The Christianization of the Roman Empire

From Jesus to Constantine

Terje Stenberg

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Department of Archaeology, Conservation and History

Faculty of Humanities

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Abstract

The Christians started out as a marginalized Jewish sect and grew to be the dominant religion in the Roman empire in a relatively short time. From there, Christianity came to shape the societies and cultures in both Europe and the Americas, making the Christianization of the Roman Empire one of the most pivotal moments in world history. Historians have tried to explain the rise of Christianity since Eusebius wrote his Church History. In 1996 the sociologist Rodney Stark published his book *The Rise of Christianity: A Sociologist Reconsiders History* in which he tried to explain the Christian success using theories from sociology. This thesis will look into the validity of using these sociological theories on the Graeco-Roman world, Stark's use of estimates and growth rates to illustrate Christianity's rise and his belief that Christianity was the beneficiary of the two great plagues that struck the Graeco-Roman world in the second and third centuries AD. In addition, it will be made an attempt to offer alternative estimates for the number of Christians in the Graeco-Roman world.

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Introduction

Around the year 30, during Pontius Pilate's time as a procurator of the province of Judaea, the Galilean leader of a small Jewish sect was executed by crucifixion as a criminal in Jerusalem. Joshua bar Joseph had been one of the many wandering preachers and miracle workers in Judea at the time, and initially, it would seem to be little that distinguished him from the other apocalyptic preachers at the time. However, within a short period of time after his death, his followers, probably only a handful of people, would become convinced that Joshua, or Jesus as we call him, had been resurrected and that he, in fact, was the Messiah. What followed was a frenzied missionary activity as the members of the sect tried to convert as many as possible, both Jews and Gentiles, before the expected apocalypse. When the expected apocalypse failed to materialize, the sect adapted and survived both the failed apocalyptical expectations and persecutions. Within a few decades after the death of its founder, the sect would break with its Jewish origins and become a distinctive cult on its own, and despite its humble and inauspicious beginnings, it would, in time, end up converting an emperor and becoming the dominant religion in the Graeco-Roman world. In 391, Emperor Theodosius enacted a law forbidding the worship of the *genius* of *lares*, *penates*, and *pater familias*.[1] This made, for all practical purposes, the pagan religions illegal. From that year on, Christianity was no longer just the favored religion, a status it had acquired when Constantine came to power. It had become the official, and with the exception of Judaism, the only legal religion of the Roman Empire. It is probable that around 50% of the population of the Roman Empire were Christians at this time.[2] If that is the case, it means that there were at least 30 million Christians at this time. From here, Christianity came to spread throughout Europe, and it played a leading role in Europe's history and culture for the next 1600 years. In fact, it is not easy to think of any historical factors that have influenced the development of the western world as much as the rise of Christianity has, both in regard to cultural and political developments.

How had this happened? How could a religion based on an executed criminal with only a handful of followers grow so large that it came to dominate the Roman Empire in less than 400 years? What were the mechanisms that drove this development? Attempts to explain the

[1] Bart D. Ehrman, The Triumph of Christianity: How a Forbidden Religion Swept the World (London: Oneworld Publications, 2018), p. 252.
[2] Ehrman, The Triumph of Christianity, p. 105.; Ramsay MacMullen, Christianizing the Roman Empire: (A. D. 100-400) (New Haven: Yale University Press, 1986), p. 83.

growth have been many, but they have all had a long way to go in explaining how a group can go from a few dozen people to 30 million in less than 400 years. In 1996 the sociologist Rodney Stark published the book *The Rise of Christianity: A Sociologist Reconsiders History* where he tried to explain the success of Christianity by using theories from his own field. In the book, he covers a wide range of topics related to early Christianity, and because of the limitations of this thesis, there will only be possible to look at a few of them. The focus will, therefore, be on three distinct topics. Firstly, the thesis will examine the use of sociological theories as tools in the study of history and try to establish the possible weaknesses and strengths of them. Secondly, it will be an attempt to look at Stark's claim that Christianity was the beneficiary of the great plagues in the second and third centuries.[3] Finally, the thesis will look at the mathematical calculations that Stark makes to establish a growth rate for Christianity and make estimates at various points during the first centuries. This paper intends to demonstrate that Stark is too confident in his sociological theories and that they, for the most part, cannot be used in the field of history if they are divorced from the source materials. It will also be a goal to demonstrate that Stark's mathematical calculations of growth rates are too inaccurate to be of any value and that the estimates of the number of Christians around Constantine's time are impossible given his assumptions that the Christians predominantly were urban.

There is also a need to make some clarifications about some of the terms used in this thesis from the start. This paper will use the term 'Christians' about all the Jesus worshippers after the death of Jesus, regardless of what they thought about themselves at the time. Of course, this is not entirely accurate as the followers of Jesus were Jewish for some time after his death. However, this simplification will mean that it will be no need to discuss the parting of the ways and which of the Christian groups were to be considered heretic or not. The Christian communities will also be described as 'the early church' although there obviously was no single church at the time. Again, this is done for the sake of simplicity. The term 'pagan' will be used to cover all the people who were not Christians and Jews within the empire. This is not unproblematic as nobody at the time would have used the term pagan about themselves. The term was coined by Christian authors to describe the people that were not Jews or Christians. While the term throughout history has tended to have a derogatory meaning, it will have no such meaning here. Another issue with the term is that it is evident

[3] Rodney Stark, The Rise of Christianity: How the Obscure, Marginal Jesus Movement Became the Dominant Religious Force in the Western World in a Few Centuries (New York: HarperCollins, 1997), pp. 74-75.

that there never was one pagan religion in the Graeco-Roman world. Despite this, the main focus for the pagan religions will here be the Greek and Roman religions. Many of the other religions in both the east and the west would, in time, take on the trappings of these two religions. However, this does not mean that they necessarily would take on all the beliefs of these religions. The ancestral faiths of the Celts, Phrygians, Germans, Numidians, et cetera would most likely, as the ancestral faith of the Egyptians, have continued to be what they were before they were incorporated into the Hellenistic kingdoms and the Roman Empire. Despite all of these problems with the term 'pagan,' it will be used as there is a lack of suitable alternative terms.

1. Methodology

This chapter will discuss the sociological theories used by Stark in his books about early Christianity and evaluate if they are valid, and thus usable for this paper. Stark uses economic theory, or as he calls it, rational choice, to model religious conversion. To model the cost in the model, he has to use theories of social control and deviance. A possible weakness in these models is that they, for the most part, have been modeled on modern western societies, and it is far from clear that the theories are universal and can be used to model other types of societies. Both sociology and psychology are, to some degree, dependent on culture, and the culture that they most often reflect is a modern western culture, usually the American culture, which is far removed from the cultures that existed in the Graeco-Roman world of the early Christians. This paper will, therefore, look at how the theories of psychology and sociology fare when we look at other societies, both contemporary and historical.

