environment but may also involve closer scrutinization of individual action. We know that comparison between serial categories within the mortuary context acquire meaning through comparison with other arenas in which these same serial categories were also identified as meaningful. By this same logic, we can also identify *potentially* meaningful serial categories by assessing which of these are meaningful outside of the mortuary context. However, in any particular society, there will be a vast number of such categories and it is unlikely they are all applicable to the mortuary setting. This is where individual mortuary decision-making is particularly useful. For every bereaved parent in this dataset, they are a part of numerous overlapping serial categories. However, within each category, they will either be included in one serial action or another: the majority or minority that either commemorated their child or did not. For example, parents belonging to the lowest socioeconomic class could either be members of the minority that did commemorate their child or the majority that did not. If the serial categories included in my analysis fail to address why a certain parent ended up within their serial collective, it is possible that the serial category that best explains their decision was not included.

To account for this, it is possible to scrutinize their individual behaviour more closely for *potential* categories of which they are a part but for which I did not test.

Individual mortuary decision-making is therefore an important resource for helping determine those serial categories that may be important for understanding serial collectives within the mortuary context. This does not, however, suggest any relationship between individual action and the meaning that researchers subsequently apply to each category. What relation does the overall pattern we establish via comparisons between series have to the individual that made the valuation in the first place? I would argue that while the individual valuation is itself a fundamental building block to understanding the meaning of any particular serial category of which they are a part, there is no relation between the narratives we construct and what is felt or intended by these individuals. This same sentiment has been echoed in other archaeological studies. Cannon notes that although patterns may become visible through aggregation, "…people do not often seek to create central tendencies or temporal trends through their actions" (2002, p.191, citing Bradley 1987, p.14-15). Dawdy similarly argues that one of the analytical confusions in historical study is to equate "…lived temporality with historical narrativity" (2019, p.189). None would argue that bereaved parents are actively concerned with creating the meaningful patterns we later identify through comparison with other avenues of interest. While every individual has their own internal logic for making a particular decision and applies their own meaning to that decision, this will not align with what we, as archaeologists, apply to their behaviour with the benefit of a broad and diachronic perspective. Sartre speaks specifically to this point: "…what is clear to them when they are themselves the terms of the series is beyond their grasp-in immediate practice-when they are only an interior structure of the terms and when each term is, *in fact,* the relation which unites them" (1960/1991, p.279). Each

individual is generally unaware of how their action fits within the context of others making similar decisions but, via the similarities of those actions, they are united. This unification, according to Sartre, constructs social reality. This reality is lived individually but forms a larger force when combined with others living, and therefore constructing, that same reality (Sartre, 1960/1991).

This approach is similar to that taken in other mortuary studies of childhood in that it acknowledges that the mortuary context offers a reflection of the ideals and conceptualizations of childhood as held by the parents rather than a direct reflection of the child's world (Baxter, 2022; McLaren, 2011). It does not, however, attribute these ideals and conceptualizations to individual parents but instead, I would argue that these are *constructed* through practices like commemorative decision-making and are not necessarily reflections of consciously held beliefs. This is a particularly important point to make when trying to understand mortuary decision-making. Although it is tempting to apply the meanings derived from comparison of different valuation processes to individual actors, this is simply not possible. For example, some scholars have claimed that parents in areas with high infant mortality were less attached to their infants and therefore did not attribute as much importance to their deaths as those of children and adults (McGuire, 1992, p.143; Rose, 1986; Stone, 1977). This has been widely refuted in subsequent studies (Cannon and Cook, 2015; Baitzel, 2017; Murphy, 2011; Strange, 2005). In attributing meaning to individual actors, the authors of the earlier works open themselves easily to criticism via counter-studies demonstrating that not all individual actors shared the same beliefs about their infants. Sartre specifically notes that what is 'said' through the unification of serial collectives does not exist in, or emerge from, any single individual. A similar sentiment is echoed in valuation studies. For example, Orléan refers to 'convention' as "…a collective belief

that no person holds…" (2014, p.220) and Quéré (2015) argues that this is similar to Durkheim's 'conscious collective'. It is therefore important to keep in mind that comparison of valuation processes in different arenas will uncover discernable sentiments, but these are not actually felt or thought by individuals. In this study, parents do indeed experience and construct the serial categories analyzed, but they do so as largely unknowing participants in an expression of that category that is historically and geographically situated.

As described at the start of this chapter, valuation studies provide a framework for highlighting deficiencies in mortuary archaeological scholarship as well as the difficulties that arise when we try to prescribe meaning to a stone commemoration. If we try to conceptualize the stone commemoration as a product of the bereaved person's desire to alleviate their grief or signal their wealth to other members of the community, the analysis will fail because we do not know how this material, specifically, serves either motive. I would further argue that any attempt to ascribe motive to any single mortuary material is likely to fail for the same reasons. Each individual has their own motivations for utilizing certain mortuary practices and materials and unless we take a biographical approach to understand their specific situation, we cannot make any broad statements to this end. It is, however, not necessary to attend to individual motivations in this analysis of the mortuary environment. We can instead utilize the framework outlined in this chapter where individual decisions aggregate into serial collectives and those collectives accrue meaning based on comparison of serial categories that are expressed both in the mortuary setting and outside of it.

In comparative studies such as Baitzel's (2017), Keswani's (2005), Parker Pearson's (1993) and Hodder's (1984), the use of materials and expression of serial categories by individuals within the mortuary setting are compared to use of these *same* materials and serial

categories outside of that setting. On the other hand, those studies that utilize historical events to explain mortuary decision-making frame mortuary practice as referencing some external force and the influence this would presumably have on the bereaved. In the first case, the decision itself becomes knowable through reference to other decision-making processes whereas in the second, the decision becomes knowable only through reference to a shared framework. I would argue that those studies that compare valuations made on the same series in different arenas will yield more fruitful results because the relationship between the mortuary setting and the comparative context is clear. Although many studies that examine historical events as a means of explaining mortuary practice are logical and may very well be true, the link between mortuary decision-making and this shared framework must be better established. To illustrate how this might look in the study of historical cemeteries, I explore two serial collectives in commemorative decision-making as a product of serial categories that exist both within the mortuary environment and in Victorian and Edwardian life more broadly.

Chapter 4: Hypotheses

As discussed previously, there is nothing inherent in the stone monument that would suggest a shared meaning or motivation held by those that decide to use it to mark the grave of their child; however, it is possible to aggregate individual decisions into serial collectives that may be explained through comparison of serial categories within and outside the mortuary setting. This theoretical framework forms the basis of my study, but for the ease of discussion, I will use the less cumbersome 'commemoration rates' to refer to the comparison between two serial collectives within one serial category. Although I have identified when and how comparison is permissible, this does not offer insight on *how* that comparison should be made or what would lead me to hypothesize a higher predicted commemoration rate or lower one for any particular serial category. With one notable exception (see Cannon and Cook, 2015), I also cannot draw on previous research to suggest when commemoration rates may be higher or lower. For these reasons, I need to make some assumptions about the function of the stone monument in order to form testable hypotheses. In this chapter, I will outline these assumptions and then explore how each may be used in hypothesis formation for each of the variables and interactions included in this study.

Assumptions for Hypothesis Formation

To hypothesize whether there would be comparatively lower or greater rates of commemoration, I have made some assumptions about the relationship between the deceased child and their lived experience that must be addressed. The stone itself does have specific properties, as outlined in a previous chapter: it requires some financial investment, it is made of

durable material that will last long past those who knew the deceased, it is placed in a public space alongside other deceased members of the community, and it contains identity markers of the deceased. It is not possible to attribute any particular meaning to these features, but they may still be useful in constructing hypotheses about when commemoration may be more or less expected. As argued previously, to understand differences in commemoration as a comparison between serial categories, we must examine other contexts where these same categories emerge as relevant outside of the mortuary setting. Similarly, I would argue that to understand when investment and a permanent public memorialization of the deceased would be most appropriate, we must look outside of mortuary practice to other settings in which investment and engagement in the public sphere differ on account of the same categories considered in this study. In other words, to produce a hypothesis regarding when it is more likely for parents of a girl, for example, to find it appropriate to invest in a public memorial for their child, we must look to other contexts outside of the mortuary environment where either investment or public visibility varies based on gender. The assumption made in this circumstance is that both 1) greater or reduced investment and 2) public visibility in life would equate to similarly greater or reduced investment in a public memorial following the child's death.

The correlation between investment and public visibility in life to investment and public memorialization in death has been made in other archaeological works. Carroll (2011), in her work on child burial in Roman Italy, found that older children (those at least over a year old) were more likely to be depicted on sarcophagi and to be buried with high value goods like gold jewellery. She argues the reason for this greater investment in their burials is either that the family wished to display their own wealth or they had invested more in the lives of these older children and the formation of aspirations that can no longer be met (Carroll, 2011). Baxter

(2020) also found that parents of children who had passed away in 19th century America would more commonly make explicit mention of the loss of family investment and aspiration on the headstones of their older children[5]. This resulted, in some cases, in expression of this loss "…through elaborate, highly individualized monuments" (Baxter, 2020, p.135). Although both studies examine children that are younger than, or at the lower end of, the age spectrum considered in this study, these examples still illustrate that mortuary archaeologists have previously considered the effect that greater investment in life may have had on the likelihood of investment in death.

The monument itself, as inscribed with demographic information that would help with identifying the deceased, also captures the identity of the deceased (Inall and Lillie, 2020). The fact that it is stone ensures that this identity is permanently memorialized (Longden, 2003). For children who received a stone monument in the public churchyard or cemetery, their membership within that community was therefore preserved into perpetuity (McKerr et al., 2009). However, one could argue that there would be no need to maintain membership in a community when the deceased had not acquired such membership in life. In fact, the public nature of the stone monument is frequently referenced in studies of historical cemeteries (Mytum, 2004; Strange, 2003; Tarlow, 1999; Walls, 2011). In his seminal work on mortuary practices in a variety of archaeological contexts, Binford (1971) found that children were less likely to have been commemorated in a public space and maintains that this is because they had not yet entered the public sphere. Buckham (2003) performed a comparable study to that presented here on the commemoration of children in the York Cemetery, England and found that children were more

[5] Baxter (2020) does not explicitly mention an age in this section by which the child would be considered 'older' but she does include the highly elaborated gravestones of a 5 and 9 year old earlier in her discussion to illustrate this point.

likely to be commemorated separately from adults when they had gained a more public presence. McGuire (1992) similarly found that more grave goods were included with older Hohokam children and concludes that this was because they had a more established social presence. It does therefore seem to be the case that the more prominent and public role the child played, the more likely that their parents would find it appropriate to invest in a public monument that permanently memorializes them.

There are, however, a number of problems with these assumptions that must be addressed. Baxter (2020) notes that parents do not necessarily invest less in children who were commemorated on smaller headstones with short inscriptions. This is particularly the case when we consider emotional investment alongside financial investment. Baitzel (2017), for example, examined the mortuary setting of children within ancient Andean Tiwanaku (500-1100 CE) society and found that while those who passed away later in life typically received more grave goods, the grave offerings recovered from infant tombs, which include miniature vessels and pan flutes, still illustrate an intense level of parental emotional investment in these children. This, combined with ethnographic information from Andean communities, leads Baitzel to conclude that "…infant death would have been as distressing to Tiwaniku parents as the death of an older child" (2017, p. 196). As demonstrated in Chapter 2, archaeologists have long known that a reduction in mortuary expression does not equate to a reduced sense of loss. The concept of investment must therefore be treated carefully, and it is likely that there is not a simple relation between investment in life and investment after the individual has passed away. These short examples demonstrate that it is difficult to assume that heightened investment or public involvement in life will equate to greater investment in a public memorial in death. That being said, it is important, for the purpose of this chapter, that I follow consistent logical assumptions

so that these may be challenged later if they are found to be incorrect. I will therefore develop the hypotheses in this section with the assumption that there is a simple relationship between the lived experiences discussed here and the mortuary environment but with the caveat that I am aware this assumption is problematic and expect to be able to challenge its basis once I have outlined the results.

Single-Variable Hypotheses

Table 4-1. Summary of predicted changes in commemoration rates for single-variable measurements

Influential Serial Categories	Hypothesized Relationship - Expressed as Comparison of Predicted Probability of Commemoration (PPC)
Socioeconomic classes 1 to 5	Socioeconomic Class 1 will see lower PPC than all others
Socioeconomic classes 3 to 5	PPC will be the same across all
Boys and girls	Boys will see higher PPC than girls
All ages	PPC will rise with increase in age but plateau in adulthood*
Ages 3 to ~7	A sudden increase in PPC with age
All years of death	PPC will increase with year of death with the exception of a stagnation from ~1870s into the 1890s

*Adulthood here refers to approximately the late teens to early 20s

Socioeconomic Class

When considered on its own, I expect to find that differences between those who belong to the serial collective that commemorated their children and those who belong to the serial collective of those who did not will directly reflect differences in economic means. As noted previously, members of the same socioeconomic class are members of the same serial category and are expected to face similar material constraints in their lives. Although I do not know how much the parents paid for the funeral and other accoutrement of death and burial, the decision to erect a relatively expensive stone monument is a financial investment and as such, economic means would certainly have played a role in deciding whether or not a child is commemorated (Rose, 1991; Strange, 2005, p.178). I would therefore expect those individuals of the lowest

socioeconomic classes to also have the lowest predicted commemoration rates, since that has already been shown for Cambridgeshire (Cannon, 1989, Cannon and Cook, 2015).

Furthermore, we can presume that among the population, there is some unknown percent of individuals that would erect a stone monument if they had the means available to do so. However, there is nothing to suggest that members of any socioeconomic class may be more inclined to this predisposition than members of another class. For that reason, I would argue that the only meaningful difference between these classes is their access to the means required to purchase such a monument. In other words, within each socioeconomic class, there is the same percent of people who would erect a stone monument if they could but as we move up through the socioeconomic classes, more of these families can afford such a monument. However, this barrier is removed once we reach socioeconomic class three and so, I would expect commemoration rates to be relatively stable between socioeconomic classes three, four and five. I subsequently expect a linear and positive relationship between socioeconomic class and the predicted rate of commemoration as the affordability of the monument becomes less of a barrier and then a plateau in the predicted probability of commemoration (PPC) for the higher socioeconomic classes once affordability is no longer an issue.

Gender

Broadly speaking, there was consistent gender inequality throughout the Victorian and Edwardian periods (Dyhouse, 1981/2013; Howkins, 1991; Jalland, 1996; Murdoch, 2014; Rose, 1991). While this did change over time (a point I will return to later), men were generally expected to provide for their wives and families and as a result, parents invested more in the education of their boys rather than their girls (Gorham, 1982/2013; Murdoch, 2014). If we consider the stone monument to similarly reflect an investment in the child after death, it is

therefore reasonable to suggest that when the genders are considered as serial categories, parents who lost a boy may find it more appropriate to invest in a marker after their death than those that lost a girl. Furthermore, if we consider the fact that the monument exists in a public space and may therefore be considered more appropriate in cases where the child's life was comparably more public, it would seem more likely that parents of boys, again when considered as a serial category, would find it more appropriate to commemorate their child in this fashion. Although boys would attend school for longer with other children and teachers from the local community, girls played a more important role within the household than boys. Girls provided more assistance with childcare, nursing the sick, and domestic chores than their male counterparts in households that could not afford servants (Jalland, 1996, p.99; Strange, 2005, p.196). I would therefore hypothesize that it will generally be considered more appropriate to invest in a public memorial for boys, who see a greater investment in their education and careers, than girls, who play a significant role within the household but generally do not see as high an investment or play as prominent a role in public spaces at large.

Age

This study will test patterns previously identified in Cannon and Cook (2015) regarding the effect of age on the probability of commemoration. What they found was that commemoration rates in rural Cambridgeshire increased through childhood as well as early adulthood and only peak at middle age. While controlling for other factors with a larger database, I will test to see if predicted commemoration rates do indeed increase through all of childhood and early adulthood. As the child took on a more public role and the parents increased the amount they invested in their child, this may translate to a greater likelihood that parents would deem it appropriate to invest in a permanent and public memorial at their passing.

However, while Cannon and Cook (2015) did find commemoration rates increased throughout the ages I have included in my study, there is reason to believe that the predicted probability of commemoration (PPC) may start to hold steady in young adulthood. At some point, the child will take their place in public life, begin a home of their own, and remove themselves from the influence and investment of their parents. I would therefore anticipate that predicted commemoration rates may mimic the life course. This is likely why changes in the life course are visible in other mortuary settings, such as Roman epitaphs (Revell, 2007) and Neolithic and Copper Age burial goods (Derevenski, 2000). Broadly speaking, childhood is a time for individuals to prepare and learn the skills they will need for adulthood. In the Victorian and Edwardian periods, girls were generally prepared for marriage and educated (formally in the latter years) for the skills they would need in running a household, boys were prepared for a career and educated in the skills they would need to succeed in their chosen occupation (Gorham, 1982/2013; Murdoch, 2014). When an individual was married, in an occupation, left home, and had children of their own, this demarked the end of the preparation phase and the beginning of adulthood (Frost, 2009). I would therefore anticipate that predicted commemoration rates may rise through childhood and then plateau once they reach adulthood (the age at which I would expect this plateau to occur differs by socioeconomic class, but when age is considered on its own, I would expect this plateau to occur sometime in the child's late teens or early 20s. This is an approximate average of the differences I will discuss later).

Beyond this pattern, I would also expect more dramatic differences in commemoration rates between very young children and those older than approximately five. The reason for this is because child mortality rates shift dramatically between these ages and one could therefore argue that during this time, the death of a young child may not garner the same social response as that

of an older child. In the 19th and early 20th centuries in Britain, infant and child mortality rates were high (Ariès, 1962; Jalland, 1996, p.120; Strange, 2005, p.230). In fact, in some working-class neighbourhoods in London during the late-Victorian era, half of all recorded deaths were children under five (Murdoch, 2014, p.66). In general, the further a child got from infancy, the more likely they were to survive. This is likely why Haveman (1999), writing on the inscriptions and decorative elements on children's gravestones in this time period in America, argues that the tone of these is 'bittersweet' because "...the death of a child was not an altogether unexpected event…" (1999, p. 283). She alternatively argues that this tone shifts by the 1970s and into the 1990s when the child's death became increasingly unexpected (Haveman, 1999).

In her widely cited work, *Death Without Weeping: the violence of everyday life in Brazil*, Nancy Scheper-Hughes (1993) investigated the experience of mourning in a small shantytown, Alto do Cruzeiro, in Brazil where infant mortality was also high. She argues that mothers acted 'indifferent' to the loss of their infants in part because of the naturalization of infant death (it should, however, be noted that while Scheper-Hughes argues that they may have *acted* indifferent, she does not suggest that they *felt* indifferent). Kalemli-Ozcan (2008) similarly found that when child mortality drops, investment (as measured by the amount of time parents invested in schooling for their children) in surviving children increases. She argues that when mortality is high, parents may hoard resources in anticipation of the death of some children but will reallocate these to provide greater opportunities for surviving children when mortality declines (Kalemli-Ozcan, 2008). I would therefore anticipate that as child mortality declined over time, parents became more comfortable investing in those children who have passed away, as their death became increasingly unexpected and their survival presumably more assured.

In both of the studies described above, the authors rightfully do not ascribe greater or lesser investment with any individual parent's emotional experience. Regardless of the action taken, I would anticipate a high level of grief among bereaved parents and generally an expectation that their child would survive (Strange, 2005, p.262). As Baxter notes, citing Murphy's (2011) work on Irish *cillinì*, "The desire for and hope that any particular child would survive was very real even though mortality rates were high…" (2020, p.135). I would therefore argue that parents did *not* anticipate the death of their child nor felt any less grief on an individual level but that the literature supports the expectation that regardless of how they feel, parents of young children who pass away may unconsciously, and more frequently, select to conserve resources and not invest in a monument for their child. For this reason, I would anticipate lower commemoration rates for very young children (approximately three to five years old in this database) and then a rather sharp increase in commemoration rates with age as the loss became increasingly unexpected. This effect should only be visible, however, at the youngest ages because once the child reaches an age when child mortality is no longer high, the loss would be equally unexpected.

Year of Death

As noted previously, the gravestone is a commercial good and is therefore tied to the spending power of the family. In the 1870s and 1880s, England experienced an agricultural depression (Howkins, 1991). Poor weather generally caused crops to fail more frequently and an increase in imports from America (facilitated by an increase in refrigeration and canning) saw a decrease in the price of agricultural products (Howkins, 1991; Bennett et al., 2020). The communities I have included in my study are primarily agricultural and each of the five socioeconomic categories I built include individuals employed in the agricultural sector.

Additionally, I would anticipate that for those individuals not employed in agriculture, they may still have suffered economically from the agricultural depression as the spending power of the community at large decreased. For these reasons, I would expect predicted commemoration rates to slump, or at least stagnate, through the 1870s and into the 1890s, as a result of the negative effect this depression had on the economy of these communities, and then rise exponentially following this event once spending power had recovered. It is plausible that an investment in something like a gravestone would not be appropriate in a time where the community is suffering economically but would become more appropriate as the economy recovers.

There were also ongoing demographic shifts that would suggest a rise in commemoration rates over time likely occurred. One such shift was a significant drop in fertility through the Victorian era (Jalland, 1996; Modin, 2002). While Victorian couples had an average of six children in the 1860s, this had decreased to just over four by the 1890s (Murdoch, 2014). In studies of fertility patterns in modern societies, scholars have found that there is a quantity-quality trade-off in the number of children a couple has and the degree of parental investment given to each child (Dang and Rogers, 2016; Juhn et al., 2015; Lee, 2008). Generally, these scholars have noted a higher degree of parental investment in each individual child when fertility is low. While this is not uniformly the case (see Dasgupta and Solomon, 2017, for example), similar patterns have been suggested during the Industrial Revolution in England (Klemp and Weisdorf, 2011). I would therefore expect that as fertility declines and investment in individual children grows, there may be a similar increase in investment at the child's death over time. Furthermore, although it is not specific to children, other comparable studies of historical cemeteries in Orkney (Tarlow, 1999) and north Pembrokeshire (Mytum, 2002) found that the number of gravestones, or the rate of commemoration respectively, increased through the 19th

century and into the 20th and Cannon (1989, p. 441) shows a similar pattern in 19th century rural Cambridgeshire.

Two-Variable Hypotheses

Table 4-2. Summary of predicted changes in commemoration rates for two-variable measurements

Original Predicted Pattern	Influential Serial Categories	Resulting Pattern
Boys will see higher PPC than girls	Socioeconomic classes 1 to 5	No change
A sudden increase in PPC with age from ages 3 to ~7	Socioeconomic classes 1 to 5	Pattern will be more prominent for socioeconomic class 1
PPC will rise with increase in age but plateau in the mid-teens	Socioeconomic classes 1 to 5	Lower socioeconomic classes: no change Higher socioeconomic classes: there will be no plateau
PPC will rise with increase in age but plateau in the mid-teens	Years of death	Age of plateau in the PPC will increase over time
PPC will rise with increase in age but plateau in the mid-teens	Boys and girls	Age of plateau would occur earlier for boys than for girls
Socioeconomic Class 1 will see lower PPC than all others	Years of death	Difference in the PPC between socioeconomic classes will reduce over time
(Alternative to the above) PPC will increase with year of death	Socioeconomic classes 1 to 5	No difference in the PPC over time for socioeconomic class 1
PPC will increase with year of death	Socioeconomic classes 1 to 5	This will occur earlier for class 3 than the others
PPC will increase with year of death	Ages at death	This pattern will be more dramatic for very young children (~3 to 5)
PPC will increase with year of death	Boys and girls	This pattern will be more dramatic for girls
PPC will increase with year of death	Boys and girls	This pattern will be more dramatic for boys after 1914

Socioeconomic Class and Gender

I would not expect, given the assumptions laid out at the beginning of this chapter, that there will be a significant difference in the hypothesized pattern noted above for gender when considered alongside socioeconomic class. There are substantial differences in what girls of the lower classes did in the household and beyond when compared with the upper classes, but these should not result in differences regarding the circumstances in which parents would find it appropriate to invest in a public memorial. I have decided to include these differences here to demonstrate why I would not expect major differences given these assumptions, but also to lay the groundwork for an alternative hypothesis if differences are indeed found. As mentioned previously, girls played a more important role within the household (although boys also participated in household tasks; see Frost, 2009), helping with both childcare and chores. However, among the upper classes, this role was filled by servants rather than daughters. Although their labour may have been integral within the home for parents who could not afford servants, this does not reflect either substantial parental investment or participation in the public sphere. For this reason, and in following the assumptions made in this chapter, I would argue that neither of these patterns should result in parents finding it more appropriate to invest in a permanent public memorial. That being said, both boys and girls of lower-class households did participate in waged labour as either domestic servants or as agricultural labourers. However, whereas girls would typically be employed as live-in domestic servants in households that were not part of their local community, boys would more commonly work on local farms or as assistants in local businesses (Dyhouse, 1981/2013, p.9, 180; Robin, 1980, p.186-187). Even in cases where children of both genders worked, boys were therefore more prominent members of the local community whereas girls would more commonly support their families from afar.

Furthermore, among the upper classes, boys received substantial investment in expensive schooling or apprenticeships (Frost, 2009; Klemp et al., 2013). There were also gendered preferences regarding inheritance. Although women gained the right to inherit personal property, the land and estate itself most commonly went to a male child (Murdoch, 2014). In particular, among the landed elite, the principle of male primogeniture guided inheritance decisions at least until the 1880s (Stone, 1986). This would suggest that parents of the upper classes invested more heavily in the preparation of male rather than female children, and I would subsequently expect them to invest more frequently in a public memorial for boys than for girls. Among the lower classes, girls and boys both contributed to the family income and household upkeep but where girls did so from within the home or in settings outside of the local community, boys were more active in the public sphere. Therefore, while there is no significant difference in parental investment, I would expect the difference in engagement with members of the local community to result in boys being commemorated at a higher rate than girls. I had argued previously that boys were more likely to be commemorated than girls and, given the differences in their role within the household and beyond, I would expect these same differences to emerge when measured as an interaction with socioeconomic class. Although derived from different patterns, it seems that parents of all classes may find it more appropriate to commemorate their boys rather than their girls.

Socioeconomic Class and Age

I had noted previously that as a child aged, their death became increasingly unexpected and as a result, the PPC for children would likely rise with age. This pattern should vary, however, based on socioeconomic class. In their study of rural Cambridgeshire, Cannon and Cook (2015) found that the decline in infant and young child mortality had a greater effect on

commemoration rates in the lower socioeconomic classes, but note that the actual mortality rates did not differ by class. Alternatively, in their study of mortality patterns in London, Newman and Hodson (2021) found that while all children were at risk of disease, it is predominately the children of the lower classes that saw greater rates of child mortality. The reason for this is because the diseases that most commonly resulted in the death of children in this time period (scarlet fever, diphtheria, measles, whooping cough, and tuberculosis) were infectious and thrived in crowded living conditions among individuals with poorer nutrition (Mercer, 2021; Newman and Hodson, 2021). The conditions that resulted in higher mortality rates for lower socioeconomic families in urban households, however, may not have been present in rural areas. Based on Cannon and Cook's (2015) study of commemoration practices among the lowest socioeconomic class in rural England, I would still expect the effect of changes in mortality rate over time to be more present among this class, but it may not be related to those factors that result in greater mortality among the urban lower classes. An alternative explanation, posited by Cannon and Cook (2015), is that because fertility also dropped at this same time, there were fewer children in the labouring community that passed away. It was therefore less likely that if the family elected to put up a commemoration for their child, this overt expression of grief would renew a sense of grief among the many members of the community who had also lost a young child.

I would also expect commemoration to differ based on the interaction between age and socioeconomic class as a result of differences in the age at which children reached adulthood. As noted previously, I expect predicted commemoration rates to generally reflect the life cycle. Predicted commemoration rates should increase as children play an increasingly important role in the public sphere and parental investment increases, and then plateau once that child reaches

adulthood. For the lower classes, children began to work from an earlier age than the upper classes. Children of labourers would have, in some cases, entered the workforce, when they were under ten years old (Frost, 2009; Robin, 1980). In his study of Elmdon, a rural town in Essex near Cambridgeshire, Robin (1980) additionally found that it was not unusual for children to leave home by the time they were 14. On the other hand, the average age of marriage for middle- and upper-class Victorians was the mid- to late-20s (Branca, 1975/2013). Seeing as my database includes children 3-25, I would therefore expect that the stabilization of predicted commemoration rates at adulthood would happen in the mid-teens for the lower classes whereas it would not stabilize in the upper classes.

Socioeconomic Class and Year of Death

Although they do not target rural communities directly in their discussion, Justman and Gradstein (1999) and Crouzet (1982/2006, p. 14) state that there was a reduction in the income gap between the classes over the time period studied. While economists have suggested multiple reasons for why such a reduction might occur (see Williamson, 1995 as an example), one is that the political structure shifted from one that favoured the upper classes to one that increasingly represented the general public (Hasbach, 1894/1908; Justman and Gradstein, 1999). With this came new laws, like free education, that favoured and financially supported the working classes. For this reason, I would expect the differences in predicted commemoration rates between the classes to reduce over time as the purchasing power of the lower classes increased and it become more feasible for them to afford a stone monument.

That being said, while Justman and Gradstein (1999) modelled a drop in cost of living for the lower classes of about 33% between 1867 and 1899 and Mingay (1981, p. 6-7) argues that agricultural labourers fared better in the second part of the 19th century as rural to urban

migration created a labour shortage in rural areas, this is at not necessarily what is captured in reports of the standard of living among agricultural labourers at the time. In his 1893 report to the Royal Commission on Labour regarding the living conditions of agricultural labourers in eight counties, including Cambridgeshire, Chapman does at first seem to agree with Justman and Gradstein as well as Mingay, stating that "The general condition of the agricultural labourer, judged by appearances, has greatly improved. His standard of life is higher; he dresses better, he eats more butcher's meat, he travels more, he reads more, and he drinks less" (1893, p. 44). But he quickly clarifies that this impression of greater wealth does not capture the lived experience of this class, noting that, "It is only necessary to compare the weekly budgets with the weekly earnings to realise that the large majority of labourers earn but a bare subsistence, and are unable to save anything for their old age, or for times when they are out of work. An immense number of them live in a chronic state of debt and anxiety and depend to a lamentable extent upon charity" (1893, p.46). Chapman's observations would suggest that while the labouring class may *appear* to have achieved a better standard of living later in the time period studied, this is an oversimplification of reality. As a result, I would argue that I should expect to see a rise in the predicted probability of commemoration over time for the labouring class. Chapman's comments reflect a general sentiment towards the working class that was not uncommon in the 19th and early 20th centuries. Those of the middle and upper classes, under the presumption that the working class *shouldn't* be able to afford certain things, subsequently chided members of that class when they spent money on what they considered to be luxuries (Strange, 2005). This does not reflect the true economic station of the working class and is instead, more indicative of how members of the middle and upper classes, like Chapman, perceived the lower classes. Regardless of the truth behind Chapman's comments, both would suggest that the working class would

increasingly spend more money on stone commemorations over time and I would therefore hypothesize that the PPC for socioeconomic class one will increase over the time period studied.

I would additionally expect that the increase in investment in surviving children as a result of a decline in fertility over the time period studied would vary by socioeconomic class. Murdoch (2014) argues that the fertility decline was spearheaded by the middle class and as such, I expect to see a more substantial investment in the commemoration of middle-class children that is later matched by the lower and upper classes as they too experience a decline in fertility.

Year of Death and Age

I would also expect the pattern described above regarding the age at which children transition from childhood into adulthood to differ over time. Through the Victorian era, there were numerous signals that the period of childhood and adolescence was lengthening, and I would therefore expect mortuary behaviour to similarly capture this shift. One such change was the institution of universal education via the Education Act in 1870 (Vanden Bossche, 2014) and compulsory school attendance in 1880 (Howkins, 1991). Although the change was gradual, this reflects a shift in attitude regarding when childhood should end and thus, when children should be fully integrated in the wider community. In fact, Vanden Bossche points out that, "It has even been argued that the public schools became widely favored in the later nineteenth century precisely because they could be trusted to impede the student's progress towards maturity more successfully than could parents…" (2014, p.85). These changes all indicate that there was a delay in the age of transition into adulthood through the time period of study and I would therefore expect the age at which predicted commemoration rates stabilize at adult levels to increase when combined with the year of death variable.

I would also expect the hypothesized pattern regarding age-based differences in predicted commemoration rates as a product of high infant and child mortality to change when combined with the year of death variable. In their study of infant commemoration in Cambridgeshire, England, Cannon and Cook (2015) argue that the increase in commemoration rates near the end of 19th century and particularly among the lower classes is related to the simultaneous reduction in infant mortality. They combine attachment theory with the dual-process model of grief to illustrate that more public displays of grief may be more appropriate when loss is not as ubiquitous and would therefore not be triggering for other members of the community who had experienced the same loss. Broadly speaking, as child mortality decreased through the Victorian era, children who made it past the age at five were increasingly expected to survive (Frost, 2009). I would therefore expect predicted commemoration rates to increase dramatically for very young children over time relative to the other ages.

Year of Death and Gender

As noted previously, boys received a higher level of parental investment and played a more important public role within the community than girls. For families that could afford it, parents placed particular importance and investment in the education of their sons. In families where boys needed to work to support the family income, they more typically remained at home whereas girls worked in other communities as domestic servants. However, over time, increasingly more value was placed on educating daughters either as wives and mothers or as members of the workforce (Gorham, 1982/2013; Murdoch, 2014; Nelson, 2014) and with the introduction of mandatory attendance for all children in 1880 (Frost, 2009), girls did spend increasingly more time in school. However, while parents did invest more in the education of their daughters over time and they were increasingly more involved in community life, this never

matched the investment and public involvement of the boys. For this reason, I would expect there to be an increase in the predicted probability of commemoration for girls over time that is more dramatic than that of boys but that it would generally be deemed more appropriate for the boys to receive a permanent public memorial following their death.

I also anticipate that World War I may alter gendered predicted commemoration rates from its onset in 1914. While numerous studies have pointed to a physical reduction in commemorations following WWI (Jalland, 1996; Mallios and Caterino, 2007; Mytum, 2004, p.83; Parker Pearson, 1982; Tarlow, 1999), this has not been explored in relation to gender. Although the interpretation that this pattern is related to the large number of deaths during the war is problematic, a point I have already discussed, it is certainly the case that the deaths themselves were unequally distributed between the genders. Significantly more young men were lost during WWI than women and as such, this may directly impact the expression of gender as a serial category within the serial collectives formed by commemorative behaviour. Even though this database does not include those in the military class (because those who died abroad and were not buried in the churchyard or cemetery may have received a commemoration but were not included in the burial records), I still expect there to be a shift in the predicted commemoration rates for surviving boys after 1914 that differs from that of girls. In particular, some have found that following the death of one child, parents will increase their emotional investment in, and desire to protect, their surviving children (Buckle and Fleming, 2011; Jalland, 1996, p.140; Rando, 1991; Rosenblatt, 2000; but see Fletcher et al., 2017). I would similarly predict that with the deaths of so many young men in WWI, parents may subsequently invest more heavily in their surviving male children and this could result in an elevated predicted probability of commemoration for boys after 1914 when compared to that of boys prior to WWI.

