

9 ROMAN EGYPT (V1)

In 118 CE, in the village of Tebtunis in the Fayum - a densely populated depression approximately 120 km southwest of modern Cairo – a 60-year-old freedwoman named Thaisas drew up a will to dispose of her small estate.¹ The will, the only trace she has left, offers a fleeting glimpse of a life lived in slavery and freedom. We do not know when Thaisas was freed by her former owner, Eutyches son of Herakleides, or why. But we do know that she had at least two children at the time she was freed, a son Primigenes and a daughter Aphrodite. The identity of their father or fathers is unknown, because it was irrelevant to their legal identity (as persons born into slavery) and hence is not mentioned in the will. Both children remained enslaved, the property of Eutyches, when Thaisas was manumitted. At some point thereafter, Eutyches died intestate and his estate was divided.² Thaisas acquired half of Eutyches' half share of a two-story house in the village. Her children Primigenes and Aphrodite, still enslaved, passed to Eutyches's sons: Primigenes to Ptollarion and Aphrodite to Eutyches alias Longinus. By the time that Thaisas drew up her will in 118, they too had been freed by their respective owners. We do not know if Thaisas had any other children who were still enslaved at this point (if she did, she could not have bequeathed them any property), nor do we know how many other children she may have lost during her long life. But we can be certain that Thaisas, Primigenes and Aphrodite, were now all free and living together in Thaisas' share of the house. Yet all three were still living lives intertwined with the slave-owning family in whose household(s) they had spent the first parts of their respective lives as slaves. As a woman, Thaisas required a guardian to authorise legal acts like drawing up a will.³ As a freedwoman, her guardianship was held by her manumitto. When he died it passed to his heir. Hence the drawing up of her will was supervised by the thirty-year old Eutyches alias Longinus, who had inherited the authority from his father and was also the manumittor and hence the guardian of her daughter Aphrodite. It is also likely that the rest of the house in which they lived was owned, and perhaps inhabited, by Eutyches' surviving kin. It may well have been the same house in which they had lived when they were enslaved. Thaisas' story raises several themes to which this chapter will return: the ties between freed persons and the families that manumitted them, the way that the divide between free and enslaved could cleave through a family, and – above all – the reproduction of enslaved population from generation to generation despite widespread manumission.

SLAVERY AND MANUMISSION IN ROMAN EGYPT

Roman Egypt has produced better evidence for the operations of manumission than any other context in the Greco-Roman world, though it is still too often sidelined by studies that focus on the Rome or the cities of the Greek peninsula. Egypt was one of the most densely populated of Rome's provinces. Rough

¹ On Roman Tebtunis, see Langelotti 2020. The will is SB 5.7559, in the form of a *meriteia*, sometimes termed a *donatio mortis causa*, the most common form of will from the villages of Roman Egypt (Yiftach 2002; P.Bas. 2.38).

² [Discuss the division.]

³ Schentuleit 2019: 348-9, Taubenschlag 1955: 170-8.

estimates for the Roman-period population range from four to eight million.⁴ On the coast, Alexandria was probably the second-largest city in the empire, with around half a million inhabitants. Most of the rest of the population was strung along the Nile (Figure 9.1). The province outside Alexandria was organised into administrative units called nomes. Each nome had an administrative centre termed the metropolis (pl. metropoleis), while other settlements were classed as villages. The largest metropoleis had populations in the tens of thousands.⁵ Analysis of urbanisation has generally relied on the distinction between metropoleis and villages as a proxy for the division into urban and rural settlements. Very rough estimates made on that basis suggest a relatively high level of urbanisation, on the order of 25%.⁶

Chattel slavery appears to have been a Greek import into Egypt, brought by the Macedonian and Greek colonists who settled in Egypt after Alexander's conquest.⁷ For most of the Ptolemaic period, slave-holding was the preserve of the Greco-Macedonian elite. Census data suggests that around 14% of Greek households owned slaves, but only around 2% of Egyptian households (those few all located in cities and showing links to Greek families).⁸ The enslaved appear to have made up just a few percent of the total population: 4% of the adult population visible in census returns.

⁴ Bowman 2011: 341 (c. 7.5 m in the first century), Scheidel 2007: 48 (5-6 m in 165 CE), Scheidel 2001: 246-8 (5-7 m), Bagnall and Frier 1994: 53-6 (around 4.75 m).

⁵ Bowman 2011: 340-5, Scheidel 2001: 173, Bagnall and Frier 1994: 54-5.

⁶ Bowman 2011: 341: around 20% (or 14% excluding Alexandria, given his assumptions) Scheidel 2001: 247-8: around 25% ('less than 20%' excluding Alexandria). Bagnall 2009: 111: 25% (16% excluding Alexandria, given his assumptions), revising down the estimate of 37% in Bagnall and Frier 1994: 56 (29% excluding Alexandria). The proportions excluding Alexandria will become relevant when discussing the representativeness of the census data.

⁷ Rowlandson 2023.

⁸ Clarysse and Thompson 2006: 262-7.

Figure 9.1 Map of Roman Egypt (placeholder, reproduced from Tacoma 2006)



Greek slaving strategies appear to have gradually spread to the Egyptian elite by the Roman period, when around 15% of all households declare slaves in census returns.⁹ But the intensity of slaving remained limited in comparison to some other regions of the empire. The evidence we have – a mix of census data and lists of taxpayers - suggest the enslaved made up roughly 10% of the population in Egypt outside Alexandria.¹⁰ (The proportion in Alexandria will have been considerably higher, but we have no good data for it.¹¹) This overall average hides significant differences between urban and rural contexts (with around 12% and 9% respectively) and between the female and male populations (around 13% and 4% respectively). Females certainly outnumbered males; the exact ratio is hard to determine, but may have been as high as two to one,

⁹ Bagnall and Frier 1994: 48, Bagnall 2011: 58. On slavery in Roman Egypt, see especially Rowlandson 2023, Straus 1988, Biezuńska-Malowist 1977 and Biezuńska-Malowist 1984 (with additional detail), and also Pavlovskaja 1992. Straus 2004 illuminates many aspects of slavery through the window provided by evidence for the sale and purchase of slaves. See also Langelotti 2020: 126-30 on the Arsinoite village of Tebtunis and Bagnall 2007: 191-2 on the metropolis of Oxyrhynchus.

¹⁰ See Appendix 9.1

¹¹ Biezuńska-Malowist 1976.

with females accounting for something like two thirds of the enslaved population.¹² A corollary of this variation is that slaves were particularly rare among males in the villages (just 2 or 3%) and even rarer among *adult* male villagers (because of the impact of manumission). This explains why slaves – not to mention freedmen – are so rare in the voluminous papyrus record of the Fayum villages, and makes it more challenging to write the history of slavery in Egypt.

Our understanding of how enslaved labour was exploited is more impressionistic. Unfortunately, the census returns, our best evidence for the demography of the population, only exceptionally specify occupation.¹³ There is little sign of the intensive exploitation of enslaved labour in agriculture. Very large estates were relatively rare in the province, and most of them were in imperial hands by the end of the first century CE. What evidence we have for the operation of large private estates suggests that they made more use of free than enslaved labour.¹⁴ Slavery in Roman Egypt has been described as primarily ‘domestic’, with most slaves living in relatively small households with less than ten slaves. But it is important to recognise that their labour will often have been exploited in multiple ways, both within and outside the household.¹⁵ In rural households, it will often have included agriculture as well as domestic labour. It is also clear that slave-owners employed a mix of what Kostas Vlassopoulos has termed labour extraction and revenue extraction strategies.¹⁶ Individuals might spend some of their time put to work in the household or the fields (or in the slave-owner’s occupation), while at other times their labour was rented out to third parties. Payments were variously made directly to the slave owner or indirectly through the enslaved person who then paid a fixed amount to their owner. This is attested in villages as well as towns, and for females as well as males.¹⁷ Two revenue extraction strategies relied exclusively and largely on women: wet-nursing and prostitution.¹⁸ There is also evidence for some skilled slaves in more privileged positions. The wealthy often entrusted the management of their affairs to trusted slaves, presumably mostly men.¹⁹ Others trained and worked as artisans, particularly in weaving and other of the textile industry.²⁰ Given the very small percentage of adult

¹² Males make up just 33% of the enslaved population in the raw census data. Allowing for the under-representation of villages, where males were even rarer, suggests an overall proportion around 23% (Appendix 9.2). But the census data are distorted by the under-reporting of males, particularly in villages, to avoid taxation. I argue below that the actual percentage was certainly higher, probably somewhere in the 30s.

¹³ The census returns only ever for adult males and even then only in around 15% of cases (Bagnall and Frier 1994: 72). Hence it is not necessarily significant that only one of 44 males slaves (of whom around half would have been children) is named with an occupation: Dioskoros, a weaver owned by – and living with – two sisters in Arsinoe (117-Ar-3=P.Brux. 19). Diodorus is listed with a freeborn ‘wife’ and three freeborn children (who would have inherited their status from their mother). His family situation is exceptional, but he may not be the only artisan in the population.

¹⁴ Biezuńska-Malowist 1977: 74-84, Biezuńska-Malowist 1984: 183-92, Bagnall 1993: 227-32, Rathbone 1991: 89-91.

¹⁵ Biezuńska-Malowist 1977: 93 and 103, Straus 1988: 868.

¹⁶ Vlassopoulos 2021: 58-73.

¹⁷ Biezuńska-Malowist 1965, Biezuńska-Malowist 1977: 104-7, Biezuńska-Malowist 1984: 207-20, Straus 1988: 870-3.

¹⁸ The contracting out of wet-nursing appears to have been significant in scale, and relied disproportionately on enslaved labour. 10 of 40 women involved in wet-nursing contracts whose status is known were enslaved (Parca 2017, with the statistics on p. 212). Prostitution: Biezuńska-Malowist 1977: 91-3.

¹⁹ Biezuńska-Malowist 1977: 98-103, Straus 1988: 874-6.

²⁰ Biezuńska-Malowist 1977: 85-91, Biezuńska-Malowist 1984: 192-7, Straus 1988: 868-70, Pavlovskaja 1992: 208-9. In PSI 10.154, a register of payments of the tax on weavers in the village of Tebtunis from sometime in the second century, ten of 27 weavers whose names survive were enslaved (three of them female); a tenth was a freedman.

males who were enslaved, slaves are unsurprisingly rare among artisans; but that does not necessarily mean that artisans were rare among slaves.²¹

Some have suspected that manumission became more common in the Roman period, perhaps reflecting the influence of Roman slaving strategies.²² As elsewhere in the empire, the legal framework governing manumission would have depended on the civic status of the manumittor (until 212 CE, when Caracalla made his universal grant of Roman citizenship).²³ The small minority of Roman citizens, who probably owned a disproportionate share of the enslaved population, would have manumitted under Roman law (and their freedmen paid the special tax levied on Roman manumissions).²⁴ The slightly larger minority of *astoi*, the citizens of the three (later four) Greek poleis, manumitted following their own laws and procedures. The rest of the population – all classed as ‘Egyptians’ by the Roman government, including a more privileged stratum in the metropoleis – used a more general form of Greek law. In practice, the difference between the latter two groups seems to have been small. Both employed two principal modes of manumission: testamentary manumission and manumission by deed.²⁵ The precise procedure for manumission by deed varied from polis to polis and from nome to nome, but the essentials were the same. *[Add initial discussion of paramone here?]* The most significant difference may have concerned relations between the manumittor and the freed slave: there are hints that the Roman administration granted *astoi* some new rights over their freedmen modelled on those of Roman patrons.²⁶ After 212, all manumissions was in principle regulated by Roman law, but there are some traces of local practices, such as a few examples of restrictions analogous to *paramone* occasionally applied to manumissions in Roman wills after 212.²⁷

THE CENSUS DATA

The census returns of Roman Egypt provide demographic evidence that is unique for the Greco-Roman world. Conducted every 14 years in Egypt, the Roman provincial census required household-by-household declarations of all residents (including lodgers and slaves) and their vital data, including ages.²⁸ Egypt’s uniquely extensive corpus of papyri has preserved hundreds of returns – a mix of originals, copies and

²¹ Wilcken 1899: 695

²² Rotman, et al. 2014: 443.

²³ See Meyer forthcoming for a succinct survey of the status categories created under Augustus and policed by the Roman provincial administration. On the legal landscape, see Alonso 2013.

²⁴ We have several Roman wills with provisions for manumission. See Appendix 9.7 with Nowak 2015: 175-82 and Colella 2022. The papyri preserve several cases of *inter vivos* manumission by Roman citizens. These include two references to *manumissio vindicta*, but all the surviving manumission deeds take the form of *manumissio inter amicos*, which appears to confirm hypotheses about the importance of ‘informal manumission’ (XREF to Chapter 8). See Appendix 9.8 with Scholl 2001, Stornaiuolo 2019 and Balamoshev and Nowak 2022.

²⁵ Testamentary manumission, see Nowak 2015: 175-82. Manumission by deed: Straus 2009: 234-5, Taubenschlag 1955: 96-101.

²⁶ Meyer forthcoming, extrapolating from s. 9 on the Gnomon of the Idios Logos (BGU 5.1210), which gave *astoi* a claim over the estates of their freedmen if they died childless and intestate. See further XRef below.

²⁷ On restrictions analogous to *paramone* being applied to testamentary manumission in Roman wills, see Nowak 2015: 179-181. *[Add a discussion of the significance of age 30. Cf Meyer forthcoming for the hypothesis that Gnomon s. 19 applied to all freedpersons, not just those freed by Romans.]*

²⁸ Bagnall and Frier 1994: 11-20, noting some variation in who was responsible for making the declaration.

official extracts – which collectively contain the vital data of around 1,500 individuals.²⁹ The returns span a period of more than two centuries, from 3 BCE to 257 CE, but are concentrated in the second and early third centuries.³⁰ The vast majority come from Middle Egypt, particularly the Arsinoite nome (the Fayum).³¹

The age data contained in the census declarations appear to be of relatively high quality by pre-modern standards, with low levels of age rounding.³² That said, there remain numerous problems that complicate demographic analysis. The surviving returns are unevenly distributed across space and time. Metropoleis are over-represented compared to villages.³³ Despite the generally high quality of the age data, there appears to be some distortion of male ages in the teens and after fifty – almost certainly due to efforts to avoid the poll tax, which was payable on all males aged 13 through 59 and which relied on data from the census.³⁴ There is also some evidence of selective under-reporting of certain categories of person, particularly children and males liable to the poll tax.³⁵ The impact of these various biases is uneven: most acute for village males and least acute for village females, with the metropolis population somewhere in between.³⁶

Roger Bagnall and Bruce Frier suggested that the persons attested on the individual returns could be combined into a composite dataset and studied as a population, on the assumption that that key demographic processes were relatively stable over the period and space represented (although they allowed for differences between urban and rural populations). They showed that the exercise can elicit credible patterns of mortality, marriage and fertility.³⁷ Subsequent work has exposed some further problems with the quality of the age data and the completeness of the census record, issues that are particularly consequential for the analysis of mortality.³⁸ But the Egyptian census data remain our best evidence for the

²⁹ Bagnall and Frier 1994: 1-30. Bagnall and Frier 1994: 11-20 analysed a dataset of 300 returns and 1,084 persons (40, 48). The 1994 Addendum and 2006 Supplement (*ibid.*, 309-23) added 33 returns and 110 persons. A new find of a large compilation of declarations, probably from Lykopolis, added 36 another returns and 256 persons (Bagnall, et al. 1997: 89-90), bringing the total to 1,447 persons. Hin, et al. 2015: 51 reports a slightly larger dataset with 1,587 persons (including the Lykopolis data).

³⁰ Bagnall and Frier 1994: 7, Claytor and Bagnall 2015.

³¹ Bagnall and Frier 1994: 6 and Appendix 9.1.

³² Bagnall and Frier 1994: 44-7, computing a Whipple's Index of 124. The data from Upper Egypt in *P.Oxy.Census* appear less reliable with a Whipple's Index of 221 (Bagnall, et al. 1997: 91).

³³ Bagnall and Frier 1994: 49.

³⁴ Poll tax: Men were liable from age 14 through (probably) age 60, by the local (inclusive) reckoning of age (Rathbone 2019, arguing that liability normally ended at age 60, though some men paid the tax for a year or two longer). See Appendix 9.1 on age reckoning in Roman Egypt and the conversion of reported ages into age last birthday as we compute it (i.e. age last birthday). Under-reporting ages of males in the teens: Bagnall and Frier 1994: 42, Scheidel 2001: 158. Age exaggeration for males above 50: Bagnall and Frier 1994: 107-8, Scheidel 2001: 158.