In some cases, the theories from sociology and psychology will be in agreement, but there are also some cases where they contradict each other. Therefore, this paper will draw on both sociology and psychology to try to explain the rise of Christianity. In addition, some epidemiology will be used both in chapters 2 and 4.

Economic Theory of Conversion, Religions as 'Firms'

In his attempt to explain Christianity's rise, Stark leans heavily on sociological theories, and he insists that these theories are universal on par with the laws from natural science.[4] Stark uses basic economic theories to explain conversion. One part of the theories he uses focuses on religious cults as 'firms,' while the other focuses on the 'consumers' and what drives their choices. Stark and Finke have modified the consumer side of the economic theory that Stark initially developed together with Bainbridge.

When it comes to the part of the theory that deals with cults as 'firms,' Stark states that "exclusive firms engage in the *collective production* of religion," while "nonexclusive firms cannot sustain collective production and therefore specialize in *privately produced* religious

[4] Stark, The Rise of Christianity, p. 46.

goods." Here, the Graeco-Roman cults were nonexclusive, while Christianity and Judaism were exclusive. According to Stark, nonexclusive cults will primarily consist of priests who have an obvious benefit from convincing clients to worship their gods.[5] This will lead to a situation where the compensators offered by these cults will lack credibility. Therefore, the view of the pagan cults that is presented is entirely that of a client cult.

Therefore, Stark assumes that Christianity succeeded in out-competing the pagan cults because it alone could engage in the collective production of religion. This is, however, not entirely true. As Beck points out, voluntary associations exist in the Graeco-Roman world, and while it is true that many of them would be for secular purposes, they did have divine patronage, and their activities did include religious activities such as sermons and sacrifices. The funerary associations would, in addition, have an obvious religious dimension.[6] Another example would be the mystery religions that also seem to have engaged in producing collective religion.[7] Therefore, we see that the pagan cults did engage in producing collective religion, despite Stark's insistence that they would be incapable of doing so.

Stark's assumption that Christianity and other monotheistic religions are 'superior' as firms compared to pagan religions due to the fact that they supposedly are the only ones that can engage in the collective production of religion runs into problems when one does comparative studies. Obviously, it is the case for Europe, North Africa, and parts of Asia where either Christianity or Islam came to out-compete the other religions. However, this is not the picture one finds everywhere, and it may therefore be of interest to take a look at how monotheistic religions fared in the parts of Asia that did not convert to Islam.

If one looks at the Indian subcontinent, one notices that both the two large monotheistic religions tried to establish themselves at an early date without succeeding, although one of them, Islam, came to dominate parts of it. According to tradition, Christianity arrived in India around the middle of the first century with the apostle Thomas. The mission of Thomas in India is described in the apocryphal Acts of Thomas. It is contested if Christianity can be traced back to the first century, even if it is considered canonical in India. Even so, it is clear

[5] Stark, The Rise of Christianity, p. 206.
[6] Roger Beck, "The Religious Market of the Roman Empire: Rodney Stark and Christianity's Pagan Competition." In Religious Rivalries in the Early Roman Empire and the Rise of Christianity, ed. Vaage, (Waterloo, Ont.: Wilfrid Laurier University Press, 2006), pp. 237-238.
[7] Beck, "The Religious Market of the Roman Empire", pp. 240-241.

that by the third or fourth centuries, Christianity had established itself in the south of India.[8] Islam also arrived quite early in India, with Sind in modern-day Pakistan being conquered as early as 711.[9] The Delhi Sultanate, 1206-1526, controlled large parts of the Indian subcontinent reaching as far south as the River Krishna.[10] Despite this, Islam did not manage to become the dominant religion of the subcontinent, and it was never in a position where such an outcome was a realistic possibility.[11]

If we move on to China, we see that in 705, the Muslim presence in the Tang capital Chang'an was large enough to warrant the construction of the Xi'an Daxuexi Alley Mosque.[12] Islam, therefore, has at least a 1300 year-long presence in China. Nevertheless, despite this long presence, it has never been much interest among the dominant Han population to convert. Christianity entered China even earlier with the arrival of Nestorian Christians in 635.[13] By the tenth century, it seems that the Nestorians had disappeared from China.[14] Nestorian Christianity would get a second chance in China as some of the Mongols, the Keraits, had converted to Christianity.[15] The Keraits were early allies of Genghis Khan, and as a result, Kerait princesses married into his dynasty. One of these Christian princesses, Sorkaktani-beki, was the mother of Khubilai, the founder of the Mongol Yuan dynasty in China.[16] The Christian presence in China seems to have come to an abrupt end shortly after the Yuan dynasty's fall in 1368.[17] Christianity then has to wait until 1583, for it finally manages to get a permanent presence in China.[18]

In addition to the examples above from China and the Indian subcontinent, there is also the fact, as will be discussed in chapter 5, that Christianity has never been able to establish a large presence in the Japanese society despite arriving in the country over 400 years ago. Therefore, it is not possible to assume that monotheistic religions, whether it is Islam or Christianity, are

[8] Robert E. Frykenberg, Christianity in India: From Beginnings to the Present (Oxford: Oxford University Press, 2008), pp. 114-115.
[9] Burjor Avari, Islamic civilization in South Asia: a history of Muslim power and presence in the Indian subcontinent (London: Routledge, 2013), p. 9.
[10] Avari, Islamic civilization in South Asia, p. 63.
[11] Avari, Islamic civilization in South Asia, p. 7.
[12] H. Hagras, "Xi'an Daxuexi Alley Mosque: Historical and Architectural Study." Egyptian Journal of Archaeology and Restoration Studies, 9(1), 97-113. Accessed September 19, 2020. Doi: 10.21608/ejars.2019.38462., p. 104.
[13] Daniel H. Bays, A New History of Christianity in China (Chicester: Wiley-Blackwell, 2011), p. 7.
[14] Bays, A New History of Christianity in China, p. 10.
[15] Bays, A New History of Christianity in China, p. 11.
[16] Bays, A New History of Christianity in China, p. 12.
[17] Bays, A New History of Christianity in China, p. 14.
[18] Bays, A New History of Christianity in China, p. 21.

inherently superior as 'firms' compared to traditional polytheistic religions. If they had been, both India and China should adhere to one or both of the monotheistic faiths by now, and Japan should have a sizable Christian population. The success of a religion in a society must therefore be sought in the social and cultural factors present at the time in addition to the benefits offered by the religion in question.