Age and Gender

For the pattern discussed previously in which predicted commemoration rates increase through childhood and then plateau as the child transitions into adulthood, I would expect this to vary based on gender. Although sons would be educated in public settings and take on a career within the community, as mentioned in the previous section, daughters did not necessarily achieve the same public status or investment. Young girls did attend school later in the time period studied but their influence was largely felt within the household. Older daughters took on the role of 'little mother' in some capacity as early as they could: assisting with childcare, nursing the sick, and completing domestic chores (Jalland, 1996, p.99; Strange, 2005, p.196). They would marry earlier than upper-class girls but would still not be fully independent until they could afford a place of their own (Vanden Bossche, 2014). Girls of upper-class families were also kept largely within the home. They attended school at home (at least earlier in the time period studied) and at 21 they would participate in a 'coming out' in which they were presented to society as available for courtship or marriage (Vanden Bossche, 2014). I would therefore expect that it may become increasingly appropriate to commemorate daughters in public as they aged and became more prominent members of society but that this would, as with the pattern discussed in the previous section, be more common for their male counterparts from an earlier age. That being said, in their preliminary results of commemoration rates for children in rural Cambridgeshire, Cannon and DeSchiffart (2008) found that girls were in fact commemorated at a younger age than their male counterparts and may be related to differences in their role within the household. While this does not align with the assumptions made above about the function of the stone commemoration, this is a possible alternative that will be explored later if changes in the PPC do not match the hypotheses outlined here.

Three-Variable Hypotheses

Table 4-3. Summary of predicted changes in commemoration rates for three-variable measurements

Original Predicted Pattern	Influential Serial Categories	Resulting Pattern
PPC will rise with increase in age but plateau in the mid-teens for the lower socioeconomic classes; however, there will be no plateau among the upper classes	Years of death	The 'adult plateau' will re-emerge among the upper classes earlier in the time period studied but disappear over time. This change will be less pronounced among the lower classes
PPC will rise with increase in age but plateau in the mid-teens for the lower socioeconomic classes; however, there will be no plateau among the upper classes	Boys and girls	Girls of socioeconomic classes 1 and 2 will see a resurgence in the PPC in their late teens
PPC will rise with increase in age but plateau in the mid-teens for the lower socioeconomic classes; however, there will be no plateau among the upper classes	Boys and girls	The PPC will follow this same pattern but for boys in the lower socioeconomic classes, the PPC will be higher than that of girls
A sudden increase in PPC with age from ages 3 to ~7 that is more prominent among socioeconomic class 1	Years of death	Over time, this sudden increase in the PPC will diminish
Difference in the PPC between socioeconomic classes will reduce over time	Ages at death	For children aged 3 to 14, this will emerge as a high PPC for socioeconomic class 5 through time, a significant change over time for socioeconomic class 2 and a slightly less significant change for socioeconomic class 1
PPC will rise with increase in age but plateau in the mid-teens; however, this will occur at an earlier age for boys than for girls	Years of death	Girls will reach the adult plateau at an increasingly later age through the time period studied but it will consistently be an earlier age than that of boys

PPC will increase with year of death but this will be more prominent among girls than boys	Socioeconomic classes 1 to 5	This pattern will be more evident among the higher socioeconomic classes than the lower

Age, Year of Death, and Socioeconomic Class

In this three-way interaction, I expect a combination of multiple patterns described in the previous sections. While I anticipate that the emergence of adolescence as a concept will increase the age at which individuals reach adult predicted commemoration rates, I expect that this will happen in the upper classes earlier in time than in the lower classes. Generally, while children of the elite classes were educated from early in the time period, children of the working classes only started attending school later on and even then, this did not result in as long of an adolescent period as seen in the other socioeconomic classes (Gorham, 1982/2013). In fact, although school did serve to delay the point at which children sought employment, "Even by 1914 some 40 per cent of children left school before the age of fourteen." (Dyhouse, 1981/2013, p.105). It was therefore only later in the time period studied that the prolonged period of childhood and emergence of adolescence noted above was also found in lower classes and children were still expected to leave school and pursue work earlier in these classes. I would expect that the age at which children reach the adult plateau will raise over time among the upper classes as more children are spending their adolescence preparing for their adult careers and responsibilities whereas this extension will be less pronounced among the lower classes and children will reach adult commemoration levels much earlier in age.

In my hypotheses for the interaction of age and socioeconomic class, I had anticipated a rise in predicted commemoration rates with the age of the child as the death became increasingly unexpected. In their study of infant mortality rates in rural Cambridgeshire, Cannon and Cook (2015) found that both the relative and absolute rates of infant and young child mortality were

approximately the same between socioeconomic classes. There was, however, a more substantial rise in commemoration rates for infants and young children among the lowest socioeconomic class. They argue this pattern is related to the greater social acceptance for loss-oriented and public grieving in the context of overall declines in mortality. As the death of young children becomes increasingly unexpected over the time period, I similarly expect to see greater rates of predicted commemoration among young children, particularly of the lower classes. Cannon and Cook (2015) additionally found that commemoration rates for infants and children below the age of 3 in the highest socioeconomic class essentially did not vary through the 19th century. They conclude that commemoration rates among this class did not respond to shifts in infant mortality. Changes in child mortality through the time period studied may similarly not alter predicted commemoration rates for young children in the upper socioeconomic classes.

In their raw data, Cannon and Cook (2015, p. 409) additionally found that commemoration rates for children aged 3 to 14 may vary based on socioeconomic class. They examined differences in commemoration rates in rural Cambridgeshire for three different socioeconomic classes across year of death (segregated into ten-year increments) and while those of the highest socioeconomic class experienced a high rate of commemoration from 1851 to 1900, there was a relatively significant increase in commemoration rates over time among the lower-middle classes and a similar but less prominent increase among the lower class. This study will test if this pattern is identifiable among children using a larger database and while controlling for other variables.

Age, Year of Death, and Gender

As with the three-way interaction described above, I also anticipate that the increase in age at which children reach adult predicted commemoration rates with the emergence and

lengthening of the adolescence period will differ based on the gender of the child. As I note in the hypotheses for the interaction of year of death and gender, girls were educated at a higher rate in the later Victorian era when compared to the mid-Victorian. While this meant girls spent more time in school rather than helping out in the home, I would expect to see an increase over time in the age at which the predicted probability of commemoration (PPC) for girls reached adult levels as greater social value was placed in their adolescence. Additionally, the age of consent for girls rose through the Victorian period. In 1875, it was raised from 12 to 13 and ten years later, in 1885, it was raised again to 16 (Murdoch, 2014). This provides evidence in the form of legal change that girls were experiencing a prolonged childhood period in the latter years of the Victorian period. On the other hand, Victorians placed social value in a preparatory stage for boys from the start of the study period and therefore, I would not expect to see this same pattern in predicted commemoration rates among boys. Instead, I anticipate that boys will reach adult predicted commemoration rates at a later age than girls for the entirety of the period studied.

Age, Socioeconomic Class, and Gender

As noted previously in the hypotheses for gender and socioeconomic class, girls played a more important role than boys within the household when there were no servants to assist with childcare. Alternatively, girls of the lower classes may take on waged labour, typically outside the community, from a young age in order to support their families. Boys would also work from an early age in the lower classes (and contribute economically to the household) or attend school in the upper classes. Given these different roles, I had hypothesized that parents of all socioeconomic classes would find it more appropriate to commemorate their boys than their girls. That being said, I would expect this pattern to shift once the girls of the lower classes left

domestic service and returned home. Although the ideal throughout the Victorian and Edwardian periods was that a married woman would not work, the reality for lower class married women was that they would typically be employed as laundresses, agricultural labourers, or some other occupation (Bennett et al., 2020; Dyhouse, 1981/2013, p.5; Lampard, 2009). Importantly, these occupations typically served their local communities and as such, I would expect that it would be more likely, when the girl aged and left domestic service, for parents and spouses of these women to have recognized their public contribution in death. In upper class households, boys who went to school and college or university would typically delay marriage to a later age than those of the lower socioeconomic class households (Gordon and Nair, 2002; Mitchell, 1996:142; Ogle, 1890). As noted previously, the average age of marriage for middle- and upper-class Victorians was the mid- to late-20s (Branca, 1975/2013), but seeing as this is not often delayed by pursuit of education in the lower socioeconomic classes, it is more likely that they would marry earlier. I would therefore hypothesize that among the lower socioeconomic classes, the predicted probability of commemoration for boys would be higher than that of girls but they will both reach the adult plateau earlier than among the upper classes.

Year of Death, Socioeconomic Class, and Gender

I had noted previously that children of the lower socioeconomic classes pulled their children out of school at an earlier age than the other classes, but this pattern is also gendered. Girls of the lower socioeconomic classes, who could not afford servants, would be taken out of school at an earlier age than boys, or kept home more frequently, so that they could assist their mother with her domestic duties (Dyhouse, 1981/2013, p.102; Frost, 2009, p.45; Murdoch, 2014, p.152). For girls of the upper classes, on the other hand, parents did invest in schooling early in the time period studied. In the mid-1800s, this was frequently done at home rather than at a

boarding school, where their male counterparts attended (Dyhouse, 1981/2013 p.40; Nelson, 2014; Robin, 1980, p.151). Once these upper-class girls began, over time, to attend expensive boarding schools, parents were required to invest a lot more in their education than they had done previously. For this reason, I expect that predicted commemoration rates for girls in lower-class households will change over time, but that the trajectory will not be the same as among the upper classes. As the girls of working-class households began attending school, they were more present as members of the local community, but they subsequently spent more time at home than their upper-class counterparts. I would therefore expect that over time, parents would find it more appropriate to invest in a monument for girls whereas this should be relatively consistent for boys, and that this difference will be more prominent among the upper classes.

Birth Order

Table 4-4. Summary of predicted changes in commemoration rates for three-variable measurements

Original Predicted Pattern	Influential Serial Categories	Resulting Pattern
	Birth Orders	Oldest children will see a higher PPC than the middle and youngest
	Birth Orders	Only children will see the highest PPC of all other birth orders
Oldest children will see a higher PPC than the middle and youngest	Boys and girls	Oldest male children will see a higher PPC than the boys and girls listed as middle or the youngest children

I anticipate where a child falls in the birth order will also result in differences in commemorative treatment. While I have not encountered research within mortuary archaeology that considers this factor, this expectation is supported by studies outside the field. Within psychology and economics, studies have demonstrated that parental investment is increased for the eldest offspring (Hertwig et al., 2002; Keller and Zach, 2002; Salmon, 1998). For example,

utilizing data from the Children of the National Longitudinal Survey of Youth 1979, Pavan (2016) found that first-born children performed better on cognitive exams than the second- and third-born children at the same ages and received more resources from their parents. Mechoulan and Wolff (2015) similarly found that in their study of French households between 1992 and 2010, first-born children not only received higher levels of education and better occupations but were also more likely to receive financial transfers from their parents. If parents do invest more in their oldest children in life, I would similarly expect a higher likelihood that their parents will fall within the serial collective that invested in a permanent memorial following their death.

I would further anticipate that on top of the differences between oldest, middle, and youngest children, those without siblings will be commemorated very differently than any of the other groups. Some psychologists suggest that following the death of their child, parents may cope with their loss by 'substituting' for the lost child with a surviving one (Anisfeld and Richards, 2000; Bowlby, 1980; Krell and Rabkin, 1979; Valeriote and Fine, 1987). While not universally accepted in psychology (Grout and Romanoff, 2000), this suggests that in families where no child could replace the one lost, they may have lost their investment entirely and with no surviving children in which to re-invest, they may be more inclined to continue to invest in their lost child in the form of a permanent memorial.

Regarding interactions between birth order and the other variables considered in this study, the only interaction for which there is sufficient extant literature to support its exploration is between birth order and gender. As mentioned previously, preference for inheritance may be given to the eldest son in the family (Robin, 1980; Stone, 1986). In particular, among the upper classes, parents more frequently followed traditional family values and invested more heavily in the education of their eldest son (Klemp et al., 2013). The birth order database does not

exclusively include the elite socioeconomic class, but I would still expect families to favour the eldest son over other children within the birth order as well as over daughters. This should result in a higher predicted probability of commemoration rates for male children who are also listed as the oldest.

Chapter 5: Methods

Each of the hypotheses outlined above were tested using binary logistic regression to predict the likelihood of commemoration for parents within each serial category. I then plotted the results of each category for ease of comparison. In this chapter, I will outline the basic statistical methods and how they are implemented to facilitate the discussion of my results in the following chapter. All analysis was performed in R (version 4.1.1) using primarily the following packages: missForest (for imputing missing values), mgcv (for regression modeling), and ggplot2 (for graphing results).

Binary Logistic Regression

The goal of my study is to model the effects of a combination of categorical (gender, socioeconomic class, and birth order) and continuous (age at death and year of death) variables on a single binary variable (whether a child was commemorated or not). For this reason, the primary method I utilized in my analysis is binary logistic regression, which models the probability of an event occurring as a function of any number of categorical or continuous variables (Denham, 2016). A common application of this method in archaeological inquiry is the identification of probable archaeological sites on the landscape (Campbell, 2006; Diwan, 2020; Hazra, 2020; Vaughn and Crawford, 2009); but it has also been used, for example, in the reconstruction of the silk road (Zhu et al., 2018), determining factors responsible for bioerosion

(Booth, 2016), and to model sex dimorphism based on cranial traits (Chovalopoulou et al., 2017). At its most basic, binary logistic regression takes the following form:

$$logit(P) = a + b_1X + b_2W + \ldots$$

$logit(P)$ = the log odds for the probability of an event happening

a = the intercept of the model

$b_1 \ldots b_j$ = the coefficient/slope of each independent variable

$X, W \ldots$ = the value of an independent variable

The coefficient for each independent variable is provided in the summary of the model constructed in R. For continuous variables, the value of this coefficient is the change in the log odds for the probability of commemoration with a one-unit increase in the independent variable while holding other independent variables constant. For categorical variables, coefficients are measured for each sub-category against a reference sub-category and represent the increase in log odds between the sub-category of interest and the reference (Kleinbaum and Klein, 2010). For example, if the coefficient for girls was -0.38, we could say that the log odds of a girl being commemorated is 0.38 less than the log odds of a boy being commemorated. These coefficients are additionally utilized to measure the p-value for that variable. In the output for the result of the binary logistic regression, the p-value reflects whether the coefficient for that variable differs significantly from 0 based on the calculation of this statistic and its standard error (Darlington and Hayes, 2017). However, while the coefficient does provide a measure of the effect each variable plays in the log odds of commemoration, log odds are not intuitively easy to understand and can be mathematically converted into probabilities (Osborne, 2015). This is done by taking the exponential of the log odds and dividing it by 1 + the exponential of the log odds (Osborne, 2015). My analysis will therefore consider the predicted probabilities of commemoration rather

than the log odds of commemoration because these are much easier to understand and are easily converted from the base model.

An additional benefit to using binary logistic regression is that it does not make many assumptions and is therefore more flexible in its application than other statistical tests. The assumptions it does make are: 1) there is little or no correlation between the independent variables; 2) there is a linear relationship between the independent variables and the log odds of the outcome (although the relationship between the independent and dependent variables does not have to be linear); and 3) a large sample size so that the data are not sparse (Long, 2008; Osborne, 2015). To test for correlation between the variables, or multicollinearity, I measured the generalized variance inflation factor (GVIF) using the package 'car' (Fox and Weisberg, 2019). In this dataset, this test measures whether an individuals' membership in a particular age at death, year of death, gender, or socioeconomic class influences their likelihood of belonging to any other independent variable. Unlike the variance inflation factor (VIF) on its own, GVIF is able to measure multicollinearity among categorical variables without splitting up the category into multiple dummy variables (Fox and Monette, 1992) and is therefore appropriate in my study. Although there is no specific cut off point in this measure, the general rule of thumb is that a GVIF value of over 10 indicates multicollinearity; but in binary logistic regression, specifically, a value over 2.5 may be cause for concern (Senaviratna and Cooray, 2019). I measured the GVIF on a binary logistic regression model that included age at death, year of death, gender, and socioeconomic class and it was under 2 for each variable. I therefore do not have reason to believe that multicollinearity is a problem in my dataset.

I have also taken steps to allow my data to reflect a non-linear relationship if needed. The assumption that the relationship between the independent variables and the log odds of the

dependent variable is linear is not a concern for categorical variables because each category is compared individually to a reference category. However, recall that the interpretation of the coefficient for each continuous independent variable in the model is that this is the slope by which the log-odds change as the independent variable increases by one unit. The binary logistic regression model therefore fits a single straight line to the data regardless of whether a straight line is the best fit. This is a problem for age at death and year of death because I do not anticipate a linear relationship between these variables and the likelihood of commemoration. For example, I expect the likelihood of commemoration to plateau at adulthood, but this would not be visible if the model can only fit a straight line. For this reason, continuous variables were included in the model as smooth terms with the function 'mgcv' (Wood, 2017). Thin plate regression splines are used in this package to get around the issue of knot placement. Broadly speaking, the purpose of splines is to create break points (called knots) in continuous variables at which the model can shift the slope to better capture the actual relationship of the independent variable to the log odds (Gauthier et al., 2020). For example, if we take the continuous variable age at death (3 to 25) and set knots at ages 8.5, 14, and 19.5, the model will split age into four different sections (3 to 8.5, 8.5 to 14, 14 to 19.5, and 19.5 to 25) and calculate the slope for each section individually. The actual placement of these knots is, however, problematic because this decision will alter the shape the non-linear function can take. Although a very simplified explanation, thin plate regression splines get around this problem by starting with a very high number of knots and then reducing this number until both their number and placement are optimized (Wood, 2003). They also include a series of mathematical functions[6] that allow a smooth transition where these knots are placed. This is important because modelling continuous variables as thin plate regression

[6] For a more detailed discussion and definition of these functions, see Wood (2017, p. 215-219)

splines does not force the relationship between that variable and the log odds of commemoration to be non-linear. It only allows non-linearity if that is a better fit for the data, thus circumventing the second assumption listed above.

To ensure that there are enough data to properly model the relationship between the independent and dependent variables, a commonly cited rule of thumb is that there should be at least ten outcome events per predictor variable (EPV) (Peduzzi et al., 1996). The number of predictor variables is normally represented by the degrees of freedom required in the model (Austin and Steyerberg, 2017). The most complicated model I consider has 25 degrees of freedom, therefore my sample needs to include at least 250 outcome events (commemorations in this study). In my database, there are 1398 commemorations, well over the guidelines normally recommended. However, particularly with binary logistic regression, EPV does not necessarily guarantee that the sample size is adequate (Courvoisier et al., 2011). For this reason, I used gam.check() from the 'mgcv' package to check if the model fully converged[7]. Models with inadequately sized datasets can fail to converge and this measure has been used in other studies as indicative of poor sample size (Courvoisier et al., 2011; Hansen et al., 2014; Vittinghoff and McCulloch, 2007). All the models I ran fully converged, lending further support that the third assumption defined above was met.

I also utilized gam.check() to check that the basis dimension for each smooth term (age at death and year of death) was adequately large. To ensure that the different models incorporate the same terms, I needed to set the basis dimension for terms rather than having each optimized separately within the model (the smooths are therefore actually *penalized* thin plate regression

[7] When a binary logistic regression model fails to converge, the algorithm has failed to find values for the parameters of the model and as such, no model can be produced. For a more detailed description of reasons why a model may not converge, see Allison (2004)

splines). The basis dimension, *k*, set the maximum allowed degrees of freedom for the model, which limits the flexibility of the model (Wood, 2017). The actual size of *k* does not matter in fitting the model unless it is too small. This could result in under-smoothing and is identified by gam.check() as patterning in randomly reshuffled residuals. If the p-value for any smooth returned in gam.check() is significant, this suggests there is patterning in the residuals. If this occurs and the effective degrees of freedom is close to the basis dimension, Wood (2017) recommends increasing the value of *k.* I therefore used gam.check() for each model and then set *k* at a size that was sufficiently large for every model.

Interactions

I first conducted a basic, unaltered binary logistic regression model so that I may test the influence of each variable individually while holding the others constant. However, the benefits of a large dataset are that we can then examine how these relationships are moderated by other variables within the dataset. This is included in the regression model through a product term of the variables in question. For example, if I am interested in the interaction of age (which I will call variable W) and gender (which I will call variable X), I would include the variable X*W in my regression (Newsom et al., 2003). Normally, when assessing if an interaction model provides a better fit, one would construct a model which includes both the interaction term as well as the first-order effects (age and gender in this example) (Hayes, 2017; Kleinbaum and Klein, 2010; Newsom et al., 2003). If the interaction term has a significant p-value, variable W would be said to moderate the effect of X on the log odds of commemoration. Likewise, X moderates the effect of W on the log odds of commemoration. It is also important to include the first-order effects so that the intercept of the interaction is properly specified, thus enhancing its predictive accuracy (Kam and Franzese, 2007).

Kam and Franzese (2007) and Pedersen et al. (2019) both acknowledge that it is not statistically necessary to include the first-order terms but that their inclusion should be considered within the context of the goals of the study. Specifically, Pedersen et al. (2019) note that by including the first-order effects for smooths (age at death in the example described above) in a model, this pulls the predicted log odds of commemoration towards that average. In studies that aim to identify and interpret the best fit model, this is important because the goal is to identify those variables that best predict the outcome and exclude those that are not relevant. If the researcher elects to exclude the first-order effects from the model, the interaction could still appear significant if the first-order terms are, but it might not have as important an effect on the outcome as the first-order effects on their own (Hayes, 2017; Newsom et al., 2003). For example, the interaction of age and gender may appear significant if the first-order terms, age at death and gender, are not also included in the model but are significant on their own.

I have elected to include the results of multiple models in my analysis to build the effect of each variable. The reason for this is that while I can draw numerous hypotheses for these interactions from historical and archaeological study, very little has been tested mathematically. As well, the more parameters one includes in their model, the greater sample size is needed to capture the complexity of the dataset accurately. This is not possible in many archaeological settings and as such, I have elected to present numerous relatively simple models that are more likely to be reproducible in other archaeological settings. I will therefore assess the results of each in turn as well as the base model without interactions. Furthermore, the p-values for smooth terms in mgcv are problematic because they do not consider smoothing parameter uncertainty and therefore may be somewhat lower than they should be (Wood, 2013). While I fit the models using ML (maximum likelihood), which provides the most accurate p-values (Wood, 2013), this

is still a concern for determining the fit of the interactions. Therefore, because: 1) I consider and report the results of each of the first-order effects; 2) I want the smooths to be able to shift unrestricted; and 3) the p-values for the logistic regression are optimized but still under-estimated, I have elected to remove first-order effects for smooths in interaction models but keep those for categorical variables.

Akaike Information Criterion (AIC)

Because I am not including the first-order effects for smooths in my interaction model, I will not be able to assess if the interaction is, itself, significant. The reason for this is that, as mentioned previously, the effects of the first-order smooths will be contained within the interaction rather than considered separately. As such, the smooth interaction term may appear significant in the output of the logistic regression when in fact it is the two first-order terms on their own that are significant. I must, therefore, turn to a different form of model comparison outside of the p-value tests of significance provided in the logistic regression. For this, I have selected a model comparison statistic, Akaike information criterion (AIC), that has been used in previous archaeological studies (Carrer, 2013; Davis et al., 2020; Naito et al., 2016) and is frequently used in non-archaeological inquiry. AIC estimates the Kullback-Leibler distance between a fitted model and the unknown reality that produced the data observed (Burnham and Anderson, 2002). This statistic is particularly well suited to my dataset because, unlike Bayesian information criterion (BIC; another popular means of comparing fitted models), it does not assume that any particular model actually captures this reality. BIC, on the other hand, is best utilized when the dataset is derived from simple processes and we can assume one fitted model is actually correct (Aho et al., 2014; Burnham and Anderson, 2004). Given that mortuary decision-making is complex and derived from numerous unknown factors, it would be unreasonable to

believe that we could possibly collect every relevant variable guiding behaviour. As such, AIC is a logical choice for model comparison.

To facilitate the comparison of the fit of different models, the AIC calculation produces a value that, while meaningless on its own, can be compared to the values produced by other models derived from the same dataset. Regardless of the actual value itself, the rule of thumb is that a difference in AIC values of less than 2 indicates that the models are equivalent. Alternatively, a difference of 10 indicates that the model with the lower value is a significantly better fit for the data (Burnham and Anderson, 2002). However, while a more complex model that includes more variables and interactions should always improve the fit at least marginally, AIC has a built-in penalty for the number of parameters included in the model (Vrieze, 2012). In other words, it does not necessarily select the most complex model, which in this dataset would include three-way interactions of the independent variables, but balances the amount of information lost with the complexity of the model. I have also used a small sample-size correction of AIC (AICc). While I do not anticipate that this will be a problem in my dataset, as the sample size increases relative to the number of parameters in the model, the value for AICc converges to AIC, so AICc is best used in practice (Burnham and Anderson, 2004).

That being said, while AICc is often used to select the model that best fits the observed data, as noted previously, this is not the point of my study. Pedersen et al. (2019) recommend that models should not be selected or discarded based solely on AICc but on expert subject knowledge as well as the inferential goals of the study. I have developed hypotheses for each of the models presented here and as such, I will report the results of each. I therefore mostly utilize AICc to identify those models that are best suited to the data for future inquiry and to compare the improvements of particular interactions.

Imputation of Missing Values

As noted by Stef van Buuren (2018) and Osborne (2015), it is unfortunately common for researchers not to address what they did with values missing in their dataset or to conduct a case-wise deletion (the observation with a missing value is removed from the analysis) without accounting for the fact that case-wise deletion is only unbiased if the data are missing completely at random (MCAR) or if it is only a small percentage of the total cases. The rule of thumb is that if under 5% of the data for a particular variable are missing, then they can be removed via case-wise deletion without biasing results (Jakobsen et al., 2017). In compiling the child database from the master database based on age at death, I need to account first for missing information regarding their age at death. Only 369 of 88,958 (0.4%) entries were missing these data and therefore I could safely remove those observations from the master database. In the database for ages 3-25, only 7 of 11,578 (0.06%) were missing information on their sex and could therefore be safely removed. Socioeconomic class, however, was missing information for 681 of 11,578 (5.9%) and case-wise deletion is therefore not appropriate without risking bias. Year of death was not considered because only those who passed away between the years 1845 and 1925, inclusive, were actually selected for analysis. To properly assess whether one should or should not include an individual that is missing the year of death, I would have needed to collect all demographic information for every individual recorded in every year rather than targeting this specific timeframe (so that the imputation calculation would include every possibility for year of death). Time and labour constraints made this not feasible.

There is therefore only one variable that needs to be assessed more carefully to determine the nature of the missing data. As noted previously, case-wise deletion is only appropriate if the probability that the data are missing is the same for all cases (MCAR). However, if the

probability that the data are missing is the same within groups defined by the observed data, they are considered missing at random (MAR). If the probability that the data are missing varies by some unknown factor, they would be termed missing not at random (MNAR)(van Buuren, 2018). To determine if the missing data for socioeconomic class could be explained by other variables within the dataset, I followed the recommendation of Osborne (2015) and performed a logistic regression with missing socioeconomic class as the dependent variable and age at death, sex, and year of death as independent variables.

What I found was that age at death and year of death were significant factors in determining who was missing from the dataset (see Appendix 2). This is not unexpected as there is a higher likelihood that children under 10 were not captured by the census record (which is only taken every 10 years). Similarly, the last census record I have access to is 1911, and so it is more difficult to find information on individuals who passed away after this year. I also found that the 1841 census record was the most difficult to find individuals in and did not have the same level of detail on occupation as was requested in the 1851 record. If this was the only record of the family, it was more likely that their occupation information was missing. My data were therefore not missing completely at random but could be explained by other variables in my dataset (MAR). Unfortunately, it is far more difficult to test if data are missing at random or missing not at random, but I do not have any reason to believe that any particular socioeconomic classes were left out of my dataset. The reason these groups are missing is dependent on the availability of the census data and the quality of particular census records. There is no reason why any particular socioeconomic class would be systematically under-represented in the census records.

It is therefore necessary that I impute, or replace, the missing data to avoid biasing the results of my analysis. In general, imputation methods fall under two categories: single imputation and multiple imputation. Single imputation methods replace the missing value and the new value is treated as the 'true' value for subsequent analysis. Multiple imputation methods, on the other hand, incorporate estimation uncertainty by performing the analysis (logistic regression in this case) on multiple imputed datasets and then pooling the results together (Donders et al., 2006). Although multiple imputation is generally preferred, it is not easily implemented in the package 'mgcv' and as such, I have elected to use a single imputation method. This method is to train a random forest using the package 'missForest' (Stekhoven, 2022).

Although missForest can still lead to bias when the data are skewed or the missing percentage high (Arriagada et al., 2021; Hong and Lynn, 2020), it has been combined with mgcv in multiple studies (Buley et al., 2021; Myers et al., 2021; Xie et al., 2021). In fact, this package is particularly well suited to datasets that involve interactions and non-linear relationships because it preserves relationships within the data and does not make assumptions about the shape of the data (Stekhoven and Bühlmann, 2012). Therefore, while it should be acknowledged that some bias may be introduced by this method due to the skewness of the socioeconomic class category, it is easy to use and well suited to combination with the types of analyses I proposed. missForest uses a learning algorithm (random forest) to replace a missing value with one that is logical given the dataset. The random forest is built on 'decision trees' based on cases randomly selected from the target dataset (e.g. N=10). The tree is created by evaluating a random criterion at each node and splitting the cases based on that criterion (e.g. age at death <13 and age at death >12). It then creates a series of branches for each variable in the dataset (both independent and

dependent) and culminates in the variable with missing data (Schonlau and Zou, 2020). This process is done 100 times (the default in missForest) to produce a forest (the training dataset) through which the data with missing observations are reconstructed.

Through missForest imputation, the missing observations were classified as either military, pauper, or one of the five socioeconomic categories. The reason for segregating military and paupers separately for the imputation is because, as mentioned in the previous background section, I needed to remove these categories from the analysis. A further benefit of missForest is that it also measures the performance of the imputation on the existing database for which all variables are recorded and, for categorical variables, returns a measure of the percentage falsely classified (PFC) (Stekhoven and Bühlmann, 2012). The PFC value is between 0 and 1, with 0 being perfect classification and 1 being very poor classification. The final dataset imputed using missForest yielded a PFC value of 0.216. The imputation is therefore not perfect but performs relatively well.

Assessing the Logistic Regression Models and Visualizing the Results

After imputing all missing socioeconomic class values, the first model I examined is the fixed effect model. All variables are included in this model, with continuous variables input as splines without interactions, so I can assess the impact of each on commemoration rate while controlling for the other variables (i.e. holding them constant). The AICc value for this model will serve as a baseline comparison for other models tested in this study to indicate the relative performance of the models that include interactions. To explore the effects of each of these variables on the likelihood of commemoration, I decided to visually represent the relationship between each variable and commemoration by measuring the predicted probability of commemoration for all values of each independent variable and then graphing these predictions

with 95% confidence intervals. Although Hayes (2017) rightfully notes that visual representation on its own does not prove a pattern exists, it does provide a means of exploring the relationship between the independent and dependent variables and demonstrating this relationship for a non-specialized audience. Osborne (2015) further notes that when interactions and non-linear effects are part of the model, visualization is recommended. Although slope analysis would allow me to state with some certainty where trends in the predicted probability of commemoration alter (Hayes, 2017), I would agree with Wasserstein et al. (2019) that interpretation should be based on thoughtful consideration of both the theoretical relevance of one's data and the uncertainty inherent in those data.

I will, therefore, offer an interpretation for trends in the data that are not statistically significant but can be supported with historical or current discourse. Many have questioned the role that statistical relevance has in academic publishing (McShane et al. 2019; Ranstam 2012; Robinson and Haviland 2021; Steenbergen 2019). One of the problems these authors point out with how statistical significance has been used in the past is that only those studies with statistically significant results are typically published, meaning that data that may be strengthened by additional testing are never shared. This is particularly worrisome in archaeology, where time-intensive excavation may turn up only scattered and poorly preserved remains that frequently do not produce a dataset large enough for many statistical methods. In these settings, it is additionally very difficult, and in some cases impossible, to control for all variables. In particular, this study considers conceptualizations of childhood within a mortuary setting, where it is well understood that the response to death is highly variable and as such, may not pattern into statistically significant differences. The over-reliance on statistically significant results is therefore particularly detrimental in this field.

Additionally, all the critics cited above have pointed out that by only considering those results that yield statistically significant results, past studies have created a false dichotomy where results are either 'important' or 'not important'. In reality, there is a degree of uncertainty in every study and this is not always well represented. I have therefore elected to offer interpretation on results that have a basis in extant theory regardless of statistical significance but include 95% confidence interval bands for my predictions as a measure of statistical significance to incorporate uncertainty in those interpretations (Robinson and Haviland 2021). The goal of this study is to utilize statistical methods to present the results as transparently as possible but use historical data and relevant theory to decide what is included in the interpretation rather than statistical relevance. While it is true that slope analysis would provide a better sense of how certain I could be in my results, I do not believe this is necessary given that I consider trends that align with conventional theory regardless of statistical significance. In sum, the results I report here are visually identified trends based on predictive modeling but the trends themselves have not been measured for statistical significance.

To visualize the results of the logistic regression model, I first predicted commemoration rates, and 95% confidence intervals for those predictions, using the function 'ggemmeans' from the package 'ggeffects' (Lüdecke, 2018). For each set of predictions, there are variables not called directly in the prediction (for example, if one is interested in graphing the predictions for all ages using the fixed effect model, the model still includes year of death, gender, and socioeconomic class and would therefore need to input some value to make the prediction for age). The function 'ggemmeans' inputs an average for these variables. In the case of continuous variables, like year of death in the example provided, 'ggemmeans' inputs the average year of death. For categorical variables, like gender or socioeconomic class, this is calculated by

inputting the same proportions of each sub-category as in the full database. I then plotted the results of 'ggemmeans' using the package 'ggplot2' (Wickham, 2016). Therefore, the actual predictions and graphs themselves always reflect some degree of averaging the other variables not directly included in the prediction. For this reason, my analysis highlights the *differences* between the values included in the predictions (differences in commemoration rate across different ages in the example listed above, which would not change based on the averaged values if there are no interactions present in the model) rather than comparing the actual predicted values themselves across the graphs.

After the fixed effect model, I then considered each of the interaction effects on their own following the hypotheses outlined in the previous chapter and compared the AICc values of each of the interaction models to the fixed effect model. If the interaction model provides a significantly better fit (e.g. socioeconomic class and year), I included this interaction in a new model to graph the results of the opposite interaction (age and gender in this example). By including the other interaction that I know provides a significantly better fit for the data, this allows me to best assess the interaction term of interest (age and gender) while accounting for all known relevant terms involving variables outside the ones being considered. In addition to relevant interactions, I also altered the fit of the model in the graphing process. As mentioned previously, each of the models were fit using maximum likelihood (ML) to increase the interpretability of the p-values; however, I plotted the models using restricted maximum likelihood (REML). The reason for this is while models fit using REML are not comparable in terms of AICc (Wood, 2017), they perform the best in estimating the smooth terms (Marra and Wood, 2011). I therefore performed all comparisons on models fit using ML but plotted the results of these models based on a refitting with REML.