³⁵ Pronounced under-reporting of children in their first year of life: Bagnall and Frier 1994: 44. Concealment of males aged 14 to around 20, particularly in villages: Bagnall and Frier 1994: 42, 161, Scheidel 2001: 158. Under-reporting of females under age 15, i.e. unmarried girls, particularly in metropoleis: Bagnall and Frier 1994: 161, Scheidel 2001: 149. Under-reporting of freed persons. See below. The subset of census documents that are official registers drawn up by compiling individual returns introduce other, complex biases. The most important is *P.Oxy.Census*, a list of 63 households in a metropolis, probably Lykopolis; it appears to have been a list of households declared by males of an age to be liable for the poll tax (Bagnall, et al. 1997: 92-4). This appears to explain why the list only contains a single person over the age of 60. The larger dataset contains a few similar registers (93).

³⁶ Scheidel, 2001 #2456@172}.

³⁷ Bagnall and Frier 1994.

³⁸ See especially Scheidel, 2001 #2456@118-80}. On mortality patterns in the census data, see Appendix 9.4.

demography of a Greco-Roman population – even if they only admit approximate conclusions, and even if those conclusions may be specific to Middle Egypt.

Slavery in the census data

A composite dataset of 1,437 persons declared on census returns includes 154 slaves and 14 freedpersons.³⁹ Like the population as a whole, the enslaved people who we see in the returns are mostly from the Arsinoite nome (which accounts for 61% of the total), though they extend as far as the Memphite to the north and the Lykopolite to the south (with some further outliers from the Prosopite nome in the Nile Delta and the Great Oasis in the Southeast). They are disproportionately urban: metropoleis account for 66% of the total, though their actual share of the enslaved population was probably around 30%.⁴⁰ The dataset is dominated by relatively small households. Most of the households that declare slaves declare just one or two.⁴¹ The largest attested slaveholding is the thirteen persons (or slightly more) declared by Dioskourides son of Zoilos as residing with himself and his wife in Antinoopolis in 187/188 CE; the next largest is a family of seven free persons in the metropolis of Arsinoe who declared eight slaves in the same census.⁴² The vagaries of survival have not preserved any returns from households in the very wealthiest stratum of the provincial population.⁴³ We only have a single example of the slave-holding of a Roman citizen, that of Sempronia Akousaria, who declared five slaves living with herself and her son in the metropolis of Arsinoe in 133 CE.⁴⁴ Nor do we have returns from the few large estates that made more intensive use of enslaved labour.

One of the most striking features of the enslaved population that we can see in the census returns is its age structure, which looks very different to the familiar pyramid shape of the population at large (Figure 9.2). Even allowing for the relatively small sample size for the enslaved, the differences are pronounced. A first anomaly is the relatively small size of the 10-19 age interval, particularly for females. On the face of it, this looks a little like the population structures produced by high levels of slaving, with a significant proportion of enslaved persons entering the population in their late teens or later. Similar patterns can be observed in the enslaved populations of the eighteenth- and nineteenth-century Americas. But other evidence indicates that the overwhelming majority of enslaved persons in Roman Egypt were either born to enslaved women and hence enslaved at birth, or else abandoned by their birth parents and ‘taken up’ by people who raised them as slaves.⁴⁵ The slaving of young adults seems to have played a very small role in the supply of slaves.

³⁹ See Appendix 9.1 for the dataset used in the analyses that follow.

⁴⁰ See Appendix 9.2

⁴¹ Bagnall and Frier 1994: 70-1.

⁴² 187-An-1 (damaged, probably with the loss of some enslaved persons; the identification of the second free person in uncertain). 145-Ar-9. References in this form are to the catalogue of census declarations in Bagnall and Frier 1994: 181-323

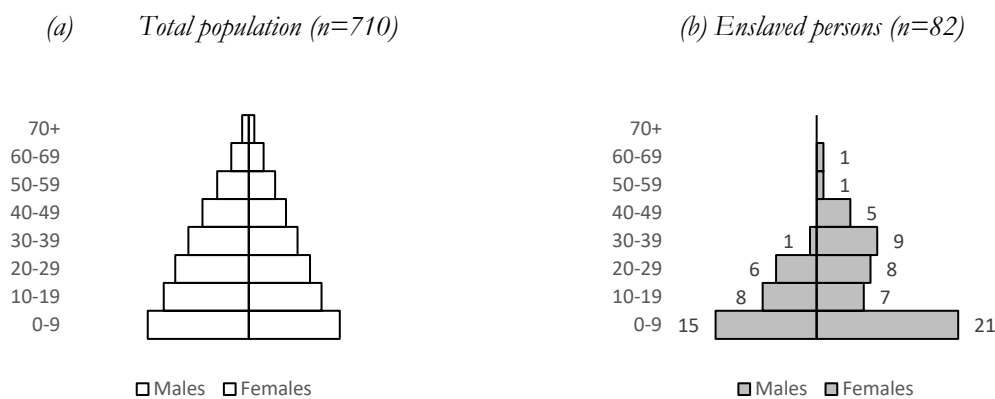
⁴³ Contrast e.g. the estate of Tiberius Iulius Theon, a magistrate of Alexandria who died in 111 and left an estate consisting of at least 59, probably more than 70, enslaved males and presumably more, unnamed females (P.Oxy 44.3197 with the editors’ comments).

⁴⁴ 131-Ar-14=ZPE 1998 283-91. The census returns also include a declaration by the slave of two Roman citizens, Didymus slave of Longinia Nemesilla and Longinia Petronilla, for a vacant property they owned (145-Ar-7=BGU 7 1581), but he is not included in the analysis because he appears only as a declarant. See Appendix 9.1b.

⁴⁵ See especially Straus 1988: 852-6 and Biezuńska-Malowist 1977: 13-42. Persons born to enslaved women and hence enslaved at birth were termed ‘homeborn’ (*oikogeneis*) (Straus 2004: 235-7). The victims of enslavement after

The next most obvious explanation for the gap in the teens would be some form of tax evasion, but it is odd that the gap seems most pronounced for females, whereas one might have expected the effects of any under-reporting of age or outright concealment to have concentrated on the population that was liable to the poll tax: males aged 13 and above.⁴⁶ The anomaly remains very hard to explain. It may just be an artefact of the very small sample, but it certainly enjoining caution in interpreting the other obvious anomaly in the age structure.⁴⁷

Figure 9.2 Age structure of the total population (a) and enslaved population (b) attested in the census returns from Roman Egypt⁴⁸



The second anomaly is the absence of older slaves. The oldest of 30 males with known ages is 31. Of 52 females, only two are older than 50 (and one of them is reported as a fugitive).⁴⁹ Both sides of the age pyramid appear truncated, albeit at different levels. The truncation seems too abrupt to be the result of a natural process of attrition like mortality. The most obvious explanation is manumission, and numerous scholars have concluded that the data reveals the widespread manumission of males around age 30 and of females around age 50.⁵⁰

Intuitive as it may seem, however, this interpretation is complicated by the relatively small number of freed persons: just 12 with known ages, compared to the 88 slaves. Moreover, those who do appear in the census data are not concentrated in the missing age intervals, as one would expect, but rather fall in the same age

abandonment are variously termed ‘taken up’ (*anairetos*) or ‘from the dungheap’ (*apo koprias*) On the importance of exposure as a source of slaves, see especially Bagnall 1997.

⁴⁶ Harper 2008: 109-10.

⁴⁷ See also Scheidel 1997: 161-2 on the ‘inexplicable drop during the teens’.

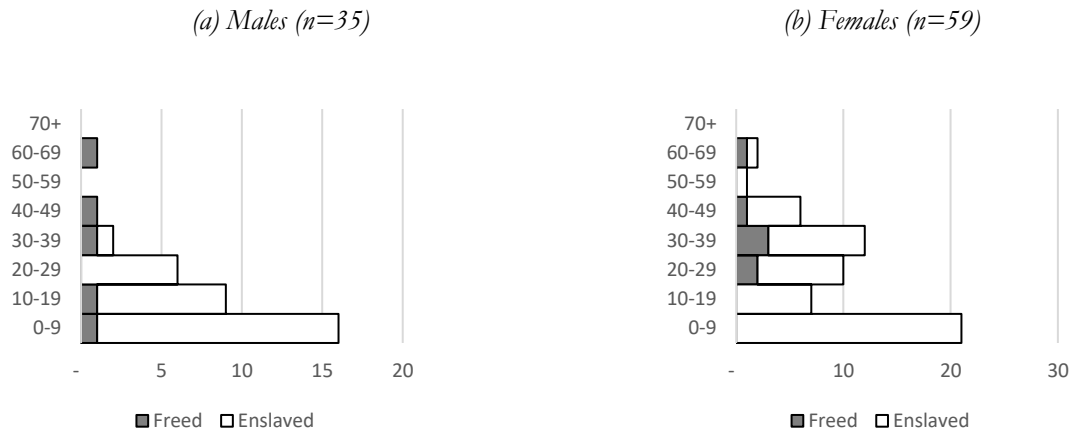
⁴⁸ Data for the whole population from Bagnall and Frier 1994: 348-50. Data for the enslaved population from Appendix 9.2.

⁴⁹ Data from Appendix 9.3. Here and elsewhere, reported ages have been converted from inclusive to exclusive reckoning. See Appendix 9.2. The fugitive is Helene, declared in 187-Ar-30 (Tebtunis, Ar., 187 CE).

⁵⁰ See especially Bagnall and Frier 1994: 71 (‘male slaves are apparently often manumitted quite early, which still capable of productive labor ... but females often remain slaves into their 40s, until they could no longer bear children’), Scheidel 1997: 160-2 (‘most of [the males] seem to have been freed before age thirty’), Bagnall 2007 (‘almost all surviving male slaves were manumitted by their early thirties, while many women remained slaves as late as the end of their childbearing years’), Rowlandson 2023 (‘males were characteristically manumitted by their early thirties, whereas females were rarely manumitted until past child-bearing age’).

intervals in which the enslaved population is visible (Figure 9.3). Thus, the problem to be explained is not just the rarity of enslaved persons above the ages of 30 or 50, but the rarity of any ever-enslaved persons, either freed or enslaved, beyond those ages.

Figure 9.3. Age structure of the ever-enslaved population in the census returns from Roman Egypt



Bagnall and Frier explained the relatively small number of freedpersons on the basis that ‘information on freed status may often be lost’.⁵¹ But this would involve more than the mere loss of information. The returns normally name individuals in a way that disambiguates between freeborn and freed status. The freeborn are identified by a personal name followed by the names of their father, paternal grandfather and mother, whereas the freed are normally identified by personal name followed by the name of their patron. The vast majority of persons who are not identified as freed are named in a way that implies they were freeborn. There is no ambiguous category that could easily be assumed to contain the missing freedpersons. Roger Bagnall himself once argued that it is very unlikely that freedpersons would style themselves in a way that obscured their status, given the evident care that illegitimate children took to follow official conventions.⁵² But it is certainly not impossible. Nathaël Istasse has identified one case where a man who appears to have been of freed status identified himself in a contract by personal name, father’s name and mother’s name – so that we would presume he was freeborn if he had not referred to a ‘patron’ later in the text.⁵³ Even if we grant that there are some freedpersons among the rest of the free population, however, that would not in itself be sufficient to account for the pattern observed in Figure 9.3. It would not explain why freedpersons would be largely invisible above the ages of 30 or 50, but still visible below those ages.

⁵¹ Bagnall and Frier 1994: 71 n. 4.

⁵² Bagnall 1991: 8.

⁵³ Istasse 2001: 204-5 on *P.Matr.* 2 (Sarapion describes himself as Σαραπίων Σαραπιᾶτος ἀπελευθέρου Ἀπολλωναρίου μητρὸς Θερμουθίου ἐπικειλημένης Σαραπιᾶδος ἀπελευθέρου Σινθώνιος but later refers to τὰς ὑπαρχούσας μοι πρότερον τῆς γεν[νο]μένης μοι πατρωνίσεως Σινθώνιος ... ἀρούρας τρεῖς). Istasse speculates that the anomalous formula might be related to the fact that both his parents (both freed) were themselves free (n. 17). Another possibility, which would explain away the anomaly, is that Sarapion was indeed freeborn but informally referred to his mother’s patron as his own ‘patron’.

One might venture the hypothesis that older freedpersons were more likely to style themselves in the same way as the free born and/or that those freed at younger ages were more likely to remain resident with their former slave-owners, whereas those freed later were more likely to live independently and perhaps in more marginal conditions – and hence fall through the cracks of the census process. Either of these factors would lead to younger freedpersons being over-represented relative to older freedpersons. But neither would explain an abrupt change around age 30 or 50, or why the transition would come at different ages for males and females. The problem is acute. It has implications not just for the scale of manumission, but also for the scale of slavery. If the persons who appear to be missing from the ever-enslaved population were not (all) freed, if some of them were still enslaved but for some reason underreported in the census data, then we would have to revise upwards our estimates for the size of the enslaved population, particularly for males.

THE FEMALE POPULATION

It is worth looking more closely at the female population, for which we have more, and better-quality, data than for males. The difference between urban and rural contexts is much less pronounced than for males, with female slaves making up 15% of the census population in the metropoleis and 13% in the villages and the apparent truncation of the age distribution is visible in both sub-groups (Figure 9.4), so any distortion due to the over-representation of metropoleis should be relatively minor.

It has gone unremarked that the census data contain clear evidence for manumission before age 50, regardless of what one makes of the absence of females above that age.⁵⁴ Figure 9.4 shows that freed women are already visible in the cohorts aged 20-50. Some were evidently freed in their teens or twenties. Zosime freedwoman of Ammonation was just 21 in 161 CE, living with a freeborn husband and two freeborn children in Arsinoe. The elder child was three at the time, implying that Zosime was freed at age 18 at the latest.⁵⁵ Sarapias freedwoman of Valerius Aphrodisios (a serving soldier), and living with his kin in the Arsinoite village of Karanis, was 29 in 174.⁵⁶ Herakleia freedwoman of Senamounis, living alone with two freeborn but illegitimate children and a slave of her own in the Memphite village of Moithymis, was 44 in 188.⁵⁷ The older child was 19, meaning that Herakleia was already free at the age of 25.

Figure 9.4. Age structure of the female ever-enslaved population attested in the census returns from Roman Egypt

(a) All (n=59)

(b) Villages (n=33)

(c) Metropoleis (n=26)

⁵⁴ Pace Bagnall and Frier 1994: 158 ('females were not commonly manumitted while still of childbearing age'), Scheidel 1997: 160-2 ('the evidence for adult female slaves in the census returns does not support the idea of widespread manumission prior to menopause').

⁵⁵ 159-Ar-1.

⁵⁶ 173-Ar-9.

⁵⁷ 187-Me-1.

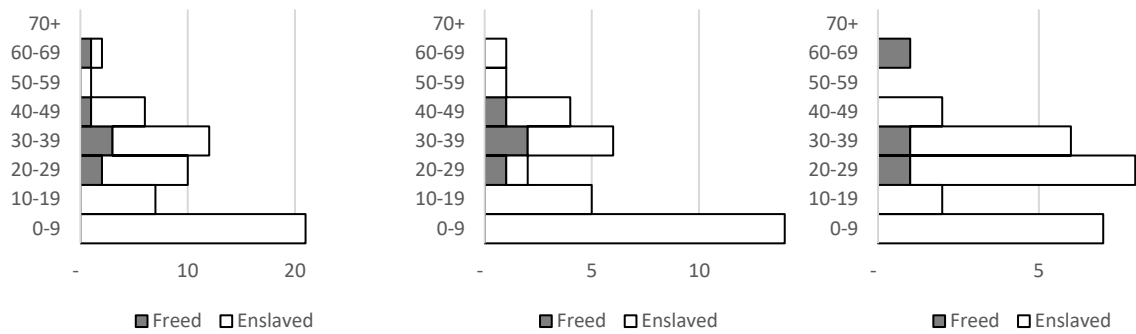


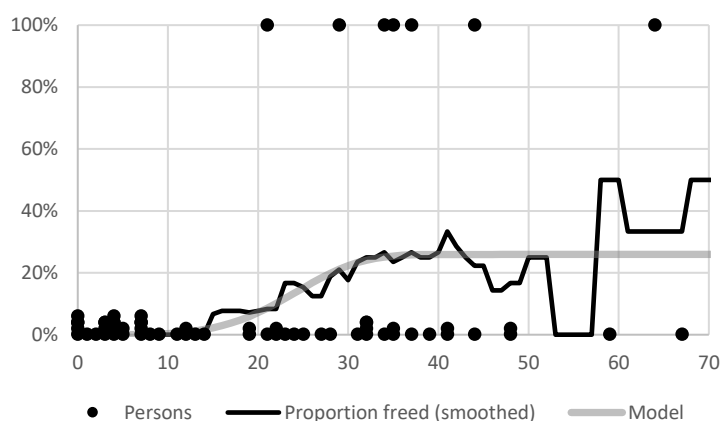
Figure 9.5 looks more closely at the relationship between age and status in the female population. The black dots at the bottom represent individual enslaved persons, showing them at their reported age. The black dots at the top do the same for freed women. The visualisation is a useful reminder of the sparsity of the data, especially at older ages. But it is still apparent that freed women become more common relative to enslaved women as age rises – exactly as one would expect. The black line in Figure 9.5 shows how the proportion who are free increases with age. It has been computed after smoothing the data by taking rolling 15-year averages.⁵⁸ Despite the smoothing, the ‘curve’ becomes increasingly jagged after age 40; this is because of the very small numbers involved. But the curve can still be recognised as a jagged version of the s-shaped cumulative manumission curves observed in the Americas in Parts I and II. The underlying pattern can again be closely approximated by a Weibull model (see Chapter 4). This model predicts the probability that an ever-enslaved person aged x is free rather than enslaved. Maximum Likelihood Estimation can be used to find the model that best explains the relationship between age and status observed in the census data.⁵⁹ The result is the solid grey curve in Figure 9.5. This can be interpreted as the cumulative manumission curve that would best explain the observed data. It is one in which 7% of survivors to age 20 would be free, and 26% of survivors to age 40.⁶⁰

⁵⁸ This is done by first smoothing the age distribution of enslaved and freed persons separately, using rolling, centered 15-year averages, and then computing the proportion freed by single year age intervals from age 7. This is the same method used by Bagnall and Frier 1994 in their analyses based on ‘smoothed’ data, though with fifteen-year rather than seven-year averages, to allow for the smaller sample.