Another problem with the 'firm' approach is that Stark only sees the pagan cults from a client cult perspective and entirely neglects to take the public cult activities into question. This creates a serious problem for the economic theory as it assumes that the state merely acts as a market regulator. This was, of course, not the case. Through local communities, the state was directly involved in religious activity, and that activity was engaged in collective production of religion. This because the public cults produced religion for and by the communities as everybody benefited from upholding the *pax deorum*.[19] The peace of the gods, or perhaps it rather should be called the truce of the gods, was crucial for the community as the gods' anger would affect the entire community if the worshippers deviated from the correct forms of worship.

Stark also claims that pagan priests would have had less credibility because they benefited from the cult, for example, by eating the sacrificial meat.[20] This would again lead to the compensators offered by the cult itself would lack credibility. It is hard to conciliate this statement with how the pagan cults operated. Pagan priests were usually not a professional class but usually held their position similar to a political office. Besides, being a priest for a pagan cult was unlikely to increase a person's wealth as it often meant that the person in question had to pay for festivals out of their own pocket. The husband/wife team of Tiberius Claudius Aristeas Menander and Aelia Glycinna was responsible for the cult of Hecate at Lagina. When they instituted a festival for the goddess, they gave each of the citizens of Stratonicea a donation of two denarii.[21] They would also have to pay for all the other expenses of this festival. Given that Stratonicea had about 5,000 citizens, this would amount to about 10,000 denarii, an amount that they would be hard-pressed to get back from

[19] Beck, "The Religious Market of the Roman Empire", pp. 243-244.
[20] Stark, The Rise of Christianity, p. 206.
[21] Kenneth W. Harl, Coinage in the Roman Economy, 300 B.C. to A.D. 700. (Cambridge: Johns Hopkins University Press, 1996), p. 266.

sacrificial meat and skin. It is therefore unlikely that anyone in the Graeco-Roman world would become a priest in order to benefit from it financially.

Economic Theory of Conversion, Consumers and Rational Choice

On the consumer end, Stark uses a rational choice theory. This theory assumes that the 'consumers' will act rationally and consciously weigh up the cost and benefits involved in a conversion.[22] The cost part of this calculation would be the community's social reactions because of the deviant act of being a Christian, while the benefits would be the compensators offered by Christianity.

There is a problem connected with the rational choice theory used by Stark. Psychological studies have long shown that not all choices we make are rational. Our emotional state, even the mild ones that are termed moods, affects our decision process unconsciously.[23] In 2003 Hirshleifer and Shumway published a highly quoted article that presented evidence from 26 stock exchanges that showed that the stock exchanges of the world are more sensitive to weather than what should be expected, with prices going up on days with sunny weather in the morning in the city the stock exchange was located, and down on days with cloudy weather.[24] This is not rational; instead, the weather affects the traders' mood, which in turn affects the pricing.[25] In short, there is a fundamental fallacy in the theory of rational choice, the idea that we always act rationally. If the traders on the stock exchanges cannot be counted on to be rational when they price the stock, why should we expect the average person to be so when he or she chose a religion? The stock exchanges that were picked had what one could call a western bias with most of the stock exchanges being located in Europe or the Americas, but five of them were located in East- or South East Asia, suggesting that the effect is culturally independent. As Hirshleifer and Shumway also point out, the weather is just one of many factors that affect our mood.[26] Every time we make a decision, even the ones that we feel are conscious, a large number of unconscious factors enter into the calculation without us

[22] Stark, The Rise of Christianity, p. 169.
[23] John A. Bargh, Before You Know It: The Unconscious Reasons We Do What We Do (New York: Simon & Schuster, 2017), p. 101.
[24] David Hirshleifer and Tyler Shumway, "Good Day Sunshine: Stock Returns and the Weather." The Journal of Finance 58, no. 3 (2003): 1009-032. Accessed September 23, 2020. http://www.jstor.org/stable/3094570, p. 1028.
[25] Hirshleifer and Shumway, "Good Day Sunshine", pp. 1028-1029.
[26] Hirshleifer and Shumway, "Good Day Sunshine", p. 1029.

even being aware of the fact. Experiencing social rejection would, for instance, cause a craving for social contact with family or friends.[27]

While Stark points to the social benefits of the conversion, joining a group of friends, he also points to the religious rewards that a conversion brought with it, what he labels compensators. To Stark and Finke, one of the most intensely desired compensators that a religion can offer its worshippers is to overcome death.[28] While this seems to be true for Christianity in the modern world, and definitely was true in the middle ages, it has not been like that at all times in history.[29] It is little evidence that a happy afterlife was something that concerned many pagans at the time.[30] If it really were the case in antiquity that a happy afterlife was considered to be the ultimate reward, then one would assume that all believers would choose to believe in an afterlife if that was an option within their religion. That was, however, not the case for all Jews during the Second Temple period. Just like their pagan neighbors, the Jews of the period had multiple beliefs when it came to an afterlife, including the option that it did not exist.[31] If a good afterlife is such a universal and desirable reward in a religion, then it makes no sense that some Jews chose to believe that no afterlife existed. Similarly, the pagan population of the Graeco-Roman world had the option to believe in an afterlife, many of the mystery cults at least had a good afterlife as one of the benefits even if it may have been accidental, but for some reason, most of them seem to have chosen not to do so.

Lastly, Stark assumes that the Christian converts would have been drawn from the educated population.[32] He makes this assumption based on the fact that this has been the case for new religious movements in the last century that mainly have drawn their converts from the middle- and upper classes. This has, however, not always been the case. In the nineteenth century, cults generally attracted the uneducated and the socio-economical marginalized.[33] Han et al. found the exact opposite of what Stark would expect in Wuhan. Christians had a lower educational background than both atheists and adherents from other religions. 37.61

[27] Bargh, Before You Know It, p. 107.
[28] Rodney Stark, and Roger Finke, Acts of Faith: Explaining the Human Side of Religion (Los Angeles: University of California Press, 2000), p. 88.
[29] John Hick, The New Frontier of Religion and Science: Religious Experience, Neuroscience and the Transcendent (New York: Palgrave Macmillan, 2006), p. 192.
[30] Larry W. Hurtado, Why on Earth did Anyone Become a Christian in the First Three Centuries? (Milwaukee: Marquette University Press, 2016), p. 127.
[31] Bart D. Ehrman, Heaven and Hell: A History of the Afterlife (New York: Simon & Schuster, 2020), p. 145.; Lester L. Crabbe, *Judaic Religion in the Second Temple Period: Belief and Practice from the Exile to Yavneh* (London: Routledge, 2000), p. 197.
[32] Stark, The Rise of Christianity, pp. 45-46.
[33] John A. Saliba, Understanding New Religious Movements(Walnut Creek: Altamira Press, 2003), p. 79.

percent of the Christians had finished high school or had a university degree, while for adherents of other religions, the number was 46.89%, and for atheists, it was 52.95%.[34] The same picture emerges if one looks at Christianity in China at the beginning of the 18th century. At this time, 0.6% of the Chinese Christians belonged to the gentry class, while the gentry class accounted for 0.8% of the overall population.[35] Therefore, we can conclude that Stark's assertion that "Cult movements overrecruit persons of more privileged backgrounds" is not something that is universal, but subject to factors in the culture and society.