Beyond the fixed effect and single interaction models, the goal of this study was to construct a dataset large enough that it could capture intricate complexities that inform commemorative decision-making. I have therefore also conducted a complete pairwise model for every combination of the interactions, based on the hypotheses identified in the previous chapter, to facilitate a more robust assessment of the simultaneous impact of multiple interactions. A complete pairwise model is one that allows every variable to moderate the effect of every other variable in the model. While I have four variables in the first two datasets, it is very difficult to both represent and interpret interactions on four levels (Hayes, 2017). For this reason, I only assessed the interaction of three variables for all combinations while holding the fourth as a fixed effect. These models are then compared using AICc to the three-way interaction (i.e. A*B + A*C + B*C, the complete pairwise model, is compared to A*B*C, the three-way interaction model) to see which is a better fit for the data. I then plotted the results of the best fit model.

Area Under the Precision-Recall Curve (AUPRC)

Although AICc can be used to measure the relative fit of two models developed from the same dataset, it does not provide an objective measure of how well the models capture the variability in the original database. For this, I used a statistic called area under the precision-recall curve (AUPRC), which captures a model's ability to accurately identify positive cases (in this case, that a child was commemorated). First, a precision-recall curve is constructed by comparing the prediction that an individual was commemorated given the independent variables for each case to the actual result (ie. if that individual was indeed commemorated). A point on the precision-recall curve is generated by measuring recall, the proportion of *actual* positive cases that were accurately labeled as positive, against precision, the proportion of *predicted* positive cases that were accurately labeled as positive. However, the model prediction is a

likelihood that the individual was commemorated rather than a simple calculation of whether they were commemorated or not. Therefore, a precision-recall curve is generated by measuring recall against precision at different positive-case acceptance thresholds (Davis and Goadrich, 2006). The area under this curve can then be measured and compared with the likelihood that the individual was randomly correctly classified, the percentage of positive cases in the full dataset, to demonstrate how well the model is an improvement over random.

I have selected AUPRC over the more common area under the receiver operating characteristic curve (AUROC) because it is the preferred method for datasets that have an imbalance of positive and negative cases (Ozenne et al., 2015; Saito and Rehmsmeier, 2015). This is because AUROC places equal weight in a model's ability to correctly identify true negatives (those predicted as not being commemorated who were actually not commemorated) as true positives (those predicted to have been commemorated who were indeed commemorated). However, in datasets where the negative cases (those not commemorated) far outnumber the positive cases (those commemorated), this results in an overly optimistic measure of the model's performance (Saito and Rehmsmeier, 2015). AUPRC does not consider true negatives in its measure and is therefore a more realistic assessment of the model's performance given that it is more likely for any given individual to have not received a commemoration than to have received one.

In my analysis, I only used AUPRC as an objective measure of model performance rather than a model comparison tool. This is because AUPRC is an insensitive measure when comparing differences between models (Carrington et al., 2021; Pencina et al., 2008). As Peterson et al. (2008) point out, because area under the curve (AUC) measures, like AUPRC, consider a multitude of thresholds, only differences that impact each of the positive-case

acceptance thresholds will result in a significant difference in AUPRC. Bagherzadeh-Khiabani et al. (2016) and Pencina et al. (2012) similarly found that after reaching a certain threshold, AUC scores did not change regardless of significant differences identified through other model comparison methods, like AIC. For this reason, I only present AUPRC scores for the best fit model as a general indication of how much information is explained and missed by including the predictive variables I did rather than a form of model comparison.

Conclusion

The unprecedented size of this database permits robust statistical methods that clarify not only the role that age at death, year of death, socioeconomic class, gender, and birth order each have individually on the likelihood of commemoration, but how their combined influence constructs the commemorative record. These methods are best implemented in R, for which scholars have created packages with adjustable code that facilitate analysis and visualization of the binary logistic regression models proposed above. Although it would be difficult for archaeologists working with smaller datasets to implement all the methods outlined here, there are fundamental questions posed throughout this section that are important to highlight. These include how to deal with data missing from analysis, how to measure and analyze interactions, how smooth terms are treated in the modeling software, and how to present uncertainty as well as utilize statistical relevance. In each section of this chapter, I have outlined the dangers of ignoring or mistreating these questions and how I have addressed each concern in my own study. In the next chapter, I will present the outputs for each model.

Chapter 6: Results

The results of my analysis are split into two sections: one detailing the output from the binary logistic regression models and how they relate to the hypotheses outlined in an earlier chapter and a second that synthesizes these into themes. Results for the two databases, children aged 3 to 25 and the birth order database, were run separately. The initial binary logistic regression model for the child database included all four variables (socioeconomic class, gender, year of death, and age at death) without interactions so that I could model the relationship of the serial categories within each individual variable while holding the others constant. I then measured AICc and returned a value of 6078.8. In this chapter, the AICc for each interaction model will be compared to this base model, as well as relevant simpler models, to determine if it offers a significantly better fit. The results of the binary logistic regression for this base model are presented in Appendix 2 and offer some intriguing insight into how each of these variables impact the model. Although a problematic measure, particularly for the smooth-terms included in the model, the p-values for socioeconomic class, year of death, and age at death are all significant. This would suggest that the log odds of commemoration are significantly different within these categories. However, the insignificant p-value for girls would suggest that the log odds of commemoration for girls does not differ significantly from that of boys. The nature of these relationships will be explored graphically in the next sections and the implications of each result discussed in the following chapters.

Single-Variable Results

Socioeconomic Class (see Appendix 3 for number of individuals represented in each class)

Based on the graphical representation of the predicted probability of commemoration (PPC) for each socioeconomic class (see Figure 6-1), elements of the hypotheses for this

category alone, outlined in the previous chapter, could be supported. There is indeed a linear and positive relationship between socioeconomic class and the PPC. It does appear that the material cost of a monument is a limiting factor in determining who can afford a monument. That being said, there is no plateau in PPC among those groups that could easily afford a monument. In fact, there is a significant gap between the highest socioeconomic class and the class directly below it. I would not anticipate that the cost of a monument would prohibit members of socioeconomic class four, which includes individuals with servants, those running multiple businesses, farmers of 50-300 acres, and semi-professionals, and as such, this result is surprising.

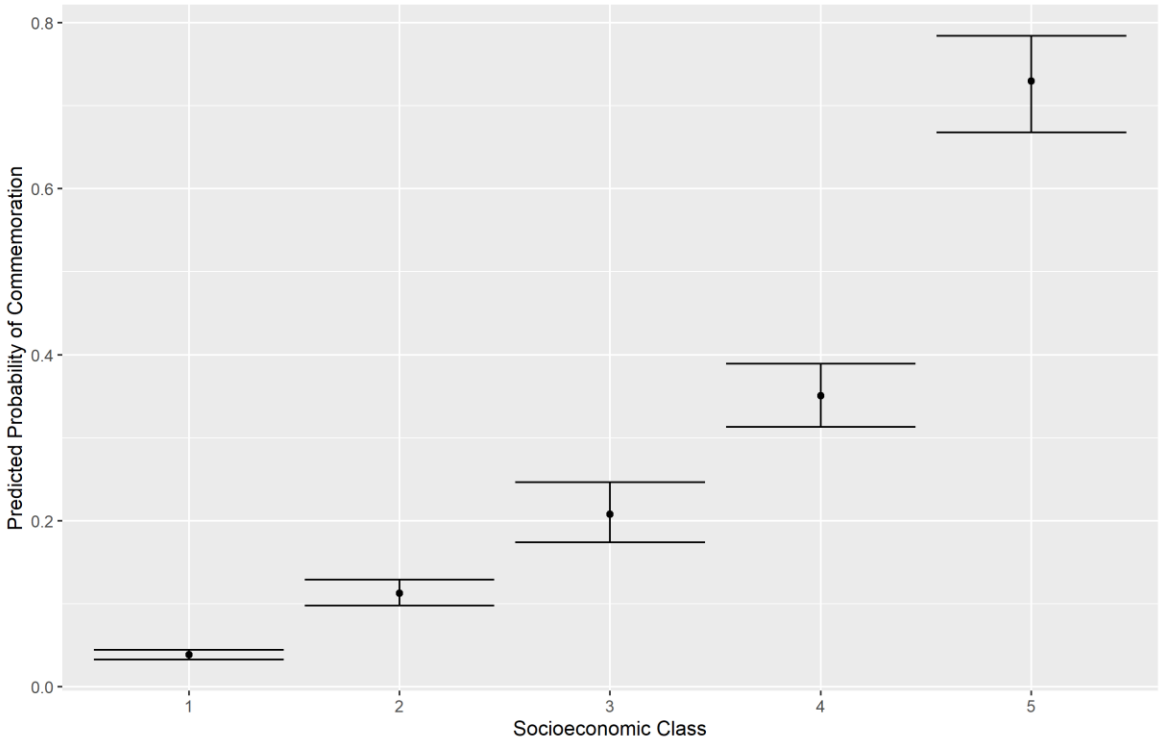


Figure 6-1. Predicted probability of commemoration by socioeconomic class showing a positive relationship between the two

Gender (see Appendix 3 for number of individuals represented in each gender)

The PPC for girls and boys, when considered alone, is very different from what was expected (see Figure 6-2). I predicted that given the significantly higher investment in boys and

their role in the public sphere, they would see a higher predicted rate of commemoration than girls. While the actual predicted rate of commemoration is slightly higher for sons, this is by less than 2% and there is significant overlap in the error bars. Once again, this result is surprising, especially given the substantial gender inequality that emerges from the literature on the Victorian and Edwardian eras (Dyhouse, 1981/2013; Howkins, 1991; Jalland, 1996; Murdoch, 2014; Rose, 1991).

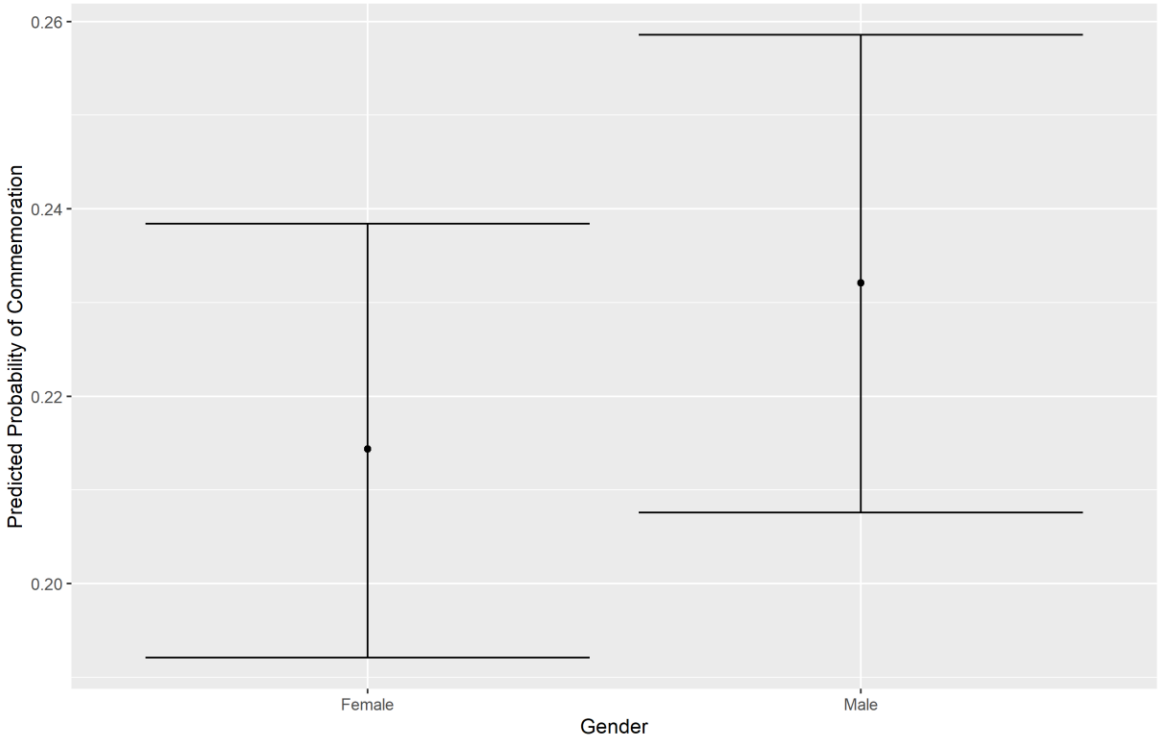


Figure 6-2. Predicted probability of commemoration by gender showing no statistically significant difference between girls and boys

Age at Death (see Appendix 3 for number of individuals represented in each age)

While the PPC for age at death broadly supports some of the patterns hypothesized in the previous chapter, they do not strictly follow them (see Figure 6-3). The PPC does indeed increase with age at death as predicted in Cannon and Cook (2015) but it is unclear whether this plateaus in early adulthood or continues through, as Cannon and Cook found in their study, to

middle age. It is possible to draw a straight line within the error bars from ages 3 to 25 but the PPC does appear to trend towards a flat line after approximately the age of 19 and begins to shift at around the age of 17. It is therefore unclear whether these data capture the end of childhood or is the same as those patterns identified by Cannon and Cook. Furthermore, the hypothesis that the PPC would change dramatically in young childhood alongside shifts in child mortality is not supported by the data. Instead, the PPC increases steadily through all of childhood.

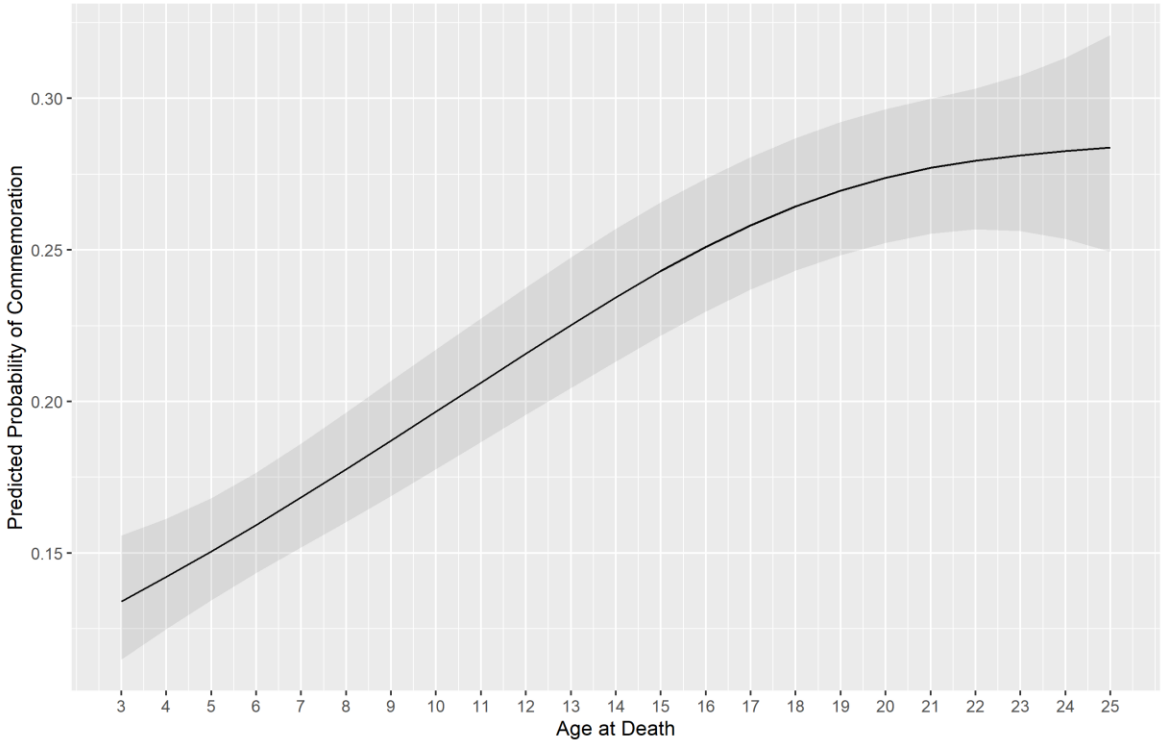


Figure 6-3. Predicted probability of commemoration by age at death showing increase over age and plateau in adulthood

Year of Death (see Appendix 3 for number of individuals represented in each year of death)

As seen in Cannon (1989), Tarlow (1999) and Mytum (2002) and as expected with the decline in fertility rates over the Victorian era, the PPC does indeed increase with year of death (see Figure 6-4). However, the hypothesis that predicted commemoration rates would either stagnate or decline as a result of the agricultural depression (1870s and 1880s) and then rebound

after this event is not supported by the data. One could draw a straight line within the error bars through the time period studied and therefore, there is no significant adjustment in the trajectory of the PPC when modeled over time.

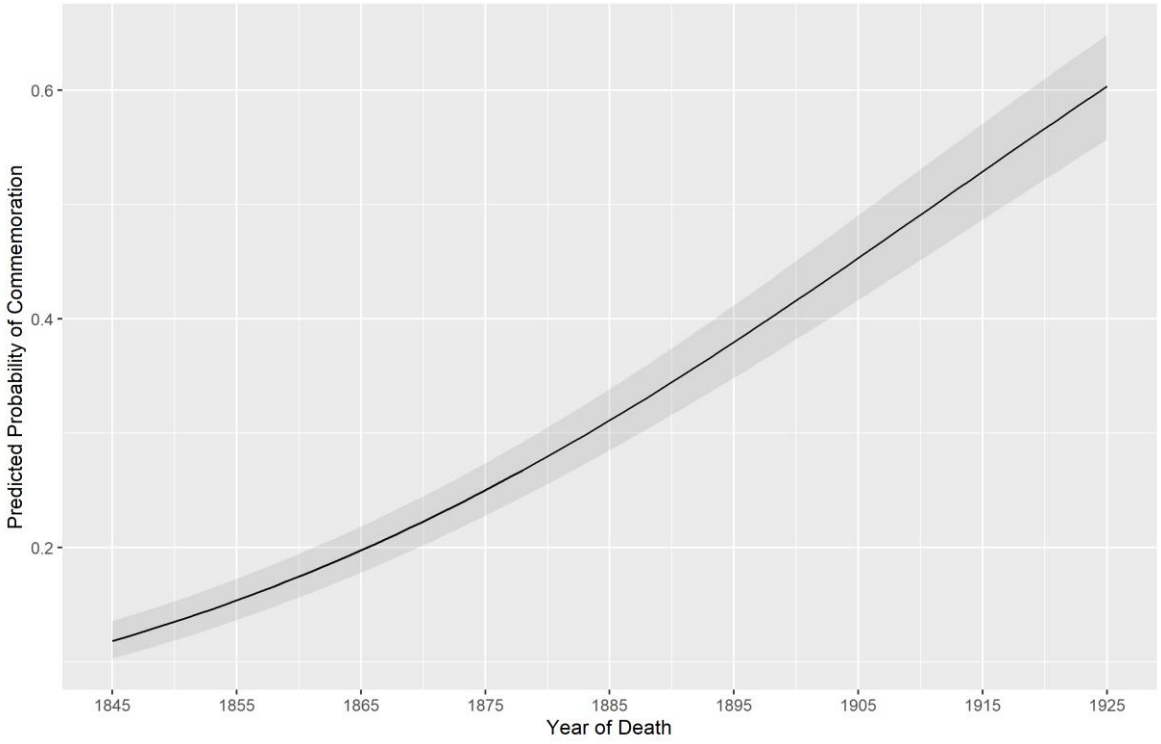


Figure 6-4. Predicted probability of commemoration by year of death showing increase in the PPC over time

Two-Variable Results

Socioeconomic Class and Gender

The hypotheses suggested in the previous chapter for the interaction between socioeconomic class and gender are not supported by the data (see Figure 6-5). Although I had predicted that boys would see a higher PPC than girls in all socioeconomic classes, there is no discernible difference between boys and girls in any of the socioeconomic classes. Despite that boys played a more public role and received more substantial parental investment, their parents did not consider it more appropriate to provide them with a permanent public memorial in the

case of their death. The only slight but interesting result of this interaction is that while there is no statistically significant difference in the PPC for boys and girls in any of the socioeconomic classes measured, the single predicted rate for boys is higher than that of girls in the lower three classes whereas this prediction for the two uppermost classes places girls above that of boys. This difference is not significant and therefore must be treated carefully but offers an interesting potential avenue to explore.

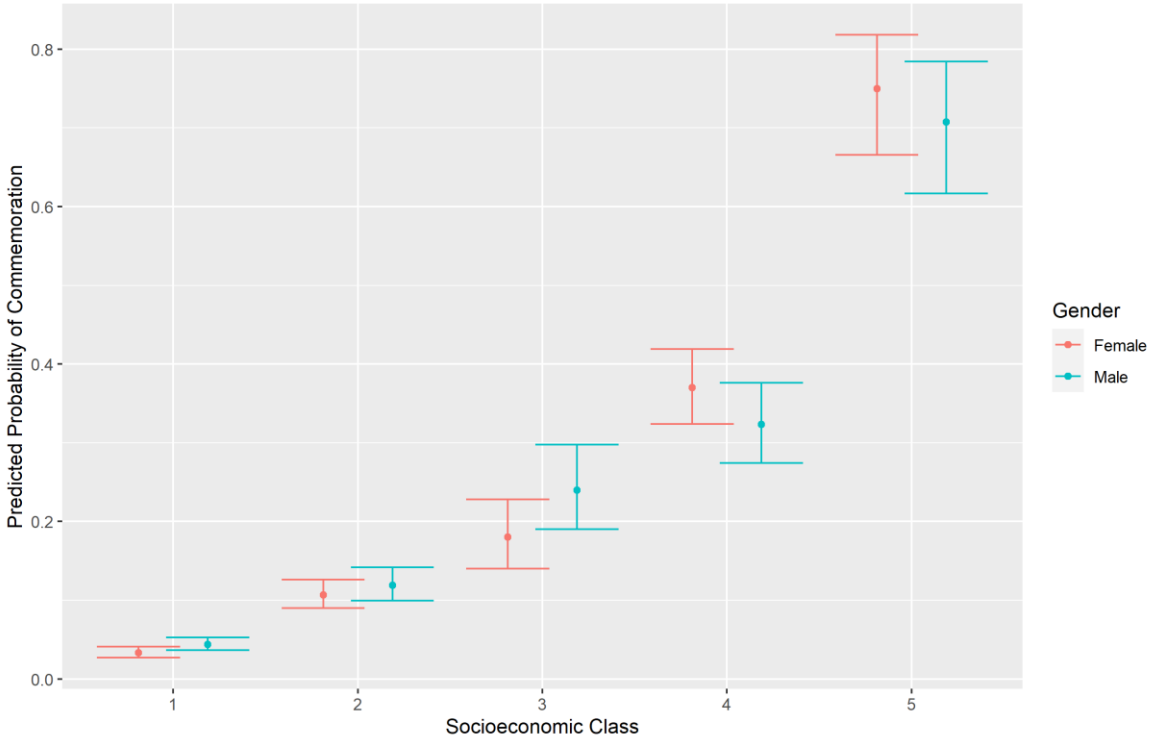


Figure 6-5. Predicted probability of commemoration for the interaction between gender and socioeconomic class showing no difference in the PPC between the genders for any socioeconomic class

In terms of fit, the AICc for this interaction model is 6077.3 and therefore fits the data equally well when compared to the base model (AICc of 6078.8). This makes sense because, as with the base model, the PPC for girls and boys are approximately equal for all socioeconomic classes and the PPC rises between each socioeconomic class as it did in the base model.

Socioeconomic Class and Age

In general, there is mixed support for the hypotheses suggested above (see Figure 6-6). As noted in my hypotheses for this interaction, shifts in child mortality would disparately influence the PPC of the lowest socioeconomic class and as a result, I hypothesized that the sudden increase in the PPC from age 3 to approximately 7 would be more clear among socioeconomic class 1. There is not sufficient evidence either to make or counter this claim. The size of the error bars indicate that it is possible for all but the lowest classes that the PPC does not actually change between the ages of 3 and 10. There is a significant change in the lowest socioeconomic class between these ages, but this is likely more indicative of sample size than real differences between the classes.

There is additionally some support for the hypothesis that the age at which the PPC would plateau at adulthood would increase through the socioeconomic classes, but the results are not consistent. Although this appears to be the case for socioeconomic classes two through four (although again, the error bars make it difficult to make this claim), an entirely different pattern emerges in classes one and five. As already mentioned, there is no plateau among the lowest class around adulthood but instead a relatively significant increase in the PPC. The pattern observed in socioeconomic class five is, however, entirely unexpected. Although it is possible to draw a straight line through the error bars and is therefore not a significant shift in the PPC, there does appear to be a slight dip in this measure as the child ages.

The AICc for this interaction model is 6066.3, a significant improvement from the base model AICc of 6078.8 even when the interaction model is penalized for complexity. This means that by examining the base model alone, you are losing a significant amount of information on the relationship between socioeconomic class and age and their combined effect on the predicted probability of commemoration.

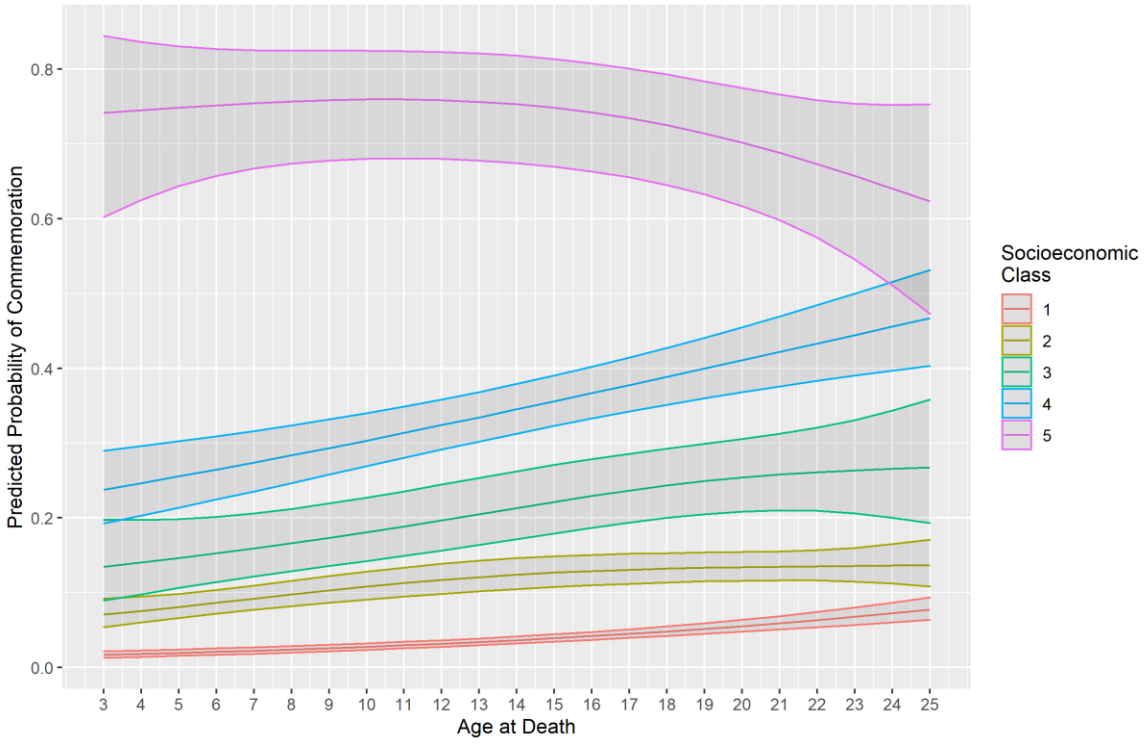


Figure 6-6. Predicted probability of commemoration for the interaction between age at death and socioeconomic class showing 1) no dramatic rise in the PPC for ages 3 to ~7 in any socioeconomic class and 2) changes in the previously observed 'adult plateau'

Socioeconomic Class and Year of Death

There is partial support for the hypotheses noted above in the visualization of the interaction for socioeconomic class and year of death (see Figure 6-7). Whereas the error bars do make it appear that the PPC between each of the socioeconomic classes becomes closer over time, the actual predicted probability is not remarkably different between classes one through four at the end of the period than it was at the start of the time period studied. That being said, the PPC for the lowest socioeconomic class does dip the lowest below the lower-middle class in the middle of the time period studied before catching back up and returning to about the same difference between the classes as measured in 1845. These results would suggest that, as predicted, the lowest socioeconomic class did indeed spend more money on a stone commemoration over time. This likely reflects the commonly cited reduction in the income gap

between the lowest socioeconomic class and those above them (Justman and Gradstein, 1999; Crouzet, 1982/2006, p. 14) and the improved conditions of agricultural labourers noted in other regions within England (Hasbach, 1894/1908). Chapman (1893) would certainly argue that this is indicative of the labouring class spending beyond their means but as I demonstrate in the next chapter, he does little to illustrate that this was actually the case. This observation is, however, limited to the comparison of the lowest socioeconomic class with either the one directly above it or socioeconomic class five as the actual predictions in the PPC for socioeconomic class 1 when compared to socioeconomic classes 3 and 4 do not change over time. I would therefore argue there is some support for the hypothesis that the differences in capital and expenditure between the socioeconomic classes did, in part, reduce over time as evidenced by their willingness to commemorate their children.

The pattern suggested by Murdoch (2014), that children of the middle-class would have spearheaded the decline in fertility and this would be evident as an elevated investment in a smaller number of children earlier in the time period studied when compared to the other classes is partially supported by the data. While there is a steady increase over time in the PPC for children of socioeconomic classes 3 and 4, socioeconomic classes 1 and 2 only catch up later in the time period studied, presumably when they too began to have fewer children and invest more heavily in those children. However, this pattern is not found among socioeconomic class 5, and I would therefore anticipate that a different factor is likely responsible for the PPC of this class.

In terms of fit, the AICc for this interaction model (6056.0) is far superior to that of the base model (6078.8). As with the previous model, there is a significant amount of information lost on this interaction if the base model is considered on its own.

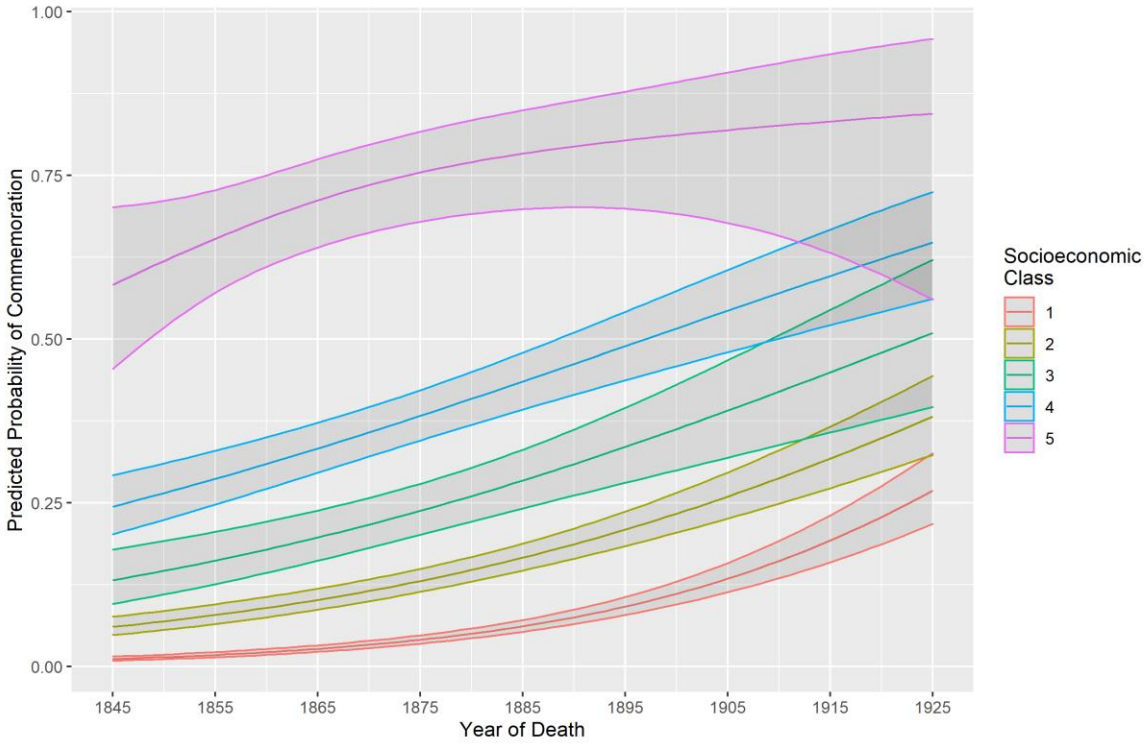


Figure 6-7. Predicted probability of commemoration for the interaction between socioeconomic class and year of death showing 1) a reduction in difference between the socioeconomic classes over time and 2) an earlier rise in the PPC for classes 3 and 4 when compared to classes 1 and 2

Year of Death and Age

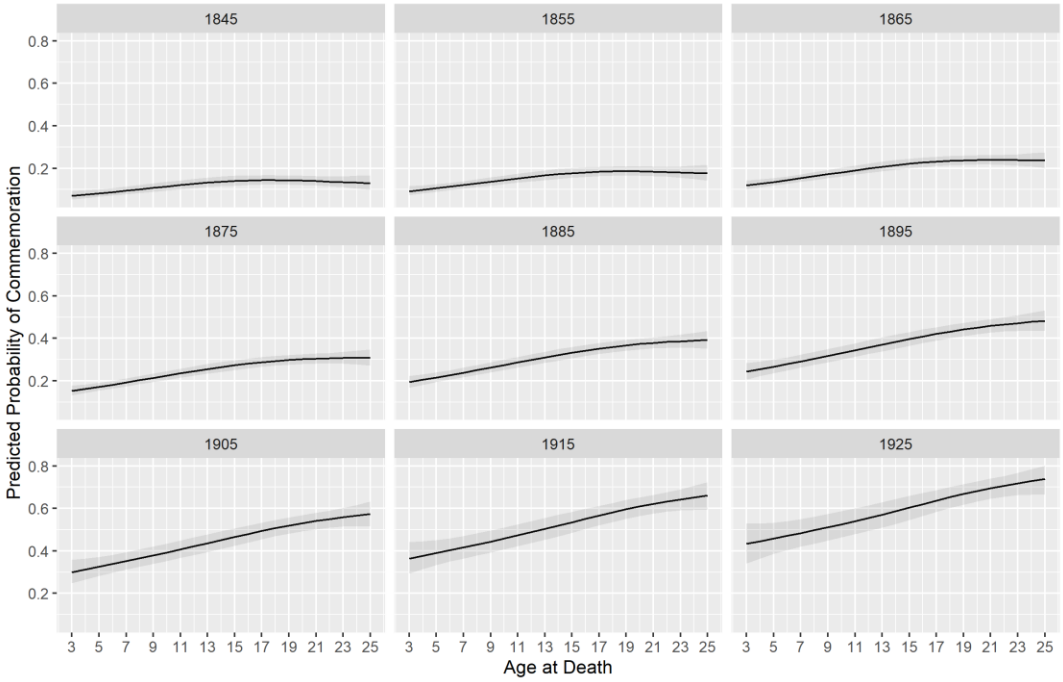
The visualization of this interaction is more difficult because both variables are continuous and it would therefore require 3D modelling of the relationship to truly visualize both as continuous variables. Instead, I elected to present two different visualizations that are more easily compared to the other graphs presented in this dissertation: 1) with year of death as continuous and modelled at different age intervals representing specific serial categories; and 2) with age at death as continuous and modelled at different year of death intervals representing specific serial categories (see Figure 6-8a and 6-8b). Based on these visualizations, the hypotheses suggested above are largely supported by the data. I hypothesized that if the PPC does plateau as the child transitions into adulthood, then the age at which the PPC reaches that plateau would increase over the time period studied with the emergence of an adolescent period.