⁵⁹ The exercise is analogous to the fitting of models to the current status data from São José in Chapter 2. The calculation is performed as explained in Appendix 2.X. The calculation excludes ages 0-5 given the obvious problems with reporting of young children (XREF), as Bagnall and Frier do in their analyses, though this has no effect on the result.

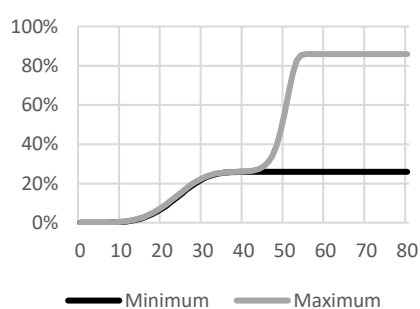
⁶⁰ The finding is not sensitive to correction for the over-representation of metropolitan contexts. See Appendix 9.4.

Figure 9.5. Modelling the relationship between age and status for ever-enslaved females in the Egyptian census data. The curves show the proportion of ever-enslaved persons aged x who are free



The census data gives a reasonably good picture of the impact of manumission up to around age 40. The question is what happens at older ages, when the ever-enslaved population becomes much sparser and eventually all but disappears (with just three exceptions). The model just discussed represents a limiting Minimum scenario, in which the paucity of ever-enslaved persons above age 50 would have to be attributed to some selection bias unrelated to manumission. At the other extreme is a Maximum scenario in which the absence of older females is assumed to be entirely due to manumission and a concomitant under-reporting of, or misclassification of, freed women. That would require a double sigmoid manumission curve like the grey curve in Figure 9.6. This curve implies the rapid manumission of most surviving women over a few years in their late 40s and early 50s, while still leaving a small minority permanently enslaved, to allow for the documented cases like Helena (59) and Helene (67, a fugitive) in the census returns.

Figure 9.6. Minimum and Maximum models of the cumulative manumission curve for females in the Egyptian census data. Proportion of ever-enslaved persons aged x who are free



Age at manumission

The two scenarios would imply very different distributions of age at manumission. The implications can be seen by combining the models of the cumulative manumission curve with a model of the age structure of the ever-enslaved population. For the purpose of this analysis, I assume that the slaving of older children

and adults had a negligible impact on the age structure of the ever-enslaved population, and hence that the population can be modelled as a stable population composed entirely of persons enslaved at or around age zero (including both the children of enslaved women and other children who were abandoned and then enslaved).⁶¹ The combination of the two models makes it possible to estimate the distribution of manumissions by age (Table 9.1). The calculations are explained in Appendix 9.5. I show there that the key results are not very sensitive to the choice between a range of plausible model life tables and intrinsic growth rates.

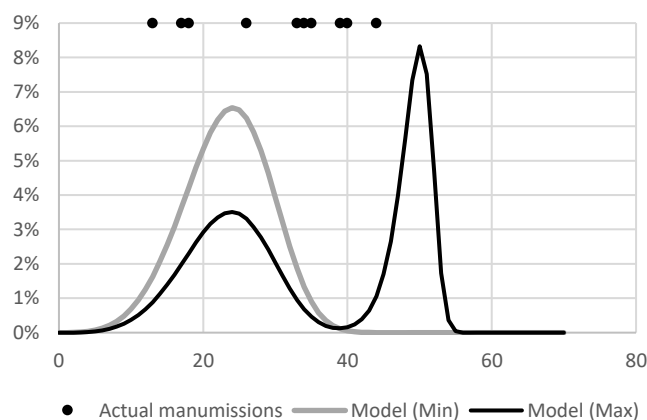
The Minimum scenario would imply that mean age manumission was around 23, with around 90% of manumissions being concentrated between ages 15 and 35, as illustrated by the grey curve in Figure 9.7. The Maximum scenario would imply a very different pattern, with mean age at manumission around 37 and a strongly bimodal distribution, with almost half of all manumissions concentrated in the late 40s and early 50s but another half or so occurring much earlier, between ages 15 and 30 (see the black curve in Figure 9.7).

Table 9.1 Three models of manumission in the female population in Roman Middle Egypt

	Predicted		
	Minimum	Maximum	Best estimate
Manumission rate	0.5%	1.2%	0.8%
Proportion freed	12%	19%	14%
Mean age at manumission	22.8	36.5	30.5
% of manumissions at ages 30-44	11%	8%	38%

Calculated based on stable population model with age-specific mortality rates as in Woods 2007 'South Europe' ($e_0 = 25$) and an intrinsic growth rate of 0.2%. See Appendix 9.5.

Figure 9.7 Distribution of age at manumission for females in Roman Egypt as predicted by two models (percentage by single year age intervals) and as observed in preserved manumission records (superimposed dots, arranged by age)



⁶¹ See XREF above.

These predictions can be tested against a very small but independent dataset of attested ages at manumission: nine manumission deeds or other documents associated with an act of *inter vivos* manumission that preserve the age of the person manumitted.⁶² The ages of the nine females range from 16 (Sinthoonis, manumitted by a priestess of the same name in Oxyrhynchus in 101 CE) to 43 (Zosime, freed by Tasoucharion daughter of Ischyron, at Arsinoe in 196 CE), with a mean of 30.4.

The observed pattern is simply impossible to square with the conventional view that females were mostly manumitted around age 50.⁶³ But it is also very hard to reconcile with either of my two models, though they both incorporate a significant proportion of manumissions at younger ages. See the black dots in Figure 9.7, each of which represents an individual at the age they were manumitted.⁶⁴ The mean age at manumission is too low to be easily reconciled with the Maximum model: around 30 rather than around 37 (Table 9.1). Moreover, the distribution looks entirely wrong: the Maximum scenario would expect a strongly bimodal distribution with a clear concentration around age 50 (the black curve in Figure 9.8). There is absolutely no sign of that concentration in the data, which instead shows an unexpected concentration in the late 30s and early 40s. Yet the observed distribution also seems inconsistent with the Minimum scenario. The mean age is too high – around 30 as opposed to an expected value of around 24 (Table 9.1) – and the distribution of ages is skewed much later than one would expect. See Figure 9.8, contrasting the data with the grey curve showing the age distribution expected in the Minimum scenario. In short, the data on age at manumission, imperfect as it is, suggests something in between the two scenarios, with much higher rates around age 40 than either model allows.

The manumissions dataset is, of course, imperfect in many respects. The number of surviving ages is very small. (Unlike the data from manumission deed from the Americas, however, it has the merit of not being vitiated by selective reporting of ages: manumission deeds normally specified the age of the person being manumitted when identifying them; the problem is the loss of data on damaged papyri rather than selective reporting.) In terms of chronological and geographical scope, the manumission data overlap with, but are not identical to, those of the census returns: the manumissions range from the first to third centuries; all come from metropoleis, six of ten from Oxyrhynchus. Perhaps most importantly, the sample can only speak to the age distribution of manumission by deed. The distribution for testamentary manumissions, and hence the overall distribution, might have been different. But age at manumission in testamentary manumissions was probably at least as dispersed as in *inter vivos* manumissions. Because testators could not predict their own deaths, they could not regulate the age at which individuals were manumitted unless they

⁶² See Appendix 9.6. My dataset of ages at manumission is only slightly larger than that in Takahashi 2013: 224-7 (who also includes some ages preserved in wills, but those are the age at the drawing up of the will – or in one case the age at which a person was originally purchased – not the age at eventual manumission).

⁶³ So already Takahashi 2013: 224-7: ‘As regards females, manumission during the period of fertility was not rare’ (though that confuses the age distribution of manumissions with the frequency of manumission: these data cannot tell us anything about the ‘rarity’ or otherwise of manumission at any age).

⁶⁴ The ages are 16, 17, 25, 27, 32, 33, 34, 39 and 43 (age last birthday, converted from the inclusive reckoning of the ancient documents; see XREF).

expressly delayed manumission to a specified age, which they did not.⁶⁵ Moreover, around a quarter (five of 18) of the females manumitted by will were children, manumitted together with their mothers. There is no reason to believe that testamentary manumission could have produced the required concentration of manumissions around age 50.

Imperfect as it is, the data on age at manumission is flatly inconsistent with the old view that the manumission of females was concentrated around age 50. It also suggests that actual practice lay somewhere between my two initial scenarios, with more manumissions around age 40. Figure 9.9 presents a third model of the manumission regime, the Best Estimate, that can reconcile the two datasets. This is based on four assumptions: (i) the shape of the cumulative manumission curve can be roughly approximated by a Weibull model, (ii) the trajectory of the cumulative manumission curve through age 30 is as inferred from the census data (with 7% free by age 20 and 22% by age 30), (iii) average age at manumission is around 30 (as observed in the sample of manumissions) and (iv) ages 30-44 account for 55% of all manumissions (again, as observed in the manumissions).

Figure 9.8 illustrates the Weibull model that best fits these criteria. It shows that it is reasonably consistent both with the relationship between age and status in the census data (in the ages where the census data should be most reliable) and with the observed distribution of age at manumission.⁶⁶ The model implies that 47% of survivors to age 60 would be free by that point. See Table 9.1 for the corresponding statistics.

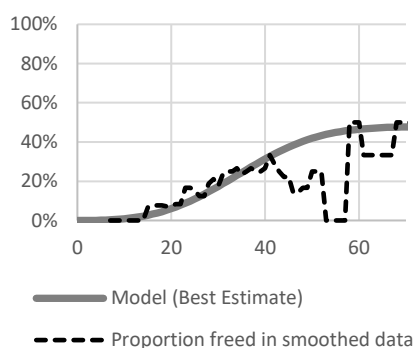
It would be possible to construct a more complex, double-sigmoid model that would produce an even closer fit to the observed distribution of age at manumission, but the limited and imperfect data cannot justify any more than a crude approximation. If we ask what sort of manumission regime could have produced the patterns that we see both in the census data and in the surviving manumissions, then the answer is one with a cumulative manumission curve that looks roughly like the Best Estimate model.

⁶⁵ There is not a single example of a specified age at manumission in 31 cases of manumission by will. See Appendix 9.7.

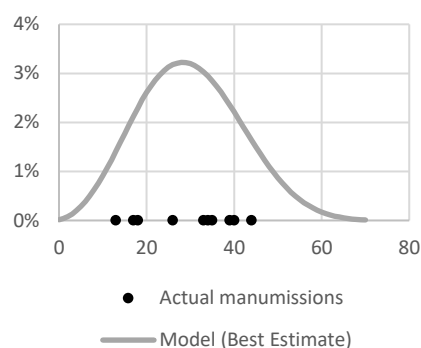
⁶⁶ The model is Weibull(0;0.478;0.0252;3.04). The parameter values were set to minimise the summed square error in predicting the four target values in a stable population model with mortality as in Woods South Europe with $e(0)=25$ and an intrinsic growth rate of 0.2%.

Figure 9.8 Best Estimate model of the manumission of females in Roman Egypt

(a) Cumulative manumission curve. Proportion of ever-enslaved persons aged x who are free



(b) Distribution of manumissions by age (single-year intervals)



The analysis indicates that, at least for females, manumission in Roman Egypt was characterised by a cumulative manumission curve that would look like those observed in the Americas – roughly sigmoid in shape, with the probability of being free rising slowly over the life course – and not one with the sharp, step-like rise around some standard age (in this case, 50) that ancient historians have tended to imagine. In terms of the scale of manumission, the analysis suggests a regime in which around half of women would be free by old age, though it is important to note that the upper reaches of the cumulative manumission curve are the hardest to pin down. It also suggests a regime dominated by manumission in middle age, with a relatively high mean age at manumission compared to creole populations in the Americas (where mean age at manumission tended to fall in the low 20s) I will suggest that this pattern of relatively high proportions freed by old age and relatively high mean age at manumission is characteristic of the Roman world in contrast to the Americas.

Manumission and the reproduction of the enslaved population

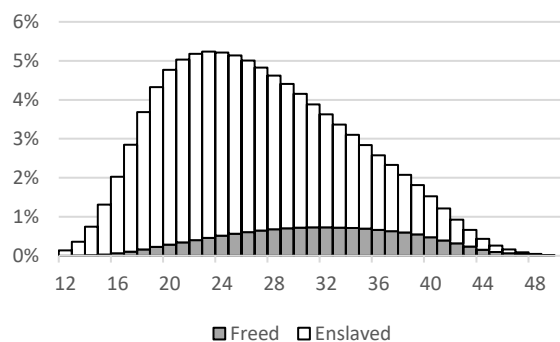
Some have thought that significant manumission of women of child-bearing age would make a slave system unsustainable without a large reliance on external sources of slaves.⁶⁷ But a model of fertility in the ever-enslaved population suggests that the Best Estimate manumission regime would result in a situation in which only around 14% of all children born to women who were ever enslaved would be born free; the rest would be born to women who were still enslaved – and would thus be enslaved at birth (Figure 9.9).⁶⁸

⁶⁷ See e.g. Bagnall and Frier 1994: 71, 158 and Scheidel 1997: 161-2.

⁶⁸ This model again assumes that the slaving of older children and young adults was negligible and that the age structure of the ever-enslaved population (consisting of persons who were enslaved at birth or after exposure) can be approximated by a stable population with mortality as in Woods South Europe with $e(0)=25$ and an intrinsic growth rate of 0.2%. Age-specific fertility rates are derived from the model Bagnall and Frier constructed for the female population as a whole. See Appendix 9.8 for more detail.

A relatively small rate of enslaving exposed children would be sufficient to ensure the reproduction of the enslaved population from generation to generation.⁶⁹

Figure 9.9 A model of the distribution of annual births to ever-enslaved women in Roman Egypt by age (single-year intervals) and status of the mother



This would be a system in which around half of enslaved women could hope for eventual manumission if they survived to their 50s, but most of them would leave many or all of their children in slavery. The census data are almost certainly misleading in this respect. Four of ten freedwomen known from the returns were living with freeborn children.⁷⁰ None of the ten had a child who was certainly enslaved, though there is one likely case: Spatala freedwoman of Senorsenouphis, 34 years old in 118/19 and resident of the village of Tanyaithis (Apollonopolite), was living in a household with an enslaved girl called Trontpasis, aged 2.⁷¹ Trontpasis belonged to Spatala's patron Senorsenouphis, and was indeed her only slave. It is very likely that Trontpasis was Spatala's daughter, born shortly before her manumission and hence still enslaved.⁷²

In any case, the census data are probably not representative. Younger freedwomen are over-represented compared to those in their 40s or older, and freedwomen who left the household of their patron would no longer be co-resident with their enslaved children. In the *inter vivos* manumissions, most women were freed on their own, leaving any children in slavery. Across 19 attested cases of women manumitted *inter vivos*,

⁶⁹ If around 15% of the female population was enslaved (XREF above) and the proportion freed was around 14% (Table 9.1), another 2.6% would be freed for a total of 18% of the population. The 14% of births to ever-enslaved women that would have to be offset by external sources in order to maintain a constant population would represent around 2.6% of all live births. Kelly 2023: 215 has estimated that rates of abandonment may have reached 12% of all live births in bad years.

⁷⁰ Zosime freedwoman of Amonarion, a resident of Arsinoe, appears twice: first in 161 CE aged 21 with two freeborn sons, aged 3 and 4, and again in 173, aged 38 with four different freeborn children aged 8 to 11 (the two sons having left the household or died). See 159-Ar-1 and 173-Ar-3) There is a slight discrepancy in the ages reported for Zosime, which show an increase of 16 years over a period of 14 years; one of the two figures is evidently in error (Bagnall, 1994 #3898@249}). Herakleia freedwoman of Senamounis filed a declaration in the village of Moithymis in the Memphite nome in 187 CE; aged 45, she was living with two freeborn daughters aged 12 and 20 (187-Me-1). Thaisarion, perhaps the freedwoman of Thaisarion (her status is uncertain, having been restored in a lacuna), lived in Arsinoe in 187 with five freeborn children; her age has been lost (187-Ar-8).