Social Control and Deviance

It is worth looking at some of the theories regarding deviance and social control, as these are the cost factor in Stark's analysis. It is also worth noting that the concept of social control probably is one of the best-documented features of sociology across cultures as it can be observed everywhere, and in different sizes of units, from the family to the state. Therefore, social control and deviance theories can most likely be used to explain phenomena in history without too much controversy. While there are many different deviance and social control theories, the focus here will be on the social disorganization theory. The main reason for this is because this is the theory that Stark leans on in his book to explain the rise of Christianity.

Deviance is defined as a violation of social norms.[36] The violation that most often comes to mind when one talks about deviance is a crime. It can, however, also be violations that the deviant person is unable to control. Physical attributes can, for example, be considered to be deviant in society. Such deviance violates society's aesthetic norms and includes different skin color, body weight, disfigurement, and physical disability. These deviances will be subject to social control in the shape of stereotypes, stigma, and discrimination.[37] However, it is not the act itself that makes a person deviant, but how other people in that society react to it. If nobody knows that a person has committed a crime, then that person is not deviant in the eye of society. Likewise, a person that has wrongly been sentenced for a crime he did not commit

[34] Han Junqiang et al., "Urban Residents' Religious Beliefs and Influencing Factors on Christianity in Wuhan, China", Religions. 8. 244. 10.3390/rel8110244, p. 5.
[35] Bays, A New History of Christianity in China, p. 24.
[36] James M. Henslin, Sociology: A Down-to-Earth Approach 10th ed. (New York: Pearson Education, 2010), p. 198.
[37] Michelle Inderbitzin et al., Deviance and Social Control: A Sociological Perspective (Los Angeles: SAGE, 2017), p. 94.

will be deviant in the eyes of society. In addition to the act of deviance, it is also the matter of who it is that is committing the act. People are not equal in a society, and their acts will be seen differently depending on their status. When Constantine converted, he was unlikely to be on the receiving end of social control because he had joined a deviant cult.

Social control is different types of actions that aim to make people behave in a manner that conforms with how society thinks they are supposed to behave or conform to social norms.[38] The actions that constitute social control comes in many different forms. Formal social control is actions taken by the government against deviant behavior, typically behaviors that are considered to be crimes.[39] There is also informal social control, which are actions that the family and community take to ensure that people do not break the community's informal norms.[40] Here one also distinguishes between primary control and secondary control. Primary control is the control that takes place within the family. This is the first social control a person encounters in life. Secondary control is the type of informal social control that one encounters in the community outside of the family.[41] This can be from friends, teachers, or neighbors.

Social disorganization theory grew out of the Chicago school after World War I. The theory was developed to explain why cities, and especially why some areas in the cities, were much more prone to deviant behavior than other types of communities. According to the theory, it is, at least to some extent, the environment that makes a person deviant. In this theory, the modern cities, *Gesellschaft*, are seen as chaotic places that, because of the anonymity they offer, weaken the normative bonds between people.[42] The theory predicts that some regions of the cities that are characterized by substandard housing, a large immigrant population, poverty, and rapid population change will have high levels of social disorganization.[43] Areas with high social disorganization are also typically characterized by a high rate of delinquency or deviance.[44] This is because social disorganization provides an ineffective and weak social control.[45]

[38] Thomas Ugelvik, Sosial kontroll (Oslo: Universitetsforlaget, 2019), p. 14.
[39] Ugelvik, Sosial kontroll, p. 34.
[40] Ugelvik, Sosial kontroll, p. 35.
[41] Ugelvik, Sosial kontroll, p. 36.
[42] Ugelvik, Sosial kontroll, p. 24.
[43] Lin Huff-Corzine and Jay Corzine, "Social Disorganization Theory," in Encyclopedia of Social Deviance, ed. by Craig J. Forsyth and Heith Copes (Los Angeles: Sage Publications, 2014), p. 658.
[44] Inderbitzin et al., Deviance and Social Control, p. 314.
[45] Stuart Henry and Lindsay M. Howard, Social Deviance (Cambridge: Polity Press, 2019), p. 53.

According to the social disorganization theory, people in small traditional societies are less likely to engage in deviant behavior than people in large societies. In the smaller societies, or *Gemeinschaft*, everybody will know each other, and they will be responsible for each other. There will also be a shared dependency and history among the members of a small community. In such societies, the social structures and the hierarchy also tend to be stable. Since everybody will know each other in such a society, the social control will also be much stronger than in larger and less personal communities. [46]

Not every subgroup living in an area characterized by a high level of social disorganization will have high deviance rates. If there is a group in the area that is able to maintain the social cohesion and hierarchy that characterizes a small traditional community, this will counteract the social disorganization in the living area. In such a group, members can be expected to be less deviant than the rest of the neighborhood. For example, we could expect to see that the Jews in Roman cities would be less likely to be deviant because they would be able to rely on the social cohesion and hierarchy that the synagogues offered. In other words, there would be a community that would care about its members and how they behaved according to the standards that this community set.

The social disorganization theory is, however, not perfect. There have been some observations that the social disorganization theory has failed to explain. For example, it has been observed that while 'Orientals' in Seattle live in areas that have the characteristics of a socially disorganized community, they do not exhibit the increased level of deviance that one would expect.[47]

There is also a potential problem with the social disorganization theory if one applies it to rural China's situation in the eighteenth century. As more missionaries arrived in China, they started to convert people in rural areas with some success.[48] In particular, Christianity had great success in the province of Sichuan, with around 40,000 people being Christian in 1800. However, Sichuan was a particular case where a large part of the population were recent immigrants with no family or social network nearby.[49] Therefore, many of the rural

[46] Ugelvik, Sosial kontroll, p. 24.
[47] Huff-Corzine, Corzine, Social Disorganization Theory, p. 658.
[48] Bays, A New History of Christianity in China, p. 23.
[49] Bays, A New History of Christianity in China, p. 34.

communities in the province would have experienced the same social disorganization that one would find in a large city with many immigrants.