As per Figure 6-8a, this is indeed what happens. I did not, however, anticipate the possible decline in the PPC at the beginning of the time period after approximately the age of 18. Given the size of the error bars and the subtlety of this change, it is of course possible that such a pattern is not present, but it is worth noting that the data appear to trend in that direction.

The second hypothesis, that very young children would see a more significant increase in the PPC with the decline in child mortality over time, is possibly supported by the data. It does appear, see Figure 6-8b, that the PPC for ages 3 and 6 does indeed increase more dramatically near the end of the time period studied when compared to their older counterparts. However, the error bars for these ages at the end of the time period are quite large and it is therefore possible that this is instead a linear increase in the PPC for these young ages.

In terms of fit, the AICc for this interaction model is 6077.6, a very slight improvement from the base model without interactions. This is expected because the only changes visible from the base model are in the later years of death and ages at death. The remaining follow the same pattern, in terms of the PPC, as was seen in the base model and therefore I would not anticipate that this interaction provides a dramatically better fit for the data.

a)



b)

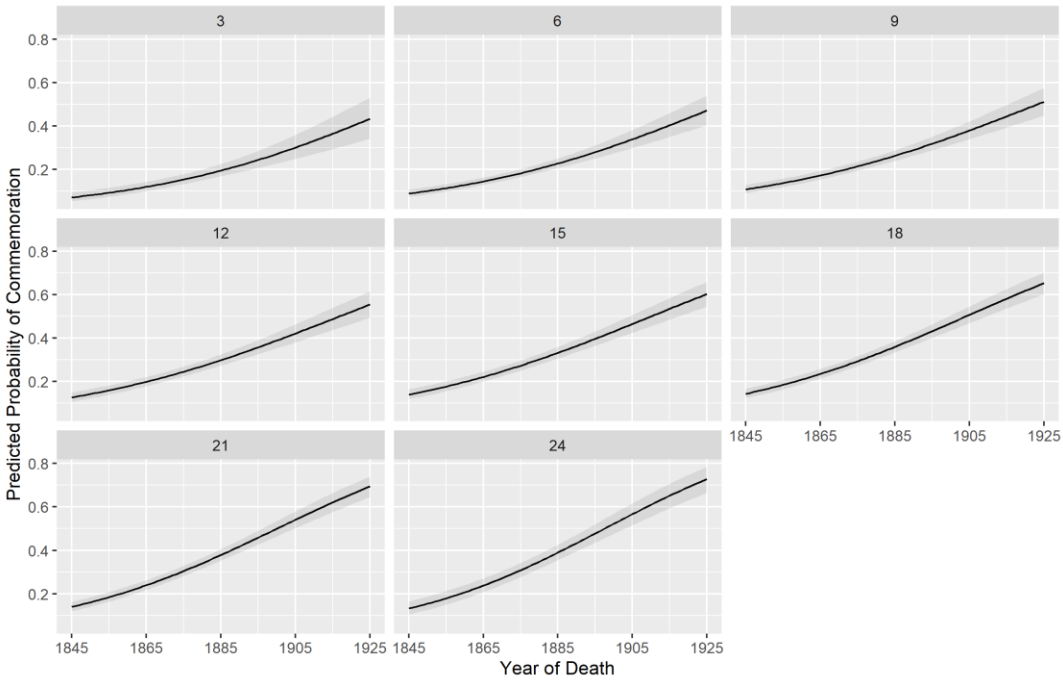


Figure 6-8. Predicted probability of commemoration for the interaction between age and year of death with (a) year of death measured at intervals, and (b) age at death measured at intervals

showing 1) the age of the 'adult plateau' increasing over time and 2) a potentially more significant increase in the PPC over time for children aged 3 and 6

Year of Death and Gender

The predictions outlined in the previous chapter are not supported by the data. I had predicted that the PPC for boys would be higher than that of girls, but that over time, this would rise more dramatically among girls as it became more common for parents to invest in their education. However, there is not statistically significant difference in the PPC for boys when compared to girls at any point in the time period studied (see Figure 6-9). In fact, despite that parents were investing more frequently in the education of their girls over time, the PPC for boys and girls is exactly identical at the start of the time period studied and then the PPC for boys becomes increasingly above than that of girls over time (although never significantly so). It is also possible to draw a straight line within the error bars for the predicted probability of girls and boys. There is therefore no gendered difference in the PPC over time that differs from the general rise in the PPC that was observed when year of death was considered as a variable on its own while holding the others constant. Girls do not see a more prominent increase in the predicted rate of commemoration over time when compared to boys and in fact, it is only later in the time period studied that the PPC for boys comes closest to being significantly above that of girls.

The hypothesis that the PPC for boys during and after WWI may reflect the numerous young men lost in this war is also not supported by the data. There is no discernible shift in the PPC for boys after 1914. It is possible that boys were commemorated at a slightly higher rate than girls by the end of the time period studied but this pattern began much earlier than WWI and the error bars still overlap between the two genders. If any such shift did occur, it was not significant enough to alter the trend captured by the model.

The visualization of this interaction was built on a model that included the interaction for age and socioeconomic status because this interaction was found to significantly improve the fit of the model over the base model on its own. However, I measured fit on a model that did not include this interaction in order to facilitate its comparison with the base model. The AICc for this model is 6079.3, a slightly worse fit than the base model when penalizing for complexity.

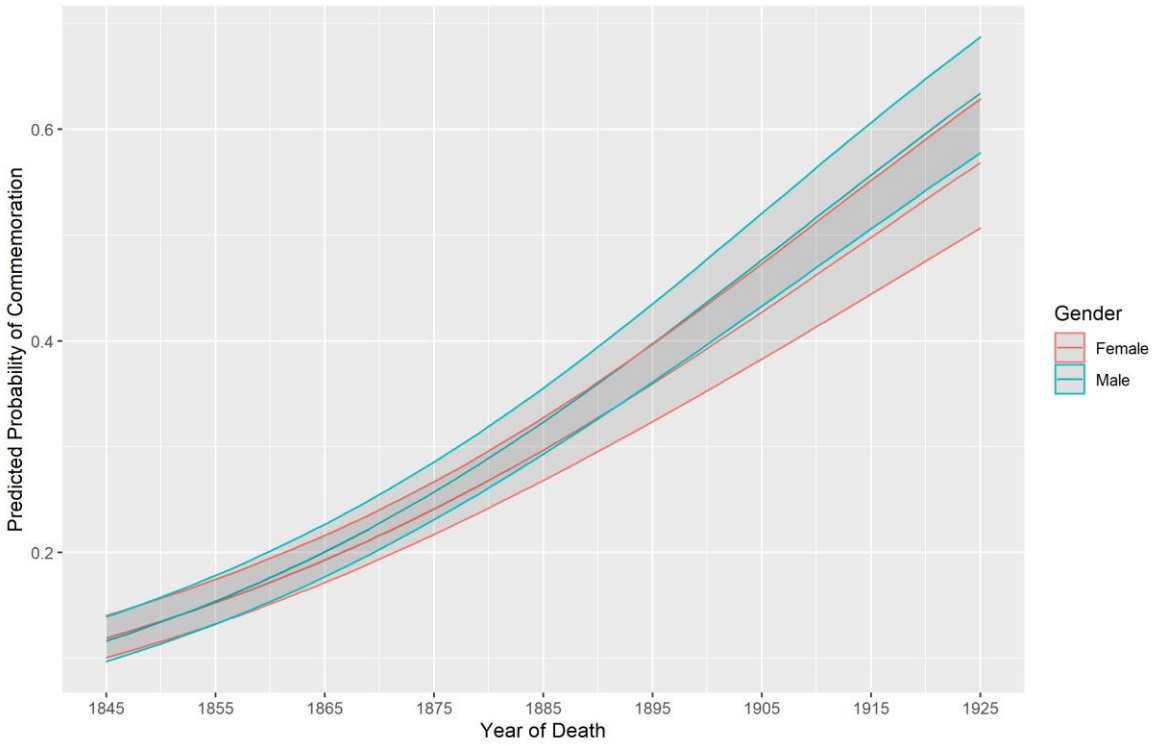


Figure 6-9. Predicted probability of commemoration for the interaction between year of death and gender showing no significant difference between the genders over time

Age and Gender

The hypothesis that the PPC for girls would reflect their transition into adult roles at an earlier age than boys is partially supported by the data (see Figure 6-10). While it is clear that girls reach adult commemoration rates in their mid-teens, boys do not appear to reach adult commemoration rates at any point in the age range. In fact, while it is once again still possible to use a linear positive relationship to characterize the rates of boys as they age (i.e. you can draw a

straight line from ages 3 to 25 within the error bars), it is possible that the data are trending towards an increase in the PPC for boys around the same age that girls stagnate. Furthermore, the age at which girls reach the adult plateau is far earlier than I had anticipated. In the previous chapter, I had noted that lower-class girls would aid in the home from the earliest age they could but would not marry until quite a bit later. Although I have not identified any source that provides an average age of marriage for lower-class girls, specifically, the average age of marriage for everyone in England and Wales in 1851 was 25.8 (Teitelbaum, 1984/2014) and this did not change dramatically through the 19th century (Branca, 1975/2013; Teitelbaum, 1984, p. 67). Upper-class girls would experience a 'coming out' at age 21. However, the age at which it appears girls reach the 'adult plateau' is approximately 14, far earlier than when girls were typically marrying or joining the public sphere in any of the socioeconomic classes.

As with the previous interaction between year of death and gender, the visualization of this interaction is built on a model that includes the interaction of year of death and socioeconomic status because this interaction significantly improved the fit of the data over the base model. The AICc, on the other hand, was measured on a model that included only the base terms to better facilitate comparison with the base model. I returned an AICc value of 6072.7, which indicates that this interaction offers a better fit than the base model alone (AICc of 6078.8).

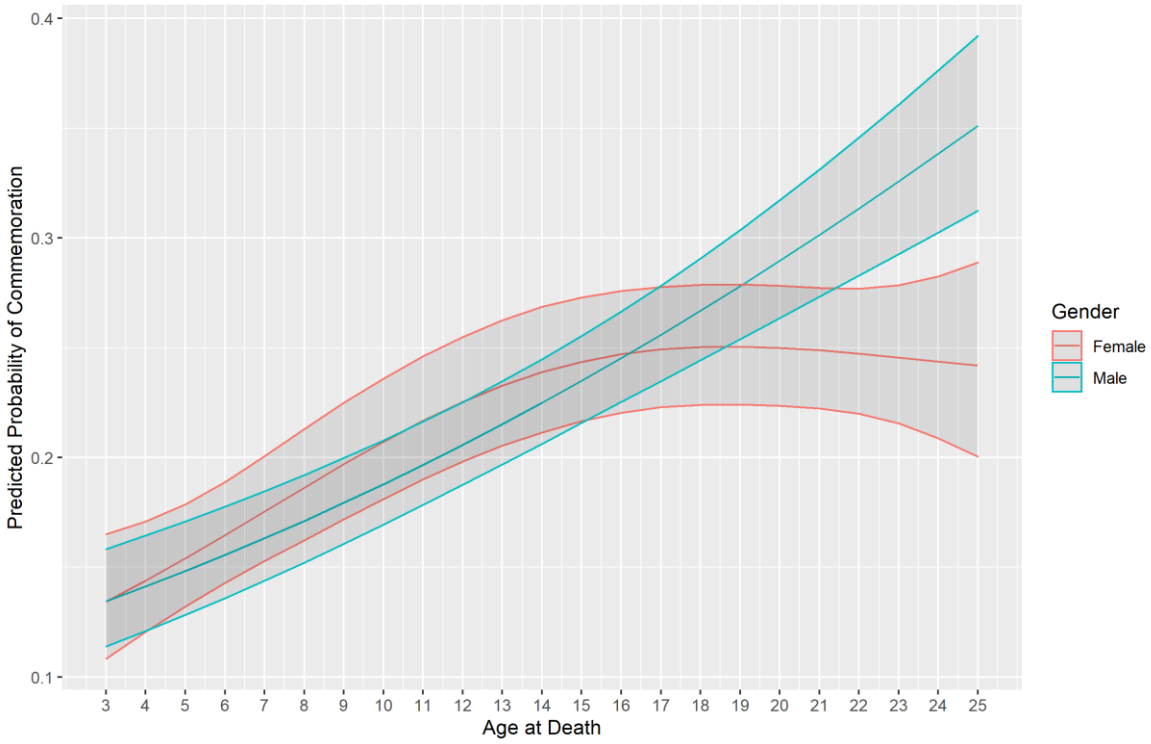


Figure 6-10. Predicted probability of commemoration for the interaction between age at death and gender showing no 'adult plateau' for boys

Three-Variable Results

Age, Year of Death, and Socioeconomic Class

The hypotheses suggested for this three-way interaction are variably supported by the data. As with the two-way interaction between year of death and age at death, this model includes two continuous variables and is thus presented as two graphs of the relationship. As evident in Figure 6-11a, the hypothesis that as adolescence emerges over time and children spend more time preparing for adulthood, the age at which a child reaches adult predicted commemoration rates will steadily increase first in the upper classes and later in the lower classes (but that an adult plateau will be reached a lot quicker in the lower classes) is partially supported by the data. The age at which children reach an adult predicted commemoration rate is approximately equal in groups 3 and 4 but there is a difference between these groups and group

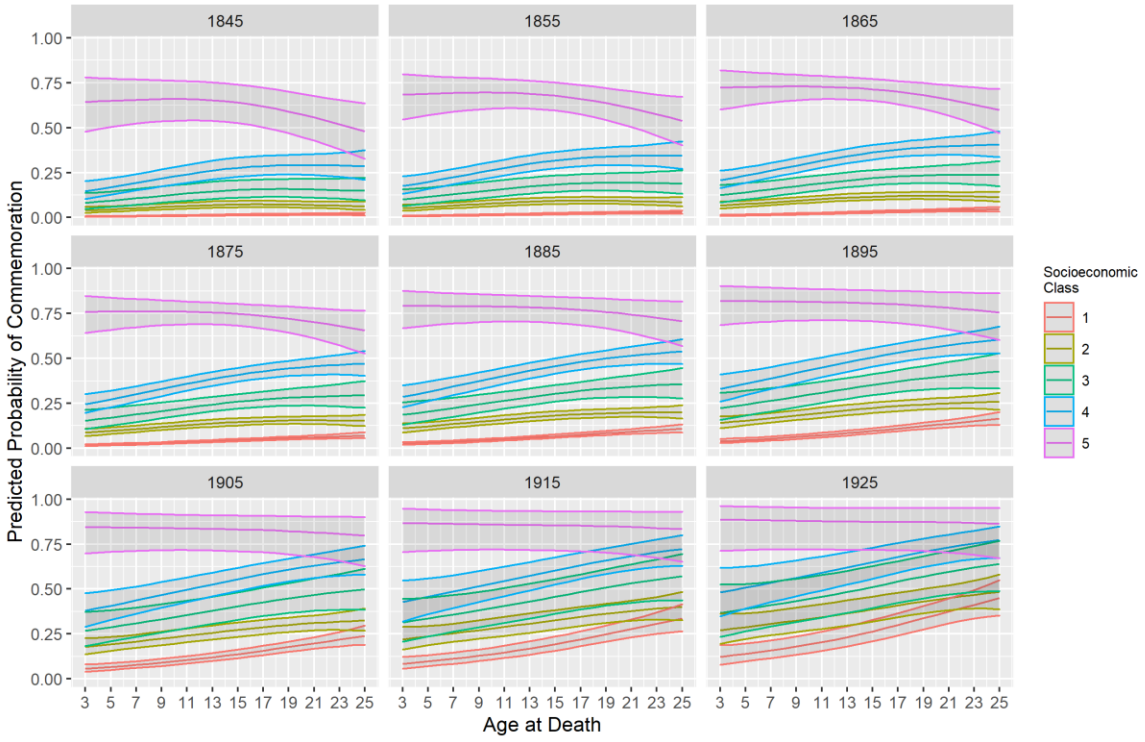
2. In group 2, the age at which children reach adult predicted commemoration rates does indeed lag behind the other two groups. However, this pattern is not found in the elite or working classes. Therefore, while there is some support that children of lower socioeconomic classes will reach adult PPC levels earlier than those of the higher socioeconomic classes, this is only evident when we compare groups 3 and 4 to group 2. As for the highest socioeconomic group, just as Cannon and Cook (2015) found virtually no shift in commemoration rates for children under 3 or for children between the ages of 3 and 14 of the upper-middle class when comparing the periods 1851-1870 and 1881-1900, there is no statistically significant change in the PPC for children of any age in class 5 through the time period studied. The PPC does appear to increase over time, but a horizontal line fits within the error bars for each age measured. It is therefore difficult to claim that there are any differences in the PPC for children of any age within this class.

On the other hand, Cannon and Cook (2015) measured commemoration rates for children aged 3 to 14 and, in their raw data, they appear to have increased most substantially among the lower-middle class over time, but this was alternatively found among the lowest class in this study. There is little support for the theory that the PPC would reflect shifts in mortality through the Victorian period and into the Edwardian. The relatively sudden increase in the PPC of the older children in groups 1 and 2 over time (see Figure 6-11b) is counter to what was suggested if shifts in child mortality altered commemoration rates. Once again, while it is indeed the case that the PPC for children aged 3 and 6 do increase significantly among the lowest socioeconomic class, this same shift is mirrored in groups 2, 3, and 4. Similarly, when viewed in relation to the other age groups, the shift in the PPC of ages 3 and 6 for group 1 is present but follows the same shape as that in every other age group for this socioeconomic class. To this point, the hypothesis

that as child mortality rates decline over time, the lowest socioeconomic class will commemorate their younger children at higher rates is not supported by the data.

The AICc for the complete pairwise model (A*B + A*C + B*C) is 6042.6, a better fit over the three-way interaction model (A*B*C), which returned a value of 6050.0. Therefore, the complete pairwise model is presented here. The AICc for this model is a significantly better fit than that measured for all of the single interactions on their own. Age and year of death returned a value of 6077.6, year of death and socioeconomic class returned a value of 6056.0, and age and socioeconomic class returned a value of 6066.3.

a)



b)

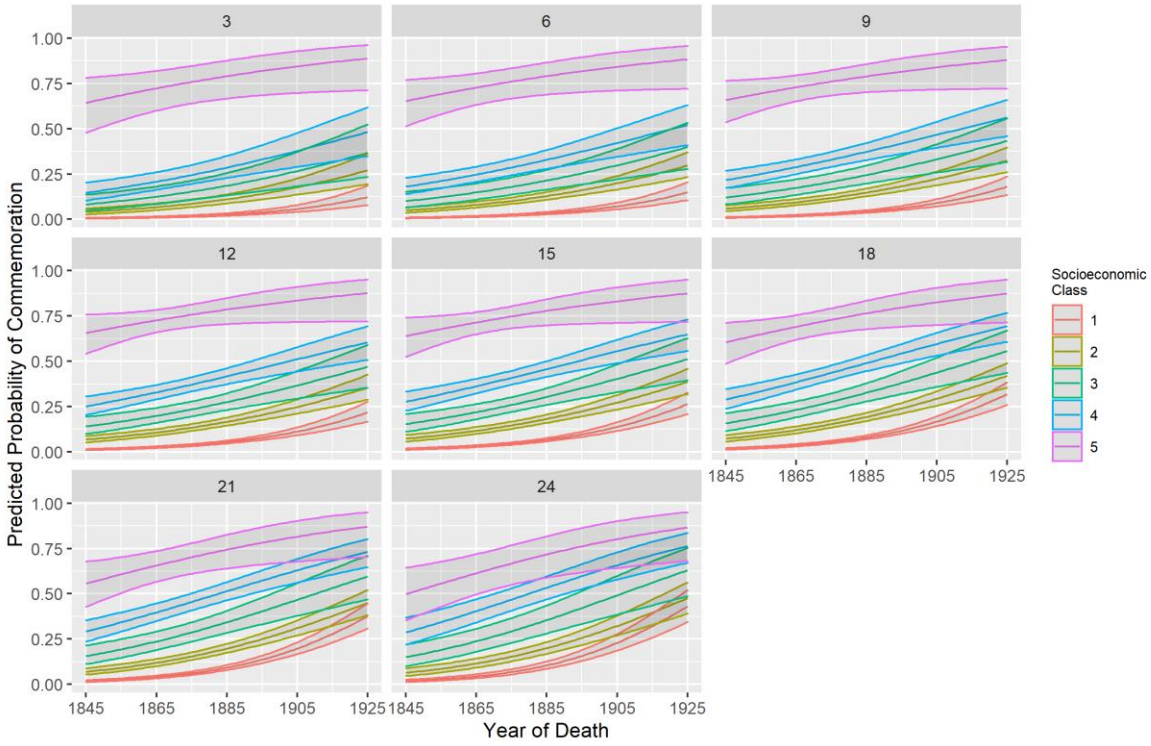


Figure 6-11. Predicted probability of commemoration for the interaction between age at death, year of death, and socioeconomic class with (a) year of death measured at intervals, and (b) age at death measured at intervals showing 1) an increase in the age of the 'adult plateau' in socioeconomic classes 2 to 4 and 2) no sudden increase in the PPC for serial categories 3 and 6 over time in socioeconomic classes 1 or 2

Age, Year of Death, and Gender

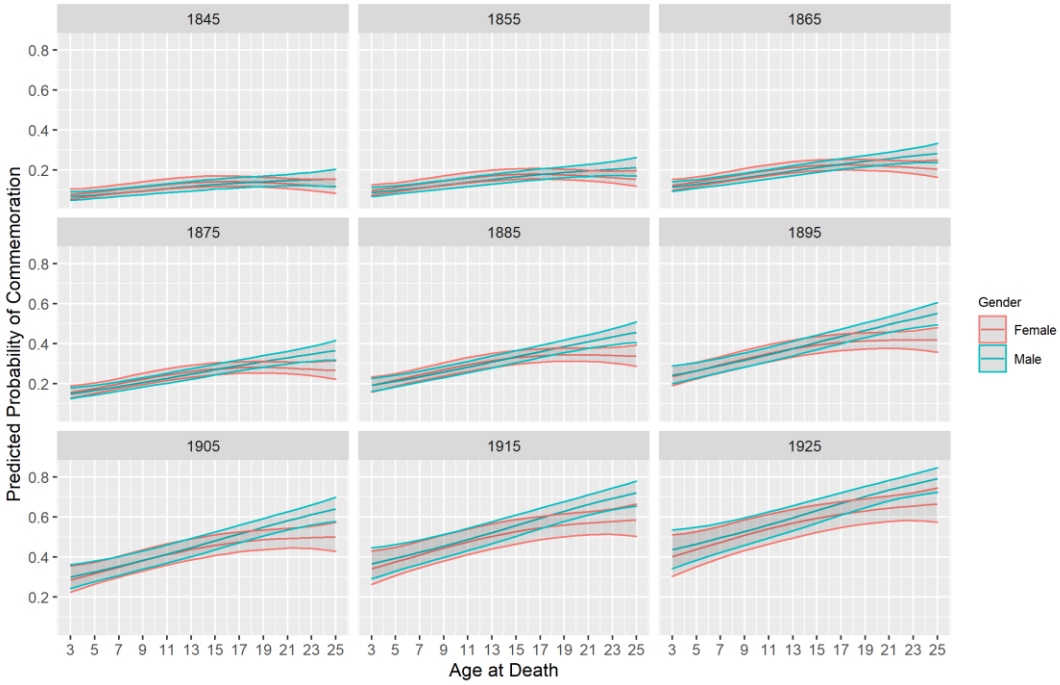
The hypothesis that girls will reach an adult predicted probability of commemoration at an increasingly later age when viewed over time is partially supported by the data (see Figure 6-12a). While there is a change in the PPC for girls after approximately the age of 15, the actual age at which this occurs does not appear to shift. Instead, there is a shift from a decline in the PPC for girls after 15 to an increase that more closely mirrors that of boys. For boys, on the other hand, the hypothesis that they will reach an adult PPC later in age than girls throughout the time period studied is not supported by the data. The PPC for boys do not appear to actually reach

adult rates in the same way that girls do but instead indicate a linear and positive relationship for each of the years sampled.

Although I did not have any specific predictions that are best captured in Figure 6-12b, this graph indicates an interesting relationship between these three variables. While the interaction between year of death and gender, on its own, demonstrated that there was no significant difference in the PPC for boys and girls throughout the time period studied, the three-way interaction with age at death suggests that this varies based on the age of the child. While there is little discernible difference between the genders through time for age groups 3, 6, 9, 12, and 15, the PPC for boys does appear higher than that of girls in the later Victorian period for ages 21 and 24 (as well as trending in that direction at age 18). Evidently, gender becomes a significant factor when the deceased is older in the second-half of the 19th century and is well established in the 20th. In other words, there is a trend over time for young men to be commemorated more often than young women.

The AICc for the complete pairwise model (A*B + A*C + B*C) is 6074.1, a very slight improvement over the three-way interaction model (A*B*C), which returned a value of 6075.6. Therefore, the complete pairwise model is presented here. The AICc for this model is a better fit than that measured for year of death and gender, which returned a value of 6079.3. It offers little to no improvement when compared to age and year of death (which returned an AICc of 6077.6) or age and gender (which returned an AICc of 6072.7). The comparison with the single interaction model between age and gender does make sense because, for the most part, there are only relatively subtle differences in how this changes over time, and it is specific to older children. Girls and boys have about the same PPC up until their mid-teens (as found in the model of age and gender) for all time points examined.

a)



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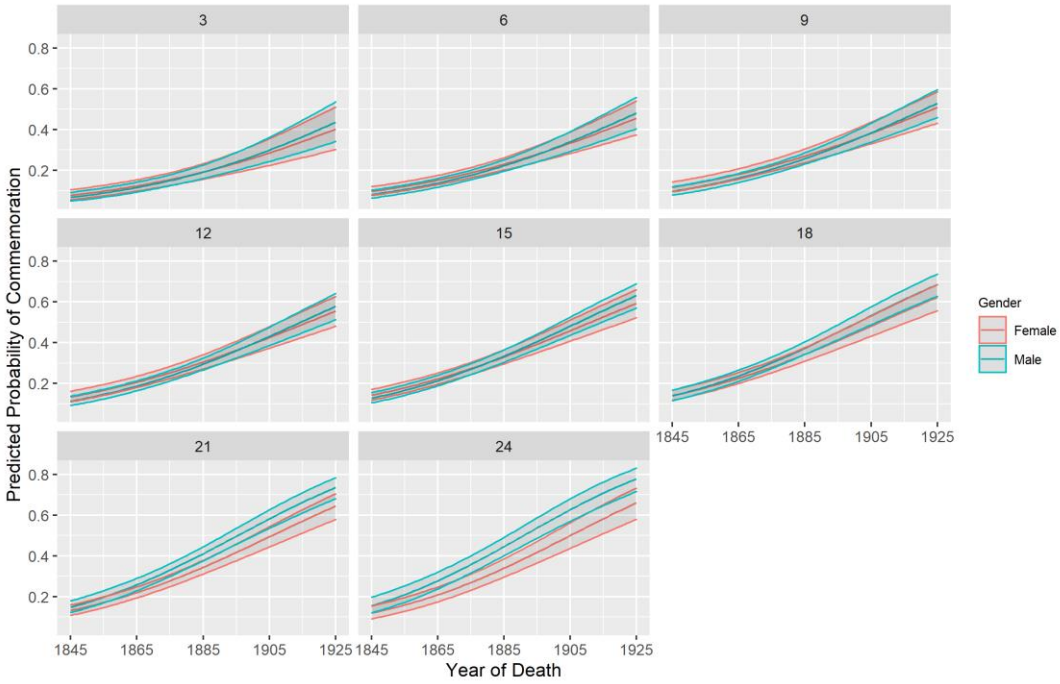

Figure 6-12. Predicted probability of commemoration for the interaction between age at death, year of death, and gender with (a) year of death measured at intervals, and (b) age at death measured at intervals showing 1) the PPC change over time after approximately the age of 15 for

girls and 2) a higher PPC for older boys when compared to girls at the end of the time period studied

Age, Socioeconomic Class, and Gender

The hypotheses suggested previously for this three-way interaction have mixed support as evident in the visualization of this model (see Figure 6-13). It is indeed that case that in the three lower classes, the PPC for girls starts to shift below that of boys at approximately the same age as when they would be entering domestic service. Although there was variability in the age at which children left to pursue domestic service, Flora Thompson, in her memoir of growing up in rural Oxfordshire in the latter 19th century, noted that girls typically entered service between the ages of 12 and 13 (Murdoch, 2014, p.184). While there is no statistically measurable difference at ages 12 to 13, this is approximately the age at which the PPC for girls starts to plateau, if not a couple years later. However, while I had predicted that the difference in the PPC for the lower class would recover as these girls returned home and sought employment within their community, this is not the case. In fact, instead of the PPC becoming more similar between boys and girls with age of the deceased, the opposite appears to have occurred.

Additionally, I had hypothesized that girls and boys of the lower class would reach the adult plateau at an earlier age than the upper class and this is not the case. Instead, the PPC for girls either declines or stabilizes at approximately the same age at death for all classes except socioeconomic class 5 (where it seems to decline a few years earlier, but the small sample size and resulting large error bars mask possible patterns). It is also, as with previous results, not the case that parents were more likely to find it appropriate to invest in a permanent commemoration for the boys rather than their girls when investment during life is high. In fact, in the two highest socioeconomic classes, where parents would have invested heavily in the education of their sons, the PPC for girls is the closest to being above that of boys at around the same age in which girls

of the lower classes were leaving the community for domestic service. A final interesting pattern that I would note based on the visualization of this model is that the possible decline in the PPC of socioeconomic group 5 that appeared in previous models appears to be a characteristic of commemorative decisions for the girls of this group rather than the boys. Although the error bars are very large and it is possible that there is no change in the actual rate of commemoration, the predicted value does trend downwards after the girl reaches approximately 13.

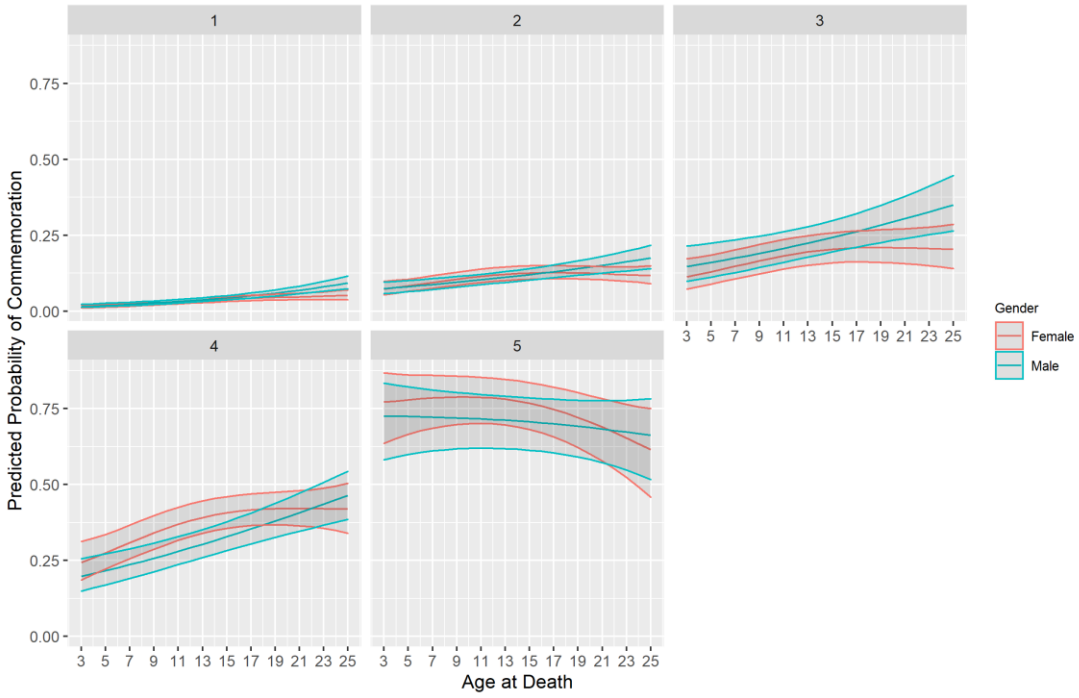

Figure 6-13. Predicted probability of commemoration for the interactions between age at death, socioeconomic class, and gender showing 1) no change in the PPC as girls returned to their communities and 2) a surprising pattern in which girls of the two highest socioeconomic classes possibly saw a higher PPC than that of boys at approximately the age of 12 or 13

The AICc for the complete pairwise model (A*B + A*C + B*C) is 6058.6, a slight improvement over the three-way interaction model (A*B*C), which returned a value of 6061.3. Therefore, the complete pairwise model is presented here. The AICc for this model is a better fit than that measured for all of the single interactions on their own and in two of three cases, it offered a significantly better fit. Age and socioeconomic class returned a value of 6066.3,

socioeconomic class and gender returned a value of 6077.3, and age and gender returned a value of 6072.7.