⁷¹ 117-Ap-8 [= P.Giss. 44 = P.Alex.Giss. 22].

⁷² [CHECK P.Giss. 44 = P.Alex.Giss. 22 for commentary]

there is only a single case of a mother manumitted with children.⁷³ The proportion is somewhat higher in the testamentary manumission. Across 11 attested cases, there are five examples of mothers manumitted with at least one child, but they are still outnumbered by six examples of females manumitted alone.⁷⁴ The norm is probably represented by Techosis, an enslaved woman freed by *manumissio inter amicos* in Hermoupolis Magna in the mid-third century.⁷⁵ Techosis is identified as the daughter of Aurelia Eus, a freedwoman. She had obviously been born while her mother was still enslaved. Her mother was subsequently freed, but Techosis remained enslaved. Similarly, any children that Techosis may have had at the time of her manumission would have remained enslaved when she was freed, since she was freed alone. Despite widespread manumission, slavery would have been a largely hereditary condition.

THE MALE POPULATION

The pattern of manumission in the male population is much harder to discern. The evidence is even more meagre than for females: just six freed males in the census returns, as opposed to ten freed women; only four known ages at manumission, compared to nine for females. Even the data on the age structure of the enslaved population is more problematic. The apparent drop-off in the enslaved population after age 30 (Figure 9.10a) – sometimes taken to indicate widespread manumission by that age – hides a significant discrepancy between village and metropolis contexts (Figures 9.11b and c).⁷⁶ In the villages, only two of seven enslaved males are over the age of 10. Yet no one would seriously contemplate a scenario with near-universal manumission by the teens in the villages. It seems rather that the picture has been distorted by the concealment of males liable to the poll tax. Walter Scheidel has shown that the data on village males are seriously defective due to a combination of under-reporting of ages in the teens, age-showing at the upper end of the period of liability and outright concealment of many males in the ages liable to taxation. In his view, ‘the available age records for male villagers are irremediably flawed’.⁷⁷ Scheidel was concerned with the male population as a whole, but the problem is clearly even more pronounced for enslaved males in particular.

Figure 9.10. Age structure of the male ever-enslaved population attested in the census returns from Roman Egypt

(a) *All*

(b) *Villages*

(c) *Metropoleis*

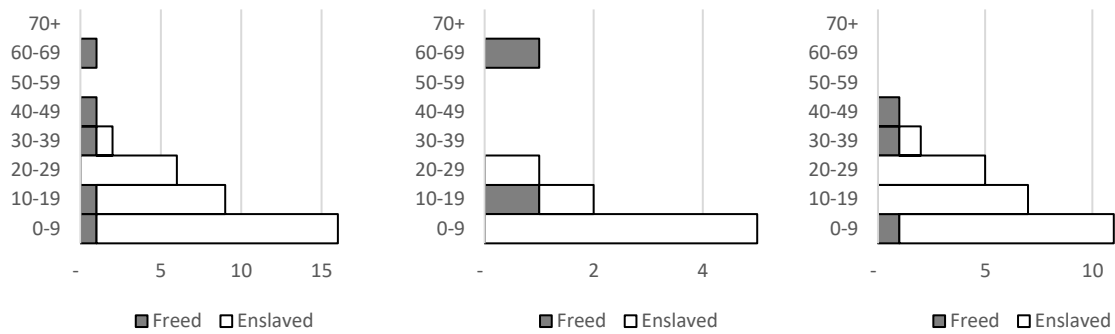
⁷³ See Appendix 9.6. The exception is Paramone, a Jewish woman of 40 freed with two children at Oxyrhynchus in 291 (P.Oxy 9.1205).

⁷⁴ See Appendix 9.7

⁷⁵ P.Lips. II.151.

⁷⁶ Bagnall and Frier 1994: 71 (‘male slaves are apparently often manumitted quite early’); Bagnall 1997 (‘social expectations and economic decisions led to the manumission of men by about age 30’); Scheidel 1997: 160-1 (‘most [males slaves] seem to have been freed before age thirty’).

⁷⁷ Scheidel 2001: 156-60 (quotation on 160).



It is worth compiling the limited data that we do have. The first question concerns relative scale. Around 70% of the freedpersons who appear in the papyri are male.⁷⁸ As Izabela Biezuńska-Malowist and Roger Bagnall have observed, however, this figure is of little value because of the various biases that have produced a significant over-representation of males of all statuses in the papyrus record.⁷⁹ The much lower proportion of 38% (6 of 16) in the census data is probably more representative, but it is from a small sample and one affected by complex biases resulting from the apparent omission of many older freedpersons and the general underreporting of males, so will not bear too much weight. The best datum on differential manumission is probably the relative numbers of males and females in attested cases of manumission. Males account for 36% of persons of known sex manumitted *inter vivos* (10 of 28) and a very similar 38% of those manumitted by testament (11 of 29).⁸⁰

These proportions are only meaningful in relation to the composition of the enslaved population, which is itself uncertain. Of the 135 enslaved persons of known sex in the census returns, 45 or 33% are males. But that raw figure is meaningless given the significant difference between villages and metropoleis (where the proportions are 15% and 43% respectively) and the over-representation of the latter. Reweighting the village and metropolis data (assuming that villages actually accounted for around 69% of the enslaved population) yields an overall average of 23% – three females for every one male. But the very low proportion of males observed in the villages (15%) needs to be interpreted in the light of the clear evidence of under-reporting of males in villages.⁸¹ The actual proportion will certainly have been higher, raising the overall average. Unfortunately, it is hard to determine the magnitude of the bias. For what it is worth, the representation of males in the independent corpus of slave sales is 42% (77 of 182 persons of known sex) – very similar to the 43% observed in the census returns from the metropoleis – though it is not clear whether males might have been more or less likely to be subjected to sale.⁸² We cannot do much better than guess that the

⁷⁸ Istasse 2000: 331 n. 1 counts 254 freed males and 120 freed females.

⁷⁹ Biezuńska-Malowist 1974-7: 145, Bagnall 1997: 127 n. 20. GIVE EXAMPLE.

⁸⁰ See Appendices 9.6 and 9.7.

⁸¹ On the under-reporting of males in the village returns, see especially Scheidel 2001: 156-60. Bagnall and Frier 1994: 94 posit that the sex ratio for enslaved persons in the village returns has been distorted downwards by 'the chance preservation of several village households that contain only village slaves' (though I am less confident that this is a matter of chance).

⁸² The calculation is based on the combined data from Straus 2004: 262 and *P.Oxy.* LXXXVI pp. 66-8 (compiled by A. Benaissa).

proportion of the population that was male was somewhere in the region of 33%, give or take 10%. The proportion will not have been very different from the weight of males in attested manumissions, around 37% overall (21 of 57 persons of known sex). That means that that there cannot have been a large difference in the crude manumission rates for males and females.⁸³

As regards the distribution of age at manumission for males, the exiguous dataset will not bear much weight. We have just four ages at manumission: 3, 4, 32 and 39 (three of them manumitted alone, the 3-year old with his mother and a sibling).⁸⁴ The most that can be said of this sample is that it is almost impossible to reconcile with the established theory that manumissions were concentrated around age 30. The data suggest a much more dispersed distribution, implying a much more elongated cumulative manumission curve – like that for females.⁸⁵

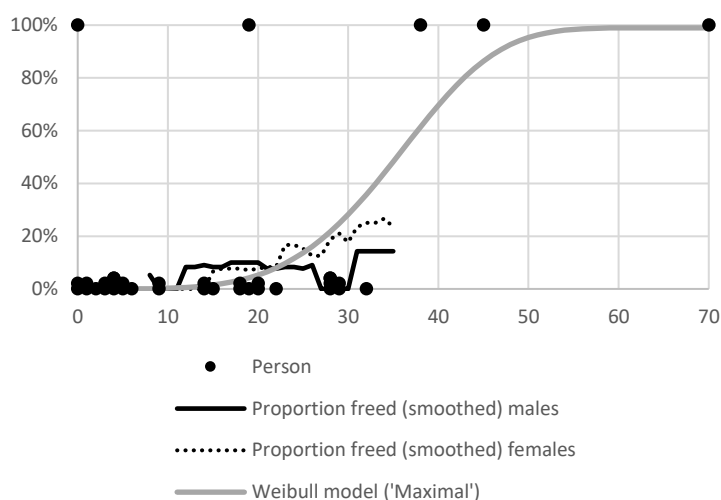
The relationship between age and status in the census returns may provide some further information about manumission patterns, at least up to around age 30 (after which the ever-enslaved all but disappear from the data) and bearing in mind the very small sample size and the problem of males missing from the village returns. Figure 9.11 shows the attested slaves and freedmen as black dots, slaves along the bottom and freedmen along the top. The black line shows the proportion freed in smoothed data using fifteen-year averages truncated at age 35. Even with this aggressive smoothing, the small numbers produce a very jagged ‘curve’. Superimposed as a dotted line is the curve based on the same analysis for females (Figure 9.5). Allowing for the small sample sizes, the two curves do not suggest any major divergences between males and females, at least up to age 30; if anything, the cumulative manumission curve for males might lag slightly behind that for females.

⁸³ If males accounted for 37% of manumissions and 28-38% of the enslaved population, then the crude manumission rate for males would be somewhere between 1.0 and 1.5 times higher than that for females. The calculation is based on the formula in Appendix 3.X.

⁸⁴ See Appendix 9.6. These are age last birthday, converted from inclusive reckoning.

⁸⁵ Note also that at least two of eleven males freed by *inter vivos* manumissions were children manumitted with their mothers (Appendix 9.7). The small number of freed males who appear in the census returns - aged 0, 18, 37, 44 and 69 (last birthday) - include at least two persons freed before age 30. See Appendix 9.1. These persons appear in 89-Pt-21, 145-Ox-3, 173-Pr-8, 187-An-2, 215-He-3, 243-Ox-1.

Figure 9.11. Modelling the relationship between age and status for ever-enslaved males in the Egyptian census data. The curves show the proportion of ever-enslaved persons aged x who are free



MLE can again be used to find the Weibull model that best approximates the observed pattern, shown here as the grey curve. This model, which I will dub Maximal, implies some limited manumission before age 30, with around 28% of survivors free by age 30, followed by the manumission of almost all remaining slaves over their 30s and 40s. This Maximal model already implies significantly less manumission than the established hypothesis of near universal manumission around age 30: the proportion freed by age 60 is the same, but the cumulative manumission curve takes around two decades longer to reach that point.

Yet even this more graduated scenario is very hard to reconcile with the evidence that males only accounted for around 37% of manumissions, which suggests near parity in manumission rates.⁸⁶ Combined with the Best Estimate model of manumission in the female population, the Maximal model for males would imply that the crude manumission rate for males was more than twice as high (around 2.2) times higher than that for females.⁸⁷ If that were the case, males would loom much larger in the attested cases of manumission.

As Bagnall and Frier concluded for mortality patterns, so also for manumission we probably cannot do much better than conclude that the pattern for males was roughly similar to that for females. The Best Estimate model of manumission in the female population, based as it is on more and better data, is probably the best approximation to the cumulative manumission curve for males, and hence for the population as a whole.

⁸⁶ See XREf above.

⁸⁷ The established view of near universal manumission at age 30 would imply an even higher ratio: around 3.3. All calculations were carried out using the central assumptions of mortality as in Woods South Europe with $e(0)=25$ and an intrinsic growth rate of 0.2%. The results are not very sensitive to the choice of parameters. See Appendix 9.9

A MODEL OF MANUMISSION IN ROMAN MIDDLE EGYPT (0.8)

The preceding analyses suggest that the lack of enslaved persons above the ages of 30 for males and 50 for females in the census data cannot be explained by very rapid manumission around those ages, as has often been assumed. That interpretation is inconsistent with the small but independent dataset for age at manumission, where the ages are much more dispersed, and mean age much younger, than the standard view would require. It is also inconsistent with the evidence that males made up around 36% of manumissions, not much more than their likely weight in the enslaved population. Near-universal manumission around age 30 for males and around age 50 for females would have resulted in males accounting for a much higher proportion of manumissions, even if they constituted only around a third of the enslaved population.

Taken together, the evidence suggests a manumission regime characterised by elongated cumulative manumission curves as observed in the Americas, rather than the step-like increases around ‘normal’ ages that have often been assumed (Figure 9.8a). The evidence also suggests rough parity between males and females rather than the wide divergence implied by the traditional view. The proportion of survivors who were free would have risen gradually over the life course. A non-trivial fraction, in the region of 17%, would have been free by age 30. Something like half would have been free by age 60 – though the trajectory of the cumulative manumission curve in the older ages remains quite uncertain.

The paucity of older slaves and freedpersons (Figure 9.3) remains an anomaly. But it is important to remember that the old hypothesis of near-universal manumission was never an adequate explanation for it, since it could not account for why freedpersons would abruptly become less visible at older ages, and why that transition would come at different ages for males and females. The real explanation for the patterns in Figure 9.3 may lie in the lives lived by both freed and enslaved persons, with increasing proportions living independently, perhaps often in more marginal conditions, and often being missed by the enumeration processes of the census.

Table 9.2 presents a model of manumission in Roman Egypt based on these conclusions, in order to facilitate comparison with the other manumission regimes analysed in this volume. The model represents manumission patterns in the female population with reasonable confidence and, more guardedly, the situation in the population as a whole. As before, the calculations use a stable population model to approximate the age structure of the ever-enslaved population. This entails assuming that the slaving of older children and adults had a negligible impact on age structure, and that most ever-enslaved persons were either children born to enslaved mothers and hence enslaved at birth or else had been abandoned and enslaved as infants. The statistics in Table 9.2 are based on my central assumptions for mortality (as in

Woods South Europe with $e_0=25$) and intrinsic growth (0.2%).⁸⁸ The impact of manumission is calculated using the Best Estimate Weibull model of the cumulative manumission curve for females.

The model suggests a crude manumission around 8 per thousand and that approximately 14% of the ever-enslaved population was freed at any moment in time. The latter figure is significantly higher than the 10% observed in the census returns, but that is depressed by the under-reporting of ever-enslaved persons in the older age intervals. Around 17% of survivors to age 30 would be free, as would around 47% of survivors to age 60. That is the ex post perspective. Looking at the same pattern in ex ante terms, only around 16% of persons who were ever enslaved would eventually be freed (or around 28% of those who survived to age 5).

Table 9.2 A model of the manumission regime in Egypt

Manumission rate	0.8%
Proportion freed	14%
Mean age at manumission	30.5
% of manumissions at age 0-14	9%
% of manumissions at age 40+	21%
% free at age 30	17%
% free at age 60	47%
Probability of eventual manumission	
at age 0	16%
at age 5	28%
Notes. Assumes the ever-enslaved population is a stable population characterised by mortality as in Woods 2007 South Europe ($e_0=25$) and an intrinsic growth rate of 0.2%. Manumissions are calculated based on a Weibull models of the cumulative manumission curve, $F(x) = Weibull(0;0.478;0.0252;3.04)$. Ex ante probabilities calculated as in Appendix 2.Ref.	

PATTERNS OF MANUMISSION

This model is intended as a rough approximation of the impact of manumission on the ever-enslaved population of Middle Egypt as a whole. As with other such models, it represents average life chances within the population, and should not be taken to imply uniformity. Its value lies in gauging the overall effect of manumission in Roman Middle Egypt and assessing how it compared to other attested manumission regimes. But statistics on manumission in any given population are always likely to hide differences between sub-groups, such as between males and females, between urban and rural contexts, between larger and smaller households, between different occupations or between specific localities or across time. It is also clear that individuals were manumitted over a wide range of ages, and not as they reached some ‘normal’ age for manumission, as has often been assumed. The patterns that we see represent the aggregation of

⁸⁸ The calculations involved are explained in Appendix 9.5.

many unique life histories, and show the compound effects of a bundle of related but distinct practices of manumission.

The best evidence for these practices is the small corpus of attested acts of manumission: 29 persons manumitted *inter vivos* and another 31 manumitted by will.⁸⁹ Analysis is complicated by the fact that we have no independent evidence for the relative importance the two types of manumission. Given the very different survival rates of different types of papyrus document, it would be foolish to attach any importance to the relative numbers of surviving examples.⁹⁰ The uncertainty did not affect the analysis of the sex ratio in manumissions, because the two different modes of manumission show a very similar profile in this respect, but it is a major obstacle to establishing other parameters of the manumission regime, such as the overall importance of purchase.