The Universality of Sociological Theories

The main problem with Stark's use of sociological theories to explain Christianity's rise is that he assumes that they are universal. He likens them with natural laws, specifically the theory of gravity, and states that "science does not proceed by testing empirically each and every application of its theories".[50] He then continues to use gravity as an example of scientists not testing all applications of their theories. Here Stark fails to understand the complexity of gravity. Gravity is, in fact, studied in experiments by physicists even today, more than 300 years after Newton published his theory of gravity.[51] These days the focus of observations of gravity is more focused on what is observed in astrophysics and quantum mechanics.[52] The introduction of a four-dimensional understanding of space and time, spacetime, that was introduced by Einstein in 1915 helps explain phenomena in space where Newton's classical theory of gravitation fails.[53] If a theory fails to explain every observation, it needs to be amended sociology that it can explain them, as in the case of the theory of gravity, or it must be rejected. As mentioned in the chapter's opening, sociological theories, unlike nature laws, are not always universal, and even if they were, one would need a large number of observations from different cultures before one could accept them as universal. The sociological perspective is, to quote Henslin, "the question of how groups influence people, especially how people are influenced by their society – a group of people who share a culture and a territory."[54] This makes it dangerous to take a theory that has been developed by observations in one society and then uncritically try to explain phenomena in other societies with that theory.

As we have seen, several of the theories that Stark relies on runs into problems when one tries to apply them to societies and cultures outside the modern western world. Therefore, we cannot just apply them uncritically to historical situations without first checking their validity

[50] Stark, The Rise of Christianity, p. 46.
[51] James B. Hartle, Gravity: An Introduction to Einstein's General Relativity. Harlow: Pearson, 2014), p. 109.
[52] Hartle, James B. Gravity, p. 3.
[53] Hartle, James B. Gravity, p. 4.
[54] Henslin, Sociology, p. 4.

with our source material. The exception to this would be the concept of deviance and social control that probably is present in all social groups regardless of culture since such groups inevitably will need some regulation in order to function properly.[55]

Neurology and Psychology of Religion

The part about neurology and psychology of religion will be sub-divided into two parts, one about natural religion, and one more specifically about conversion. Psychology is, as mentioned, in some ways, just as sociology, dependent on culture. Barrett uses the term maturationally natural cognition, or just natural cognition, to refer to cognitive capacities that either is fixed before birth or are a result of environmental regularities that are culturally independent.[56] This would, for example, be concepts such as a stone being a stone everywhere, and that a stone is inactive. Such natural capacities can easily be applied to the Graeco-Roman world as they are culturally independent and should work in the same way everywhere, but that is not the case for all psychological capacities. Our sense of the self and even our memories are, for instance, to some degree influenced by culture. Studies have shown that East Asian participants' sense of self focus more on the collective, while American participants have a more individual focus on their sense of self.[57] This carries over to our memories with Americans having more self-centered memories, while Chinese, on the other hand, have more group focused memories.[58] Even emotions are, to some degree, dependent on culture.[59]

Natural Religion and Christianity

Some types of religious thought fit better with our natural cognition than others. These kinds of thoughts and concepts are the kind that is just mildly counterintuitive. Being mildly

[55] Ugelvik, Sosial kontroll, p. 13.
[56] Justin L. Barrett, Cognitive Science, Religion and Theology: From Human Minds to Divine Minds (West Conshohocken: Templeton Press, 2011), p. 29.
[57] Stephen J. Heine, "Self as Cultural Product: An Examination of East Asian and North American Selves." Journal of Personality 69, no. 6 (2002): 881-905, p. 885.
[58] Julia Shaw, Falske Minner: Om Vår Svikefulle Hukommels, trans. Aleksander Melli (Oslo: Spartakus, 2018), pp. 66-67.
[59] Lisa Feldman Barrett, How Emotions are Made: The Secret Life of the Brain (London: Macmillan, 2017), p. 33.

counterintuitive will make it easier to communicate, conceptualize, and remember.[60] There are three areas where there is a clear break between natural religion and Christianity. These breaks would have made it more difficult for a person to understand Christian theology, and would, therefore, have been less likely to aid in the conversion. Here the focus will only be on the types of natural factors in natural religion that would have influenced a possible conversion to Christianity in the period in question.

The first two breaks with natural religion concern God's lack of anthropomorphic qualities. God is said to be both omnipotent and omnipresent. This breaks with how we naturally see the world. A god that is outside both time and space is, therefore, something that is extremely hard to conceptualize as it runs against everything that we can observe in the world.[61] Studies show that both believers and non-believers of monotheistic religions are just as prone to revert to a humanlike understanding when they describe actions by God.[62] In such an understanding, God can only do one thing at a time, and only be in one place at any given time. In other words, we are prone to put God inside the limits of time and space even if we, from a theological perspective, know that such a view is false.

The last break from natural religion is a point that is stressed by ancient authors in their attack against Christianity, a bodily resurrection. The concept of a human soul that is separate from the mind and body seem to be universal.[63] That the soul, or something similar, has agency and is able to continue an existence after the death of the body is also something that we tend to believe naturally. It also falls natural for us to believe that such souls can become deities.[64]

Since natural religion accepts that humans can have souls that are separate from the body and that such souls can continue to exist after the destruction of the body, it is not hard to believe in an afterlife where the soul of the deceased continue some kind of existence either in this world as a ghost or in another world.[65] On the other hand, bodily resurrection is less natural for us and requires more explanation and specification to be accepted.[66] This is not hard to understand as there are two questions raised in antiquity about this problem. One question

[60] Barrett, Cognitive Science, Religion and Theology, p. 105.
[61] Barrett, Cognitive Science, Religion and Theology, p. 132.
[62] Barrett, Cognitive Science, Religion and Theology, p. 137.
[63] Barrett, Cognitive Science, Religion and Theology, p. 88.; Hick, The New Frontier of Religion and Science, p. 191.
[64] Barrett, Cognitive Science, Religion and Theology, p. 132.
[65] Barrett, Cognitive Science, Religion and Theology, p. 88.
[66] Barrett, Cognitive Science, Religion and Theology, p. 134.

concerns the soul's state or fate between death and the bodily resurrection and the other how a bodily resurrection is possible since the body obviously decays in the grave.