Year of Death, Socioeconomic Class, and Gender

The interaction between these three variables does not support the hypotheses discussed in the previous chapter. Although the girls of the upper classes were more regularly attending boarding schools later in the time period studied, the PPC for girls of this class in the mid-1800s is potentially higher than boys as opposed to later (see Figure 6-14). Evidently, as parents were investing more heavily in expensive education for their daughters, this did not result in a higher predicted probability of commemoration relative to boys. This finding is, however, not significant and may not be present with the addition of more data. For the lower classes, there is

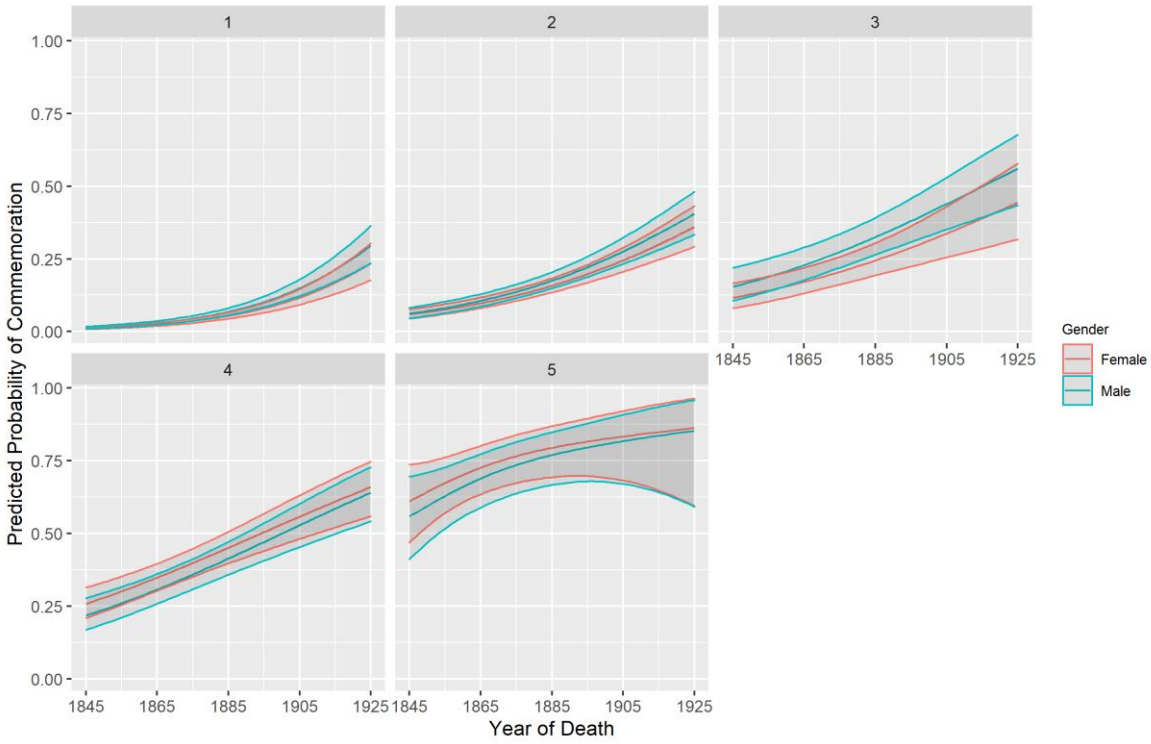

Figure 6-14. Predicted probability of commemoration for the interaction between year of death, socioeconomic class, and gender showing no significant difference in the PPC for girls and boys of any socioeconomic class

no discernible difference in the trajectories for boys or girls. Unlike the upper three socioeconomic classes, the slope in the PPC for both children increases over time.

The AICc for the complete pairwise model (A*B + A*C + B*C) is 6057.8, an improvement over the three-way interaction model (A*B*C), which returned a value of 6063.3. Therefore, the complete pairwise model is presented here. The AICc for this model is a significantly better fit when compared to the single interaction models for socioeconomic class and gender (which returned a value of 6077.3) and year of death and gender (which returned a value of 6079.3). It offered a slightly worse fit when compared to the model for year of death and socioeconomic status, which returned a value of 6056.0.

Comparison of Fit with AICc

The dataset explored here is larger than any other archaeological dataset I have encountered within the archaeology of childhood. It is also larger than those typically included in mortuary archaeological study. That being said, there are still numerous instances where the error bars are either too large or overlap with one another, making it difficult to say with confidence that the relationship is truly what the PPC would suggest. In the more complicated two-way and three-way interaction models, this problem is exacerbated as the visualization of the data is based on increasingly refined groupings from the original dataset. In a smaller dataset, this relationship would be even less clear, making direct comparison with the results presented here difficult in many instances. I have therefore elected to both include the AICc for all of my models and to include each model to best facilitate the reproduction of my methods at smaller sites. By comparing the AICc for each model, it is possible to get a relative measure of the amount of information that is likely missing when a less complex model is used.

Of all the models considered here, the four that returned the smallest AICc values are: the complete pairwise model for the interaction between age, year of death, and socioeconomic class (AICc of 6042.6); the interaction between socioeconomic class and year of death (AICc of 6056.0); the complete pairwise model for the interaction between year of death, socioeconomic class, and gender (AICc of 6057.8), and the complete pairwise model for age, socioeconomic class, and gender (AICc of 6058.6). As discussed previously in examples throughout this chapter, AICc does not capture relatively minor differences if they are localized to one area of the variable. This is why AICc should not be used on its own to select or discard variables for analysis. However, it does suggest that any model derived from a comparable context that does not consider the three-way interaction between age, year of death, and socioeconomic class will likely miss important information on the relationship among these variables. However, if a three-way interaction model cannot be considered in any subsequent dataset, a model that contains the single interaction between socioeconomic class and year of death is a relatively strong alternative. Even when compared against other three-way interaction models, it is a slightly better fit for all but one. Once again, this does not mean that simpler models or alternative interactions should not be considered. Indeed, I will still follow up on some of the patterns described here from models that returned a higher AICc value but either include specific variables of interest or the differences noted are highly localized but relevant to extant research. This merely provides a relative illustration of the fit of each model to the data that can help assess which variables and their interactions are most likely to play a significant explanatory role.

Birth Order

To test the impact of the birth order variable, I ran a binary logistic regression to model whether or not the child received a stone commemoration based on the following independent variables: age at death, year of death, socioeconomic class, gender, and where the child fell in the birth order (eldest, middle, youngest, and only child). The variable of interest is birth order, but all others were included so that their effect could be held at a constant when reviewing results. The results of the binary logistic regression for this model are presented in Appendix 4 and suggest some patterns that deviate from what was expected. Given that birth order is a categorical variable, one category must be selected for comparison. In this case, oldest, youngest, and only child were measured against the middle child. Studies from psychology and economics suggest that the oldest child would receive a higher degree of parental investment than the middle or youngest children. In their meta-analysis of birth order studies, Hertwig et al. (2002) encountered a trend in which middleborn children performed worse on measures of well-being when compared to firstborns and lastborns. They suggest there are likely multiple reasons for such a disparity including that while the firstborn and lastborn both experience exclusive parental attention, the middleborn does not.

Kidwell (1982) similarly argues that the middleborn boys see lower levels of self-esteem when compared to firstborn and lastborn boys and attributes this to a 'lack of uniqueness' phenomena where their birth order does not ascribe them any inherent features. As a result, Kidwell (1982) argues that middleborn males do not receive the same attention from their parents and must develop other traits to achieve recognition and affection. Although this study is specific to male children, this provides support for the argument that middle children may see lower parental investment than either the youngest or oldest child. Hertwig et al. (2002) do

outline a counter trend in which the laterborn children receive the least attention based on the cumulative needs of each child, but I have not seen any studies that would suggest that the middleborn child would exclusively receive greater attention than the lastborn. The middleborn children were therefore selected as the category of comparison.

The regression results suggest that the hypotheses outlined above are not supported by the data. There is a significant p-value for both the only and youngest children but the difference between the middle and oldest children is not significant. This means that the log odds of commemoration are significantly different between the youngest and the middle children as well as the only and middle children but does not significantly differ between the oldest and middle children. That being said, when I made predictions from this model and graphed the results with 95% confidence intervals, the error bars overlap between the categories (see Figure 6-15). Based on this model, my dataset does not support the hypothesis that the commemoration rates for the eldest children would be significantly different from the youngest or middle children. Furthermore, although the p-value was significant for only children when compared to middle children, the graphed results demonstrate that there is not a significant difference in predicted commemoration rates between only children and those who had siblings. Although the predicted rate of commemoration for only children is above those predicted for the other birth orders, the error bars are very large when compared to the others. This dataset was built on a comparatively small subset of the full child database and as such, there were less children considered in this element of the project than in the previous results. In addition, there were far fewer only children within this small subset than the other birth orders (see Appendix 5) and so, there were not enough data to refine the results. It is therefore possible that only children were commemorated at higher rates than those of the other birth orders, but this cannot be confirmed with my dataset.

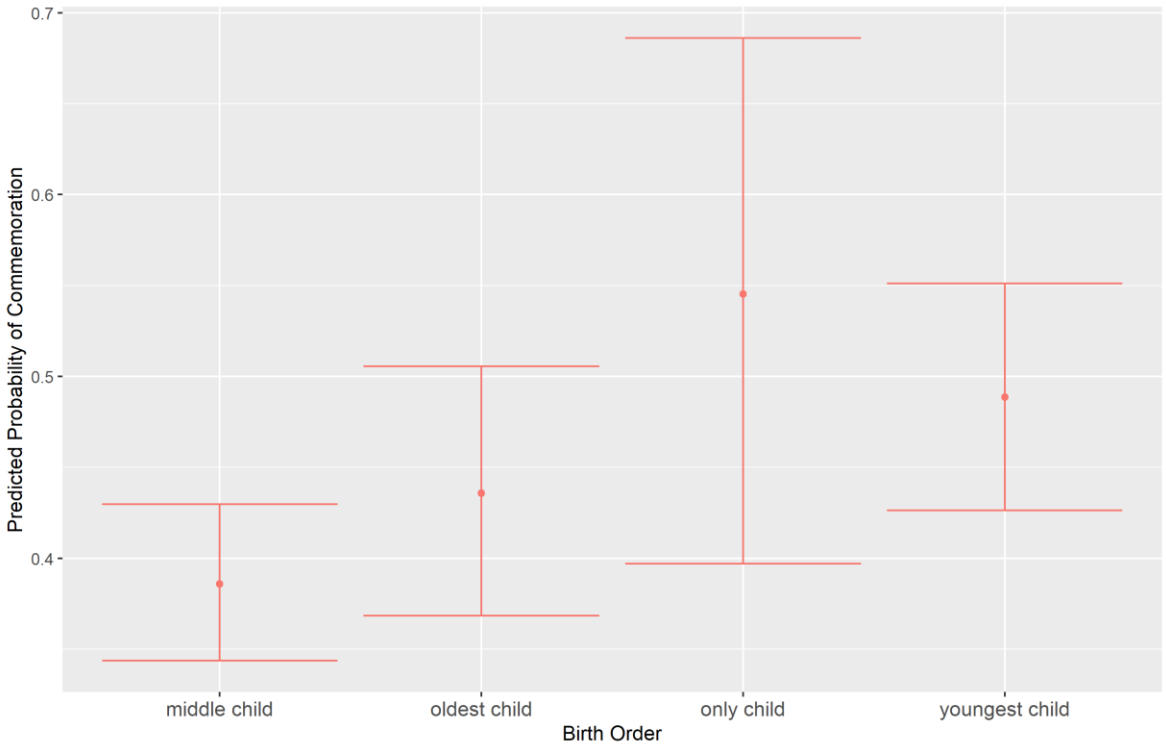

Figure 6-15. Predicted probability of commemoration by birth order showing 1) no significant difference in the PPC for oldest children when compared to middle, 2) an unexpected difference in the PPC for youngest children above that of the middle children, and 2) the large error bars for the PPC of only children

I also conducted a logistic regression measuring the interaction between gender and birth order given that there was extant literature suggesting that the oldest son may receive differential treatment when compared to children of the other birth orders. I measured the predicted rates of commemoration from this interaction model (see Figure 6-16) and it is clear that this hypothesis is not supported by the data. The predicted rate of commemoration for the oldest son falls well within the error bars of every other male and female birth order. The only possible difference between boys and girls is that the predicted probability of commemoration for girls who were an only child is quite a bit higher when compared with the other birth orders for girls whereas for boys, there is no apparent difference. That being said, the error bars are so large for the only children of both genders, likely resulting from the small sample size, that it is impossible to make

this claim with any certainty. It is also possible that the difference in the predicted rate of commemoration between youngest and middle child is more pronounced for girls than it is for boys but again, the overlap in the error bars make such a claim difficult to support.

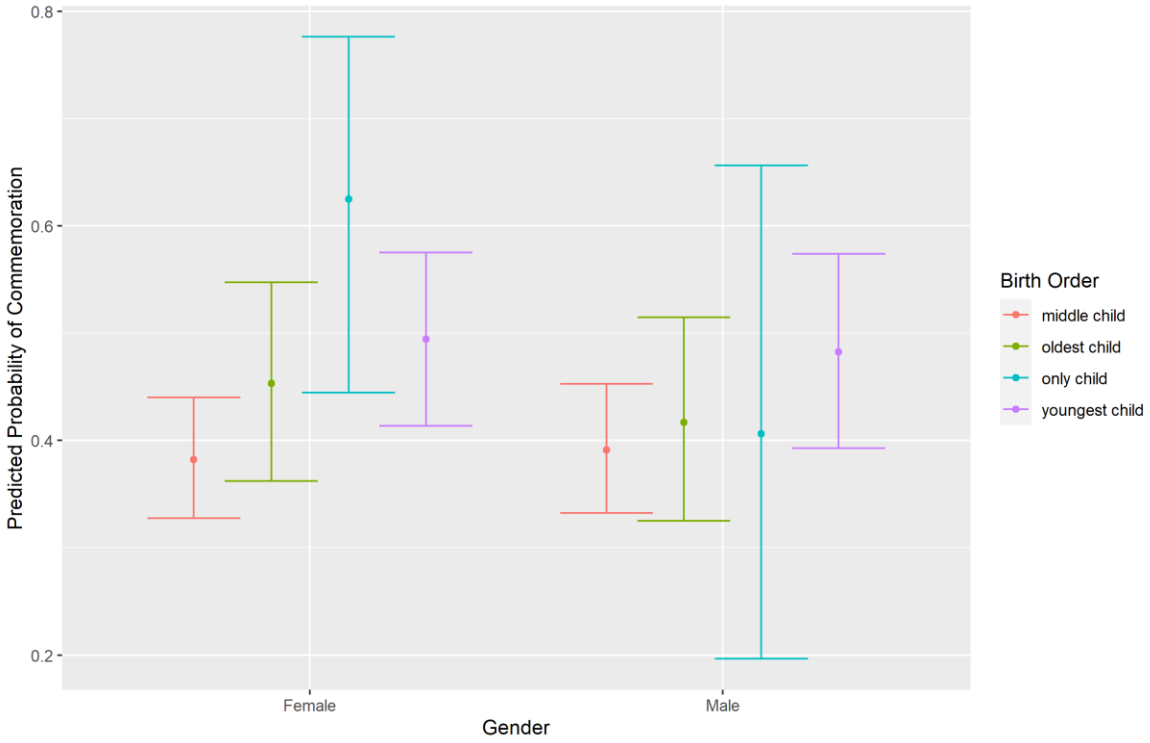

Figure 6-16. Predicted probability of commemoration for the interaction between birth order and gender showing no significant difference in the PPC for the oldest son

In sum, the only difference that can be realistically claimed with this dataset is that the predicted rate of commemoration for the youngest child is above that of the middle child. This pattern may be more prominent among girls, but the error bars still overlap so it is difficult to make this claim with certainty. What is particularly interesting about these results is that they do not align with extant studies on birth order or writing from the Victorian and Edwardian periods. While it is possible that the only child did indeed receive some level of differential treatment, there is nothing to suggest that the oldest child, or the oldest son, was commemorated at a rate that was any different from their siblings.

Chapter 7: Themes within Results

In the previous chapter, I identified areas in which the data supported the hypotheses presented earlier, failed to support these hypotheses, and developed into patterns I had not previously anticipated. Here, I will synthesize these results into the following themes discussed in a number of the hypotheses outlined above: the emergence of adolescence and the 'New Woman', the drop in child fertility and mortality, the rise of the lower class, the role of girls within the household, the shift from economically useful to economically useless but emotionally priceless, the impact of major events like the agricultural depression and WWI, and primogeniture. For each section, I will characterize the relationship as it plays out across the different models outlined above and then provide an overview of the impact of this theme on commemorative decision-making.

The Emergence of Adolescence and the 'New Woman'

In numerous ways, my results have suggested that the predicted probability of commemoration (PPC) shifted alongside the emergence of adolescence in the last quarter of the 19th century but that this change does not express as expected. In forming the hypotheses for this study, I had predicted that the emergence of adolescence over time would alter the age at which children reach the 'adult plateau' when the investment parents have made in their children as well as their role in the public sphere is fully formed. The monument, for the purpose of forming hypotheses, was assumed to represent these same elements in death given that it is both an investment and located in a public space. I had further argued that the age at which this plateau was reached would vary based on age and socioeconomic status. When I modelled and graphed the interaction between age and year of death, the age at which a plateau was reached gradually increased over time as predicted. However, when I examined this result in combination with

other interactions, it became clear that this pattern was gendered. Both the interaction between gender and age as well as the three-way interaction between age, gender, and year of death indicate that the emergence of adolescence altered the commemoration rates for girls going through adolescence but played little role in the PPC for boys. In the visualization of the interaction between gender and age, the PPC for boys increases linearly with age, but begins to plateau at approximately the age of 15 for girls. Over time, as evident in the three-way interaction, this appears to become more linear and matches that of boys. However, an important deviation from what was predicted is that while in some cases, the PPC for girls appears to reach an adult plateau, I would argue that this is not actually the case. In the visualization of the interaction between age and year of death, it did appear as though the age when the child reaches an adult rate of commemoration (and therefore plateaus) increases over time, but this is only an averaging of the different effects between the genders. The same effect is also likely visible in the interaction between age at death, year of death, and socioeconomic class and I would therefore argue that this result is likely not relevant to understanding the 'adult plateau'. We do not see this effect among boys, and for girls there is a consistent linear PPC after the age of 15 but it shifts from a possible decrease to a possible increase. I would therefore argue that, as found in Cannon and Cook (2015, p. 408), there is indeed no adult plateau but a shift in the definition of adolescence for girls.

The question therefore becomes: why does the PPC shift for girls at approximately the same age across the dataset and why do we not see a similar pattern among the boys? I argue that this is a combined effect of girls undergoing pubertal changes that result in them taking on the physical traits of adulthood and a shift in how adolescence was defined through the time period studied. Puberty has been variably defined as a single transition event of short duration (Bogin et

al., 2018) or as sub-divided into multiple stages that are characterized by biological changes (Avery et al., 2022; Lewis, 2016). For the purpose of this study, I define puberty as the combination of hormonal and physical changes to the body that occur throughout adolescence and generally end with the maturation of the reproductive organs (Sisk and Foster, 2004). Adolescence is defined more broadly as the transition period between childhood and adulthood and involves a combination of physical and social changes (Avery et al., 2022; Sisk and Foster, 2004). The biological changes that occur during puberty are to some degree universal. Stature increases dramatically during the adolescence growth spurt; girls develop breasts and reach menarche whereas the testes and scrotum grow in boys and their voice drops (Hägg and Taranger, 1982; Tanner, 1986). Of course, not all individuals, including those in my dataset, experience puberty in the way described here nor would all fall into a gendered binary. This is a broad simplification of pubertal changes that is not meant to characterize all experiences but to offer a means of comparison within my database. As noted previously, gender is derived from census records and naming conventions that are claimed and determined by the parents. If the child did not fall within this binary or expressed their gender in a manner that was different from their parents, this would not be visible in my database. This discussion is therefore generalized and designed around the physical expression of a gender binary that Victorian and Edwardian parents recognized in their own children. The biological changes that accompany puberty are generalized across the population as a means of understanding the relationship between parents and their children as expressed through serial collectives rather than solely as individuals.

While the biological characteristics of puberty are to some degree universal, it is widely recognized that the age of onset of puberty and menarche is not, but varies based on factors such as socioeconomic status, genetics, malnutrition, physical activity level, and exposure to disease

(DeWitte and Lewis, 2020; Goyal et al., 2012; Karapanou and Papdimitriou, 2010; Srinivasan et al., 2023). The age at which puberty begins and a girl experiences menarche is therefore geographically and temporally specific. In Victorian and Edwardian England, the onset of menarche marked a particularly important stage in a girl's development where she would transition from a child into an adult (The Family Physician, [c.1890]; Gorham, 1982/2013) and is therefore discussed in medical advice manuals from the time. Tilt (1852, p. 178-179), for example, puts the average age of menarche at between approximately 13 and 15 (but also appearing approximately 9 months earlier in the upper socioeconomic class when compared to the working class) for girls in London. He further notes that this is comparable to similar studies in Boismont, France and Copenhagen, Denmark. Doctors who contributed to the advice manual *The Ladies' Physician* (1891) similarly put the average age of first menstruation at between 12 and 15 years old. There may, of course, be differences between historical sources for when menarche presents and the actual lived experience (Avery, 2022) but, in the absence of human remains, historical sources are the only source from which to glean such information.

These biological markers of maturation were also accompanied by changes that visually differentiated girls from women (Gorham, 1982/2013). As opposed to loose-fitting clothing, adolescent girls were expected to adopt the more restrictive and long dresses of adult women and to put their hair up (Gorham, 1982/2013; Vanden Bossche, 2014). It was also expected that they would act more like grown women and no longer engage in play (Dyhouse, 1981/2013; Tilt, 1852). This is likely because, to some degree, the onset of puberty marked the start of adulthood and their role within the wider community. In fact, based on the physiological changes noted in puberty, a Royal Commission declared in 1833 that childhood ceases at the age of 13 (Hendrick, 2015). The age at which I could identify a potential change in the PPC for girls therefore lines

up well with the age at which children were no longer recognized as such, took on both the biological and social markers of adulthood, and were expected to take a more prominent role in adult society. However, the nature of this role for adolescent girls was ill-defined at the start of the time period studied.

Boys were typically in school or apprenticeships for relatively long periods (Frost, 2009) throughout the time period studied and it was expected that they would utilize their adolescence to train for their adult careers. The experience of girls, on the other hand, was very different. In the beginning and middle of the 19th century, girls acquired the physical traits and visual markers of womanhood in early adolescence but they did not reach the other markers of adulthood until quite a bit later. It did become more acceptable over time that some girls may never marry and instead pursue professional careers, but the Victorian ideal that was touted in periodicals, literature, and advice manuals throughout the 19th century was that they would start their own households as wives and mothers (Ferrall and Jackson, 2009; Gorham, 1982/2013; Moruzi, 2012).

Near the middle of the century, girls did not regularly attend school but also did not marry and start their own households until well after the onset of puberty and menarche. In fact, as noted previously, the average age of marriage for women in England and Wales in 1851 was 25.8 (Teitelbaum, 1984/2014) and the age of majority throughout the time period studied was 21 (Frost, 2009). Of course, the age of marriage likely varied based on socioeconomic class but there still would have been a significant gap between when the girl began developing physical traits that would have marked her transition from girlhood into womanhood and when she undertook the next major transitionary stage in her life. For working class girls who could not afford to move out of their parent's home, this would have also resulted in an extended period of

time in which they were physically adult but not yet fully independent (Vanden Bossche, 2014). Upper class girls would have attended school for longer and, particularly if their eligible male partners were in university, not marry until quite a bit later. Near the beginning of the time period studied, therefore, I would anticipate that at approximately the age of 15, girls of all socioeconomic classes had begun to take on the physical traits of adulthood and their parents started to conceptualize them as adults, but that there was little change in their social role between this point and when they married many years later.

In the late 1800s, however, the concept of the 'New Woman' emerged. This 'New Woman' was educated (in some cases, they received a university education), worked, rode bicycles, and challenged male authority (Dyhouse, 1981/2013, p. 55; Gorham, 1982/2013, p.95; Stone and Sanders, 2021). Over time, it became more widely accepted that girls also needed formal preparation for their adult life beyond what could be acquired from their mothers at home, and it was the expectation that schools would provide them with these skills. At first, they were taught what was required to be a successful mother, wife, and housekeeper, but over time, their education also involved 'male subjects' like mathematics, science, and physical fitness (Gorham, 1982/2013; Marland, 2013; Murdoch, 2014, p. 157; Nelson, 2014). Girls also attended school for longer as the Victorian era progressed. This was in part due to the passing of the Education Act in 1870, which promoted access to primary education, and a second act in 1880 that introduced compulsory school attendance for all children (Mitch, 2019). With the passing of these acts, it became more common for working class children to attend school for at least some of their childhood and to delay their movement into the workforce (Murdoch, 2014). Clothing similarly changed from corsets to comfortable garments that women could move around in more easily (Sanders and Stone, 2021). If a corset was worn, doctors encouraged mothers and girls to not

tighten them to avoid injury (*The Ladies' Physician*, 1891). The 19th century also saw social movements including those that worked to establish the right to vote for women as well as legal autonomy from their husbands (Hollis, 1979/2013; Murdoch, 2014). Women were not, at this point, equal to men but movements such as these made significant strides towards greater freedom.

Near the start of the time period studied, the fact that girls had little formal responsibilities to prepare for their adulthood between the onset of puberty and marriage appears to have resulted in a decrease in the PPC whereas by the end of the period, this has shifted to an increase that closely matched that of the boys. I had hypothesized that the emergence of adolescence as a transitionary period for girls would have altered the age at which they reached an adult plateau in commemorative decision-making if the mortuary practice examined here followed the life course. I would alternatively hypothesize that this same explanatory framework could be used in understanding the shift in PPC after the onset of puberty. Throughout the 19th century, the adolescent girl saw dramatic changes in how she was expected to look, act, and prepare for adulthood and this is reflected in the predicted commemoration rates for girls when examined over time. In the later years of the Victorian era and into the Edwardian, the adolescent period for girls takes on a new role. Moreso than in earlier periods, girls were encouraged to continue their education and to make strides to prepare for their adult life in a manner that was more similar to their male counterparts. The predicted commemoration rates for adolescent girls similarly adjust, as evident in the interaction between age at death, year of death, and gender, over time to match that of boys.

That being said, when the PPC for the three-way interaction between gender, age at death, and year of death is instead calculated for different ages at death and year of death is

measured on a continuum, it does appear to be the case that the PPC for girls is not significantly different from that of boys at any ages at death earlier in the time period studied. However, the PPC for girls does dip below that of boys in the later ages (particularly 21 and 24) later in the time period studied. In fact, the only statistically significant difference between girls and boys in this visualization occurs among 24-year-olds who passed away between approximately 1875 and 1905. During this time, the PPC for girls falls significantly below that of boys. The same pattern is evident in 21-year-olds but does not reach a statistically significant difference. This challenges the interpretation made above because as adolescence and the 'New Woman' emerges, girls are more frequently attending school, but the predicted probability of commemoration for girls actually dips. There are, however, counter-arguments indicating that while this result does problematize the interpretation made above, it does not negate it entirely.

The first is that while young women between the ages of 21 and 24 may have seen a lower PPC during this time, the difference between girls and boys does once again diminish after approximately 1900. It could therefore be the case that the pattern discussed previously does not fully emerge in this medium until the turn of the century. Furthermore, although my database is not robust enough to construct a four-way interaction between all the variables measured, the interaction of socioeconomic class with this model may still be relevant. In a previous model, I had calculated and graphed the interaction between year of death, age, and socioeconomic class and found that the PPC for the lower two classes was drastically higher later in the time period studied for young people aged 21 and 24. I would therefore argue that while girls above the age of 21 do see a PPC below that of boys in the end of the 19th century, the lower two socioeconomic classes are contributing more to this pattern than they had in earlier time periods. Girls of the lower classes did not attend school for long and 40% of girls had left school by the

time they were 14 in 1914 (Dyhouse, 1981/2013, p.105). The pattern described above may therefore be more identifiable in the middle and upper classes, who could afford to keep their daughters in school for longer, and that the lower classes, where adolescence was less prominent as a preparatory phase, did not respond to this social shift in the same way.

In fact, it is possible that the shift in the PPC at approximately the age of 15 in the lower socioeconomic classes is related to these girls leaving their home communities for domestic service. Employment figures for girls aged 14 to 18 were at 58.6% in the 1911 census and 34.8% of those employed were in domestic service (Hutchins, 1918). While it was still the case that these girls were not yet married and started families of their own, and were therefore not 'fully adult', the fact that they had left the community may have complicated the pattern. If it is assumed that the stone commemoration was more likely when the child was an active participant in the community, this may be why the PPC for boys in this age range gradually increases while stagnating for the girls of the lower socioeconomic classes.

The emergence of adolescence is therefore a particularly important shift over the 19th century that does seem to have played a role in altering how parents responded to the death of their daughter, but it may be more identifiable among the higher socioeconomic classes than the lower. However, I would note that the emergence of adolescence did not alter the PPC of boys whereas there appears to be a consistent trend in which the PPC shifts after approximately the onset of puberty for girls. In this study, the emergence of adolescence is relevant for understanding the treatment of girls after their death but plays no detectable role for boys. This suggests that the parent's decision to commemorate one's child was part of the same social trend previously identified in literature, fashion, advice manuals, and government policy. A new idea of adolescent girlhood emerged during the 19th century, and while I would not argue that parents

specifically identified this pattern and expressed it in their commemorative decision-making, I would argue that when compared as two serial collectives, the unconscious shift towards recognizing adolescence as an important component of their daughter's life becomes clear.

A final important point to make is to draw attention to the fact that while the PPC for girls changes at approximately the onset of puberty, there is no discernible difference between boys and girls prior to this age at any point in time. This is somewhat surprising given that gendered differences were recognized in the Victorian and Edwardian periods from a much earlier age than the mid-teens. In the mid-century, boys and girls were dressed in the same clothing up until about the age of four; however, this practice declined towards the end of the 19th century (Murdoch, 2014). Toys and children's books were also gendered, and some scholars have argued this was in preparation for their adult roles (i.e. girls received toys that prepared them for motherhood) (Frost, 2009; Gorham, 1982/2013; Lampard, 2009; Steinbach, 2017). It is only when biological differences emerge that we actually see any gendered differences in predicted commemoration rates. I would therefore agree with Sanders and Stone (2021) that the corporeal form is an important element in understanding the experience of Victorian girls and how they interacted with their social environment. Over time, parents observed their child's body become more similar to their own and other adult members of the community. During childhood, there were social markers that differentiated boys from girls but the bodies themselves had not yet developed the characteristics that are typically associated with each sex. Biological maturation is when we actually begin to see difference between the two serial collectives (those who commemorated their children and those who did not) based on these serial categories. However, the nature of this response shifted over time as it became more widely accepted that girls would need to prepare for adulthood over the course of the adolescent period in a manner

similar to boys. The relationship between those who commemorated their children and those who did not as measured in the intersection of multiple serial categories would therefore indicate that physical changes to the body and social convention that provided meaning to adolescent girlhood over time altered, and is subsequently visible, in mortuary practice.

Role of Girls Within the Household

The patterns noted above and attributed to the emergence of adolescence and the 'New Woman' may also contribute to a better understanding of how differences in commemorative practice may be related to the role of girls within the household. I had built the hypotheses for this study based on the assumption that if a child experienced greater parental investment in life and/or a more prominent role within the public sphere, this would result in a higher likelihood that parents would similarly invest in a public and permanent memorial after their death. However, it is clear from the number of expectations that were not met that this assumption is not sufficient on its own. As noted previously, it is frequently cited that in the Victorian and Edwardian periods, girls played a more important role helping out within the household than their male counterparts (Dyhouse, 1981/2013; Frost, 2009; Gorham, 1982/2013; Jalland, 1996; Strange, 2005; Vanden Bossche, 2014). They assist with childcare, household upkeep, as well as nurse the sick (Jalland, 1996, p.99; Strange, 2000, p.196). This is not, however, indicative of either parental investment or engagement in the public sphere and as such, I had assumed that parents would be less inclined to invest in a public memorial at their passing. Although the results on this topic are mixed, I found that there is indeed support for the argument that the role girls played within the household did result in a higher-than-expected probability of commemoration.

In the base model without interactions, a surprising result that emerged was that while parental investment, in the form of education and apprenticeships, is typically higher for sons, inheritance decisions favour sons over daughters, and boys more frequently serve roles within the public sphere, the PPC for girls is approximately equal to that of boys when controlling for all other variables. This would suggest that regardless of the investment that boys receive and their involvement within the community, parents were equally likely to have invested in a permanent monument for their daughters when they passed away. Despite clear gendered differences among adults where women are broadly treated as subordinate to men in the Victorian and Edwardian periods (Dyhouse, 1981/2013; Howkins, 1991; Jalland, 1996; Murdoch, 2014; Rose, 1991), an alternative hypothesis to explain this pattern is that the role that daughters play within the household matches the investment made in boys and the role they play outside the home.

In the models presented in the previous chapter, this alternative hypothesis is supported but the effect is not always clear and there are certainly other factors that mask it. Although boys would have sought employment at a relatively young age in lower socioeconomic households, girls would have assisted with childcare and household chores as early as they were able. It was more common for girls as young as 10 to be taken out of school to assist with the household than their male counterparts (Murdoch, 2014) and, as noted previously, Cannon and DeSchiffart (2008) found that girls were commemorated at an earlier age than boys. The results for the interaction between gender and age do indicate that this may also be the case in my database. The predicted rate of commemoration is higher for girls between the ages of 5 and 15 with a peak at approximately age 10. However, the error bars overlap for all ages within this range,

indicating that the difference between the predicted rate of girls and boys is not statistically significant.

Furthermore, while it was more common in lower socioeconomic households for girls to assist in the home, this pattern in which girls aged 5 to 10 possibly see a higher PPC than boys is not unique to these classes. In the three-way interaction between gender, age at death, and socioeconomic class, it appears that this pattern is strongest in socioeconomic class 4. This is very surprising and seemingly counter to the argument that the role girls played at home resulted in an elevated PPC when compared to their male counterparts because these families (which included medium-scale farmers, parents who owned multiple businesses, semi-professionals, and master tradespeople) typically had the income to afford a servant. In fact, if business owners were listed as having a servant in the census records, they were included in class 4 rather than class 2 or 3. Therefore, parents in class 4 did not rely as completely on the labour of their daughters as those of the lower socioeconomic classes. That being said, I would still argue that this unanticipated result is partially indicative of the role girls played within the household, and that the relationship between the PPC for girls and boys as measured with age at death on a continuum represents partially the patterns noted in the lower classes and partially those of socioeconomic class 5.

Boys of the upper class did not typically attend school in their local communities but were sent to expensive boarding schools sometime between the age of 7 and 10 (Frost, 2009, p.28; Gorham, 1982/2013; Nelson, 2014; Robin, 1980, p.159). Later in the time period studied, girls similarly went to boarding schools but were more likely to have been schooled in the local community first before attending a boarding school, and possibly finishing school, in their teenage years (Dyhouse, 1981/2013, p.41; Mitchell, 1996, p.185). This pattern is visible as a dip

in the PPC for girls of socioeconomic class 5 at approximately the same age as when they attended these schools. I will return to this pattern in a later section, but it appears that when boys are not at home, girls received a higher-than-expected PPC that dropped to match those of boys once they too left home. Once again, the PPC for girls and boys is not significantly different and so, this interpretation needs the caveat that it may change or disappear entirely with the addition of new data.

In the lower classes who could not afford these prestigious schools, all children attended local schools and were typically not there for as long as those of the upper classes. The Education Act of 1880 introduced compulsory school attendance for all children (Mitch, 2019) and therefore, for over half of the time period considered in this study, both boys and girls would have been in local school rather than at home or work for some period of their lives. This period was, however, quite a bit shorter than the schooling children receive today. The Education Act of 1876 made attendance at school compulsory up until the age of 14 (Hasbach, 1894/1908, p. 270). This same act forbade any child below the age of 10 to be employed for more than six weeks of the year (Hasbach, 1894/1908, p. 270). This law does not, however, keep boys from earning wages after age 10 and supporting their families while still in school. It would, however, be more difficult for girls to leave home for domestic service before their schooling finished. On the other hand, the law did not restrict girls from supporting their mothers in their domestic chores. In fact, as noted previously, girls were frequently kept home for just this (Murdoch, 2014, p.152). Therefore, while girls and boys may have been required to attend school for most of the time period studied, it is very likely that they continued to support the family either as waged labourers or within the home. This is likely why the PPC for girls and boys in the three lower socioeconomic classes rises steadily with age at death and there is no appreciable difference

between the two (when year of death is not included in the interaction). As noted previously, the PPC for girls begins to change at approximately the same age as when girls hit menarche and begin to take on the physical traits of adulthood. However, this also coincides with when girls of the lower socioeconomic classes typically left school. This may, as suggested above, indicate a combined effect of delayed adulthood and the fact that some of these girls may leave their communities for domestic service. At this point, they did provide income for their families through their labour but were no longer an active part of their community and did not assist in household maintenance.