***Inter vivos* manumission**

Most cases of *inter vivos* manumission involved the payment of a purchase price, called *lutra* ('ransom'), which was generally in line with market prices for enslaved persons.⁹¹ Among the 29 attested cases, 11 certainly involved the payment of *lutra* and only three apparently did not.⁹² The situation in the remaining cases is uncertain, either because the text is too fragmentary or because the text in question is an ancillary document, such as a tax receipt, that would not be expected to mention any *lutra*. The pattern holds for females as well as for males, contrary to the old idea that women were mostly freed out of 'affection'. Among the 18 women who were manumitted *inter vivos*, aged variously between 17 and 40, 9 certainly had *lutra* paid; only one apparently did not.

The ransom is always paid by an intermediary who is of free status. Their relationship to the person manumitted is usually unclear. We can only assume that the sums paid were drawn variously from the de facto savings of the enslaved person and from their free kin. We may be able to see the intervention of formerly enslaved kin in two cases where the intermediaries are themselves freed. In Oxyrhynchus in 178 CE, a man named as Dionysios freedman of Diodorus purchased the freedom of a four-year old boy called Eutyches for 500 drachmas. Amin Benaissa has suggested, very plausibly, that he was the boy's father.⁹³ One might posit some similar relationship in the case of Ammonios, a freedman who paid 1000 drachmae for the manumission of Sinthoonis, then aged 16, in Oxyrhynchus in 101 CE.⁹⁴ The ages of the two beneficiaries, particularly Eutyches, suggests that the funds must have come from kin rather than from their own savings. Intervention from a different quarter can be seen in the case of the manumission of 39-year-old Paramone and her two children in Oxyrhynchus in 291: their freedom was purchased by the Jewish

⁸⁹ See Appendices 9.6 and 9.7. See also Biezuńska-Malowist 1966, Biezuńska-Malowist 1977: 143-9, Pavlovskaja 1992: 235-48

⁹⁰ See especially Bagnall 2011: 27-74, who also shows that survival rates vary widely by time and place.

⁹¹ On the relationship between *lutra* and slave prices, see Straus 1988: 892 and Straus 2009: 237.

⁹² This and subsequent statistics is based on the dataset in Appendix 9.6.

⁹³ P.Oxy. 86.5554, with Benaissa's note ad loc.

⁹⁴ P.Turner 19. [Check P.Turner 19]

community of Oxyrhynchus.⁹⁵ In other cases, some or all of the purchase price will have come from the savings of the person freed.

The fact that the numbers of male and female beneficiaries of *inter vivos* manumission seem roughly in line with their proportions in the enslaved population suggests that access to manumission was not strongly gendered. Males and females had similar chances of being freed, usually after the payment of a ransom. A few might be manumitted as children thanks to the intervention of kin or other third parties. Three of 22 persons with known age at manumission were freed before the age of ten. But it is important to remember that the distribution of age at manumission (Figure 9.13) does not directly reflect age-specific manumission rates, because it is also affected by the age structure of the enslaved population. The relatively large cohort sizes in the years of childhood mean that they will be well-represented in manumissions even at relatively low age-specific manumission rates. The chances of being manumitted *inter vivos* would have increased with age and probably peaked in the 30s.

Figure 9.13. Attested ages at manumission for persons freed *inter vivos* in Roman Egypt, 1st-3rd centuries CE ($n=14$)⁹⁶



Testamentary manumission

Testamentary manumission, by contrast, did not normally involve payment of a price, though it was sometimes subject to other conditions. Around a third of testamentary manumissions were subject to some constraint, almost always an obligation to serve the testator's wife until her death.⁹⁷ The majority of testamentary manumissions were thus gratis and unconditional – though that does not mean they were altruistic. They were embedded in a lifetime of service. All manumissions need to be understood in the light of the years of service that preceded them, and may have been predicated on an expectation of eventual manumission. The prospect of manumission must also have played a role in calculations about flight, which we know was a real possibility, and a concern for slave-holders.⁹⁸ Moreover, none of these decisions – about whether to manumit or, on the part of the enslaved, how far to pursue the slave-holder's interests or

⁹⁵ P.Oxy. 9.1205 = C.Pap.Jud. 3.473.

⁹⁶ Data from Appendix 9.6

⁹⁷ Five cases across 12 wills, affecting 9 of 30 persons manumitted. See Appendix 9.7. For conditions, see P.Sijp. 44 (Isarus is freed 'on condition that Isarus herself will also offer her services to his wife Tamysthata [as long as she lives]'); P.Oxy. 3.494 (five people are freed, but the testator's wife is bequeathed 'the service and the earnings of the slaves who are to be freed after my death'); P.Oxy 27.2474 (Theon and Taammonis are freed but 'they shall be kept in the power of my said faithful wife Chairemonis so long as she lives'). The one exception to the rule of benefitting a wife is BGU 7.1655 (Kosmos is to be 'occupied with my grave and serve it until the end of his life'); P.Oxy. 3.494 and 27.2474 are Roman wills. See Nowak 2015: 179-181 on the incorporation of the Greek-law practice of granting conditional freedom, *paramone*, into Roman wills. [XRef to main discussion of *paramone*, and whether it should be considered qualified or delayed manumission]

⁹⁸ Bagnall 1993: 234.

whether to attempt flight – were made in a vacuum; they depended on what was done in other households. Individual families could not have departed from the norm without suffering consequences.

Indeed, the expectation of service might extend after death. Several testators seem to have relied on their slaves, and especially their freedmen, to care for their tombs after their death. Akousilaos son of Deios, a citizen of Oxyrhynchus in the second century, expected to be survived by his wife and son Deios, who was named as his heir. But he commended the care of his tomb to his slaves and freedmen (including five he freed in his will): ‘My wife, and after her death my son Deios, shall give to my slaves and freedmen, for a feast which they shall hold beside my tomb every year on my birthday, one hundred drachmae of silver wherewith to furnish it.’⁹⁹ The will of a citizen of Hermopolis Megale makes careful provision for a man whom he had already freed *inter vivos*, securing him accommodation, clothing and food, on the condition that he remain in the city and ‘that on the high days of the cemeteries he goes to my tomb in the sand of the Sarapeum at Hermopolis and performs the accustomed rites for the departed’.¹⁰⁰ Their provisions are consonant with the Roman expectation that an individual’s *liberti* would have a special care for their tomb and funerary cult.¹⁰¹

It is possible that some of the testamentary manumissions concern sexual partners and/or natural children, though the wills say nothing about the relationships involved. Four of the five testators who manumitted mothers with children were men. The strongest case can be made for two veterans. Gaius Longinus Kastor, a fleet veteran and Roman citizen living in the village of Karanis at the end of the second century, provided for the manumission of two enslaved women, Markella and Kleopatra (both over 30 when the will was drawn up), as well as Kleopatra’s daughter Sarapias.¹⁰² Kastor made Markella and Kleopatra his heirs and also bequeathed property to Sarapias. The will also names three males, Sarapion, Sokrates and Longus, as secondary heirs in case Markella pre-deceased him, and another male, Neilos, as secondary heir to Kleopatra; their status is unspecified in the surviving text (a translation of the Latin original). It has been suggested that Markella and Kleopatra were his sexual partners (and may well have been acquired abroad during his service in the fleet, based at Misenum in Italy), and that one reason he never manumitted them in his lifetime was to circumvent the prohibition of bigamy in Roman law. His children by Markella and Kleopatra would have been born enslaved. The four males were probably his sons and had apparently been

⁹⁹ P.Oxy 3.494 = Chr.Mitt. 305 (trans. A.S. Hunt and C. C. Edgar).

¹⁰⁰ P.Ryl 2.153, 169 CE: ‘The said freedman [his name has been lost], while he remains as aforesaid at my native city, shall also receive annually, for so long as he too survives me, for victuals likewise 10 artabae of wheat, and for clothing, and all other expenses ... drachmae of silver, provided that on the high days of the cemeteries he goes to my tomb in the sand of the Sarapeum at Hermopolis and performs the accustomed rites for the departed. The said freedman ... shall have as long as he lives the right of dwelling in and using without hindrance, free of rent, the room which he now has on the ... of the four-storeyed new house, and yard, and all appurtenances belonging to me in Hermopolis in the Western Guardhouse quarter’ (trans. editors).

¹⁰¹ Trimalchio, for example, is described as planning to entrust the care of his tomb to an unnamed freedman (Petron. *Sat.* 71).

¹⁰² BGU 1.326=M.Chr. 316 (Karanis, 194 CE).

freed *inter vivos* (otherwise they would not have been able to take as heirs); Sarapias was probably his daughter, but was left enslaved until his death.¹⁰³

Similar relationships can be inferred from the will of Caius Iulius Diogenes, another veteran living in the Arsinoite nome in the second century.¹⁰⁴ Diogenes manumitted two enslaved women, Iulia Apollonarian and another whose name has been lost, and named them his heirs. He had previously freed another woman, Primilla, whose two freeborn children, Iulia Isarous and Iulius Diogenes, he acknowledged as his illegitimate children and provided for in his will.¹⁰⁵ (He made no bequests to Primilla, merely charging her children to provide for her.) The fact that Apollonarian and the other manumitted woman were made his heirs and bequeathed property including two other enslaved females, Euterpe and Syra, suggests they may well have been sexual partners, as Primilla clearly was.¹⁰⁶ In this case, Diogenes seems to have freed one woman, with whom he went on to have two freeborn children, but kept the other two enslaved; again the prohibition of bigamy may have been a consideration. There may well be other cases among the women manumitted, with or without children, in men's wills. These women, and children like Sarapias, would have had to wait until the their owner's death for the prospect of freedom.

Manumission and the family

Among the 21 examples of males manumitted by deed or by testament, there is not a single example of a man manumitted with a spouse or children. It seems that enslaved men with families could only hope to reconstitute their family in freedom by securing manumission for themselves first and then trying to purchase the manumission of their wife or children. The situation for mothers is more complicated. This is another key respect in which there is a significant difference between the testamentary and *inter vivos* manumissions. The manumission of a mother together with one or more children is very rare in the *inter vivos* manumissions, with just two examples, compared to 17 females manumitted alone. It is more common in the testamentary manumissions – with five women freed together with one or more children (almost all daughters) as against eight females freed alone – but solitary manumissions still predominate.¹⁰⁷ Even those women who were freed with children may have left others in slavery. Akousilaos of Oxyrhyncus, whose concern for his funerary rites has already been discussed, manumitted two women in his will: Apollonous alias Demetria and Diogenis, the former together with a daughter, also called Diogenis. But he explicitly

¹⁰³ On the necessarily hypothetical reconstruction of the relationships, see especially Keenan 1994 and Phang 2001: 234-5.

¹⁰⁴ P.Select 14 (Arsinoite nome, second century CE).

¹⁰⁵ The relationship is confirmed by a separate document recording the *epikrisis* of Iulius Diogenes (SB 1.5217).

¹⁰⁶ Phang 2001: 234-5.

¹⁰⁷ P.Oxy 3.494 = Chr.Mitt. 305 (Apollonous also called Demetria is to be freed with her daughter Diogenis, but any future offspring are to remain enslaved), PSI 12 1263 = SB 5.7816 (Tausiris is freed with her daughter Stephanous), BGU 1.326 = Chr.Mitt 316 (Kleopatra is to be freed with her daughter Sarapias), P.Tebt. 2.407 (Sarapias is freed with her daughter Thermouthis as is Soteria with her daughter Isidora, son Sarapammon and a third child whose name is lost).

provided that any future offspring born to any of the three would remain enslaved and pass to his son.¹⁰⁸ It is consistent with this pattern that none of the fourteen freed persons who appear in the census returns is living with a child, sibling, or parent who was also of freed status. Most freed persons were manumitted on their own. In this respect, manumission appears to have operated similarly to sale, which regularly separated young children from their mothers; occasionally kept them together; but never transferred a male slave together with a partner or children.¹⁰⁹ What emerges is a picture of a manumission regime in which the proportions ultimately freed may have been relatively high, with around half of survivors free by age 60, but average age at manumission was relatively late – around 30 rather than the low 20s observed in creole populations in the Americas – and slavery was largely hereditary.

Life in freedom

We know frustratingly little about the experiences of the freed after manumission.¹¹⁰ Roman Egypt's combination of a relatively high manumission rate and a relatively small enslaved population presents a paradox: the prospect of manumission would have loomed large in the life of the enslaved, but the freed were a negligible presence in society as a whole. The model developed earlier suggests that the freed would have represented something like 14% of the ever-enslaved population – a reasonably high figure, close to that observed in São José d'el Rey or inferred for Salvador. But with enslaved accounting for just 10% of the total population, the ever-enslaved would have been just fractionally more and the freed only around 1.6% of the total.¹¹¹ The proportion would have been even lower for males, and lower still for village males – around 0.5%. This explains why freed persons are so rare in the papyrological record. Nathaël Istasse counted just 254 freed males and 120 freed females.¹¹² A further problem is that those who do appear are probably not representative of the actual freed population because of the various selection biases in the papyrological record. Males are almost certainly massively over-represented compared to females. The relatively prosperous are also likely to be over-represented, and perhaps also those who still lived with the slave-holding families that had manumitted them.

We can dimly perceive that the freed lived lives that fell along a spectrum of degrees of dependence on the households of their former owners. The particular constraints of *paramonē* appear to have been relatively rare, appearing in just a fraction of testamentary manumissions and not at all in the *inter vivos* manumissions. Nor does local law seem to have regulated the duties of the freed in the same way that Roman law did for slaves freed by Roman citizens. What little we know on the matter derives from a fragment from a transcript

¹⁰⁸ P.Oxy 3.494 = Chr.Mitt. 305 ('I appoint my son Deios by my aforesaid wife Aristous also called Apollonarian, if he lives, and if not, his children, as heir to ... my other slaves, and the future offspring of the aforesaid female slaves', i.e. those he had declared free).

¹⁰⁹ Straus 2004: 270-6, listing 22 examples of children sold on their own, 7 cases of a mother and child sold together, and not a single case of a male slave sold with partner or children. This is consonant with the practice in the census return, where the relationship of kinship that is acknowledged among the enslaved is between mothers and their children.

¹¹⁰ See further Biezuńska-Malowist 1966, Pavlovskaja 1992: 235-48.

¹¹¹ $0.14 \left(\frac{0.10}{1-0.14} \right) = 1.6\%$

¹¹² Istasse 2000: 331 n. 1.

of case heard by the prefect of Egypt ca 115 CE, involving Damarion, a freedman, and his patron Herakleides.¹¹³ Herakleides had manumitted Damarion after the payment of a purchase price and granted him a deed that specified inter alia that he would not demand any service from him (μηδὲν ἔξειν προῤῥημα [πρὸς αὐτόν]) – a standard clause. Some dispute arose between them and reached the prefect. The prefect says that he has found no rules about the rights of manumitters in ‘the law(s) of the Egyptians’ ([τοῖς τῶν] Αἰγυπτίων νόμοις), so he has decided the case in accordance with ‘city laws’ (ἀ[μο]λοῦθως τοῖς ἀστικοῖς νόμοις). He orders Damarion to obey his patron under threat of a beating. It is not clear what the unparalleled phrase ‘city laws’ refers to: Alexandrian law, Roman regulations for the citizens of the poleis of Egypt or Roman law.¹¹⁴ However it is construed, it seems clear that there were no general regulations of freedpersons’ duties for the mass of the Egyptian population.¹¹⁵ On the other hand, the case shows that at least one non-Roman slaveholder was able to use the province’s legal apparatus to enforce his will on a person he had freed. Anna Dolganov has noted Herakleides’ opportunism in recognising that a Roman aristocrat would be likely to be sympathetic to a complaint about insufficient deference from a freedman.¹¹⁶ There is no way to tell how often other patrons succeeded in, or at least attempted to, make similar demands on people they had manumitted.

The universalisation of Roman citizenship in 212 could have had material effects of the conditions of the freed population.¹¹⁷ All patrons would thenceforth have been able to turn to the courts to enforce the ‘obedience’ (*obsequium*) of their *liberti* and *libertae*, and to secure any services (*operae*) agreed at the time of the manumission.¹¹⁸ The grant also made all freedpersons subject to the Roman law of inheritance, which gave patrons and their heirs a claim over the estates of their freedpersons, depending on their sex and the number of children who survived them.¹¹⁹ These claims were absolute in the case of persons manumitted informally: so long as they remained Junian Latins, they had no right of bequest: all their assets would revert to the patron or their family.¹²⁰ These rules were potentially very significant in the light of the preponderance of *manumissio inter amicos* in the cases of *inter vivos* manumission by Roman citizens in the papyri.

In any case, informal dependence was probably widespread. Some freedpersons continued to live in their patron’s households. That is the case with around half of those who appear in the census data. Of the 15 freedpersons who appear in the returns (one of them twice), seven appear to be living with their patron or

¹¹³ P.Oxy. 4.706 = Chr.Mitt. 81.