Psychology of Conversion

We normally believe things because somebody has told us about it, and we are more likely to believe the information given to us if the source is somebody that we trust.[67] We also tend to conform to the dominant views around us, something which is called the conformity bias. This means that when we are in doubt, our society's consensus opinion will serve as the default belief. We similarly have a prestige bias, which means that we tend to imitate highly regarded people with social power, or high status. This is the case even if these people's prestige has nothing to do with the opinion itself. We are also inclined to trust the people that are most similar to us. This is called the similarity bias. The similarity bias combined with the prestige bias would suggest that one should conform to the views of the most prestigious individual that belong to the group that one identifies with.[68]

As mentioned above, Stark and Finke assume that people make rational choices when they convert. The idea that people always make rational choices has, however, been challenged by psychologists.[69] It has been shown that people make choices and judgments that are not always rational. For simplicity, we can talk about two different decision processes, one that relies on intuition and one that relies on reasoning.[70] The rational choice model's problem is that the faster and more effortlessly we can reach a decision by using intuition, the more likely we are to regard that decision or information as correct.[71] We are also prone to regard information as correct as long as it has been repeated repeatedly, preferably in association with happiness and success.[72] It would be most effective for a conversion process if a trusted person, who either was an authority or similar to us in some way, were to repeat positive stories from their religion repeatedly over a lengthy period.

[67] Barrett, Cognitive Science, Religion and Theology, pp. 41-42.
[68] Barrett, Cognitive Science, Religion and Theology, pp. 42-43.
[69] Barrett, Cognitive Science, Religion and Theology, p. 44.
[70] Barrett, Cognitive Science, Religion and Theology, p. 46.
[71] Barrett, Cognitive Science, Religion and Theology, p. 46.
[72] Barrett, Cognitive Science, Religion and Theology, p. 44.

Age plays a crucial role in conversion. It is a well-known fact that people are most likely to convert when they are in their adolescence or early adulthood.[73] Argyle defines this age group to be between 13 and 23 years old. A meta-study from the US found that the average age for conversion was 15.2 years.[74] It has been suggested that the reason for conversion in the adolescence is due to the 'identity crisis' that many teenagers experience.[75] It is also worth noting that this is a time period when it is a very active identity-formation taking place.[76] This is also a period when a person may lose their parents as attachment figures, which can have several important implications for an adolescent, for example, vulnerability and loneliness.[77] A meta-study shows that participants who reported insecure attachments to their parents showed an increased likelihood of sudden conversion.[78] Adolescents are also more likely to feel alienated, which also is a factor that can lead to conversion. Alienation here means an experience of strangeness or separateness. For example, this can be a lack of primary relations or a feeling that one does not belong in society.[79] Most conversions will happen before the age of 30.[80] After 40 years, a follow-up study found a high level of stability of the participants' religion.[81]

The likelihood of conversion during the adolescence and early adulthood can also be investigated from a neurological perspective. It has been well known that babies' brains undergo a massive neuronal pruning starting almost at birth.[82] During this process, a large number of individual neurons that are not used to die off. This process is necessary for us to optimize our brains. What is less known is that our brains will have a second burst of pruning during the adolescence.[83] The changes that occur in the brain during adolescence creates more

[73] Micheal R. Levenson et al., "Religious Development from Adolescence to Middle Adulthood." In Handbook of Psychology of Religion and Spirituality., ed. Raymond F. Paloutzian and Crystal L. Park (New York: The Guildford Press, 2005), p. 152.; Lee A. Kirkpatrick, "An Attachment-Theory Approach to the Psychology of Religion." In The Psychology of Religion: Theoretical Approaches, ed. Bernard Spilka and Daniel N. McIntosh, (New York: Routledge, 1997), p. 120.
[74] Micheal Argyle, Psychology and Religion: An Introduction (London: Routledge, 2000), p. 14.
[75] Raymond F. Paloutzian, Invitation to the Psychology of Religion (New York: The Guildford Press, 2017), p. 228.
[76] Argyle, Psychology and Religion, p. 15.
[77] Kirkpatrick, "An Attachment-Theory Approach to the Psychology of Religion", p. 120.
[77] Argyle, Psychology and Religion, p. 14.
[78] Lee A. Kirkpatrick, Attachment, Evolution, and the Psychology of Religion (New York: The Guildford Press, 2005), pp. 130-131.
[79] Saliba, Understanding New Religious Movements, p. 81.
[80] Argyle, Psychology and Religion, p. 14.
[81] Argyle, Psychology and Religion, p. 20.
[82] Marie T. Banich, and Rebecca J. Compton, Cognitive Neuroscience (Cambridge: Cambridge University Press, 2018), p. 457.
[83] Banich and Compton, Cognitive Neuroscience, p. 461.

powerful incentives to seek exciting rewards. This leads to adolescents being more likely to make risky choices when there are strong emotional incentives present. Adolescents also have a stronger need for belonging to social groups.[84] This can explain why adolescents are willing to risk the adverse reactions of conversion.

Problems with the Psychological Theories

The main problem with the psychological theories of religion is that they, like sociological theories, tend to have been developed in western society while they, at least to some degree, are culturally dependent. If a baby were to be taken from one culture to another, it would grow up to be a very different person than if it grew up in the first culture.[85]

There are, however, some studies where conversions happen at a later stage in life. Köse, in his study of converts to Islam in the UK, found the average age of the converts to be 29.7 years.[86] Much higher than what the psychological theories would predict. Similarly, a study from Wuhan in China found that it was mostly older people that converted to Christianity. A majority were older than 45 years, 72,4%, while as many as 49.9% were older than 60, and only 13.5% of the converts were in the age bracket 15-44.[87] Similar results have been observed in Shanghai, although the converts' demographic composition has changed over time. In 1980 only 15% of the converts were under 40 years, while 55% were over 60. In 1990 this had changed to 27% being under 40 years and 47% being over 60.[88] This demonstrates that conversion processes are complex and that a large number of factors work together in determining if there will be a conversion or not. 'Identity crisis' is, for example, not something that only happens adolescents. It can also affect adults that go through significant life transitions.[89]

In the examples from China, one likely cause for the overrepresentation of elderly converts is the fact that for many elderly, it is very lonely with the children who have moved to another

[84] Banich and Compton, Cognitive Neuroscience, pp. 462-463.
[85] Bargh, Before You Know It, p. 73.
[86] Ali Köse, Conversion to Islam (Abingdon: Routledge, 2010), p. 47.
[87] Han et.al, "Urban Residents' Religious Beliefs and Influencing Factors on Christianity in Wuhan, China", p. 6.
[88] Yang Fenggang, "Lost in the Market, Saved at McDonald's: Conversion to Christianity in Urban China." Journal for the Scientific Study of Religion 44, no. 4 (2005). Accessed September 23, 2020. http://www.jstor.org/stable/3590555, p. 428.
[89] Saliba, Understanding New Religious Movements, p. 86.

city.[90] This, combined with the fact that the retirement age in China is 60 for men and 50 to 55 for women, may at least explain some of the trends toward elderly conversion. Even so, it is clear that it cannot be taken for granted that converts are adolescents or young adults without taking the evidence available into account.