The PPC for girls in socioeconomic class 4, on the other hand, reflects both of these patterns. When a family could afford to send a child to school, it was typical that sons were selected for this rather than daughters (Murdoch, 2014, p.164). I would argue that the same logic likely applies when members of socioeconomic class 4 must select which of their children would go to boarding school if they could only afford this opportunity for some. Boys of class 4 families may have therefore been sent to boarding schools at a greater frequency than their female counterparts; however, there would have also been a number who attended local school or apprenticeships instead. In fact, many of the individuals included in this class were master tradespeople or business owners in which a son may be expected to carry on the family business or trade. As such, some of these boys likely aided in the family business and supported their families in much the same way as the lower three socioeconomic classes. Their role, however, would not have been as integral to the family's survival as that of boys working in the lower classes. The PPC for boys in this socioeconomic class therefore matches the trajectory of those in the lower three socioeconomic classes but is lower than expected relative to girls of the same class. I would suggest this is because, as with socioeconomic class 5, parents of boys who went

away to boarding schools or apprenticeships were not able to help within the household or provide necessary financial assistance for the family.

Although these families may have had one or two servants, they would not have had as many as those of socioeconomic class 5 and as such, their daughters may have indeed needed to aid in the home and with childcare, like in the lower socioeconomic classes. I would argue that this is why the gendered pattern in the PPC for girls and boys of this class follows that of the lower three socioeconomic groups but that girls see an abnormally high PPC in their early teenage years. The PPC for girls is almost significantly above that of boys at approximately the same age when their labour would have been most needed at home while boys were either at boarding school or were training, but not providing necessary financial aid, to their family. Although unrelated to the role of girls within the household, I would further suggest that this is why, when each socioeconomic class is compared while holding the others constant, socioeconomic class 5 has a significantly higher PPC than the other four and that there is a more consistent increase between classes 1 to 4. The PPC for class 4 aligns more closely with classes 1 to 3 but is still intermediary between these classes and class 5.

As noted previously, girls were expected to attend school for the majority of the time period considered in this study. However, I would also anticipate that the predicted rate of commemoration may change as more girls attended school over time and were not home as frequently to assist in household chores and childcare. This appears to possibly be the case. In graphing the predictions for the interaction between year of death and gender (without including age, which created an entirely different pattern outlined above), the PPC for girls does drop progressively further below that of boys through the Victorian period and into the Edwardian. However, the error bars again overlap throughout and as such, I cannot say that there is a

statistically significant difference between the two even if it does trend in that direction. Furthermore, although these girls spent less time at home, they would have still contributed to the household even while at school. It would have been less likely that girls of the lower socioeconomic classes would be able to earn wages in domestic service outside the local community if they were required to attend school regularly. Therefore, what this pattern likely reflects is a combination of a reduction in the girl's ability to help out at home and a loss of their wages.

In order to test this pattern further, one could turn to the interaction between socioeconomic class, gender, and year of death. Unfortunately, there is very little that can be derived from the visualization of this relationship. For each socioeconomic class, the shape of the PPC illustrating the relationship between gender and year of death is different, but there is no statistically significant difference between the genders at any point. In classes 1 and 2, where daughters almost certainly provided additional income for the family as domestic servants, the PPC appears to drop slightly below that of boys than in the first quarter of the time period studied but there is significant overlap in the error bars for both genders. For class 3, the difference between girls and boys remains approximately the same over time with boys predicted to be commemorated at a slightly higher rate than girls. For classes 4 and 5, on the other hand, girls saw a slightly higher PPC at the start of the period which then possibly dropped to be more in line with that of boys by the end. In this interaction, it appears there may be very slight differences between the genders that shift over time based on socioeconomic class, but the data are not robust enough to make any claim.

The final result that offers some support for the hypothesis that the role that girls played within the household helped determine commemorative practice is the birth order variable. This

was only recorded for socioeconomic classes 3 to 5, so girls did not play as vital a role in the household in this database when compared to the general population. However, as noted previously in this section, girls in both classes 3 and 4 would have likely aided their mother in her domestic duties to some degree. In particular, the oldest daughter was most likely to be responsible for the household tasks discussed previously (Frost, 2009, p.17; Gorham, 1982/2013, p.20). She may even take over the household if her mother passed away (Frost, 2009, p.27). When comparing the PPC for the oldest daughter to children of other genders and birth orders, there is no statistically significant difference. It would appear that the importance placed in the eldest daughter and her role within the household did not lead to a significant increase in the likelihood that her parents invested in a public memorial following her death.

However, although the results are still not statistically significant, there is a potentially interesting pattern when comparing the PPC for only daughters within their gender to that of only sons. For only sons, the PPC is almost exactly the same as that of the oldest and middle-born sons (although the error bars are very large). The error bars for only daughters are also very large but the prediction itself does fall above the top of the error bars for girls of any other birth order. In fact, although this result may change with the addition of more data, it is possible that only daughters actually see the highest PPC than boys or girls of any other birth order. The oldest daughter was most likely to have played the most significant role within the household, but this was not exclusively the case and the significantly higher than expected PPC for only daughters may reflect the loss of the individual that offered aid to her mother within the home.

Although the difference between women and men is well established among Victorian and Edwardian adults, this does not appear to be the case in this setting as parents did not commemorate their boys at significantly different rates than girls. Considering the results of the

models with and without interactions, my data provide some support for the argument that parents would belong to one serial collective over another based on the role that girls played within the household. However, these results are not statistically significant and therefore only offer possible interpretations that require subsequent testing and verification.

Drop in Child Mortality and Fertility

There is some evidence to suggest that the drop in child mortality and fertility near the end of the 19th century and into the 20th century altered commemorative practice, but it is not always consistent with what was expected. I had hypothesized that with the drop in fertility, parents could invest more, financially, in each of their children and that this may translate to higher commemoration rates over the time period studied. When I visualized the PPC for year of death while holding the other variables at their constant, it is indeed the case that the PPC rises steadily through the time period studied, as was anticipated by the drop in fertility hypothesis. However, this result may be confounded by other factors that similarly predicted a rise in commemoration rates over time. Tarlow (1999), for example, found that there was a 'gravestone boom' in Orkney through the same time period that cross-cut demographic variables. As discussed previously, the spending power of the lower classes also possibly increased over time. This could therefore reflect a wider trend that may be related to the drop in fertility, and does offer some support for that hypothesis, but there are likely other contributory factors at play.

If drops in child fertility impacted a parent's decision to commemorate their child, the second pattern I had anticipated was that the PPC for children of the middle classes, which Murdoch (2014) found spearheaded the fertility decline, would rise first and that this would be followed by the lower and upper classes. I graphed this relationship using the model for the interaction between year of death and socioeconomic class and found that the PPC for children

of all classes increased over time but that this indeed happened more steadily in the middle classes while the PPC for the lower classes 'caught up' over time. A similar pattern was not found among the upper class but the relationship between the middle and lower would suggest that fertility decline may have resulted in changes to the PPC that were indeed spearheaded by the middle class. However, there is no pattern among the upper class that would suggest their commemorative behaviour was altered as a result of the drop in fertility over time. I would therefore argue this relationship provides some evidence to suggest that such a change did indeed occur, but it is not exactly as anticipated.

Similarly, I had anticipated that as child mortality (which, as mentioned previously, was particularly prominent among children under the age of 5) dropped over time, their deaths would become increasingly unexpected, and we would subsequently see a rise in commemoration rates over time for young children. Using the model for the interaction of year of death with age at death, I calculated the PPC for ages 3, 6, 9, 12, 15, 18, 21, and 24 as it changed over time. The predicted probabilities of commemoration for ages 3 and 6 do indeed increase more dramatically near the end of the time period studied when compared with the predictions made for ages 21 and 24. Once again, the error bars are large enough in these age groups that it is difficult to make this claim with certainty but the consistency of this trend through the age categories sampled would lend some support to the child mortality hypothesis presented above.

I had additionally hypothesized that the patterns associated with child mortality would be most easily identified among the lowest socioeconomic classes. Despite the fact that infant and child (<3) mortality rates were not observably different among the lowest socioeconomic class, Cannon and Cook (2015) found that this demographic shift had the most prominent effect on this class. They argue this is because alongside drops in fertility, there were fewer infants in the

labouring community that died later in the time period studied. This made it less likely for overt expressions of grief to trigger a similar response among members of the community. However, the results for this hypothesis are conflicting. Although it is the case that the youngest children of the lowest two socioeconomic classes saw the greatest rise in PPC over time, this was significantly less than the increase in PPC for the *oldest* people considered in these same classes. Indeed, the only point at which the PPC overlaps between the labouring class and the socioeconomic group directly above them is later in the time period studied among young adults who were 18 or older at the time of death. The mortality hypothesis therefore does not express as expected in this three-way interaction model and complicates the previous results in which the youngest children of all socioeconomic classes possibly saw a more significant rise in their PPC than the older children. Over time, the lowest socioeconomic classes did more frequently belong to the serial collective that commemorated their children, but this practice was more common for those that lost an older child rather than a younger one. The significant rise noted in the younger children in the interaction between age at death and year of death was therefore likely because for the older children, some socioeconomic classes had already reached their 'saturation point', so to speak. In these socioeconomic classes, parents who were going to invest in a permanent monument for their older child had already started doing so prior to the end of the time period studied. On the other hand, the PPC for children aged 3 and 6 in all but socioeconomic class 5 increased more dramatically over time. I would therefore argue there is little evidence, when considered together, that changes in child mortality actually caused an appreciable difference in the PPC over time.

The effect of the decline in child mortality and fertility over time on a parent's decision to commemorate their child is therefore partially supported by the results of my analysis but there

are likely conflicting variables beyond these patterns that guide commemorative decision-making. Given the patterns outlined in this section, I would argue there is more support for the impact of child fertility patterns on commemorative decision-making than there is for the decline in child mortality over time, but that these patterns may still be conflated by other variables. This point is surprising because although fertility is not often linked to specific mortuary patterns, the psychological literature comparing expected and unexpected death would suggest that a parent's response to death should be different when mortality is high even if the experience of grief and loss is the same. This variability has also been identified in both historic and modern settings (Cannon and Cook, 2015; Rainville, 1999; Scheper-Hughes, 1992; Smith, 1987). As mentioned previously, other scholars have convincingly argued that parents are never indifferent to the deaths of their children but may still expect them to survive even when mortality is high (Baxter, 2020; Murphy, 2011).

I had hypothesized that my dataset, which compares serial collectives composed of individual experiences rather than the individual experiences themselves and is therefore not well-suited to capture the experience of grief, would more likely reflect the broad changes in child mortality and fertility that had been identified in other cemetery studies. My analysis would suggest, however, that this is not the case. Despite changes in child mortality and fertility, there are no patterns in the predicted patterns of commemoration that could be unquestionably linked to these shifts over time. When child mortality is high, parents may exercise greater reservation in other arenas of mortuary practice, but my results would indicate that the effect this had on the practice of erecting a stone monument is masked by other variables and there is no evidence to suggest it played a significant role.

Rise of the Lower Class

The change in the PPC for the lowest socioeconomic class over time cannot be explained solely via a change in child mortality or fertility. As I alluded to in the previous chapter, the broad increase in the PPC over time is, in part, related to the rise of the lowest socioeconomic class. In fact, the results of the interaction between year of death and socioeconomic class indicate that the PPC rises the most substantially over time in the lowest class when compared to any other. This result is slightly different from that recorded by Cannon and Cook (2015), whose raw data indicate that the most substantial increase in commemoration rate for 3-14 year olds over time occurred in the lower-middle class.

This would suggest that, as reported by Justman and Gradstein (1999) and noted by others (Crouzet, 1982/2006, p. 14), there was indeed a reduction in the income gap between the working class and those of the higher socioeconomic classes in rural Cambridgeshire. Although it is unclear to what extent these products had reached rural Cambridgeshire, by the mid-19th century, mass produced gravestones were already available (Sayer, 2011). I cannot therefore argue that a significant change in the price of the gravestone itself made it more likely that those of the lowest socioeconomic class were able to afford such a monument. Instead, it is most likely that the spending power of this group increased over time and that it was not the case, as suggested by Chapman (1893) that labourers (who make up the majority of socioeconomic class 1) were only barely making enough income to survive. Chapman does identify a pattern in which agricultural labourers spent more on goods and services (such as travel, meat, and books) that had previously been the luxury of the middle and upper classes. Based on the testimony from a "gentleman of great experience" (Chapman, 1893, p. 46), this may be equated to individuals of this class accruing greater debt to be able to afford these items. If this is to be believed, it could

therefore be argued that the labouring class increasingly elected to commemorate their children over time by relying on credit rather than their own incomes. However, Chapman provides little to support this argument and he was writing at a time when the lower classes were often criticized for their economic choices (Strange, 2005; Vanden Bossche, 2014). It may very well be the case that the lower socioeconomic class had indeed begun to make more money and subsequently invested more heavily in the most expensive form of commemoration.

Given that child mortality declined in this class over time, I had suggested that there would be greater investment in permanent commemorations for the youngest children of the lowest socioeconomic class as their deaths became increasingly unexpected. As noted above, I instead found that the oldest children of this class received the greatest increase in such an investment. This provides even further support that these families had greater access to disposable income than earlier in the time period studied. Either as husbands or wives starting a new family or young adults making full wages, individuals aged 18 to 25 would comprise a vital component of their family's income. They supported their families largely as agricultural labourers, general labourers, factory workers, laundresses, or charwomen and the loss of this income with their death would have been a financial blow to the family. The fact that increasingly more individuals of this age within the lowest socioeconomic class did indeed receive a stone monument indicates that regardless of the lost income, parents still invested in a permanent monument after their death. These children would have also supported their families earlier in the time period studied and so, I suggest that the financial barrier of erecting such a monument was the only element that had changed and could be captured in this analysis.

That being said, while it certainly seems to be the case that labourers at this time were making more money than just what was needed to survive, it may also be the case that these

families began to prioritize an investment in a stone commemoration more so than they had done in the past. In his study of gravestone form in rural Cambridgeshire, Cannon (1989) had found that the upper classes would adopt gravestone styles first and that these were later emulated by the lower socioeconomic classes. It may be that while stone commemorations were very popular among the highest socioeconomic classes early in the time period studied, this was not emulated in the lower classes until quite a bit later. Likely, the pattern identified in this analysis is a result of both explanatory frameworks. The lowest socioeconomic class may indeed have made more money as the wage gap between this class and the higher ones was reduced over time. But just as their incomes became more similar, their priorities in mortuary practice might also have become more closely aligned.

Shift from Economically Useful to Economically Useless but Emotionally Priceless

In her book *Pricing the Priceless Child,* Viviana Zelizer (1985) found that when children shifted from economically useful (i.e. labour laws permitted child employment) to economically useless but emotionally priceless, the actual economic value of children rose substantially. With what she terms the sacramentalization of childhood, where the sentimental value of children is emphasized over the economic contributions they can make to the household, Zelizer found an increase in financial investment and gain. Legal payouts following the wrongful death of a child and the amount of money parents were willing to spend to adopt a young child rose substantially with the sacramentalization of childhood (Zelizer, 1985). Her argument is that the more a society finds attributing monetary value to children and their labour abhorrent, the more that institutions as well as members of that society are actually willing to spend when they are forced to attribute such value to children. I would argue similar patterns appear in my dataset, particularly in the PPC for children of socioeconomic class 5.

The PPC for the youngest children of class 5 is significantly higher than that of any of the other socioeconomic classes. As well, where the predictions for every other class are that children were commemorated at increasingly higher rates as they age, there appears to be a dip in predicted rates starting at approximately the mid-teens for the elite class. It is possible to draw a horizontal line through the error bars, indicating that this dip is not statistically significant. However, given that this deviation is significantly different from the other socioeconomic classes, it is consistent through the ages at death measured, and there is a theoretical explanation for this trend, I will still provide an interpretation with the caveat that it may be strengthened, or discarded, with additional data.

While some of the semi-professional and master trades people in the class below the elite class did have servants, as noted previously, they did not have as many nor were they as wealthy. Children of all other classes would likely contribute, in some fashion, to the upkeep of the household. The individuals that made up the elite class, on the other hand, were children of those with a university education and professional careers, members of the clergy, landed gentry, or large-scale farmers and business-owners. Members of this class typically had households with multiple servants, and it was therefore more likely that rather than contributing to the household, children would play a largely supportive moral role (Nelson, 2014). In particular, young children in Victorian society were lauded as innocent and pure beings that would maintain the moral balance of the household (Murdoch, 2014; and McKillop, 1995 examined Canadian gravestones of the same timeframe and develops the same argument there). Zelizer (1985) also found that as the social value of children shifted to one of priceless sentimentalization, younger children received the greatest economic payouts because they embodied these characteristics more completely. My data support this same conclusion: in the one class where children are certainly

not performing any contributory role throughout the time period studied, the predicted commemoration rates for the youngest children are exceptionally high. However, when they reach their mid-teens and begin to look and act more like adults, they lose those characteristics that are more typically associated with sacramentalization. This trend appears in my dataset as an increasingly lower likelihood that parents of these older children invested in a permanent monument following their death.

This argument is further supported when one examines the interaction between socioeconomic class, age at death, and gender. The dip in the PPC at approximately the onset of puberty that emerges in the highest socioeconomic class appears to be specific to girls and is not present in the PPC for boys. Once again, there is significant overlap in the error bars between girls and boys in the elite class, so it is not possible to know if the pattern suggested by the data is truly there; however, it does lend support to this narrative if it is indeed present. As noted above, young children were sentimentalized in Victorian society, but young girls were particularly so. Young girls more perfectly embodied the childlike innocence and purity that defined the priceless child, and they were represented in Victorian literature and advice manuals as such (Gorham, 1982/2013; Frost, 2009). In her discussion of the benefits of educating young girls, Amélie Rives argues that when boys turn to their sisters for advice, "…they will draw from her a strength and incentive to all high aims, and be illuminated by the light of a purity which shines, not through the opaque medium of ignorance, but through the clear texture of that lofty innocence which is the choice of what is worthy, made by one having the knowledge of good and evil" (1892, p.289). Although the girl imagined in this text is old enough to provide advice for her brothers, it is presumed that her gender awards her a better understanding of right and wrong and alludes to her innocent and pure nature.

Describing the influence a girl may have on her family, Farningham comments: "…There are [those girls] who cannot be away an hour without being missed and regretted. They are the very brightness of home, the sunbeams that make everything glad. This house is so quiet and desolate without them that we cannot bear them to be out of our sight" (1869, p.11-12). In both of these examples, the young girl is able to serve her family by exhibiting the qualities of innocence and joy that were believed to be inherent to her gender. This may be why the pattern outlined above (a high rate of predicted commemoration in the younger ages and a possible dip in the mid-teens) is only present among girls of the elite class and not boys. Furthermore, they not only lose this role when they begin to develop the physical traits of adulthood but also when these girls are most likely to leave the home and attend boarding school (Dyhouse, 1981/2013, p.41; Mitchell, 1996, p.185). Once these girls are no longer children and leave the household, they are less able to play the role of moral guide for the household and the PPC subsequently drops as a result.

I would argue that the reason why these patterns emerge in the results discussed above is because, as predicted by Zelizer (1985), when children were not economically valued but sentimentalized and deemed 'priceless', they received the greatest financial investment. The young girls of elite families, in particular, were responsible for providing moral character and emotional support for the family. Unlike girls who either earned an income in domestic service or helped in the upkeep of the household, economically useless but emotionally priceless young children of the elite class are indeed predicted to have received a substantially higher rate of commemoration when compared to young children of all other socioeconomic serial categories and possibly a higher rate of commemoration when compared to older girls of the same class.

Change and Major Events

As noted previously, the problems posed by taking the context of loss as an influential factor in mortuary decision-making are formidable because the nature of this influence is not well laid out. It is therefore of no surprise that both the agricultural depression and World War I (1914 to 1918) do not appear to have played a major role in altering whether or not a child received a stone commemoration following their death. That being said, there is minimal evidence that may suggest commemorative behaviour changed following the agricultural depression and given that both events have been widely discussed as important in other areas of Victorian and Edwardian life and mortuary practice, they are still considered here.

England experienced an agricultural depression in the 1870s and 1880s (Howkins, 1991) and as such, I had anticipated that this would have resulted in reduced spending power within the agricultural communities of rural Cambridgeshire. As a result, I expected that fewer children would have received the comparatively expensive stone monument following their death during the depression but for commemoration rates to rise again once the depression receded and spending power returned. While holding the effects of age at death, socioeconomic class, and gender at a constant, there does not appear to be any difference in the predicted probability of commemoration that would indicate any change as a result of this major historical event. The PPC instead increases at a steady rate over time through all of the time period studied.

Alternatively, there are some changes that may be attributed to the agricultural depression in the interaction between socioeconomic class and year of death, but these are confounded by other social changes that emerge at the same time. Although there is no decline in the PPC for children during the agricultural depression for any socioeconomic class, some did see changes directly following the depression. Starting at approximately 1890 to 1895, it appears that the

labourers and, to a lesser extent, the semi-skilled labourers are predicted to have commemorated their children at increasingly high rates. However, it is difficult to address the true cause of this change because it is impossible to differentiate increases in predicted commemoration as a result of the end of the agricultural depression with the general shift in political and economic power of the working class. As noted previously, political bodies increasingly acknowledged the needs of the working class at this time and Justman and Gradstein (1999) argue that this directly resulted in an increase in wealth and a decrease in cost of living for this class. The increase in predicted commemoration rates in these classes near the end of the time period studied may therefore be a result of either of these trends. I do not have a means, given the data I have available, to differentiate between the effects of these two factors.

There is, however, no indication that World War I had an effect on commemorative decision-making in rural Cambridgeshire. Despite the fact that this event is cited as having dramatically changed the environment of grief at the time, with the 'lavishness' of the Victorian funeral deemed inappropriate given the number of dead, the lack of bodies available for burial, and the violent circumstances in which these deaths occurred (Jalland, 1999; Mallios and Caterino, 2007; Mytum, 2004, p.83; Parker Pearson, 1982; Tarlow, 1999; but see Cannadine, 1981 for opposing view), there is no change in the PPC after 1914. I had also hypothesized that because young men were disproportionately lost during WWI, there would be a difference in the PPC for girls over time when compared to that of surviving boys at this time. As noted previously, the PPC for girls does shift slightly below that of boys at the end of the time period studied but this happens well before the start of WWI and there is significant overlap between the error bars for both genders. It may be the case that WWI caused short-term shifts in the PPC

but that this did not result in a difference that was significant enough to alter the trend for the end of the period studied.

In both cases, there is no clear and dramatic change in the PPC following either the agricultural depression or WWI. This does not mean, however, that commemorative practice continued unabated after these events. Instead, as demonstrated by the commemorative practices of the lower socioeconomic classes after the agricultural depression, it is possible that commemorative practice changed gradually over time and is therefore more easily masked by other concurrent trends. The point that we need to consider the impact of major historical events as gradually emerging over time, either amplifying or a dampening of existing trends, and not a dramatic change that occurs suddenly after the event is not new (Cannadine, 1981; Cannon, 1989; Chénier, 2009, pp. 162-164). In fact, Gordon and Marshall specifically note that scholars avoid exactly this, noting that it is problematic "to present static 'before' and 'after' snapshots of a series of processes that were in reality dynamic, evolutionary and thoroughly untidy" (2000, p.10). The impact of the agricultural depression on commemorative decision-making is indeed 'untidy' and difficult to attribute to this specific event as a result. This may also explain why no changes in the PPC are detectable following WWI. It is possible that there are differences in the PPC resulting from WWI that took longer than a decade (only burials up to the year 1925 were included in this database) to emerge. I would therefore argue that although neither of these events had a pronounced effect on the community at large that could be unproblematically attributed to the event, change may still have occurred that would be visible when examined diachronically.

This is an important departure from previous archaeological studies that frequently attribute mortuary behaviour to such events (Mytum, 2004; Snodgrass, 2016; Streb, 2017;

Tarlow, 1999). While he did not look specifically at commemorations, Alun Howkins (1991) states that the agricultural depression and World War I had cataclysmic effects on the reshaping of rural Cambridgeshire. However, he attributes other changes to "…a process of attrition, of gradual nibbling away-of endless, almost meaningless local change" (1991, p.5). He goes on to argue that "Only when we try to aggregate that change, with all its contradictions and problems, do we get any sense of that reshaping" (Howkins, 1991, p.5). I would agree with his assessment that change actually occurs at a minute scale but becomes accessible if we consider it in aggregate. However, I would critique his claim that the agricultural depression and World War I are exceptions to this and assert that the changes attributed to these events are actually components of long-term change.

Primogeniture

As discussed previously, studies in psychology and economics have demonstrated that in some cases, parents will increase their investment in the eldest child within a family. Older studies have also found that male primogeniture guided inheritance decisions of the upper classes during the Victorian era (Stone, 1986; Klemp et al., 2013). The oldest son in the family would typically receive the family's land and estate following the death of the parents (Murdoch, 2014) and I similarly expected differences in commemorative investment following the death of the oldest son when compared to the other gendered birth order categories, particularly in this dataset where the role of the eldest daughter within the household may have been diminished.

However, there is no significant difference in the PPC between the oldest children and those of the other birth-order serial categories. There is similarly no discernible difference in the PPC for the eldest son. In fact, predicted commemoration rates for boys who were the middle child are the same as those who were the eldest. While some scholars have placed particular

importance in the eldest son as the inheritor of the family business and estate, parents did not more frequently invest in a public memorial after the passing of their oldest son when compared to the deaths of their other children. Robin's (1980) study of the Brand family in Elmdon further found that they tried to split their inheritance as evenly as they could among their surviving children. Although highly anecdotal, it is possible that families did not actually place particular emphasis on the eldest son, as suggested in the studies listed above and hypothesized in my study of birth order, but actually tried to provide their children with as equal opportunities as possible and may have subsequently engaged in the practice of erecting a permanent memorial for as many of their children as they could.

Furthermore, while I anticipated that greater investment in life would result in greater investment following their death, an alternative possibility emerges here in which greater investment in life results in the opposite effect. I have not seen this directly described in studies of the Victorian and Edwardian periods, but it is possible that if a parent invested more in the education and well-being of their oldest child, this may have resulted in the relative neglect of others. In fact, Modin (2002) cites numerous modern examples indicating that later-born children tend to be disadvantaged both in terms of health outcomes and education. Although not the case through the entirety of this time period and in all families, it is more likely that Victorian parents had numerous children (Jalland, 1996, p.5; Murdoch, 2014, p.87) and if the youngest dies, they may be the youngest of many siblings. This may be why we alternatively see a higher predicted rate of commemoration among children who pass away when they are the youngest child. If parents felt they did not provide appropriate care in life, they may have put a greater effort into providing an appropriate burial for them in death. It is unclear to what extent this would have been the case in families of the three highest socioeconomic classes (the classes that comprise

the birth order database). However, it is possible that those parents without servants and who could not afford to educate all their children to the same extent may have indeed felt pressured to provide better care in death than they could have done in life.

In her examination of grief among the working class, Strange argues that "…striving to provide for one's family represented a language of love, hope and commitment; when provision fell short, it opened a chasm of guilt and feelings of failure" (2005, p. 206). She later notes that it is "…plausible to suggest that the ability to finance a funeral represented a language in which fathers could both affirm their status as 'provider' and use it to express commitment to their family" (2005, p. 260). Although Strange does not specifically examine differences in birth order and commemorative decision-making in relation to parental guilt, these two comments on the 19th century working-class response to death offer some support for the suggestion made above. Parental guilt may indeed be more common when the family has felt they failed to provide for their child, a circumstance in which Modin (2002) suggests is more common for latter-born children, but the parent may partially alleviate their guilt through provision of proper funerary accoutrement.

The results presented above would suggest that the heightened importance placed in the role of the eldest son or daughter, and specifically male primogeniture, do not play an identifiable role in altering the predicted probability of commemoration for these groups. Birth order has not been explored previously in mortuary studies from this time period, but this result is surprising given the extant literature suggesting preference in education, investment, and inheritance given to the eldest child, and specifically the eldest male, in Victorian households. However, this may be because other factors are at play that inflate the likelihood of commemoration for the youngest children. Unfortunately, it is not possible to argue that any of

the interpretations outlined above are any more or less likely to be responsible for the higher rates of commemoration than expected for the youngest child. Instead, these alternative possibilities offer potential future avenues of research that move beyond the strict adherence to the rules of primogeniture that permeate writing on this time period.

Chapter 8: Exploring Complexity

The results of this study cannot be synthesized into one narrative but instead simultaneously support a series of interpretations that likely all played a role in commemorative decision-making. Given that this research explores mortuary practice, it is not surprising that the patterns that emerge are complex and interwoven. As noted previously, mortuary practices may have served a number of purposes. They could have 1) helped to alleviate grief, 2) created lasting kinship ties within the community, 3) signaled financial prowess, or 4) the bereaved may have followed a certain practice because they felt it was the right thing to do but had no intention of returning to the gravesite. In terms of erecting a stone monument, parents would also need to consider the cost of the monument, or an engraving on an existing monument, when making their decision.

The serial categories within each of the variables considered in this study are relevant to understanding the practice more broadly, but they do not adequately capture the relationship each individual parent shared with their child and the entire commemorative decision-making process following their death. Within each serial collective, those who commemorated their children and those who did not, the lived experiences and individual relationships between the deceased and the bereaved are averaged across thousands of individual data points and only known through the deceased's membership within serial categories. For this reason, I would anticipate a high degree of variability explaining why parents belong to any particular serial collective and for the actual complexity within the mortuary practice studied here to be far greater than can be captured by the serial categories considered. Given the amount of unmeasured and uncontrolled complexity within the database, it was therefore surprising to see that while there is significant overlap in the error bars and some patterns convolute interpretive possibilities across the models, trends do

emerge. This suggests that while I cannot explain the membership of each individual within both serial collectives, the serial categories I consider do adequately capture some degree of that variation.

The previous chapter explored the narratives that these various trends support, but it is also important to consider the complexity that is potentially lost in a study such as this. In this chapter, I will quantify the complexity that is not captured in the models analyzed. I will then examine individual case studies that defy the predictions made in these models to explore this unmeasured variability and offer potential avenues of future research. In this study, the actions of individuals become relevant and meaningful when they are aggregated as members of a serial collective and these collectives are explored via 1) the serial categories that make up these collectives and 2) comparison of these serial categories within the mortuary setting and to other settings in which the same categories see differential treatment. I have not, however, provided space for individual actions to suggest new potential serial categories. By examining those contexts in more detail in which a child was commemorated when the models predicted that commemoration was very unlikely, I offer a venue in which alternative interpretations may emerge and individual action is more salient. What I found was that 1) whether the child received a primary or secondary commemoration, 2) upward mobility of the family head, 3) care for the deceased provided by siblings, and 4) multiple losses may have played a role in mortuary decision-making for those children that received a stone monument when my models predict they would not have. These results provide suggestions for the actual lived complexity of mortuary decision-making that is not captured in the models studied.

Quantifying Complexity

Best Subset Selection (Excluding Birth Order Variable)

When selecting between the different regression models, I allowed no more than three-way interactions between the variables. For the three-way interactions, I considered the three-way model (A*B*C) as well as the complete pairwise model (A*B + A*C + B*C) for each interaction. In both of these cases, the fourth variable is held at a constant and its interaction with the other three variables is not considered. My previous analysis considered all three-way models but not every combination of two-way interactions as I did not permit more than three-way interactions between the variables. As an indication of the actual complexity behind the dataset, I modeled all possible combinations of the two-way interaction variables and calculated AICc for each. This is termed the best subset approach. Scholars have long suggested that the best subset approach can be used to remove variables from consideration (Hosmer et al., 1989; Lawless and Singhal, 1987) but seeing as AICc can be compared across all models built on the same data, it is useful here as a measure of what information was lost when I did not consider the most complex options.

AICc for the basic model with no interactions is 6078.8; it is 6042.6 for the best fit model that I considered in this analysis. As a reminder, the model that best fits the data is one with a lower AICc value, and it is considered a significantly better fit if the difference between the two models is 10 or greater and there is no significant difference between the models if this measure is 2 or lower (Burnham and Anderson, 2002). The AICc for the best possible model of any number of two-way interactions is 6038.1 and includes the following variables: socioeconomic class, gender, age*socioeconomic class, age*gender, and year of death*socioeconomic class. Therefore, while the model derived from the best subset analysis does perform better than that of the best fit model measured previously, it does not do so substantially. The difference between the models that include interactions and the base model, which does not, is quite substantial and

so, greater complexity does provide better predictive power. However, given the data I have available to me, there does not appear to be a model that is substantially better than the best fit model I had already included in my analysis. Furthermore, although the model derived from the best subset approach would provide the most accurate predictions of the probability of commemoration, the trends produced by this model would be very difficult to understand or visualize because each of the four variables interact either directly or indirectly with all of the others. I have only included it here so that I may compare it with my best performing model to demonstrate what information is lost by not evaluating anything beyond three-way interactions.

Area Under the Precision-Recall Curve (AUPRC)

The best subset approach is beneficial for understanding the difference between models measured on the same data, but this offers only a relative measure of fit. As mentioned previously, AUPRC instead offers an objective measure of how well the best fit model captures the actual variability in the database by measuring precision against recall. However, it cannot be used to compare different models. The AUPRC value for the best-performing model that allowed no more than three-way interactions is 0.470. This is compared against random, which is the rate of positive cases within the database. For this dataset (all children without the birth order variable), the total rate of commemoration was 0.119. With the best performing model that I considered it this analysis, it predicts commemoration almost four times more accurately than random. That being said, it is also clear from this statistic that there is still a lot of unexplained variation. This is of no surprise given that this database only included four variables to explain a highly complex behaviour with numerous elements that are not accessible archaeologically. On the other hand, these four variables very commonly considered in archaeological interpretations still achieved a significant improvement from random in predicting commemoration rates. While

I am certainly missing some explanatory factors, my study suggests that even with the variables archaeologists normally have access to and include in their studies, we can actually explain a fair amount regarding who received a stone commemoration following their death. I would further argue that other studies of mortuary practices based on the same variables will similarly fail to access all explanatory factors and as such, if the archaeologist at least considers interactions of the same variables considered here, they may achieve a similarly significant improvement from random.

Commemorations of Labourers

In an effort to explore the factors that were not considered in this study, I performed a targeted analysis on those children that my models would suggest should not have received a commemoration but had one regardless. These are children from low socioeconomic class households, those who passed away when they were young, and those who passed away early in the period studied. Thus, I derived a small test dataset of seven individuals who were listed as the children of labourers and had passed away between the ages of three and five before 1860. These seven individuals were all the children in my database that met these criteria (see Table 8-1). I then re-examined the monument inscription records, baptism records, burial records, and census records, to try to explain why these children received a commemoration.