¹¹⁴ On the interpretation of *astikoi nomoi*, see especially Modrzejewski 1970: 335-6, Dolganov 2019: 33-4 and Meyer forthcoming: REF.

¹¹⁵ Biezuńska-Malowist 1966: 441, Biezuńska-Malowist 1977: 147-8. See also Taubenschlag 1955: 100-1. Meyer forthcoming argues that Roman regulations granted citizens of the Greek poleis some new rights over their freedpersons, notably in the sphere of inheritance, that they had not had before and were modelled on the Roman *ius patronatus*. See also Dolganov 2022.

¹¹⁶ Dolganov 2019: 33-4.

¹¹⁷ See further Meyer forthcoming.

¹¹⁸ XREF to Ch. 8 or 14.

¹¹⁹ XREF to Ch. 8 or 14.

¹²⁰ XREF to Ch. 8 or 14.

their family and five appear to be living independently; the remaining three cases are uncertain.¹²¹ None of the seven still living in the household in which they were enslaved is listed as having a spouse or children, but two appear to have families who were still enslaved – though the relationships are not acknowledged in the returns.¹²² In the village of Tanyaithis in 118/9 CE, Spatala, a freedwoman aged 34, was living in the household of her patron alongside Trontpaesis, a 2-year old enslaved girl belonging to Spatala's patron; Trontpaesis may well be Spatala's daughter, born before she was manumitted and hence still enslaved. There is no sign of a male partner, though the beginning of the declaration has been lost.¹²³ In the polis of Antinoopolis in 188 CE, Sarapion, a freedman aged 37, was living with his patron and his patron's wife and two slaves: Diodora, aged 41, and her son Koprias. Given the similar ages, it seems plausible that Diodora was his partner and Koprias his child, both still enslaved.¹²⁴

Of the five who appear to be living independently, two are women married to freeborn men and have freeborn children, all evidently born after their manumission.¹²⁵ The other three head their own households. In the metropolis of Lykopolis in 91/2 CE, Panesneus freedman of Apollonia, a weaver aged 44, declares a household consisting of himself, his 29-year-old wife, and three daughters all residing in the temple of Ares/Onouris.¹²⁶ In the village of Thekbonthon Siphtha in 174 CE, Pnephoros freedman of Phimouis was aged 69 and living alone in a house he owned.¹²⁷ In the village of Moithymis in 188, Herakleia freedwoman of Senamounis, then aged 44, declared a household consisting of herself, two freeborn daughters aged 11 and 19, both illegitimate (apatores), and a 14-year-old enslaved girl belonging to her, all living in property that she owned.¹²⁸ Herakleia bears comparison with the female testator of a will drawn up in the metropolis of Oxyrhynchus in 199 CE.¹²⁹ The testator, a freedwoman whose name is barely decipherable (A[---] freedwoman of Taamois), left a substantial house in Oxyrhynchus and a property in the countryside to her two sons, at least one of whom was born in a legitimate marriage with a man called Theon. Herakleia and A[---] should probably be taken to represent the most prosperous and independent end of a wide spectrum of fortunes experienced by the freed.

¹²¹ Uncertain: 47-Ox-1 (unclear who Thermoutharion was living with), 145-Ox-1 (Alexandra is living with a husband, whose name has been lost, and child), 145-Ox-3 (Sarapion alia Eutyches, whose patron is not specified, lives with a single freeborn male of approximately the same age).

¹²² Still co-resident: 117-Ap-8 (Tatriphis and Spatala appear to be living with their patrons, whose names have probably been lost from the start of the return: Bagnall and Frier 1994: 197), 173-Ar-9 (Sarapias is living with two sisters of her patron, a serving soldier), 187-An-2 (Sarapion, aged 37, is the freedman of the declarant's father), 215-He-1 (Aurelia Korintia is living with her patron Aurelia Atrainis). 215-He-3 (Horos is living with his enslaved sister and mother and their owner's family), 243-Ox-1 (Markos the younger is living with his enslaved siblings and mother and their owner)

¹²³ 117-Ap-8 with Bagnall and Frier 1994: 197.

¹²⁴ 187-An-2.

¹²⁵ 159-Ar-1 and 173-Ar-3 (Zosime freedwoman of Ammonarion lives with her freeborn husband and four of their children), 187-Ar-8 (Thaisarion probably the freedwoman of Thaisarion lives with her freeborn husband and their offspring).

¹²⁶ 89-Pt-21

¹²⁷ 173-Pr-8 = P.Brux. 1.8

¹²⁸ 187-Me-1 = BGU 11.2019.

¹²⁹ P.Lips. 2.149.

It is worth closing by returning one more time to the problem of the freedpersons who seem to be missing from the census data. Bagnall and Frier highlighted the rarity of enslaved persons above the age of 30 for males and 50 for females and hypothesised that it was due to widespread manumission, though the census data showed no sign of the corresponding populations of freedpersons over those ages. I have argued that this hypothesis is almost impossible to square with independent evidence of the distribution of manumissions: attested ages at manumission are much younger, and the ratio of males to females much lower, than their model would require. I have proposed an alternative model that seeks to reconcile the census data with the data on manumissions. It envisages a much wider variation in age at manumission, and lower proportions ultimately manumitted. Yet the model leaves some anomalies unexplained. One is the paucity of ever-enslaved persons at older ages (see Figures 9.X and Y). A second is the under-representation of freedpersons in particular. Though the problem is much less pronounced than with the hypothesis of near universal manumission around the ages of 30 and 50, there remain fewer freedpersons in the census returns than one would expect based on the revised model of the manumission regime. That implies that the proportion freed should have been around 14% (Table 9.2), whereas freedpersons make up just 9% of the ever-enslaved persons recorded on the returns (14 of 154). The two problems are probably related. It seems plausible that they reflect non-trivial social biases in the census data resulting from the undercounting of marginal groups.¹³⁰ Perhaps older enslaved persons were more likely to be living outside the households of their owners, often in transient conditions, and were therefore more likely to fall between the cracks of the enumeration processes of the provincial census. The same may well have been true of many freedpersons who lived independently, especially those freed at older ages. These older freedpersons might be taken to signify, by their absence, the marginal lives lived by many of the freed, who are overshadowed in the record by their more fortunate and prosperous peers.¹³¹

¹³⁰ On the question of social bias, see Bagnall and Frier 1994: 47-9.

¹³¹ [Cf. Ch. 7 on Mattoso on Salvador de Bahia.]

APPENDICES TO CHAPTER 9

9.1 The ever-enslaved population in the census data

The dataset

The analyses that follows are based on a composite dataset combining (Bagnall and Frier 1994: 181-309 (around 300 returns, with a total of 1,073 persons), their 1994 'Addendum' and 2006 'Supplement' (Bagnall and Frier 1994: 309-23, adding another 33 returns and 108 persons), and the register published as *P.Oxy.Census*, probably from the metropolis of Lykopolis in Upper Egypt (Bagnall, Frier and Rutherford 1997, another 63 returns and 256 persons). The counts are limited to persons who appear in the listing of persons section of the return and thus exclude those who appear only as declarants in the declaration section (see Bagnall and Frier 1994: 22-24 for the form of the returns), either because they were not resident in the property or because the listing of persons has been lost. Declarants are disproportionately male and even more disproportionately free. Bagnall and Frier 1994: 92 note the bias and exclude these persons from their analysis of the sex ratio, but do not do the same when calculating the prevalence of enslaved status (introducing in a very slight downwards bias).

The inclusion of the data from *P.Oxy.Census* deserves a brief explanation. Bagnall and Frier 1994: 91-3 argued against combining the data on that papyrus roll (which they originally attributed to the Greek polis of Ptolemais) with their original dataset, on two main grounds: first a higher incidence of age rounding (91), and second some complex biases attendant on the document's nature as an extract of census returns filed by declarants who were males aged 14-62 (92-93). They also observed some differences in the level of slaveholding and inferred that it represented a different, poorer society than the metropoleis of Middle Egypt (98). My rationale for including the data here is threefold. First, the quality issues they raise, particularly those related to selection bias, are far less serious for the analysis of the relationship between age and status (my focus here) than they are for the analysis of mortality. It is also worth noting that the original dataset includes data from similar registers with similar potential for bias (Bagnall, Frier and Rutherford 1997: 93). Second, the apparent difference in the scale of slave holding between Lykopolis and the metropoleis of Middle Egypt is no larger than several differences observable within the original dataset (e.g. between the 12% in Arinoite villages and 3% in other villages; see below), and hence no grounds for treating it as an exception. Third, in geographic terms, the Lykopolite is the northernmost of the nomes of Upper Egypt. It is adjacent to the Hermopolite, the nome with the fourth largest population count in the original dataset. It is certainly no more remote from the provenances of the other returns than the Prosopite nome in the Nile Delta or the Great Oasis, both represented in the main dataset (by 58 and 13 persons respectively). Indeed, two individual returns from Lykopolis were already included in the original dataset (145-Ly-1 and 229-Ly-1).

[To add a second note on my decision not to include new discoveries since 2006. A search of DDP revealed no new returns with freedpersons. Diminishing returns from larger samples. NB most stats have changed little since Hombert and Préaux

1952. Cf Hopkins & Burton on senators (the polemical but not mistaken observation that 'too much research is a waste of time' (132)) & Netz 2020 on literary papyri: the key statistics changed little when the number of documented papyri increased from ca 1,000 to ca 7,000. Hence I limited myself to the corpus documented in B&F 1994, which has the additional merit that all readings were verified by Bagnall]

Table 9.3. Slavery in the Egyptian census data

	All persons*	Enslaved	Freed	% enslaved	Sex ratio (enslaved)	Households declaring slaves
METROPOLEIS						
Arsinoe	404	49	3	12%	78	16
Lykopolis**	262	20	1	8%	43	8
Oxyrhynchus	97	11	3	11%	100	3
Hermopolis	32	7	0	22%	50	2
Antinoopolis	23	15	1	65%	150	2
Memphis	14	0	0	0%	na	0
<i>All metropoleis</i>	832	102	8	12%	74	32
VILLAGES						
Arsinoite	394	45	1	12%	14	12
Oxyrhynchite	6	0	1	0%	na	0
Apollonopolite	42	2	2	2%	na	1
Prosopite	74	2	1	3%	na	1
Herakleopite	54	2	2	4%	na	1
Hermopolite	4	0	0	0%	na	0
Memphite	13	1	1	4%	na	1
Great Oasis	13	1	0	8%	na	1
Berenike	5	0	0	0%	na	0
<i>All villages</i>	605	52	8	8.6%	18	17
<i>All villages ex. Arsinoite</i>	211	7	7	3.3%	40	5
ARSINOITE VILLAGES: DETAIL						
Soknopaiou Nesos	128	14	0	11%	9	3
Karanis	75	7	1	9%	75	2
Tebtunis	65	20	0	31%	6	6
Bacchias	18	0	0	0%	na	0
Others	126	4	0	3%	0	1
TOTAL						
<i>Total</i>	1437	154	14	11%	49	42
<i>of which Arsinoite</i>	798	94	4	12%	40	28
<i>other nomes</i>	639	61		9%	66	14

* Excludes persons who appear only as declarants. See above.

** Combines *P.Oxy.Census* and 145-Ly-1 and 229-Ly-1.

Several features bear noting. The first is the overwhelming predominance of the Arsinoite nome, which alone accounts for 56% of the total population and 61% of the enslaved population (and 87% of the enslaved population known from villages). A second is the large variation in the prevalence of enslaved status – between the various metropoleis, between the villages of different nomes, and between the villages of the Arsinoite nome. The dataset is too exiguous to place any weight on these differences. The samples

are so small that the few households with large numbers of slaves have a large impact on the figures for individual localities. Antinopolis, for example, is represented by just four households, two of which declare slaves, one of them the largest slave-holding attested anywhere (with 13 slaves); hence the extremely high prevalence of enslaved status (65%). It seems more defensible to *assume*, as Bagnall and Frier did, that demographic patterns are relatively constant across the region and period covered and hence analyse the dataset as a whole – though that assumption is obviously vulnerable.

Bagnall and Frier did think they could detect various systemic differences between metropolite and village returns, i.e. between urban and rural contexts, and allowed for them in their analysis (Bagnall and Frier 1994: 49). These included patterns of slaveholding. The enslaved make up 12% of the population in the combined metropolitan returns as opposed to 9% in the village returns. It is somewhat surprising that the pattern does not hold in the best-documented nome, the Arsinoite, where the proportions are almost identical: 12% in the metropolis and 11% in the villages. For logical consistency, however, I discount the apparent local variation and focus on the dataset as a whole, just distinguishing between metropolitan and village populations.

Enslaved and freed persons by age

Since the publication of Bagnall and Frier 1994, Kruit 1993 has established beyond doubt that age was reckoned inclusively in official records from Roman Egypt. For example, children reported as ‘one year of age’ in the census year were in fact age zero last birthday in our reckoning (see Appendix 2.1 for the concepts of age last birthday and exact age). Hence all reported ages need to be reduced by one. For calculations that require exact age (such as the fitting of an MLE model of the relationship between age and status in Figure 9.5), all persons are assumed to be halfway between birthdays. So a person reported as ‘thirty years of age’, meaning 29 last birthday, is assumed to have an exact age of 29.5.

Table 9.4. Enslaved persons in the Egyptian census returns by age, sex and location

Age (last birthday)	Metropoleis			Villages			Total
	Male	Female	Unknown	Male	Female	Unknown	All
0	2	1	0	2	3	0	8
1	1	1	0	0	0	0	2
2	2	0	0	0	1	0	3
3	1	0	1	2	3	0	7
4	2	2	0	0	2	0	6
5	0	1	0	1	1	0	3
6	0	0	0	0	0	0	0
7	0	1	0	0	3	0	4
8	2	1	0	0	0	0	3
9	0	0	0	0	1	0	1
10	0	0	0	0	0	0	0
11	0	1	0	0	0	0	1
12	0	1	0	0	1	1	3
13	2	0	0	0	1	0	3
14	1	0	0	0	1	0	2

15	0	0	0	0	0	0	0
16	0	0	0	0	0	0	0
17	1	0	0	1	0	0	2
18	1	0	1	0	0	0	2
19	2	0	0	0	2	0	4
20	0	0	0	0	0	0	0
21	1	1	0	0	0	0	2
22	0	2	0	0	0	0	2
23	0	1	1	0	0	0	2
24	0	0	0	0	1	0	1
25	0	1	0	0	0	0	1
26	0	0	0	0	0	0	0
27	2	1	0	1	0	0	4
28	2	1	0	0	0	0	3
29	0	0	0	0	0	0	0
30	0	0	0	0	0	0	0
31	1	0	0	0	1	0	2
32	0	2	0	0	1	0	3
33	0	0	1	0	0	1	2
34	0	1	0	0	0	0	1
35	0	2	0	0	0	0	2
36	0	0	0	0	0	0	0
37	0	0	0	0	1	0	1
38	0	0	0	0	0	0	0
39	0	0	0	0	1	0	1
40	0	0	0	0	0	0	0
41	0	1	0	0	1	0	2
42	0	0	0	0	0	0	0
43	0	0	0	0	0	0	0
44	0	0	0	0	1	0	1
45	0	0	0	0	0	0	0
46	0	0	0	0	0	0	0
47	0	0	0	0	0	0	0
48	0	1	0	0	1	0	2
49	0	0	0	0	0	0	0
50	0	0	0	0	0	0	0
51	0	0	0	0	0	0	0
52	0	0	0	0	0	0	0
53	0	0	0	0	0	0	0
54	0	0	0	0	0	0	0
55	0	0	0	0	0	0	0
56	0	0	0	0	0	0	0
57	0	0	0	0	0	0	0
58	0	0	0	0	0	0	0
59	0	0	0	0	1	0	1
60	0	0	0	0	0	0	0
61	0	0	0	0	0	0	0
62	0	0	0	0	0	0	0
63	0	0	0	0	0	0	0
64	0	0	0	0	0	0	0
65	0	0	0	0	0	0	0
66	0	0	0	0	0	0	0
67	0	0	0	0	1	0	1
68	0	0	0	0	0	0	0
69	0	0	0	0	0	0	0
70	0	0	0	0	0	0	0
71	0	0	0	0	0	0	0
72	0	0	0	0	0	0	0
73	0	0	0	0	0	0	0
74	0	0	0	0	0	0	0

75	0	0	0	0	0	0	0
76	0	0	0	0	0	0	0
77	0	0	0	0	0	0	0
78	0	0	0	0	0	0	0
79	0	0	0	0	0	0	0
80	0	0	0	0	0	0	0
Lost	14	27	11	0	11	3	66
Total	37	50	15	7	40	5	154

Table 9.5. Freed persons in the Egyptian census returns by age, sex and location

Age (last birthday)	Metropoleis			Villages			Total
	Male	Female	Unknown	Male	Female	Unknown	All
0	1	0	0	0	0	0	1
18	0	0	0	1	0	0	1
21	0	1	0	0	0	0	1
29	0	0	0	0	1	0	1
37	1	1	0	0	0	0	2
44	1	0	0	0	1	0	2
64	0	1	0	0	0	0	1
69	0	0	0	1	0	0	1
Lost	0	2	0	1	1	0	4
Total	3	5	0	3	3	0	14

9.2 The scale of slavery in Roman Egypt

The census data

Of the 1,457 persons documented by the combined census returns, 154 or 11% were enslaved. This overall average cannot be regarded as representative because of the over-representation of metropoleis in the returns: the proportion enslaved is 12% in the metropolite returns and 9% in the village returns. Assuming that metropoleis accounted for around 20% of the population outside Alexandria (see Chapter 9 n. 3), those proportions would imply an overall average around 9% (see the rightmost columns of Table 9.5).¹³²

Metropoleis would then contain around 31% of the enslaved population ($\frac{12.3\% \cdot 20\%}{9.3\%}$) in the chora, or at least in Middle Egypt.