Conclusion

While it is useful to use theories and knowledge from sociology, psychology, and neurology to explain the conversion process in the Graeco-Roman world, one needs to be careful with the usage and not apply the theories uncritically. If they are used in tandem with our sources, they can be a great supplement to them. They can also give some indications of what may have happened in the cases where we lack evidence, but if it is used in that way, we need to be certain that the theories are valid across cultures.

This paper will use some of the theories used by Stark, most notably the social disorganization theory. Despite the problems with the rational choice model, a part of that will also be retained, as it will be assumed that people will not convert easily if they are facing a strong negative social reaction. The psychological and neurological theories will also be used, again, mainly in tandem with the source material. Where such material is lacking, the theories will be used in tandem with each other to try to arrive at a likely scenario.

[90] Han et.al, "Urban Residents' Religious Beliefs and Influencing Factors on Christianity in Wuhan, China", p. 11.

2. Demography

The theories of deviance and social control used to explain religious conversion by Stark in no small degree assumes that Christianity was an urban religion and that the cities, due to negative demographic growth, had a constant need for immigrants. Therefore, it is a need to define what is meant by the term urban in this paper and establish whether there was an 'urban graveyard' effect in the Graeco-Roman world. Lastly, an estimate of the total urban population in the empire would be needed to make any attempts to estimate the Christian population.

What is Urban?

Before one even tries to tackle the question of whether early Christianity mostly was an urban movement or not, it would be necessary to define what is meant by urban. Historians make statements about how many people lived in urban areas in the Roman empire, but they rarely specify what they mean by the term urban. Unfortunately, the question of what urban means is not an easy one to answer. There is no accepted definition of which qualities a city should possess.

At one level, the status of a city was a strictly legal one. It was a status that was granted to a settlement by the emperor.[91] Another way to look at the city is to look at its structures. The ideal city was supposed to have a particular set of structures. This could include a theater, an agora or a forum, government buildings, and baths. Both of these views are present in Pausanias' description of the city Panopeus:

> From Chaironeia two and a half miles bring you to the city of Panopeus in Phokis: if you can call it a city when it has no state buildings, no training-ground, no theatre, and no market-square, when it has no running water at a water-head and they live on the edge of a torrent in hovels like mountain huts. Still their territory has boundary stones with its neighbours, and they send delegates to the Phokian assembly.[92]

[91] Walter Scheidel, "Demography" In The Cambridge Economic History of the Greco-Roman World, ed. Walter Scheidel, Ian Morris and Richard P. Saller (Cambridge: Cambridge University Press, 2013), p. 78.
[92] Pausanias, Guide to Greece, 10:4:1.

From the text, it seems clear that Panopeus had the legal status of a city, yet Pausanias object to this status based on what seems to be a complete lack of monumental structures, which in his eyes, were necessary prerequisites if a settlement was to be called a city. An alternative definition is that a city needs to have a certain level of economic specialization. This would probably rule out the smallest 'cities' in the Graeco-Roman world as they would have a too large percentage of their population engaged in agricultural production. One problem here would be where to draw the line as even a sizeable town as Pompeii had a relatively large part of the population engaged in agriculture.[93] Large-scale production also took place in rural areas on the estates of the wealthy, making it difficult, if not impossible, to use a narrow economic definition to define 'urban.'[94]

Neither of these ways to define a city is very helpful when one tries to look at the sociological and psychological factors that could have influenced peoples' decision to embrace or reject Christianity. From a sociological perspective, a small city or town with, let us say, a thousand inhabitants would be expected to function more like a rural area than an urban one. This decision would, in large part, be influenced by how the settlement worked socially. Clearly, the legal status of the settlement one lives in would be unlikely to explain this. It is also unlikely that the presence of, say a theater, would change the social context to such a degree that it would make a conversion more or less likely to happen. The sociological definition of a city is based on four criteria, a large population size, dense settlements, occupation specialization, and impersonal and rational orientations. Impersonal and rational orientations are, in no small degree, a direct result of a large population size.[95] That leaves us in reality with the last category used to define a settlement as a city, population size.

Here we again have a problem. There is no agreed-upon size for what makes a city a city. Keith Hopkins defines a city as a settlement that has a population of 2,000 or more.[96] Wilson, on the other, concentrates his focus on cities and towns with 5,000 or more inhabitants.[97] Here

[93] Paul Erdkamp, "Urbanism". In *The Cambridge Companion to the Roman Economy,* ed. Walter Scheidel (Cambridge: Cambridge University Press, 2012), p. 246.
[94] Erdkamp, "Urbanism", p. 247.
[95] Mark Abrahamson, Urban Sociology: A Global Introduction. (Cambridge: Cambridge University Press, 2014), p. 5.
[96] Keith Hopkins, "Christian Number and Its Implications." In Sociological Studies in Roman History, ed. Christopher Kelly (Cambridge: Cambridge University Press, 2017), p. 452n36.
[97] Andrew Wilson, "City Sizes and Urbanization in the Roman Empire". In Settlement, Urbanization, and Population, ed. Alan Bowman and Andrew Wilson (Oxford: Oxford University Press, 2013), p. 180.

he is in line with Hanson that uses 5,000 as one of his population thresholds.[98] However, the size of a settlement alone is not a sufficient criterion for the definition of a city, as Bagnall talks about Egyptian villages with a population of 5,000 or more.[99] These Egyptian villages would most likely have had a lower population density than what would be typical for a city or town.[100] Here Wilson's suggestion of a population of 5,000 combined with a population density of minimum 100 per hectare makes sense as it will exclude most Egyptian villages, which probably would be the only that had a population as large as 5,000.[101] This is also in line with the sociological definition that stresses the combination of a large population with a dense settlement.