Table 8-1. Children aged 3-5 of labourers who received a stone commemoration prior to 1860

Name	Age at Death	Year of Death
Joseph Papworth	4	1847
Mary Ann Wilson	4	1853
Thomas Rule	4	1855
Sarah Mary Elizabeth Sheldrick	5	1855
Frances Stubbings	4	1856
Mary Ann King	4	1859
Sarah Ann Johnson	3	1857

Factors Identified in Multiple Individuals

What I found was that six of the seven children recorded had received secondary commemorations on the stones of older relatives that died in some cases many years after them. For example, Joseph Papworth passed away when he was four in 1847 but was not commemorated until the death of his father 23 years later in 1870. Similarly, Sarah Sheldrick passed away when she was five in 1855 but did not receive a commemoration until her grandmother passed away in 1877, 22 years later. Although the master database does include information on primary and secondary commemoration, I elected to exclude this from my analysis to better facilitate pattern detection. As illustrated previously, the error bars included with my results were quite large in some cases, likely as a result of small sample size, and this problem would have been exacerbated by the inclusion of this variable. That being said, it seems, based on this small subset, that secondary commemorations are utilized frequently by lower socioeconomic classes to commemorate children sometimes many years after their passing. However, Cannon and Cook (2015) found that infants more frequently received secondary commemorations sometimes decades after their death in all socioeconomic groups so this may not be specific to this class.

Furthermore, of these secondary commemorations, five of the six secondary commemorations were erected after the family was no longer having children (i.e. either all children were commemorated together or were commemorated on the gravestone of a parent). As in my discussion of the higher than predicted probability of commemoration for the youngest children, I had noted that it is easier for parents to budget for a commemoration once they are past their childbearing years and their surviving children have made it past the period in which

mortality rates are significantly higher (Murdoch, 2014; Strange, 2005). Lower-income families may have similarly waited to commemorate all their children on one gravestone and as such, these children were more often commemorated as secondary names on the gravestone than primary ones. I would, however, point out that this option to commemorate all children that passed away on the gravestone of a parent or other relative was available to all families but only practiced in a handful of circumstances. We must, therefore, consider factors outside of the primary and secondary divide that could explain why these children received a commemoration when their peers within the labouring class often did not.

I also found that the head of the household for four of the seven commemorated children had actually experienced upward mobility from the time their child passed away to the point of commemoration. Mary Ann Wilson passed away in 1853 and her father was listed as a labourer, but in the census prior to her commemoration (1871), her father was listed as a market gardener. Similarly, Thomas Rule passed away in 1855 when his father was a labourer but was commemorated in 1871. In the 1871 census record, his father was listed as a beer maker and seller. For Mary Ann King (who passed away in 1858), the occupation of her father was recorded from her baptism record, but in the baptism records of her siblings he is listed as a farm steward, a farm bailiff, a husbandman, and a shopkeeper. It is therefore unclear if her father should have been listed as a labourer or within one of the other categories listed in the records of her siblings. Finally, Sarah Ann Johnson passed away in 1857 and was commemorated immediately after her death. But while her father was listed as an agricultural labourer in 1851, he was a dairyman in 1861. It is therefore unclear if he had altered his economic position when he elected to commemorate his daughter.

My database is based on the occupation of the head of the household in the census record immediately prior to the individual's passing. It therefore does not account for shifts in social position that would have altered the child's recorded socioeconomic category. Although a very small subset, the fact that over half of the children considered here were members of families that were not in the labouring class when the commemoration was erected suggests that upward mobility, which was not considered in this study, may have influenced who received a commemoration.

Individual Factors of Commemoration

Alongside these two patterns that may have played an important role in commemorative decision-making for multiple low-income households, there are also some highly individual reasons that appear to have influenced the decision to commemorate. I will go through each in turn as well as some of the implications of these explanations.

1. Joseph Papworth (d.1847)

Joseph was one of the five children who received a secondary commemoration rather than a primary commemoration but there is another factor that emerges when one examines the context surrounding the decision to commemorate him. The text of the monument indicates that Joseph's mother passed away in 1868 but the primary commemoration on the gravestone is Joseph's father, who passed away in 1870. Joseph was therefore only commemorated after both of his parents passed away. I had assumed that when a child passed away, it was their parents that were responsible for commemorative decision-making. However, in this case, it was likely Joseph's siblings that decided to commemorate him alongside their parents. Joseph was also the youngest child when he passed away, with two older brothers and five older sisters. All children would have therefore experienced Joseph's life and death.

2. Thomas Rule (d.1855)

Thomas was also one of the five secondary commemorations and was included on the gravestone of his father who passed away in 1871. As noted previously, Thomas' father was likely not a labourer when this commemoration was erected. This may explain why Thomas received a commemoration on his own, but a similar factor to that described with Joseph emerges here as well. In this case, the gravestone was likely put up on behest of Thomas' mother. She included both Thomas and Ada (the youngest daughter who passed away when she was 13) as secondary commemorations on her husband's gravestone but interestingly elected not to include her firstborn son, Charles, who passed away when he was only 2 months old in 1845. This does lend support to the notion that high infant mortality rates caused parents not to publicly express their loss. However, I would also argue that this commemoration, and the failure to commemorate the young firstborn, may also be related to the same factor outlined above. Just as Joseph Papworth was remembered and commemorated by his siblings, Thomas and Ada would have been known by the other children whereas no other child would have ever met Charles. This may have been a factor in Thomas' mother's decision to commemorate some children but not all. In this case, Thomas passed away when his older brother was seven and his younger sister was one. Ada was the youngest child, and all of the other surviving children would have been old enough to remember her life and death.

Another factor that may explain why, in my analysis of birth order, the youngest child received a higher-than-expected predicted probability of commemoration emerges in my analysis of the circumstances of Joseph's, Thomas', and Ada's deaths. In their study comparing the grief experience of modern bereaved parents with those who experienced bereavement in some other form, Hazzard et al. (1992) found that the bereaved parents had more atypical experiences of

grief including a heightened sense of guilt. They subsequently conclude that "Because parents expect to be able to protect their children, their child's death may engender more intense feelings of guilt, loss of control, and anxiety about the uncontrollable nature of death…" (Hazzard et al., 1992, p.28). I would argue that this sense of guilt that typically accompanies the loss of one's child may extend to siblings who were also involved in childcare. In Victorian and Edwardian families that do not have servants or nurses to assist with childcare, older siblings would have played a significant role in the care of the youngest children. As a result, more members of the families would have experienced an intense feeling of grief aggravated by a sense of guilt and this may have subsequently altered the likelihood of commemoration in cases like those discussed above.

In her study of 19th century mortuary practice in America, Baxter (2019) considers how children were taught about death and encountered death in their own lives. Although this article focuses on the games, literature, mortuary practices, and advice provided to parents that speak to how children were familiarized with death in a time of high child mortality (and how children internalized those teachings), it touches on a topic that is not typically considered in studies of child mortality: how the siblings of the deceased would have experienced the death. It is certainly the case that even young children may have experienced a great sense of loss following the death of their sibling (Fass, 2016, p.43). As noted throughout this dissertation, it is not possible to attribute grief or loss to trend data in which thousands of individual decisions are aggregated into a single predicted rate of commemoration. However, when we examine individual commemoration as a case study where the basis of analysis is not comparison, the potential for incorporating grief becomes more apparent.

3. Sarah Ann Johnson (d.1857)

Sarah Ann Johnson is one of the few children included in this section that received a primary commemoration. The secondary inscription on this stone is Sarah Ann's sister Emma, who passed away at five years old. As noted previously, Sarah Ann Johnson's father did achieve some level of upward mobility, which may have influenced Sarah Ann's parent's decision to purchase a gravestone for their two daughters. However, the unusual circumstance of their deaths may have also played a role. Although the transcription of the gravestone indicates that Emma passed away 2 years earlier, the burial records indicate that Sarah Ann and Emma were actually buried on the same day in 1857. However, there is no surviving commemoration for their brother John (who passed away in 1862 when he was 5) nor their sister Sarah (who passed away three months after John, in 1862, when she was 3). Although their study did not specifically cover child death, Mercer and Evans (2006) examined modern cases where an individual had experienced multiple losses in an effort to understand grief in these aggravated circumstances. They found that grief was particularly prolonged when the losses were close together and even noted that simultaneous losses were grieved in turn rather than together (Mercer and Evans, 2006). Differential survival of the gravestones may be responsible for the discrepancy noted here, but it is also possible that the particularly difficult loss of two children so close together prompted this unusual primary commemoration when the other children, who passed away later after the family had seen some upward mobility, were possibly not commemorated at all.

In each of the case studies examined above, I found that there were aggravating circumstances surrounding the deaths of these children that may have resulted in a heightened or prolonged experience of grief. The fact that these children received a gravestone whereas others did not would suggest, in contrast to what I have argued thus far, that differential grief may indeed result in a higher likelihood of commemoration. I had cautioned previously that this is a

problematic argument to make in comparative studies because it implies that in those cases where the deceased child did not receive a commemoration, the parents may have grieved less. It is therefore important to clarify how I have treated grief in this section. In these specific case studies, it appears that when there are exceptional circumstances where either more members of the family experienced a sense of parental grief or multiple losses were accrued, commemoration may have been more likely. That being said, it is likely that other parents who experienced these same types of losses did not commemorate their children. This does not mean that those parents who experienced the same loss but did not commemorate their child actually experienced a reduced sense of grief. As noted previously, those who follow a more restoration-oriented grieving style may find it less useful to erect a gravestone than those who have a loss-oriented grieving style (Stroebe and Schut, 1999). I would therefore argue that for these *specific families*, the gravestone may have seemed more appropriate, but on its own, the gravestone is not indicative of an elevated sense of grief.

To truly understand the relationship between circumstances of aggravated grief and likelihood of commemoration, further studies would be required that specifically examine the prevalence of these circumstances alongside commemoration records. If it is indeed the case that either of these circumstances do result in significantly higher rates of commemoration when controlling for all other variables included in this study as well as those outlined in this section, then an argument could be made that there is indeed a relationship between grief and the likelihood of commemoration. It will never be possible, however, to argue that grief was not felt in those circumstances where the family elected to not commemorate their child. Only that this specific form of permanent memorialization within a public space was considered more appropriate by some individuals in specific circumstances of grief.

Complexity in Commemorative Decision-making

In this section, I have outlined four potential factors that may have influenced whether a child received a stone commemoration following their death but were not considered previously in this study: 1) whether the child received a primary or a secondary commemoration, 2) if the head of the household had experienced upward mobility by the time the child was commemorated, 3) if siblings were present who may have also been responsible for the care of the child who subsequently passed away, and 4) whether multiple losses were experienced at the same time. However, using all the historical records I had available to me, I was still not able to determine why two children of labourers who passed away early in the time period studied and early in life received a commemoration when so many others of the same demographic did not. This serves to illustrate the limitations of the resources used to construct the database analyzed in this study. Evidently, there is still some amount of variation, and important serial categories, that cannot be explained with monument transcription, census, burial, baptism, and marriage records. Commemorative decision-making is a complex process that involves numerous factors that an archaeologist has access to but also involves conscious and subconscious consideration of elements that simply cannot be quantified.

Chapter 9: Conclusion

The purpose of this study, as outlined in the introductory chapter, was primarily to explore the following question: how is a parent's differential investment in the commemoration of children in Victorian and Edwardian England a product of their, or their child's, age, gender, socioeconomic status, and birth order? Through this dissertation, I have demonstrated numerous themes that speak to this question and provide insight on how these different variables intertwine to form the archaeological record we see today. However, what emerged in the process of analysis were two other questions that go beyond the study of commemoration in Victorian and Edwardian England. These are: what does the stone monument actually represent in mortuary practice? And what is the relationship between commemorative decision-making and change over time? In exploring these questions, I address fundamental components of mortuary archaeology through a medium that is not typically explored in historical cemetery studies. Mortuary archaeologists have long theorized about the relationship between social structure and mortuary practice and patterning. My study contributes to this debate by directly testing whether the expression of age, socioeconomic class, birth order, and gender in life mirrors that in death. Although the relationship is not clear in all cases, the fact that those themes outlined above were visible in commemorative decision-making would suggest that mortuary practice does indeed reflect lived experience and social dynamics. While not a new conclusion, this study provides specific circumstances in which this relationship emerges by testing an array of hypotheses based on clear assumptions made about that relationship: that investment in life would result in investment in death and that a more public life would result in a public memorial.

While historical cemetery archaeologists use gravestones in their analyses, I have seen little that tests in what circumstances the stone monument itself is found. Many scholars have

attributed meaning to the monument, but that meaning is frequently derived from logic that is reasonable but not testable. For example, it is very reasonable to suggest that the bereaved may want to return to the grave and the stone marker facilitates this need for many more years than a wooden or metal one. However, it is impossible to test whether this was indeed a factor in commemorative decision-making without presuming that in certain cases, this was not desirable. Although one could assume that the families of children who were not commemorated did not want to return to the grave site, this would be an impossible assumption to make without returning to long-disproven arguments that some parents cared less for their children. Scholars often conduct historical cemetery studies on extant monuments and do not typically consider the buried, but not commemorated, population. It is therefore unsurprising that the meaning attributed in these studies to stone monuments is difficult to apply to a situation in which those buried, but not commemorated, are also part of the database. In this final chapter, I will first outline the major themes identified previously, which answer the question originally posed at the start of this dissertation and then explore how these may be synthesized to answer these larger questions that are relevant to mortuary archaeologists more broadly.

Factors of Commemoration in Victorian and Edwardian Cambridgeshire

In my analysis of commemoration rates as a product of gender, age at death, birth order, socioeconomic class, and year of death, I found little support for a number of hypotheses based on either studies of Victorian and Edwardian England or historical cemeteries. For example, there was no support for the argument that as child mortality declined, the likelihood of commemoration for children increased as their deaths became increasingly unexpected. Similarly, I could not find definitive evidence that the predicted probability of commemoration (PPC) changed because of either the agricultural depression or World War I. Primogeniture also

seemed to play no role in determining commemorative practice as there were no discernible difference in the PPC for the oldest son when compared to children of the other birth orders and gender. There was minimal support for the argument that drops in fertility increased the PPC for children later in the time period studied, but this pattern was masked by numerous others and cannot be unproblematically linked to this factor.

On the other hand, my data did identify some important patterns. The first is that as young girls underwent puberty and began to take on the physical characteristics of adulthood, parents adjusted their commemorative behaviour to reflect these changes. Earlier in the time period studied, this resulted in a decrease in the probability of commemoration as girls reached physical maturity but would not take on adult responsibilities until much later in life. Over time, however, an adolescent period emerged in which girls were expected to train for their adult careers and lives in much the same way as boys. The PPC for girls aged 15 to 25 therefore more closely matched that of boys later in the time period studied. Another pattern that speaks to the lived experience of girls in the Victorian and Edwardian periods was the surprising lack of difference in the PPC between boys and girls when gender was considered on its own. I would argue that this may be because the role that girls play within the household rivalled that of boys outside of it and while parents may not have consciously considered this difference, it was still expressed through mortuary practice.

I also found that, as predicted in Zelizer's (1985) book *Pricing the Priceless Child*, parents were more likely to invest in a permanent monument in a public space for children that were economically useless but emotionally priceless. Although children of the lower socioeconomic classes saw an increase in the PPC as they aged and contributed more, both economically and through their labour within the home, the highest recorded PPC for any child

included in this database was among the children who passed away at the youngest age among the elite socioeconomic class. These children offered only emotional support within the home and subsequently, were the most likely of all children to receive a stone commemoration at their passing. The final pattern that I found support for within my data also reflected differences in socioeconomic class. Although Chapman (1893) argues that agricultural labourers in Cambridgeshire barely had enough income to survive, this is at odds with both Justman and Gradstein (1999), Mingay (1981, p. 6-7), as well as Crouzet (1982/2006, p. 14), who note that there was a reduction in the income gap between the working class and those above them. My data suggest that the lowest socioeconomic class, which consists primarily of labourers, did indeed see an increase in the PPC over time to more closely match those of the higher socioeconomic classes and that it became increasingly more common that they would erect a stone commemoration for their vital wage-earners when they passed away. It would therefore appear that they did indeed have greater access to disposable income, or that they were at least prioritizing a stone commemoration more so than in previous decades, by the end of the 19th century. Chapman, noting the squalid conditions of agricultural labourers in the eight counties he visited, would attribute this behaviour to agricultural labourers living beyond their means to maintain an appearance of improved living standards. It must, however, be remembered that Chapman may have been biased by the *belief*, common at the time (Strange, 2005; Vanden Bossche, 2014), that labourers should not be able to afford such luxuries. My research may alternatively suggest that individuals of this class did indeed have access to more disposable income, as has been suggested by scholars writing on this time period. .

Each of these findings speak to the role that the comparable serial categories within gender, age at death, year of death, socioeconomic class and birth order played in producing the

patterns of commemoration visible today. As material conditions changed for rural labourers, children were deemed more emotionally important rather than economical, and adolescence emerged as a meaningful stage in the Victorian and Edwardian girl's life course, these same patterns were visible in the mortuary record. Each of these represent some shift in the extant economic conditions of the household and changes in the economic contributions of specific children to their households or communities. I would therefore argue that my results support the conclusion that the economic conditions experienced in life are more likely to be captured in the mortuary setting. There are also some general observations that could be made across these themes that may be of use to archaeologists working outside of rural Cambridgeshire and the Victorian or Edwardian eras. In these next sections, I will trace these observations to demonstrate the broader implications of my study.

What Do Stone Monuments Represent?

The Role of the Bereaved in Producing the Commemoration Record

When an individual decides whether to erect a stone monument or not, they are engaging in a valuation process to consider what was lost, the expectations of the community, and their own means and goals in determining if it is appropriate or viable to invest in this form of commemoration. Many archaeological studies of historical cemeteries have considered mortuary expression to be a reflection of these individual valuations, or the context of the loss itself, and explore mortuary settings as representative of individual patterns of grief and loss or the relationship between the bereaved and their community. In these studies, the mortuary environment is treated as the result of conscious decision-making by the bereaved based on a series of motivating factors. However, as noted previously, motivation is a particularly difficult concept to incorporate in analyses such as mine because: 1) there is no agreed upon meaning that

may be attributed to the stone monument; 2) the monument itself could serve completely contradictory purposes based on the context of the loss and the needs of the bereaved; 3) the purposes ascribed to the stone monument may be served by other commemorative forms; and 4) the emotional connection, or degree of esteem, that the bereaved placed in valuated elements of the mortuary context is highly variable and becomes lost when considered in aggregate.

For these reasons, it is impossible to quantify individual motives when analyzing commemorative behaviour *en masse* because these are so highly variable and rely on conceptualizations that the archaeologist cannot link specifically to any one material. The bereaved may likely have considered the factors outlined above, but we cannot know if this was the case based on the presence or absence of a stone monument. It is therefore necessary to turn to other means of understanding the role that the stone monument plays in this analysis. Each of the parents included in this database lost a child of a specific age or gender at a specific point in time and made their decision within the boundaries of their socioeconomic class. The aggregation of these decisions based on the executed practice falls under what Sartre (1960/1991) terms a serial collective. Unlike 'groups', the parents of these deceased children do not share a common goal or interest, but make the same decision (in this study, whether to commemorate their child or not). Additionally, parents within each serial collective are simultaneously members of a number of serial categories. Parents who lost a girl and must now decide whether to erect a stone monument at her passing are part of the same serial category as other parents who lost a girl and are faced with the same decision; but they may also be a member of a number of other serial categories: parents who lost a 9-year-old girl, parents from socioeconomic class 3, parents who experienced their loss in 1850, and all other categories examined in this study. This study explores the intersection of these serial categories with the

assumption that those of any particular serial category would be faced with similar barriers, expectations, and opportunities. As with Gidden's theory of structuration, Sartre's serial collectives allows the researcher to consider the relationship between the individual decision-maker and the structural frameworks they are a part of (serial categories). However, where Sartre's work differs is that it specifically considers both 1) the role that material plays in that relationship, and 2) action as produced by collectives of individuals rather than a single individual.

The stone monument therefore does not represent the motivations of the bereaved but the intersection of multiple variables that guide action and may be found in other arenas of social life. By removing motivation from my analysis, this would seem to remove any possibility of considering emotion, like grief or loss. I would argue, however, that this is not the case. In fact, I found that in those cases where commemoration was predicted to be unlikely but was still found, some were in contexts that made the resolution of grief and the experience of loss particularly difficult. Some of the youngest children of labourers had actually received a commemoration in cases where their siblings were likely involved in their care and would therefore compound the loss experienced by the parents alone. In one other case, a parent had elected to commemorate both of their daughters who had passed away on the same day. These circumstances would suggest that with grief that is particularly difficult to manage it is more likely that the parents elected to commemorate their child. If this is indeed the case, such an argument would suggest that the membership of the bereaved within a particular serial category centred around grief and subsequent comparison with other grief-based serial categories (such as those who lost a child under circumstances, like prolonged illness, that permit earlier acceptance of that loss) may offer

a fruitful avenue for analysis. I would, however, point out two important caveats to this argument.

The first is that this evidence is highly circumstantial and would need to be corroborated by other parent's experiences of grief and loss alongside commemorative decision-making. The second is that in each of these cases, there is a complex relationship between the experience of the loss and the role of a stone commemoration in expressing that loss. Whenever there is a measurable difference between serial categories, it must be the case that the experience of the people within that category was somehow different than those of a comparable category. If, controlling for other variables, it can be demonstrated that the majority of parents faced with grief that is difficult to manage commemorate their children at a higher rate than those that otherwise manage their grief effectively, then it may be possible to argue that a stone commemoration was considered more appropriate to those with this experience. This is not to say that grief and loss were not experienced in other contexts (indeed, even in cases where grief is predicted to be comparatively reduced, individual parents may have experienced a strong sense of loss and grief) but it supports the conclusion that in these circumstances, the stone monument serves to represent the exceptional emotional environment.

The final question that remains is that although the individual decision is made meaningful to the analyst by aggregation into serial collectives and that differences between these collectives may be explored through serial categories, how do we know which categories to compare to explain these differences? To answer this question, I argue that we must turn to settings outside the mortuary environment where those same serial categories produce meaningful differences. It is important to point out, however, that this is quite different than those studies that examine the setting of loss as a means of explaining mortuary decision-

making. The most prominent of these that I considered is the effect that World War I supposedly had on the appropriateness of large monuments. This is problematic because the mechanism by which the bereaved experience this context and expresses it in the mortuary setting is not made clear. In other words, it is not clear what the bereaved prizes and the appraisal process in selecting a smaller monument over a larger one.

Alternatively, I suggest that comparable serial categories offer a means of examining, and predicting, relative differences in mortuary practice through its expression outside of the mortuary setting. The individual decision to erect a stone monument, or not, form serial collectives. However, as the same individuals live their lives, they continuously form other serial collectives where these same comparable serial categories may be relevant. For example, when a Victorian parent elects to pay for expensive boarding school for their son and not their daughter, just as with mortuary practice, they form a serial collective with others who made the same decision. When a labourer's son goes to the field to work instead of to school, he is part of a serial collective that similarly made the decision to support the family's income rather than furthering their education. Actions and decisions, in this framework, are performed in relative isolation but unknowingly are made in the same way across rural Cambridgeshire in Victorian and Edwardian England. Similarly, when parents decide what toys and clothing to buy, the outcome of the action (ie. the specific toys and clothing bought) is related to these two serial categories: boy or girl.

As should be clear in the examples above, the same serial categories measured in this study are expressed in actions performed, and decisions made, elsewhere in life. Gendered differences keep one upper-middle class girl from school for an entirely different reason than the lower-class boy while simultaneously informing purchasing decisions. However, I would argue

that while parents did consciously make decisions with the serial categories in mind, this does not necessarily have to be the case. Parents faced with the death of their child are not presumed to have some understanding of the differences between their children that they then *apply* to commemorative decision-making but instead, the differences that arise in mortuary practice, when combined with their treatment in other comparable arenas, offer a more complete picture of how decision-making in this particular time and place relate to specific serial categories. The decision to erect a stone monument thus contributes to the overall picture of how a parent in the Victorian and Edwardian period experienced, as well as made decisions or acted, based on the gender of their child. Mortuary practice is thus placed in tandem with practices beyond the mortuary setting to illustrate the relationship between the two.

That being said, while it is possible to compare serial categories in different settings, one fundamental question still remains: even when the same variables are examined, how can differences beyond the mortuary environment be applied to those inside of it? In other words, when a child is treated differently, has different expectations placed on them, or accrues very different life experiences based on their gender, age, or the socioeconomic status of their family, how would this equate to differences based on the same factors within the mortuary environment? If, for example, parents typically invest more in the education of boys rather than girls, would one anticipate this to coincide with an elevated, reduced, or similar rate of commemoration? To facilitate comparison and the formation of hypotheses, I had designed simple assumptions based on the setting of the stone itself. In this next section, I will explore how, in answering this question, my study provides further insight on what the stone monument represents, in what cases mortuary practice reflects lived experience, and its function for bereaved parents.

The Function of the Stone Monument

While it is common for mortuary archaeologists working on historical cemeteries to provide some insight on the function of the stone monument, I am not aware of any studies that have specifically tested these assumptions. This is likely because many studies do not consider the stone monument on its own but, rather, examine features like the decoration, epitaph, and placement of the monument. Also, it is difficult to test assumptions about the function of the monument without a large amount of data to compare alternatives and to get past the 'noise' produced by mortuary practice. This study therefore addresses an important element missing from many studies of historical cemeteries.

The most unproblematic claim that can be made regarding what the stone monument represents is that it is a commodity that must be paid for. Any individual who wished to mark a grave in this fashion would need to pay a comparatively high cost for the stone itself and/or the engraving. It is therefore of no surprise that one of the clearest patterns that emerges in this analysis is that the likelihood of commemoration increases when the family is more likely to have had the funds available. To this point, one of the patterns discussed in the previous chapters was that as the spending power of the lowest socioeconomic class increased, they became significantly more likely to invest in this form of commemoration. When calculating the predicted probability of commemoration (PPC) for each socioeconomic class while holding the other variables at a constant, a clear pattern emerges in which those classes with greater available funds were indeed more likely to mark the grave of their deceased child with a stone monument. That being said, there are a number of factors beyond the cost of the monument that guide commemorative practice. I would therefore argue that while the stone monument is indeed a

commodity and the cost of it seems to have been a barrier in some cases, this does not sufficiently capture, on its own, what the stone monument is.

Within the same socioeconomic class (or serial category), where one would expect access to funds to be relatively similar, parents still elected to erect a stone monument, or carve a name on an existing stone, for some children and not for others. Furthermore, the stone is the most permanent form of memorialization available to the family and will last long after those who knew the child had passed away. It is also in a public space with the rest of the deceased from the community and is marked with demographic information for the individual buried there. The stone therefore permanently commemorates the child as a member of the wider, deceased community. In forming the hypotheses for this study, I had presumed, based on these inherent features of the monument itself, that greater investment in life as well as participation in the public sphere would equate to it being more likely that parents of these children would find it appropriate to invest in a public and permanent monument after the child had passed away.

There is, however, varying support for these assumptions based on the results of my analysis. Younger children generally see a lower predicted probability of commemoration (PPC) and this increases over time as the child attends school, makes friends within the community, and eventually starts their career. I additionally found that boys of socioeconomic class 4 received a lower-than-expected PPC and argue that this is because some of these boys were likely sent to boarding schools outside the community while the girls were more likely to remain within their community. I also found, in exploring the emergence of adolescence, that among the lower socioeconomic classes, the PPC for girls would stagnate at approximately the same age that these girls would leave their communities for domestic service while simultaneously increase for boys that played increasingly more prominent roles within the community. Among the upper two

classes, where I had hypothesized that the 'New Woman' likely emerged in the latter 19th century, this resulted in an adolescent girl that was increasingly present in the community. As noted previously, she rode bikes, sought higher education, and fought for women's rights in the public sphere. In each of these examples, the increased role of the child within the community does indeed seem to correlate with a higher PPC.

The role of investment, however, is more difficult to demonstrate. Financially, the most that any group would have invested in their child is likely the parents of the highest socioeconomic class who would have paid a significant amount of money for their sons to attend expensive and prestigious boarding schools and universities. While boys of this class do indeed see a high PPC, it is not significantly different than that of girls of the same class. Alternatively, as adolescent girls began attending school more regularly and parents of the two highest socioeconomic classes invested more heavily in their schooling, the PPC for these individuals does rise. The comparison over time for girls in these two classes therefore supports the notion that greater financial investment in life results in greater financial investment at death, but in the case where investment is even higher (the sons of these same families), this is not found to be the case. Similarly, although there have been no specific studies on birth order in the Victorian and Edwardian periods, some modern studies have found that first-born children were more likely to receive money (ie. a financial investment) from their parents (Mechoulan and Wolff, 2015; Pavan, 2016). Although it may be the case that this pattern developed later and was not present among Victorian and Edwardian parents, there is no appreciable difference in the PPC for the oldest child when compared to any of the other birth orders. That being said, there is some marginal support for the hypothesis that as fertility declined and parents were able to invest more in each of their children, this did result in differences in the PPC. This pattern is, however,

difficult to narrow down and is likely conflated with other hypotheses that had predicted similar results.

I would further suggest that the problems with the assumption that investment in life could guide hypotheses about investment in death extend beyond financial. I had anticipated that with the high level of importance placed in primogeniture, particularly among the upper socioeconomic classes, the PPC for the eldest son would be significantly higher than that of any of the other groups included in the birth order database. This is, however, far from the case. The PPC for the eldest son is well within the range of all other birth orders for both girls and boys. In fact, although there is significant overlap in the error bars, the predicted probability measured for the oldest daughter actually falls above that of the oldest son. Similarly, although there is significant literature suggesting that with the death of one child, parents will increase their emotional investment in surviving children, the high number of sons who passed away in WWI did not result in significantly different predicted probabilities of commemoration for surviving sons or any other children. The argument that as child mortality declined and parents invested more heavily in their children (Kalemli-Ozcan, 2008) was also found to have no support in my data.

Given that the stone monument is an investment that is not provided for all children, I had anticipated that it would be clearly connected to differences in investment during life. However, I did not find convincing evidence that that was the case. Of course, this does not mean that investment, as a concept, did not play any role in determining commemorative decision-making, but the effect of this variable on likelihood of commemoration did not express as hypothesized. I would therefore posit that of the two assumptions made in forming the hypotheses for this study, there is support for the argument that the stone monument represents

an investment in a permanent public memorial for an individual that played a more prominent role in the community but there is little support for the argument that the stone monument represents an investment in death that mirrors investment in life.

I also found that my assumptions had missed some important considerations that seem to have made commemoration more likely in certain circumstances. There was a surprising amount of evidence (although not unproblematic) that the fact that girls frequently helped with household chores, childcare, and nursing the sick within the home resulted in an elevated PPC. These girls did not experience any particular parental investment nor was their role within the public sphere. Additionally, I found that among the highest socioeconomic class, where daughters were not required to help out at home and would have instead provided moral and emotional support to the family, there was still a higher-than-expected PPC. Although the roles themselves are very different and I have previously explored the diverse implications of these two patterns, I would argue that the higher-than-expected PPC for girls in both settings is borne of the same logic. In each of these cases, the parents are reliant on their daughters. Similarly, I would argue that for boys of the lower socioeconomic classes, their parents relied on their waged labour to support the family income. These boys did perform their labour amongst the community, and I would subsequently suggest that this supports the notion that their participation in the public sphere made it more likely their parents would find it appropriate to invest in a permanent commemoration following their death. However, this may additionally, or instead, represent the family's reliance on their children.

This alternative hypothesis (that the stone monument represents cases where parents relied on their children) further complicates many of those patterns that support the assertion that with greater involvement in the public sphere came a greater likelihood that the parents would

find it appropriate to invest in a permanent monument in a public space. The PPC does increase with the age of the child as they take on more public responsibilities, but this could also be interpreted as an increase in the amount that these children would contribute to the family household and income. The lower-than-expected PPC for young teenage boys of socioeconomic class 4 may be a result of them moving away for boarding school but it may also reflect the differences between them and girls, who were more likely to stay at home and assist in household maintenance, and boys who, at that point, were not at home nor were they providing any direct form of support. The PPC for girls of the lower socioeconomic classes may stagnate as they leave their homes to work in domestic service, but this could alternatively be interpreted as they are no longer assisting at home. This last point has particularly interesting implications because although these girls would be contributing to the household income, their ability to help at home suffered and it seems that their PPC did as well. In all of these cases, there are certainly appreciable differences, but it is not possible to separate those cases where the PPC reflect changes in the child's involvement in the public sphere or changes in their involvement at home.

I would therefore suggest that while the stone monument does not seemingly represent investment in life, it does seem related to presence and reliance, offering insight on those circumstances in which a person who plays a particular role in life does see differences in their mortuary treatment at death. Those who were at home and were able to offer their services to their local community and/or their parents generally saw a higher likelihood of commemoration than those who were not. This service, as described above, could take multiple forms and may only be recognizable to members of the deceased's own family. It could therefore be suggested that there is some correlation between the form of the monument itself and the function attached to that form. The monument contains demographic information of the person who passed away,

is made of durable material, and exists within a public cemetery or churchyard that contains other members of the deceased's family and community. The fact that stone commemorations are more likely in those cases where the child played a particularly important role within the family or community would suggest that the stone monument does function as a means of permanently preserving that role. It also suggests that parents, as a whole, experienced this loss as different than that of those who did not play as important a role within these social realms. Once again, this is not to say that individual parents conceptualized the loss differently based on the role of the child within the household or beyond, but that as a collective, when a child was relied on for some service, this service was most likely to be recognized in the form of a permanent place within the deceased community.

That being said, it is of great importance to point out that the stone monument almost certainly serves other functions beyond this one. As mentioned previously, the stone monument is also a commodity and regardless of whether parents broadly recognized their child's service, they may not be able to afford this monument. Also, if commemoration is more likely when parents have experienced a loss that is predicted to result in prolonged and difficult grief, this would add additional function to the monument. One meta-analysis of modern populations did indeed find that stone monuments serve to alleviate grief but notes that the mechanism by which it performs this function is unknown (Rumbold et al., 2020). There is no inherent feature of stone monuments that lend itself unproblematically to the resolution of grief and as such, the fact that no mechanism for this process has been identified is not surprising. However, the correlation between a context in which grief is found to resolve poorly and the likelihood of commemoration is not unprecedented and if parents were indeed more likely to commemorate their children in

circumstances where grief typically resolved poorly, this may lend credence to the notion that the stone monument offers some relief beyond that of other materials.

The Stone Commemoration and Change Over Time

In both of the previous sections as well as in earlier chapters, I utilized trend data to explore the various emerging themes. In each of these interpretations, the trends themselves formed meaningful patterns that enabled analysis. The nature of these trends provide insight on how change occurs in material practice and how this relates to change in the external environment.