¹³² Scheidel 2011: 289-90 arrived at an estimate of around 7% for Egypt outside Alexandria. He did do by following Bruce Frier in inferring that the new data in P.Oxy.Census (originally attributed to the polis of Ptolemais, now believed to be from the metropolis Lykopolis) reflected a society with a much lower level of slave holding than that visible in the other census returns (Bagnall, et al. 1997: 98-9), with just 7% enslaved compared to 15% in the metropoleis in the original dataset. Scheidel extrapolated from this datum to construct a model of different 'Middle Egypt' and 'Upper Egypt' patterns of slave-holding, with Middle Egypt showing proportions of 15% in metropoleis and 8% in villages and Upper Egypt showing proportions of 8% and 4% respectively (the former taken from P.Oxy.Census, the latter assuming that the level in villages was proportionately lower than in Middle Egypt). Hence his rough estimate of an overall average of around 7% outside Alexandria. But the difference between Lykopolis (8%) and the average for the 'Middle Egypt' metropoleis (15%) is no larger than that between Arsinoe (13%) and the other metropoleis in the original dataset (21%; see Table 9.3). It does not seem justified to attribute any more weight to that difference than to the many large discrepancies visible between the 'Middle Egypt' metropoleis and villages.

Table 9.6. The prevalence of enslaved status in the Egyptian census data by location and sex

	All persons			Enslaved			Proportion enslaved			Sex ratio (enslaved)
	M	F	All*	M	F	All*	M	F	All*	
Raw total	735	631	1437	44	90	154	6.0%	14.3%	10.7%	49
Villages	276	309	605	7	40	52	2.5%	13.0%	8.6%	18
Metropoleis	459	323	832	37	50	102	8.1%	15.5%	12.3%	74
Re-weighted total**	475	486	1000	18	65	93	3.8%	13.4%	9.3%	28

* Includes a small number of persons whose sex is uncertain

** Rescales the Villages and Metropoleis figures to produce a total population of 1000 in which 800 live in villages.

The average figures conceal large differences between the sexes. The sex ratio in the enslaved population is just 49 overall: there are two females for every male (Table 9.6). The village data is even more skewed, showing an extraordinarily low sex ratio of 17: more than five females for every male. Reweighting to compensate for the under-representation of villages yields an overall sex ratio of just 28. A corollary of the low sex ratio is that the enslaved make up a significantly larger proportion of the female population than they do of the total population: around 13%, as opposed to 9% for the total population and 4% for males (Table 9.6). The difference between village and metropolis contexts is also much less pronounced for females, with fairly similar proportions of 13% and 16% respectively.

One major problem in interpreting these data is the clear evidence of under-reporting of males in the village data, probably reflecting efforts to avoid the poll tax (Bagnall and Frier 1994: 42, 161, Scheidel 2001: 158). This would have multiple and complex effects on the representativeness of the census data. First, adding back in the concealed enslaved males would certainly raise the sex ratio above the value of 28 implied by the census data. Second, the under-reporting of males may distort the proportion of males who were enslaved, but the magnitude and even the direction of the effect are unclear; (it would depend on whether slaves were more or less likely to be concealed than free males). Third, the bias probably works to overestimate the overall scale of slavery. Assuming that the actual proportion of males who were enslaved was still lower than the proportion for females, adding the concealed males – both free and enslaved – back into the numerator and the denominator would probably result in a proportion lower than 9%, though this would again depend on whether there was any significant difference between the rates of concealment for free and enslaved males.

The estimate of 9% is also subject to a number of other biases, their combined effect unclear. A second factor that might work to over-estimate the slave population is the possibility of social bias in the enumeration processes of the provincial census. Any such bias is likely to under-represent the poorest households, and hence the number of households with no slaves (Bagnall and Frier 1994: 47-9 on social bias). On the other hand, it seems that there was significant under-reporting of older enslaved persons, particularly males (see Chapter 9 main text), which would cause the census data to underestimate the actual enslaved population. Moreover, the ownership of slaves, like other forms of wealth, is often highly

concentrated. Any estimate of the overall scale of slaveholding based on a sample of households will therefore be very sensitive to the inclusion or exclusion of the wealthiest households. The largest slaveholding in the surviving returns is a household in Antinoopolis that reports 13 slaves (187-An-1). There must have been some much larger households in the metropoleis. We know from other documents of a village household in Tebtunis that owned 18 slaves, not to mention the much larger households attested in Alexandria.¹³³

We probably cannot do better than conclude that the enslaved constituted very roughly 10% of the population, and bear in mind the very significant differences between males and females and the smaller difference between urban and rural contexts. It is also important to note that this figure is for the Egyptian *chora*, excluding Alexandria. Alexandria was several times larger than the biggest metropoleis and may well have had a much higher concentration of slaves (Biežuńska-Malowist 1976). An estimate for the prevalence of slavery in a region *excluding its largest city* is rather anomalous, complicating comparison with other times and places.

The tax lists

Scholars have remarked that several large lists of tax payers, mostly from the villages of the Arsinoite nome, show significantly lower proportions of enslaved persons (e.g. Bagnall and Frier 1994: 48 and Scheidel 2011: 290). For example, slaves made up just 5.7% (20) of 350 men who participated in compulsory labour on dykes in Tebtunis in 192 CE (SB 5124, the so-called, Charta Borgiana, with Pavlovskaja 1992), 3.0% (17) of 573 men who paid the poll tax in Karanis in 171-4 CE (P.Mich. 4.223-5), 1.3% (6) of 466 men liable for compulsory labour on dykes in Philadelphia in 230 (BGU 1634 with Westermann 1955: 87) – and there is not a single slave in a house-by-house list of around 320 men who were of taxpaying age in 94 CE in the district (*meris*) that included the village of Philadelphia (P.Lond. 2.257-9 with Westermann 1955: 87 and Bagnall and Frier 1994: 102 n 32 for the total). Some have even suggested that the tax lists may be more representative than the census returns: ‘More representative village tax lists show a mere handful of slaves among hundreds of (male) village taxpayers’ (Rowlandson 2023).

The comparison presents two pitfalls. The first concerns the lists that do not contain a single enslaved person, such as P.Lond. 2.257-9. We have clear evidence that lists of taxpayers were sometimes drawn up separately for different subcategories of the population, in ways that are not always obvious from any single list (especially if it is fragmentary). For example, a papyrus roll containing several lists compiled by an official (*amphodarchos*) of a quarter of the metropolis of Arsinoe includes the end of a list of men who paid the poll tax in 72/3 CE (Stud. Pal. 4 pp 58-78 with Hombert and Préaux 1952: 138-41 on the contents of the roll). Only the last three of 30 columns of names survive, but they do not contain a single slave or freedman. Based on this list, we might have supposed that there were none. But a later segment of the roll

¹³³ Tebtunis: P.Mich. 5.326, with Langelotti 2020: 112-18. Alexandria: P.Oxy. 44.3197 documents an estate consisting of at least 70 male slaves.

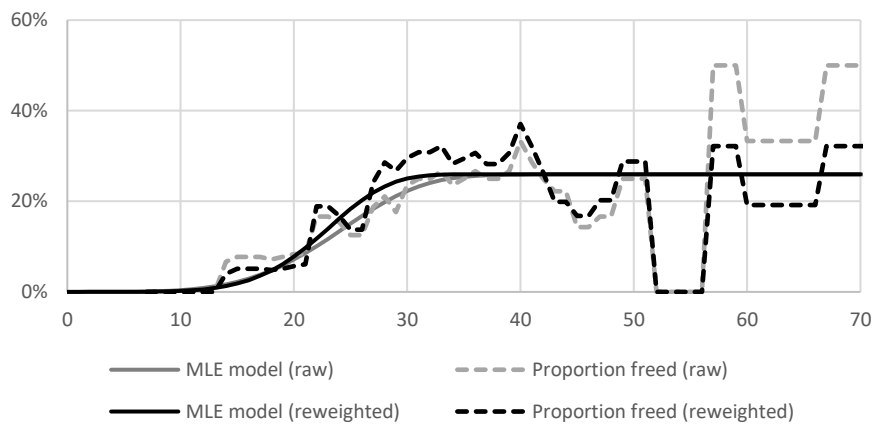
includes a discrete list of slaves and freedmen (col. I-III), showing they were counted separately. The names of two freedmen and around 57 slaves survive. Another list again (cols IV-VI) names Romans and Alexandrians and their slaves, revealing that they were implicitly excluded from the two preceding lists. Another example is P.Oslo 3.11, a house-by-house list of free and freed inhabitants in Oxyrhynchus in 235, listing ‘free’ (meaning freeborn) and freed inhabitants only; slaves have been excluded or listed separately. We should therefore be very cautious in using lists that do not contain a single slave to investigate the prevalence of slavery.

The second pitfall is to think that the proportion of village tax-payers who were enslaved will directly reflect the proportion in the overall population. In fact, we should expect the overall proportion to be four or five times larger than that observed among adult village males. In the re-weighted census data, slaves represent 9% of the total population, but just 3.8% of males, and just 2.5% of males in the villages (Table 9.5). The proportion of males of tax-paying age was even lower: 1.8% as opposed to 2.4% for all village males in Bagnall and Frier’s original dataset (Bagnall and Frier 1994: 348-50 and 356-7; my expanded dataset does not contain ages for the free population). The proportions of a few percentage points that we see in the tax lists are in fact entirely in line with an overall proportion around 10% – though they do provide a cautionary warning about the possibility of variation over space and time.

9.3 Correcting for the over-representation of metropoleis

The model of the relationship between age and status in Figure 9.5 is based on the raw census data, in which metropolitan contexts are over-represented. It is possible to correct for this bias by re-weighting the metropolitan and village components of the dataset. This can be done by first smoothing the two sets of age data, to produce centred fifteen-year averages by single years of age from age seven. The smoothed age distributions for metropoleis and villages are then recomputed as percentages of the respective totals rather than absolute numbers. The overall distribution is then calculated as a weighted average of the two component distributions, weighted by their expected share of the ever-enslaved population. I assume that metropoleis accounted for approximately 30% of the ever-enslaved population (see Appendix 9.2). The exercise of reweighting is analogous to the ‘weighted’ analyses presented by Bagnall and Frier 1994, with the difference that they re-weight based on the expected share of the total population whereas I reweight based on the expected share of the ever-enslaved population. Figure 9.14 shows that reweighting has a negligible effect on the computed proportion freed and the best fit MLE model.

Figure 9.14. Impact of correcting for the over-representation of metropoleis in modelling the relationship between age and status in the female population in the census data



9.4 Mortality patterns in Roman Egypt

The original demographic analysis of the census data in Bagnall and Frier 1994 investigated what stable population model could best approximated the age distribution observed in the census data (after smoothing and re-weighting of the urban and rural populations). A stable population model involves both a model life table (giving age-specific mortality rates) and an intrinsic growth rate (r). (See further Appendix 2.1.1.) Bagnall and Frier concluded that the observed age distribution for females was consistent with mortality as in Model West Level 2 ($e_0=22.5$) and an intrinsic growth rate of 0.2% (84-90). They more guardedly inferred mortality as in Model West Level 4 ($e_0=25.0$) for males (99-102) and presented a model of the combined population based on those sex-specific mortality patterns and $r = 0.2\%$ (103-6). But they immediately cast doubt on that finding, suggesting that it was distorted by problems in the data for males, and concluded that males probably faced mortality rates closer to those inferred for females, consistent with life expectancy at birth somewhere between 22.5 (their finding for females) and 25 (their initial finding for males), leaving overall life expectancy in the same region (108-9).

Scheidel 2001: 118-80 was more critical both of the quality of the data and of the possibility of drawing meaningful conclusions about overall mortality patterns. He showed that the data for village males is 'irremediably flawed' due to the large-scale concealment of males to avoid tax liability (160). Allowing that the data for village females seems least distorted by systematic biases, he conceded that Model West Level 2 ($e_0=22.5$) did indeed provide a good fit to the observed distribution (best with $r = 0\%$), but cautioned that the data was not inconsistent with alternative mortality levels (160, 174-5). He located the metropolis data in between – more distorted than village females, but significantly less so than village males – and argued that it revealed adult mortality that was much heavier than in Model West Level 2 and could not be reconciled with standard model life tables (155-6, 172; but see now Woods 2007: 385 n. 28 on the potential of new model life tables for high mortality populations). He explained the divergence between metropolis and village patterns as reflecting elevated urban mortality due to density-dependent diseases (172-4).

[Scheidel warned against any attempt to generalise about mortality patterns in Egypt as a whole (not to mention the whole empire), arguing that location was probably the single most important determinant of mortality rates (172). He posited very significant local variation, not just between urban and rural contexts but also between different rural ecologies. He also noted that the Fayuum region, from which most of the village returns originate, may have had elevated mortality levels due to the prevalence of malaria, thus limiting the representative value of the relatively robust data on village females (175-6). He concluded by questioning whether the census data could improve upon the a priori hypothesis that mean life expectancy at birth in the Roman empire lay somewhere between 20 and 30 years (176).]

Historical demographers have since produced new families of model life tables better suited to high-mortality populations (see XREF to initial discussion in Part II), notably the tables developed by Samuel Preston and his colleagues (Preston, McDaniel and Grushka 1993) and Robert Woods' 'South Europe' model (Woods 2007). [Hin 2013: 121 proposes an alternative life table for Roman Egypt, purportedly based on fitting Wood's South Europe model to the census data, but (i) does not explain how a fitting procedure normally used to fit a model life table to data on survivorship in a cohort (111-12) was applied to data on the age distribution of a population, (ii) gives no indication of having considered the intrinsic growth rate, though that works jointly with mortality patterns to determine the age distribution in a stable population, and (iii) does not explain the discrepancy between two models, both apparently fitted to the census data using the same procedure but yielding e_0 of 22.8 and 25.0 respectively (112 and 121).]

For the analyses that follow, I use Woods' South Europe model with $e_0 = 25$ and an intrinsic growth rate of 0.2% as very rough central estimates for the parameters of the stable population that can best approximate the age structure of the population visible in the census data. But I test the sensitivity of all conclusions to the choice between family of model (Woods South Europe, Preston et al 1993 and Coale and Demeny Model West), between plausible mortality levels (life expectancies between 20 and 30) and plausible rates of intrinsic growth (between 0.0% and 0.4%).

9.5 Modelling manumission in the female population

The structure of the ever-enslaved population is modelled as a stable population, as explained in Appendix 2.1.1. The selection of a model life table and an intrinsic growth rate will together determine the age structure of the population, which is modelled in single-year age intervals. The Weibull model of the relationship between age and status, $F(x)$ is then used to distribute that population into enslaved and freed components, assuming that the proportion of the population in the age interval x to $x+1$ that is free is $F(x + 0.5)$, i.e. the value of the Weibull model at the midpoint of the interval. The Weibull model is also used to estimate the age-specific manumission rate in the interval: ${}_1m_x^M = -\ln\left(\frac{1-F(x+1)}{1-F(x)}\right)$. (See Appendix 2.X.) The number of manumissions in the age interval can then be computed from the enslaved population in the interval and the age-specific manumission rate.

The exercise was carried out using a range of plausible assumptions about mortality levels and the intrinsic growth rate (see Appendix 9.4 above). Table 9.7 illustrates the result for mean age at manumission in the Maximum scenario. It shows that the result is not very sensitive to the assumptions about population structure. Under the central assumptions, mean age at manumission would be 36.5 years. Varying the parameters of the stable population only changes the mean by one or two years. Hence, for economy, the discussion in the main text focuses on the central scenario, with mortality as in Woods ‘South Europe’ with $e_0 = 25$ and an intrinsic growth rate of 0.2%.