When any continuous variable is considered in this study, the change that occurs is gradual but consistent. In some cases, such as the impact of World War I or when girls of the upper classes were presented to broader society in their 'coming out', I had anticipated a relatively sudden shift in the PPC to reflect changes based on either differential investment or the public role of the child. However, this was never the case. In a number of the results presented in the previous chapters, the slope for the PPC does change with the age of the child at death but it is never possible to pinpoint when exactly this change occurred. Even when I found that the PPC began to stagnate at the onset of menarche, this change only begins approximately around the age of menarche but does not strictly alter course at exactly 14 or 15. Similarly, with the emergence of adolescence over time or the rise of lower socioeconomic class, the slope for the PPC does appear to shift with the year of death but these changes emerge gradually.

I had previously discussed the impact of major events on the predicted probability of commemoration and found that they may have been masked by the gradual response to such an event, the possible continuation or repression of previously existing patterns, and/or contradictory behaviours (Cannadine, 1981; Cannon, 1989; Gordon and Marshall, 2000). Not

only are the effects of major events gradual and difficult to attribute unproblematically to the event itself, but all forms of change similarly express in this study as emerging over time, containing contradictory patterns, and generally 'untidy'. The assertion that change is gradual and that when we compare materials within supposedly static eras, we fail to capture how change actually emerges through material practice, is not new and has been challenged in mortuary archaeological study (Crellin, 2017, 2020; Fowler et al., 2021). In fact, as noted in Mallios and Caterino (2011), early studies of 19th and 20th century gravestones frequently utilized seriation to demonstrate that material practices are gradually taken up by the population and then disappear slowly over time. The fact that change occurs gradually in my dataset is therefore of little surprise.

This study therefore supports the conclusions made in Crellin (2020) that when we examine change in 'blocks', this fails to adequately capture the nature of change and inappropriately characterizes it as occurring very rapidly in a short timeframe between each block. It also supports the point that change should not be attributed to any particular event nor is it appropriate to examine mortuary behaviours before and after any event to assess its impact (Crellin, 2020). The PPC for girls between the ages of approximately 15 and 25 adjusted to match that of boys with the onset of adolescence and I had drawn a comparison between this trend and the emergence of the 'New Woman' in the late 1800s. However, just as the trend in the PPC gradually shifted over time through the entirety of the time period studied, I would argue that the social environment that eventually resulted in the 'New Woman' began far earlier than the late 1800s. Similarly, although it is common for scholars to address the sharp uptake in girl's education after the passing of the Education Acts in 1870 and 1880, I would argue that these acts did not occur within a vacuum, nor did they act as a sudden catalyst that dramatically altered the

experiences of school-aged girls. The importance of girl's education was not completely unrecognized prior to the passing of these acts. In fact, upper class households generally educated their daughters throughout the time period studied (Gorham, 1982/2013; Nelson, 2014).

Furthermore, although there was a marked increase in the number of girls in school after these acts were passed, this did not happen suddenly, and girls were still more commonly pulled out of class than their male counterparts if their labour was needed at home. Likewise, the political movements that provided more power to the working classes and decreased the wage gap between these and the other socioeconomic classes (Crouzet, 1982/2006, p. 14; Justman and Gradstein, 1999) did not result in a sudden shift in the standard of living for the working class but occurred within a trajectory, where it was becoming increasingly more likely for the working class to commemorate their children at their passing. I would therefore argue that not only do changes in commemorative practice occur gradually over time, but when they correlate with events or social movements, they should be considered a component of a shifting social environment that eventually produced a law or a recognizably 'New Woman'. Where my study departs from the theorization of change put forth by Crellin (2020) is that rather than assess change from a relational standpoint, which focuses on change as emerging from a shifting relationship between actor and object (Crellin, 2020, p. 131), this study explores change from the theoretical framework of Sartre's serial collectives.

In the patterns I have identified, individual parents *seem* to respond to active changes in their environment. They saw their daughter take on a different physical form and adjusted their commemorative behaviour accordingly. They accrued greater wealth through the Victorian period and decided to invest more heavily in stone commemorations rather than other commemorative forms or mortuary practices. However, in each of these cases, none of these

changes were experienced by any single individual. The difference in the likelihood of commemoration that appears when girls reach menarche, for example, is constructed from a series of individual decisions of parents of girls that were lost prior, during, and after this point. By aggregating thousands of these individual decisions into serial collectives, it is possible to predict patterns of commemoration based on the age of the child, but no parent included in this study experienced the loss of a daughter at every age and subsequently commemorated each in response to her attainment of menarche. It is indeed the case that the loss of a 5-year-old girl, for example, was experienced differently than that of a 16-year-old girl (and that a monument was likely found to be more appropriate because at an older age they were more likely to be of service to their community or family), but the trajectory of change between these two ages as it is expressed through commemorative decision-making could not have been experienced. This is instead only visible from the perspective of the external researcher. To this point, I agree with Howkins (1991), who posits that change may appear meaningless at the local level and only by aggregating their effects on a broader scale can we get a sense of how it is reshaped through time.

For this reason, while the individual does play an important role in constructing the patterns identified here through their membership within both serial collectives and serial categories, it is impossible and inappropriate to take any of my conclusions and apply them to an individual setting. Each bereaved parent would have been completely unaware of their role within mortuary patterning or how mortuary behaviour reflects and constructs the broader social setting. In fact, despite the fact that each parent within a serial category is faced with similar circumstances, there is disagreement among its members; some decided to commemorate their child (one serial collective) whereas others did not (another serial collective). The predicted

probability of commemoration is merely a comparison of these two groups and while both are present in the data, there is little interpretive weight given to the minority. For example, within the trend where the two lowest socioeconomic classes saw a significantly elevated PPC later in the time period studied, I did not assess why some parents within these classes still decided to not commemorate their child. This is why I included a separate analysis of the young children of labourers that were commemorated early in the time period studied.

Change in this dataset is therefore rooted in differences in experience but not in lived experiences of recognized change. When I state that the PPC became more elevated when a parent observed their child take on the physical traits of adulthood and adjusted their commemorative behaviour accordingly, this does not refer to the gaze of the individual parent, but one that is centred outside of the individual themselves. These parents endured the collective loss of their daughters at different stages in the life course and responded based on the circumstances of that loss. What is expressed through commemorative decision-making, from the perspective of the individual, is the loss of that daughter and all of the factors outlined above regarding both the function of the stone monument and the needs and desires of the bereaved. Individual parents may have never considered the maturity, or lack thereof, of their daughter when she passed away but collectively, differences do emerge. Parents of children who passed away at different points in time through the Victorian and Edwardian periods were both subject to and, through their own actions or inactions, produced the prevalent attitude of the time. By aggregating these experiences into predicted probabilities of commemoration and comparing the results with serial categories in other arenas of social life, this shift in attitude actually becomes visible.

Directions for Future Research

This study has demonstrated the interpretive possibilities when examining commemoration rate as a product of age at death, gender, year of death, birth order, and socioeconomic class. The interactions between these variables form trends that speak to themes such as the emergence of adolescence and the 'New Woman', the drop in child fertility and mortality, the rise of the working class, the role of girls within the household, the shift from economically useful to economically useless but emotionally priceless, the impact of major events like the agricultural depression and WWI, and primogeniture. That being said, this study also illustrates the messiness inherent in these data. Patterns do not appear as hypothesized, error bars overlap so it is difficult to assert conclusions with confidence, and there is unexplained variation that is not captured by the serial categories studied. In some cases, although the PPC appears to shift consistently as a product of one of the variables outlined above or their interaction, this needs to be corroborated with additional data. Of these patterns, I am particularly interested to see if the drop in PPC among girls of the highest socioeconomic class families at approximately the age of menarche is actually present in the data. This was a surprising result especially because this occurs at approximately the same age as when parents would have invested more in their education.

Furthermore, this was the first study to examine mortuary decision-making at this time as a product of birth order. Although the results were inconclusive, they do offer some provoking patterns for future research. The fact that the predicted probability of commemoration for the eldest son and the only boy were not substantially higher than that of other birth orders or gender and that girls who were the only daughter in their family saw a much higher than expected PPC was very surprising, but the overlap in the error bars made their interpretation problematic. I

would like to see these patterns explored with more data and for enough data to be gathered that differences over time or between the socioeconomic classes could be compared. An additional avenue for exploring this variable is a biographical approach on those cases in which the birth order is included on the gravestone itself. This study did not consider the epitaph except when exploring those cases where commemoration was found but not predicted. However, I have encountered cases in which information on the birth order of the deceased was included directly on the stone itself and I would be interested in exploring why this was the case for these children.

Another pattern that was identified but was not fully supported by the evidence was the role that particularly arduous grief played in cases where labourers commemorated their young children earlier in the time period studied. I would like to extend this study further to other examples where commemoration was not predicted but was still found, to better understand the role that grief might play in explaining unexplored variation. I did not anticipate that grief would be a viable avenue of analysis given that the stone monument could serve numerous purposes and reflect entirely contradictory patterns of grief. However, if it is found to be the case that circumstances in which modern studies of grief would predict prolonged or difficult responses to the loss correlates to a higher likelihood of commemoration, this would lend credence to the argument that the stone monument does indeed serve to alleviate grief or is at least deemed more appropriate in cases where the experience of grief is more profound.

I also found two other patterns that may be important to explore in future studies: 1) the differences between primary and secondary commemorations; and 2) the possibility that the head of the household had experienced upward mobility between the census prior to the child's death (which was used to determine the socioeconomic class of the household) and when the child passed away. I had only considered seven individuals in this small exploratory study and so

while I identified differences based on these two variables, I cannot definitively say that they played a role in determining commemoration behaviour. However, both should be explored in more detail and the implications of these factors studied if they are found to be significant.

A final variable that may be beneficial to explore in more detail is whether any changes to this pattern emerge either by exploring how the patterns identified here are expressed across different regions in rural Cambridgeshire and comparing the results of this study with a similar analysis from urban contexts. Howkins states in the opening of his book *Reshaping Rural England: A Social History 1850-1925* that there is not one rural England but a series of "…regional economies each with its own often distinctive social and economic structures" (1991, p.1). To this point, Rugg (2013) found, in her study of historical cemeteries in rural norther Yorkshire, that there was extensive regional variability in determining how funerals were carried out and the costs associated with these funerals. Mytum (2002) similarly found, in his study of historical cemeteries in northern Pembrokeshire, that the motifs on the gravestones expressed regional variation and notes in a later work (Mytum, 2004) that individual carvers may have influenced the motifs available in each region. Although my study examines the relationship between the individual and larger structuring variables relevant to Victorian and Edwardian life, there is a middle-scale level of analysis that was not addressed at these two scales. Regional differences as well as differences between family groups may be expressed in commemoration rates. For example, in some of the parishes included in this study, factories were far more prominent. I would expect that the agricultural depression would have less of an impact on the spending power of families working in factories and within these parishes, I may see differences in socioeconomic class 1 if it is represented more prominently by factory workers rather than agricultural labourers. It may also be the case that certain families did not elect to

commemorate their children for reasons beyond the variables explored in this study and could account for some of the unexplained variation identified.

Similarly, England was experiencing a rural to urban migration through the time period studied, and urban areas had an entirely different economic structure (Bennett et al., 2020; Howkins, 1991). The urban environment placed very different demands on families and their children and some of the patterns discussed here, like changes in child mortality, were more prominent in urban areas than in rural ones (compare the discussion of infant and child mortality in Mercer, 2021; Newman and Hodson, 2021 to the results discussed in Cannon and Cook, 2015). Indeed, an urban childhood was a very different experience than a rural childhood (Hendrick, 2015; Frost, 2009) and I would therefore expect the conceptualization of children to vary on these grounds. Other studies have also identified differences in commemorative practice between rural and urban communities. Both Mytum (2016) and the Leicester Graveyards Group (2012) found that commemoration rates in urban locations were lower than those in rural contexts. A comparative study between different regions within Cambridgeshire as well as with a similar study conducted in an urban environment may therefore produce interesting results that provide a more nuanced picture of child commemoration in Victorian and Edwardian England and a better understanding of scales of analysis that were not addressed in this study.

Mortuary archaeologists who focus on historical cemeteries do not typically examine commemoration rates but instead, construct their interpretations based on other elements found within the mortuary environment. These include the decoration of the stone itself, the epitaph, the coffin and grave goods, or the spatial layout of the graves. My study shows that the existence of a commemoration at all may also produce meaningful patterns. Although there are numerous areas where the data need to be bolstered so these patterns can be assessed more thoroughly, they

have still produced a number of interesting perspectives outlined in these final chapters. Furthermore, these patterns are not only of interest to scholars of Victorian and Edwardian England but are also relevant to historical cemetery studies and mortuary archaeology more broadly. Through analysis of commemoration rates, I have been able to assess themes that are of specific interest within Victorian and Edwardian English scholarship, illustrate the role of the individual in producing patterns when considered as serial collectives, provide insight on the function of the stone monument, and speak to how change emerges over time in mortuary practice. My observations that parents would have experienced the changing bodies of their adolescent children and expressed these changes through mortuary practice is also relevant to archaeologists and bioarchaeologists studying adolescence. In an edited volume currently under review, many such scholars have noted that both biological and cultural factors must be considered in any attempt to define adolescence in the past (Avery and Thacher, under review). I would therefore posit that the implications of this research are far reaching and although they should warrant careful consideration by mortuary archaeologists working in historical cemeteries, they may also offer an important perspective for the study of mortuary practice more broadly.

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Appendix 1: Detailed List of Occupations and Occupation Categories

1- **Occupation Category 5:** Nobility-gentleman, baron/baroness, baronet, benefactress, chancellor, president/master of college at university, countess, earl, dowager, member of parliament, senator, vice admiral, admiral, lord, provost

2- **Occupation Category 5:** Clergy-vicar, rector, minister, bishop, chaplin, clergyman, clerk in/of holy orders, curate, chaplain, vergor, preacher, deacon, reverend, pastor

3- **Occupation Category 5:** Professional-accountant/bank accountant, doctor, barrister, surgeon, general practitioner, curator, architect, analytical chemist, attorney, solicitor, University graduate, botanist, college tutor, esq, employing 25 or more individuals (excluding servants and excepting farmers with acreage), Royal School of Art, headmaster/principal/housemaster/head teacher, dentist, lecturer, medical officer of health, magistrate, professor, justice of the peace, farmer and [professional], honorable, professional cricketer, employed at British Museum, civil engineer, fellow of College, geologist, veterinary surgeon, actuary, mayor, law writer, museum employee, college bursar, director of education, town councillor

4- **Occupation Category 5:** Farmer (>500 acres), wife of farmer/gentleman

5- **Occupation Category 5:** Farmer (300-500 acres)

6- **Occupation Category 4:** Farmer (100-300 acres)

7- **Occupation Category 4:** Land Owner/Proprietor/Land Agent/landlord/funded property/estate owner

8- **Occupation Category 4:** Wealthy Annuitant-servants listed, income derived from stocks, income from interest, retired with servants

9- **Occupation Category 4:** Semi-professional-schoolmaster/schoolmistress/school teacher, artist, auctioneer, land surveyor, chemist and druggist/medicine dispenser, pharmacist, apparitor, police chief/superintendent, agent, assistant analytical chemist, editor, assistant surgeon, attendant in courts of justice, author, banker, council, building surveyor, superintendent, churchwarden, civil servant, collector internal revenue, collector, customs and excuse assistant, music teacher, factory manager, station/railway master, assistant in laboratory, sup and labor Edmonton master working, master of workhouse, managing director, farmer and [semi-professional], rate collector, police inspector, agricultural student/farm pupil, canvasser, court clerk, senior chapel clerk, clerk with servants, relieving officer, police constable with servants, honourary secretary, governess in school board, school attendance officer, gardener and churchman, college/club steward, journalist, actress, showman, circus proprietor, coroner, governor of County Gaol, inspector/minder of roads, insurance inspector, librarian, musician, photographer, sanitary inspector, electrician, government appointment, gas inspector, gas works manager, horse doctor, governor, kennel manager, land measurer, University librarian, library attendant,

conductress of ladies seminary, foreign carrier, manager of insurance company, matron of nursing home, newspaper writer/reporter, organist, poet, prison warden, private tutor, rag room manager, publisher, race stud manager, coprolite manager, vet assistant, inspector of telegraph messengers, warden, turncock, bank director, certified wireless operator, harmony and pianoforte teacher, railway inspector

10- **Occupation Category 4:** Master Trades/Craftsperson- trades/craftsperson/innkeeper/gardener etc. with servants (not just employing boy), farmer and master [trade/craft] or previously master [trade/craft], [trade/craft/dealer] and manager, gentleman/[trade/craft], [trade/craft/dealer] and [semi-professional], [trade/craft]'s manager, restaurant supervisor, ironmaster and metal broker, postmaster/postmistress

11- **Occupation Category 4:** Farmer (50-100 acres)

12- **Occupation Category 3:** Farmer (0-50 acres), smallholder/small farmer, farmer previously ag lab/semi-skilled lab/servant, farmer and [transportation], gardener/market gardener (0-50 acres)

13- **Occupation Category 4:** Farmer (0-50 acres or acreage not listed) and [trade/craft/dealer], [trade/craft] and [dealer of sorts], [trade/craft/dealer] and land owner, farmer and landed proprietor, cottager

14- **Occupation Category 4:** Farmer, yeoman, grazier, dairy farmer, husbandman, tenant farmer, farmer and gardener, farmer and groom, granger

15- **Occupation Category 3:** Market gardener, grocer and gardener, fruit grower/gardener, commercial gardener, labouring market gardener, farmer and market gardener, market gardener and carrier, farmer and fruit grower

16- **Not Included:** Military-army pensioner, Chelsea pensioner, Greenwich pensioner, soldier, corporal, petty officer, flying officer, captain, private, lieutenant, sergeant, major, trooper, in army, navy, general, sapper, ambulance corp, colonel

17- **Occupation Category 2:** Tradesperson/craftsperson- butcher, manufacturer, miller, thatcher, agricultural engineer, wagon builder, implement maker, journeymen, cooper, boot maker/shoemaker, bricklayer, tailor/tailoress, carpenter, joiner, harness maker, painter, robe maker, tailor's print master, blacksmith, farrier, drape maker, builder, plumber, wheelwright, brewer, laundry and whiting manufacturer, baker, confectioner, barber, basket maker/weaver, beating engineer, glazier, book binder/binder/maker/finisher, boat builder, boat closer, boot closer, boat partsman, boatwright, [trade/craft] repairer, brass finisher, brazier, breech maker, bronzer, mattress maker, undertaker, decorator, mason, cabinet maker, cordwainer, carriage builder, cart builder, carver, guilder, chair mender, charge engineer, cheesemaker, stone mason, cigar maker, clock cleaner, clothes maker, coach body maker, coach maker/builder/painter/smith, collar maker, compositor, cook, copper smith, parchment

maker, currier, cycle maker/repairer, engine fitter, plaiter/strawplaiter, straw hat maker, cap maker, local lab collector, sievemaker, smock maker, fireman, watchmaker, upholsterer, maltster, tinman, printer, piano tuner, coach trimmer, coach painter, motor and cycle engineer, inkmaker, matmaker, plasterer, glove maker, spindlemaker, brickmaker, leather bag maker, pianoforte maker, musical instrument maker, machine maker, mantle maker, mathematical instrument maker, mineral water maker, boiler maker, match maker, box maker, glover, [trade/craft] and gardener, hairdresser, [trade/craft] and [transportation], spinner, grease manufacturer, bonnet maker, seamstress, lace maker, fancy needleworker/knitter, milliner, nurse (not domestic), laundress (servants), trade and [semi-skilled lab], cow leech/leach, artisan, cobbler, cutler, dyer, furrier, greensmith, horse trainer, saddler, jeweller, knacker, lithographer, mechanic, motor repairer, razor manufacturer, sack manufacturer, weaver, whitesmith, distiller, dog trainer, engineer, engraver, gas engineer, mechanical engineer, electrical engineer, fancy marble worker, gunsmith, midwife, potter, trainer, jockey, sack weaver, shipwright, shirt cutter, silversmith, sinker, skin cutter, slater, soap and candle manufacturer, chef, hammer man, telegraph lineman, animal preserver, modeller, motorman, nib drawer, stone founder, taxidermist, tinsmith, horsebreeder/turkey breeder, fellmonger, iron monger, millwright, skin stretcher, silkman, goldsmith, paper hanger, dressmaker

18- **Occupation Category 1:** Probably middle class/lower middle class

19- **Occupation Category 2:** Transportation-carter, carrier, coachman, porter, engine driver, machine driver, attends railway gate, messenger, bargeman, waterman, boatman, drayman, carman, cab driver, conductor, waggoner, groom and coachman, medical coach and dispenser, coach wheeler, shipman, attendant at gate, railway agent and fruit carter, engineman, lighterman, hauler, gate keeper, signalman, vanman, transportation and [semi-skilled lab]

20- **Occupation Category 3:** Dealer, innkeeper, shopkeeper, publican, cashier, draper, merchant, green grocer, merchant, grocer, parish clerk, marine store dealer, victualler, lodging house keeper, antique dealer, appraiser, beerhouse, hotel, inn proprietor, ladies outfitter, athletic shop, box business, outfitter, assistant schoolmaster/schoolmistress/teacher, assistant in school, assistant secretary, fancy shop keeper, business, auctioneer's clerk, bank clerk/bank cashier, barman, boarding house keeper, book seller, bookkeeper, stationer, storeman, registrar of births and deaths, cab proprietor/jobmaster, sub postmaster, postman/mailman, post messenger, police/police constable, factor, contractor, cattle jobber/calf jobber/pig jobber, cellarman, cheesemonger, ticket collector, merchant's clerk, chapel/church clerk, clerk, timekeeper, clothier, salesman, dairyman, poulterer, [trade/craft]'s traveller, drummer, night watchman, asylum attendant/worker, workhouse/industrial trainer, boat partsman, letter sorter/carrier, account book ruler, shopman, supplementary teacher, florist, seedsman, printer's reader, [dealer] and gardener, [dealer] and [transportation], secretary, tobacconist, post office assistant, post boy, reader for the press, farm bailiff/farm manager, foreman, overseer, groom and foreman, farm steward, steward, officer, toll collector, furniture broker, pawnbroker, dealer and [semi-skilled lab], broker, mealman, monger, tradesman, hosier, dry salter, keeper of repository, fruiterer/fruiter, sexton,

grounds manor golf link, horse proprietor, laundry managress, office keeper, restaurant keeper, machine owner, proprietor of thrashing machine, chandler, telegraph messenger, peddler/pedler, hawker, huckster, assistant turncock, office keeper

21- **Occupation Category 3:** Annuitant/Independent/Fundholder/own means/private means

22- **Occupation Category 2:** Semi-Skilled Labourer- apprentice, groom/stablehand/stableman, laundress/laundry maid, washwomen, shepherds, platelayer, milkmen, [trade/craft/preacher/dealer/market gardener/teacher] and lab, seaman, needlewoman, gamekeeper, assistant, barmaid, bill poster and crier, billiard marker, birdkeeper, bobbin weaver/winder, brick burner, brickletter in factory, rabbit warrener, cableman on farm, castrator, cattleman, stockman, cement manufacturer, cement miller, sailor, sawyer, cloth finisher, cotton apperative, cotton maker/weaver, cowman, horsekeeper/pigman/poultry keeper/goosekeeper on farm, bleacher at mill, groom and gardener, lab occupying land/farmer and lab/farmer but later ag lab, herdsman, shepherd and gardener, sackhanger with threshing tackle, [trade/craft]'s assistant, baker's moulder, [trade/craft]'s man, builder's fitter, washer for waist bleacher, boathand, boat clicker, lift attendant, can maker (packing), lime burner, mat maker at factory, rat/mole catcher, cemetery caretaker, tailor's cutter, mangler, frizer (factory), glover (factory), grounder, leather washer cutter, skinner, printer machine minder, wool comber, sluice keeper, sheet taker in factory, [transportation] and [semi-skilled], draper's packer, ostler/hostler, custodian, higgler, kiln attendant, paper making machine attendant, scripture reader, horseman, thresher, horse clipper, laundress/dressmaker (when husband previously trade/dealer with no servants), machinist, ag machinist, machine man, mariner, cowkeeper, drover, drum feeder, glass/French polisher, grinder, sugar boiler, teamster, timber faller, timber roller, iron/lead moulder, paper hanger, fisherman, fruit canner, game watcher, goods guard/railway guard, counter in paper mill, key cutter, lath render, engine cleaner, horse/colt breaker, motor cleaner, silk warper, galvanizer, pulper, bag mender in paper mill, quick cutter, brakesman, razor grinder, scaffolder, slubber, bottler, beater in mill, casing manufacturer, groundsman, metal dipper, railway checker, studman, splitter, thrasher, brusher in dye works, manufacturer of solvent, iron turner, leadsman, riverter, stationary cutter, well borer, well sinker, thrashing machine, manure manufacturer, sausage skin cleaner, timber faller, church cleaner, paper glazier, paper finisher, woodman/woodward, under gardener, marker, skin splitter (in leather yard), leather dresser/cutter/finisher/presser, flesher

23- **Occupation Category 2:** Gardener, jobbing gardener, nurseryman, hedge cutter

24- **Occupation Category 4:** Servant-butler/governess, college servant, attendant to gentleman, bedmaker, chapel keeper, chauffeur, chief cook, college porter, college cook, college laundress, college kitchen porter, college servant, college gardener, college shoe black, college waiter, cook at Vicarage, cook and manager, head cook, coachman at university, gentleman's coachman, servants listed as having own servants, waiter, barman (servant) head gardener, university badgeman, bedmaker, university attendant, steward to individual, valet, head gamekeeper, head mistress, servant at Buckingham Palace, college groundsman

25- **Occupation Category 2:** Servant-domestic, domestic cook, housemaid, housekeeper, caretaker, children's maid, gardener (domestic), college laundress helper, companion, servant, nurse maid, footman, nurse, general lab (domestic), monthly nurse, [trade/craft]'s servant, attendant, coachman/groom (domestic), potman, footman, cowman domestic, scullery maid

26- **Occupation Category 1:** Agricultural/general labourer, charwoman, lab of any sort, chimney sweep, fossil digger, ag/horse/pig slaughterer, lower class, road work, bag collector, boiler stoker, brewer stoker, cab washer, roadman, coprolite digger, cement packer, cement worker, fossil digger, operative in paper mill, lamplighter, cleaner, coal heaver, coal miner, cow boy, dairymaid, employed in paper mill, domestic servant and lab, lab and [semi-skilled occupation], swans down worker, errand boy, factory worker, yardman, rag cutter, paper making industry rag weigher, rag sorter, farmer's boy, worker, dockman, warehouseman, stone worker, leather worker, leather mill man, railway servant, factory hand, factory operator, stoker, factory packer, gardener's boy, stone digger, laundress/dressmaker (if husband previously part of this category), feeder of stock, drill man, drainer, hay binder/maker/baler, chaff/hay cutter, turf cutter/digger, turfman, railway shunter, greaseman, tinker, excavator, repository, field worker, frackman, horse shunter, milkmaid, gas man/worker, packer, ploughman, railway, scavenger, china packer, collier, cottager, ganger, lumper, street sweeper, wagon lifter, blast furnaceman, L A (Lab Ag), railway goods loader, sorter, jobber, paper manufacturer/maker, paper sorter, leather sorter, chamois leather worker

27- **Not Included:** Pauper, prisoner, lunatic, parish relief, in Union/Workhouse/almshouse/Asylum, allowed/relieved by parish, unemployed, mental hospital, relief from benefit society, vagrant

28- **Not Included:** Uncodeable

Appendix 2: Results of Logistic Regression (Base Model)

```
Family: binomial
Link function: logit

Formula:
Commemorated ~ s(Age, k = 5) + s(YOD, k = 5) + OccCat1 + Sex

Parametric coefficients:
            Estimate Std. Error z value Pr(>|z|)
(Intercept) -3.35536    0.07459 -44.985   <2e-16 ***
OccCat12     1.15233    0.08698  13.248   <2e-16 ***
OccCat13     1.88032    0.11917  15.779   <2e-16 ***
OccCat14     2.59916    0.09583  27.122   <2e-16 ***
OccCat15     4.20963    0.15851  26.558   <2e-16 ***
SexMale      0.10169    0.06773   1.501    0.133
---
Signif. codes:  0 ‘***’ 0.001 ‘**’ 0.01 ‘*’ 0.05 ‘.’ 0.1 ‘ ’ 1

Approximate significance of smooth terms:
         edf Ref.df Chi.sq p-value
s(Age) 1.996  2.445  92.43  <2e-16 ***
s(YOD) 1.001  1.002 385.98  <2e-16 ***
---
Signif. codes:  0 ‘***’ 0.001 ‘**’ 0.01 ‘*’ 0.05 ‘.’ 0.1 ‘ ’ 1
```

Appendix 3: Number of Individuals in Each Category (Commemorated and Not Commemorated)

Socioeconomic Class

Socioeconomic Class	With Monuments		Without Monuments	
	n=	%=	n=	%=
1	268	4.0%	6427	96.0%
2	367	14.5%	2164	85.5%
3	144	24.2%	450	75.8%
4	355	36.8%	609	63.2%
5	176	70.4%	74	29.6%

Gender

Gender	With Monuments		Without Monuments	
	n=	%=	n=	%=
Boys	641	12.2%	4614	87.8%
Girls	669	11.6%	5110	88.4%

Age at Death

Age	With Monuments		Without Monuments	
	n=	%=	n=	%=
3	63	5.4%	1098	94.6%
4	61	6.9%	827	93.1%
5	52	7.5%	639	92.5%
6	53	8.9%	542	91.1%
7	44	9.0%	447	91.0%
8	31	8.1%	350	91.9%
9	23	6.8%	315	93.2%
10	40	12.3%	286	87.7%
11	39	12.5%	272	87.5%
12	37	11.8%	276	88.2%
13	44	13.4%	285	86.6%
14	44	12.1%	320	87.9%
15	46	12.7%	316	87.3%
16	58	14.7%	337	85.3%
17	72	15.8%	385	84.2%
18	74	17.1%	359	82.9%
19	77	16.0%	404	84.0%
20	74	16.0%	388	84.0%
21	78	16.2%	402	83.8%

22	74	16.1%	387	83.9%
23	72	17.3%	344	82.7%
24	67	14.4%	398	85.6%
25	87	20.0%	347	80.0%

Year of Death

Year of Death	With Monuments		Without Monuments	
	n=	%=	n=	%=
1845	15	6.6%	211	93.4%
1846	14	5.1%	263	94.9%
1847	23	6.8%	313	93.2%
1848	7	2.3%	294	97.7%
1849	18	5.3%	321	94.7%
1850	21	7.5%	260	92.5%
1851	21	8.0%	240	92.0%
1852	13	4.6%	270	95.4%
1853	18	6.2%	272	93.8%
1854	15	5.5%	257	94.5%
1855	30	7.2%	387	92.8%
1856	23	8.5%	249	91.5%
1857	18	8.5%	193	91.5%
1858	21	9.3%	206	90.7%
1859	15	7.0%	200	93.0%
1860	14	6.5%	200	93.5%
1861	24	10.6%	202	89.4%
1862	21	8.4%	230	91.6%
1863	33	9.9%	299	90.1%
1864	22	7.7%	263	92.3%
1865	9	4.7%	182	95.3%
1866	18	9.0%	182	91.0%
1867	21	12.7%	144	87.3%
1868	19	11.0%	153	89.0%
1869	23	14.3%	138	85.7%
1870	19	10.6%	161	89.4%
1871	20	10.4%	173	89.6%
1872	18	11.5%	138	88.5%
1873	11	6.9%	149	93.1%
1874	13	9.4%	125	90.6%
1875	25	13.0%	167	87.0%
1876	15	11.0%	121	89.0%
1877	24	17.3%	115	82.7%
1878	17	14.2%	103	85.8%
1879	27	20.8%	103	79.2%

1880	19	16.0%	100	84.0%
1881	10	10.1%	89	89.9%
1882	15	11.2%	119	88.8%
1883	18	14.5%	106	85.5%
1884	14	12.7%	96	87.3%
1885	15	15.5%	82	84.5%
1886	13	10.5%	111	89.5%
1887	15	17.2%	72	82.8%
1888	9	8.7%	94	91.3%
1889	15	20.3%	59	79.7%
1890	15	14.3%	90	85.7%
1891	16	14.2%	97	85.8%
1892	19	19.8%	77	80.2%
1893	14	15.9%	74	84.1%
1894	11	16.4%	56	83.6%
1895	24	31.2%	53	68.8%
1896	7	8.5%	75	91.5%
1897	13	22.8%	44	77.2%
1898	16	19.8%	65	80.2%
1899	19	24.1%	60	75.9%
1900	10	18.9%	43	81.1%
1901	20	32.8%	41	67.2%
1902	10	21.7%	36	78.3%
1903	10	27.8%	26	72.2%
1904	12	27.3%	32	72.7%
1905	14	26.4%	39	73.6%
1906	17	26.2%	48	73.8%
1907	15	24.2%	47	75.8%
1908	15	25.4%	44	74.6%
1909	12	21.1%	45	78.9%
1910	8	23.5%	26	76.5%
1911	14	35.9%	25	64.1%
1912	10	22.7%	34	77.3%
1913	14	26.4%	39	73.6%
1914	15	37.5%	25	62.5%
1915	9	20.9%	34	79.1%
1916	14	40.0%	21	60.0%
1917	17	34.0%	33	66.0%
1918	23	31.9%	49	68.1%
1919	18	36.0%	32	64.0%
1920	13	40.6%	19	59.4%
1921	12	46.2%	14	53.8%
1922	10	28.6%	25	71.4%
1923	16	55.2%	13	44.8%
1924	9	39.1%	14	60.9%

1925	11	39.3%	17	60.7%

Appendix 4: Results of Logistic Regression (Birth Order)

```
Family: binomial
Link function: logit

Formula:
Commemorated ~ s(YOD, k = 5) + Sex + s(Age, k = 5) + OccCat1 +
    Child.Order

Parametric coefficients:
                          Estimate Std. Error z value Pr(>|z|)
(Intercept)                -1.4032     0.1442  -9.730  < 2e-16 ***
SexMale                    -0.0562     0.1217  -0.462   0.6442
OccCat14                    0.5902     0.1386   4.258 2.06e-05 ***
OccCat15                    2.3079     0.2082  11.085  < 2e-16 ***
Child.Orderoldest child     0.2066     0.1597   1.294   0.1958
Child.Orderonly child       0.6475     0.3156   2.052   0.0402 *
Child.Orderyoungest child   0.4198     0.1485   2.827   0.0047 **
---
Signif. codes:  0 ‘***’ 0.001 ‘**’ 0.01 ‘*’ 0.05 ‘.’ 0.1 ‘ ’ 1

Approximate significance of smooth terms:
       edf Ref.df Chi.sq p-value
s(YOD)   1      1  60.68  <2e-16 ***
s(Age)   1      1  29.18  <2e-16 ***
---
Signif. codes:  0 ‘***’ 0.001 ‘**’ 0.01 ‘*’ 0.05 ‘.’ 0.1 ‘ ’ 1
```

Appendix 5: Number of Individuals in Each Category (Birth Order, Commemorated and Not Commemorated

Birth Order	With Monuments		Without Monuments	
	n=	%=	n=	%=
Middle Child	252	33.8%	494	66.2%
Oldest Child	102	37.0%	174	63.0%
Youngest Child	138	40.6%	202	59.4%
Only Child	19	33.3%	38	66.7%