Table 9.7. Mean age at manumission for females in Middle Egypt in the Maximum scenario given various assumptions about population structure

Model family	e_0	Intrinsic growth rate		
		0.0%	0.2%	0.4%
Woods 2007 SE	20	35.8	35.4	35.0
	25	36.9	36.5	36.1
	30	39.1	38.7	38.3
Preston et al 1993	20	36.1	35.6	35.2
	24	37.0	36.6	36.2
	30	38.2	37.8	36.2
Model West	20	37.4	37.0	36.6
	25	38.3	37.9	37.4
	30	38.9	38.5	38.1

9.6 Attested cases of manumission *inter vivos* from Roman Egypt (1st-3rd centuries CE)

The following table compiles acts of manumission from the first three centuries CE that are attested directly by deeds of manumission (or copies thereof) or ancillary documents (mostly receipts for payment of taxes related to manumission). This list has been compiled from Straus 1988: 888 n. 229, Takahashi 2013 and P.Oxy. LXXVI pp. 66-8, supplemented by a search of the Duke Databank of Documentary Papyri for the keywords Freilassung, manumission, affranchissement and emancipazione (23.6.2023). The list excludes several documents that do not contain any data on the sex or age of the person manumitted (e.g. ChLA 47.1439=P.Wisc 2.50, Van Minnen 2009, CPL 173, Balamoshev and Nowak 2022) and a few cases of partial but incomplete manumission (e.g. P.Oxy. 4.716), as well as manumissions that are only attested indirectly by references in later documents (e.g. P.Oxy. 4.706 and P.Diog. 6 and 7). The list also excludes manumissions dating to the fourth century or later (e.g. Chr.Mitt. 361, P.Kell. 1.48, SB 18.13633, P.Köln 3.157, P.Petra 5.57).

[For final version: add a column on civic status of manumittor]

Source	Date	Place	Name	Sex	Age (last birthday)	Owner/patron	Price paid	Type of document	Notes
SB 1.5616	1st c	Oxyrhynchos	NN	f	17	Iulius Mousaios		Letter confirming payment of local manumission tax	
P.Mil.Vogl 4.235	1st c.	Oxyrhynchos	Hel[---]	f		Lost		Fragmentary act of manumission	
P.Mil.Vogl 4.235	1st.c	Oxyrhynchos	NN alias Aphrodite	f		NN		Fragmentary	
P.Select 23	1st c.	Oxyrhynchos	[--]aseeus	f	27	Theopompion d. of Herakleides s. of NN, from Oxyrhynchus	Unspecified amount (epi lutrois)	Entry in a register of contracts	
P.Oxy. 86.5549	69 or 82	Oxyrhynchos	Plution	m		[Artemidorus] s. of Sarapion, Alexandrian citizen (age 42)	900 dr. of silver	Deed of manumission before agoranomoi	
P.Oxy. 1.48 and 38.2843	86	Oxyrhynchos	Euphrosyne	f	34	Al(o)ine d.of Komon d. of	10 t. 300 dr in copper	Draft deed and letter confirming	

P.Oxy. 4.722	91 or 107	Oxyrhynchos	Apollonous	f	25	Dionysius, of Oxyrhynchus Achilleus and Sarapas, sons of NN (brothers)	200 dr. of silver and ? Talents, 1000 dr. of copper	payment of local manumission tax Deed of manumission before agoranomoi	Partial manumission: they manumit 'the third part which they jointly own of the slave who has been freed as regards the other two-thirds'
P.Oxy. 1.49 = Chr.Mitt 359 & P.Oxy. 1.50	100	Oxyrhynchos	Horion	m		Sinthoonis d. of Pekusis d. of Zoilos, of Oxyrhynchos	2 t. 600 dr. in copper	Letter confirming payment of local manumission tax (and a second, related document)	
P.Turner 19 (=P.Select 24)	101	Oxyrhynchos	Sinthoonis	f	16	Sinthoonis d. of Thoonis s. of Harthoonis (priestess)	1000 dr. of silver	Deed of manumission before agoronomi and receipt for payment of local manumission tax	Ransom paid by Ammonios freedman of NN (aged 30)
P.Flor. III 324 V descr. (Messori 2009)	late 1st / 2nd c.	Hermopolite	Lost	m		Lost	300 dr	Fragmentary text relating to manumission	
P.Oxy. 4.723	138-61	Oxyrhynchos	Lost	f		NN s./d. of Siodorus s. of Agatheino		Deed of manumission before agoranomoi	
P.Mich.7.462	mid 2nd c.	Uncertain	Antonius Hermes	m	39	Antonius NN		Receipt for payment of vicesima libertatis	Manumitted vindicta by prefect of Egypt
P.Oxy. 45.3241	163	Oxyrhynchos	Preim[---]	f		NN s. of Sarapion, of Oxyrhynchos		Declaration of payment of local manumission tax	
P.Oxy. 86.5554	178	Oxyrhynchos	Eutyches	m	4	Theon son of NN	500 dr.	Deed of manumission before agoranomoi	Ransom paid by Dionysios freedman of Diodorus

P.Strasb. 4.238	177-8	Arsinoe	Sarapion	m		Askleipades s. of An---, of Antinoopolis Sinthonis	Apparently not	Deed of manumission	
P.Oxy. 86.5556	184	Oxyrhynchos	Lost	f				Receipt for payment of vicesima libertatis	Manumitted by manumission inter amicos
P.Freib 2.10 = SB 5217	196	Arsinoe	Zosime	f	43	Tasoucharion d. of Ischyron s. of Herodes from the metropolis (17)	Apparently not	Notarised deed of manumission	
P.Turner 26	193-8	Arsinoe	Euporous	f		Heraklous d. Horion		Notarised deed of manumission	
P.Strasb. 3.135	198-211	Uncertain	Sarapias	f		Eudaimonis d. of Heron		Receipt for payment of local manumission tax (kerukikon)	
Chr.Mitt. 362	211	Hermoupolis	Helene	f	33	M. Aurelius Ammonion	2200 dr	Manumissio inter amicos	
P.Oxy. 43.3117 verso	235	Oxyrhynchos	Kottieious alias Euphrosyne	f		Harthonis alias NN son of Harthonis, of Oxyrhynchos	1600 dr.	Some kind of receipt	
P.Nekr. 4	240/1	Great Oasis	Polydeukes surnamed Mersis (nekroptaphos)	m		Petechon and Petosiris, both sons of Petechon	Apparently not	Copy of a cheirograph of manumission	Also granted a third share of a house; cites his faithfulness (pistis)
P.Lips 2.151	246-267	Hermoupolis Magna	Techosis	f	32	Aurelia Demetria	3000 dr	Manumissio inter amicos	Techosis's mother is Aurelia Eus, now free
P.Oxy 9.1205 = C.Pap.Jud. 3.473	291	Oxyrhynchos	Paramone	f	39	Aurelius NN and his sister Aurelia NN	14 talents of gold	Manumissio inter amicos	A mother and her two children ransomed by the Jewish Synagogue in Oxyrhynchus. The manumittors renounce all patronikon dikaion kai exousia

"	"	"	Iakob	m	3	Aurelius NN and his sister Aurelia NN	"	"	"
"	"	"	Lost	?	9	Aurelius NN and his sister Aurelia NN	"	"	"
P.Oslo III 129	3rd c	Antinoopolis	Sarapiakos	m	32	Lost		Fragmentary deed of manumission	
BGU 1.96	3rd c.	Arsinoite	Noumenios	m	na	Aurelii NN, NN and Saturnilos		Notarised record of manumission / cheirographon?	Manumitted with peculium and renouncing [all patro]nike exousia
P.Mich. Inv 5688c (Stornaiulo AnPap 2019)	3rd. C.	Ptolemais Euergetis	Sarapous	f	na	Lost		Manumissio inter amicos	Age uncertain. The editor reads [X]XXVII on the mistaken assumption that manumission before age 30 was invalid. The age could have been any of 28, 38 and 48

9.7 Attested cases of testamentary manumission from Roman Egypt

The following table compiles testamentary manumission from the first three centuries CE. The category is construed in a broad sense to include all provisions for manumission after the slave-holder's death. Note that it is not certain that all the persons named in surviving wills or other dispositions were actually manumitted: they may have pre-deceased the testator, the will may have been changed or the heir(s) may have failed to execute the testator's wishes. The list has been compiled from the catalogue of wills in Nowak 2015 and the list of *meriteiai* (so-called *donationes mortis causa*) in the appendix to P.Sijp. 44, supplemented by a search of the Duke Databank of Documentary Papyri for the keywords Freilassung, manumission, affranchissement and emancipazione (23.6.2023).

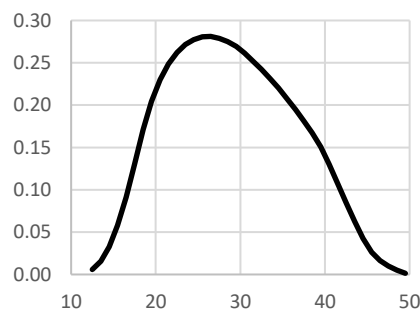
Source	Type of document	Provenance	Date	Testator	Person manumitted	Sex	Notes
SB 22.15345	meriteia (donatio mortis causae)	Tebtunis	116	Protarous d. of Orsenouphis, of Arsinoe	Euporos	m	Aged 23 when the will was drawn up
P.Sijp. 44	meriteia (donatio mortis causae)	Karanis	ca 130	Pentheus s. of NN	Isarus	f	Freed 'on condition that Isarus herself will also offer her services to his wife Tamystha, [as long as she lives], but the taxes on manumission are for Tamystha'
CPL 221	Roman will	Alexandria	142	Antonius Silvanus eques	Kronion	m	'I want my slave Kronion to be free after my death, if he handles everything well and hands over all (my belongings) to my above-written heir or the procurator, and I want his vicesima to be paid from my inheritance'
P.Strasb 2.122	meriteia (donatio mortis causae)	Arsinoite	161-9	Thaisas d. of Kastor	Ammonilla	f	Amonilla's two sons, Sarapous and Sotas (aged 10 mths) are betqueathed to Thaisas' daughter
P.Oxy. 3.494 = Chr.Mitt. 305	Local will	Oxyrhynchus	165	Akousilaos s. of Deios s. of Dionysios, of Oxyrhynchus	Psenamounis also called Ammonios	m	Freed 'for their good will and affection'. Any future children by them are bequeathed to his heir along with 'my other slaves'. His wife is granted 'for the term of her life ... the service and the earnings of the slaves who are to be freed after my death'. Apollonous and the first Diogenis are mother and daughter.
"	"	"	"	"	Hermas	m	
"	"	"	"	"	Apollonous also called Demetria	f	
"	"	"	"	"	Diogenis	f	
"	"	"	"	"	Diogenis	f	
PSI 12 1263 = SB 5.7816	Local will	Oxyrhynchus	166-7	Sintheus d. of Diogenes s. of Sarapion	Tausiris	f	Mother and daughter. The will also provices for accommodation and maintenance. Stephanos is expected to remain with and serve the testator's granddaughter
"	"	"	"	"	Stephanos	f	
BGU 7.1655	Roman will	Philadelphia	169	Name lost	Kosmos	m	'Kosmos will be occupied with my grave and serve it until the end of his life'
BGU 1.326 = Chr.Mitt 316	Roman will	Karanis	194	G. Longinus Kastor (veteran)	Marcella	f	Marcella and Kleopatra, both over 30 when the will was drawn up, are named as joint heirs. Sarapias is Kleoptara's daughter and bequeathed a third of several properties.
"	"	"	"	"	Kleopatra	f	
"	"	"	"	"	Sarapias	f	

P.Select 14	Roman will	Arsinoite nome	2nd c.	C. Iulius Diogenes (veteran)	Iulia Apollonarion	f	Both were over 30 when the will was drawn up; they are made joint heirs, each inheriting inter alia an enslaved woman.
"	"	"	"	"	NN	f	
P.Oxy. 27.2474	Roman will	Oxyrhynchus	3rd c.	Name lost	Theon	m	'On my death, I wish my house-slaves Theon and Taammonis to be free; but they shall be kept in the power of my said faithful wife Chairemonis so long as she lives.'
"	"	"	"	"	Taammonis	f	
PSI 9.1040	Roman will	Oxyrhynchus	3rd c.	Psenamounis s. of Harpokras, of Oxyrhynchus	Dameis	f	Dameis is to be released from the rights of patronage (ta patronika dikaia) and granted her whole peculium. She is also granted a fourth share of a house.
P.Tebt. 2.407	Letter to heirs	Tebtunis	After 199	Marsisouchos s. of Marsisouchos (ex-high-priest of the temple of Hadrian)	Sarapias	f	
"	"	"	"	"	Thermouthis	f	Daughter of Sarapias
"	"	"	"	"	Soteria	f	
"	"	"	"	"	Isidora	f	Child of Soteria
"	"	"	"	"	Dioskoros	m	Child of Soteria
"	"	"	"	"	[---]tios	?	Child of Soteria
"	"	"	"	"	Sarapammon	m	Child of Soteria
"	"	"	"	"	Euporos	m	
"	"	"	"	"	Nikephoros	m	
"	"	"	"	"	Holokittonos	m	

9.8 Modelling fertility

Bagnall and Frier 1994: 135-7 used the Egyptian census data to reconstruct fertility, estimating mean age at maternity at 27 years. They showed that the observed pattern of age-specific fertility rates can be approximated by the widely used 'Coale-Trussell' model of fertility (139-43 and their Fig. 7.2; see Coale and Trussell 1974 and United Nations 1983: 23-5 for the model). Figure 9.15 reproduces their 'fertility model' (Bagnall and Frier 1994: 137) using the Coale-Trussell equations and the parameter values they inferred for Roman Egypt: $\Theta = 100\%$ (114), $a_0 = 0$ (114 n. 12), SMAM = 19.5 (114 n. 14), $m = 0.3$, $M = 0.776$ (which yields their Total Fertility Rate (TFR) of 5.979 (140), given the other assumptions). The variable names are those used in United Nations 1983.

Figure 9.15 Coale-Trussell fertility model fitted to data for Roman Egypt by Bagnall and Frier (1994: 137). Probability that a woman aged x will give birth in the following year.



As Bagnall and Frier note, what matters is the shape of the curve, not the absolute scale. The absolute values shown here reflect their belief that the population was characterised by mortality rates as in Model West Level 2 Female and an intrinsic growth rate of 0.2% (140). Different assumptions would rescale the curve upwards or downwards (by changing the TFR and hence M). But the shape of the curve – i.e. the age distribution of fertility – would remain the same.

Bagnall and Frier did not observe any major difference in fertility patterns between free and enslaved women.¹ They estimated that the fertility of enslaved women was 'probably about the same' as that of all free women.² If there was any difference, it was that average age at maternity was perhaps slightly lower for enslaved women.³ This implies that fertility curve for enslaved women was similar to that for all women, but perhaps skewed slightly more to the left.

Their model of fertility by age, $f(x)$, can be combined with models of the age structure of the ever-enslaved population (modelled as a stable population, which gives a schedule of ${}_1L_x$) and of the relationship

¹ Bagnall and Frier 1994: 156-9.

² Bagnall and Frier 1994: 158, noting that the fertility of free married woman was higher. But their fertility model is for overall fertility (comparing all births to the total female population -both free and enslaved, married and unmarried – in each age interval), not marital fertility.

³ Bagnall and Frier 1994: 158.

between age and status (a Weibull model of the cumulative manumission curve, $F(x)$) in order to estimate the number of children born to women of different status. The number of children born to ever-enslaved women aged between exact ages x and $x+1$ is ${}_1L_x \cdot f(x + 0.5)$. Of those, proportions $F(x + 0.5)$ are born to free mothers and $1 - F(x + 0.5)$ to enslaved mothers (evaluating the Weibull model at the mid-point of the age interval). Figure 9.10 illustrates the results for the Best Estimate model of manumission assuming mortality as in Woods South Europe with e_0 of 25 and an intrinsic growth rate of 0.2%. 85% of births to ever-enslaved women are to women who were still enslaved at the time of birth. [Table X shows that this result is not very sensitive to the choice between plausible models of population structure.]

9.9 Modelling manumission in the combined population

The male and female populations are modelled separately as in Appendix 9.5. The established view is represented by simple step-wise model with universal manumission at exact ages 30 and 50 for males and females respectively. The results reported in the main text are based on the central assumptions for the age structure of the population: mortality as in Woods ‘South Europe’ with $e_0 = 25$ and an intrinsic growth rate of 0.2%. As Table 9.X illustrates, the results are not very sensitive to the choice between plausible parameter values. The calculation assumes the same age structure for both sexes. If male life expectancy was higher, as Bagnall and Frier suspected (Bagnall and Frier 1994: 100 and 108), the gap between male and female manumission rates would be even larger.

Table 9.X Estimating the ratio between the crude manumission rates for males and females assuming manumission as in the Maximal and Best Estimate models respectively

Model	Mortality level (e_0)	Intrinsic growth rate		
		0.0%	0.2%	0.4%
Woods 2007 SE	20	2.1	2.1	2.1
	25	2.2	2.2	2.1
	30	2.4	2.4	2.3

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