On the other hand, Stark deviates from the sizes used above to define ancient cities and puts a considerable minimum size on the population needed to be counted as a city with his 30,000, as this is the population of the smallest city that he seems to consider.[102] While he obviously needs to use a population size that makes it possible for him to use theories of deviance and social control to their greatest effect, it is hard to see why such a high number would be needed. If the intention is to get a population size that is subject to negative demographic growth and, therefore, immigration, then a significantly smaller number would probably suffice. The urban graveyard effect has been observed for early modern towns with a population as low as 1,500, and it is not apparent that it would have been any different in the Graeco-Roman world.[103]

In this paper, the population size, together with density, will define what is to be considered a city. While there are problems with this approach, it is needed if one is to use the sociological theories of deviance and social control to explain the rise of Christianity. For the use of sociological theory in explaining the preference of an urban Christianity, we need a population size that is 1) large enough for people to have the possibility of anonymity, at least to some degree, and 2) we need a population that is large enough, and dense enough, to create health hazards, and therefore high mortality levels, that one typically do not see in the

[98] J. W. Hanson, An Urban Geography of the Roman World, 100 BC to AD 300. (Oxford: Archopress, 2016), p. 43.
[99] Roger S. Bagnall, Egypt in Late Antiquity (New Jersey: Princeton University Press, 1993), p. 110.
[100] Wilson, City Sizes and Urbanization in the Roman Empire, p. 180.
[101] Wilson, City Sizes and Urbanization in the Roman Empire, p. 176.
[102] Stark, The Rise of Christianity, pp. 131-132.; Rodney Stark, Cities of God: The Real Story of How Christianity Became an Urban Movement and Conquered Rome (New York: HarperCollins, 2006), pp. 35-59.
[103] Neville Morley, "The Salubriousness of the Roman City." In Health in Antiquity, ed. Helen King (Abingdon: Routledge, 2005), p. 197.

countryside. The best choice here does, therefore, seem to follow Wilson's definition of a population of about 5,000 or more as the marker of being 'urban.' A population of 5,000 would probably be enough to force a migration to the city because of negative demographic growth, while it at the same time would be large enough for it to be possible with some anonymity for the inhabitants. Psychological research shows that the maximal number of people a person can relate to as individuals are about 150.[104] In addition, a person can know of up to 1,500 individuals, but the people that do not fit in our more intimate circle of 150 can only be known as categories of individuals, which means that we can put them in a particular class, but will be unable to know anything personal about them.[105] For example, it would not be ecident to people that somebody was missing from a religious festival with such numbers. It is also a number that frequently is used as a threshold for a city in other historical periods, making it easier to use comparative methods when we lack ancient data.[106] Furthermore, studies of medieval and early modern Europe tend to use a threshold of 5,000 to define a settlement as urban.[107] Using a similar threshold here would mean that it will be easier to compare cities from different time periods.

The Urban Landscape in the Graeco-Roman World

An investigation of the urban landscape is necessary both for the discussion of immigration from rural to urban areas as it will affect the disease ecology and for the discussion of the total number of Christians within the empire. A handful of megacities dominated the urban landscape in the Graeco-Roman world. Chief among these megacities was Rome, with a population of about 686000 in the third century AD.[108] After Rome, Alexandria followed, which Delia estimates to have had a population in the region of 500,000 to 600,000.[109] Hanson puts the number to 486,000, while Wilson uses 500,000.[110] Here the more conservative estimate of about 250,000 would probably be in order. After these cities came a

[104] Robin Dunbar et al., Evolutionary Psychology: A Beginner's Guide (London: Oneworld Publications, 2007), p. 118.
[105] Dunbar et al., Evolutionary Psychology, p. 120.
[106] Wilson, "City Sizes and Urbanization in the Roman Empire", p. 180.
[107] Erdkamp, "Urbanism", p. 244.
[108] Hanson, An Urban Geography of the Roman world, p. 66.
[109] Diana Delia, "The Population of Roman Alexandria." Transactions of the American Philological Association (1974-) 118 (1988), Accessed May 20, 2020. doi:10.2307/284172, p. 288.
[110] Hanson, An Urban Geography of the Roman world, 67.; Wilson, "City Sizes and Urbanization in the Roman Empire", p. 185.

number of cities in the range between 100,000 and 150,000. Hanson states that there were 12 cities that covered areas in the same range as Ephesus and Carthage, which would mean that they had a suggested population between 92,000 and 154,000.[111] Wilson puts Carthage's population as high as 300,000, but only have five other cities above 90,0000.[112] A population of 300,000 for Carthage seems to be on the large side, and to put the population in the range of 150,000 to 200,000 would probably be safer.

When it comes to the total urban population of the Roman empire, the historian seems to be more or less in agreement, with Hanson giving a somewhat higher number than the rest with his projected numbers. Wilson operates with a total of 356 cities with a population of 5,000 or more with a total population of 7.388 million, while Hanson's research gives 289 cities of that size with a total population of 8.467 million.[113] However, Hanson does try to estimate the total urban population number based on cities that we know existed but have no data for, reaching a number around 10.6 million for the low figure, and with a high figure at 14.8 million.[114] This is probably not valid estimates as it is likely that the cities that we have no evidence for probably were mostly on the small side, and few would probably have had a population of 5,000 or higher. Hopkins has an estimate of the urban population at 15%, which would be around 9 million, assuming an urban threshold at 2,000, while Scheidel uses 7 to 9 million.[115] On the other hand, Stark deviates significantly from the 'consensus' numbers due to his high population threshold for what counts as urban. This leads him to use a very low number for the empire's total urban population, with only about 3 million being urban.[116] Given this, an urban population in the range of 7.5 to 8.5 million seems to be a relatively safe estimate for the urban population in the Graeco-Roman world.

Immigration and The Urban Graveyard effect

Before starting to look at the use of sociology in an urban setting, a discussion of excess urban mortality is needed. This is because social control and deviance theories need to assume that a large part of the urban population is migrants from rural areas. This is especially true for

[111] Hanson, An Urban Geography of the Roman world, p. 67.
[112] Wilson, "City Sizes and Urbanization in the Roman Empire", pp. 183-191.
[113] Hanson, An Urban Geography of the Roman world, 43.; Hanson, An Urban Geography of the Roman world, p. 69.
[114] Hanson, An Urban Geography of the Roman world, p. 70.
[115] Hopkins, "Christian Number and Its Implications", p. 458.; Scheidel, "Demography", p. 79.
[116] Stark, Cities of God, p. 60.

social disorganization theory. Since there was no massive growth of cities in the latter part of the period when most of the conversion to Christianity would have taken place, such a migration could only have happened if the urban mortality rate was so high that cities had negative demographic growth. We do not have reliable numbers for the urban mortality rates in any ancient city. The use of inscriptions on grave monuments results in age distributions that are highly implausible with almost no infants and an over-representation of people over 70, with one study of more than 1,258 epitaphs from a region in North Africa with 39.3% percent being over 70 years of age and only 0.5 percent were under the age of 10.[117] While this particular set of inscriptions may have been on the more extreme side, other studies show similar biases. Skeletal data has some of the same errors that we find from epigraphic evidence.[118] This is not too surprising as one would expect to find a similarity between the inscription on the tomb and the occupant. A woman or a child would, after all, be unlikely to be buried in a grave where the epitaph commemorates an older man. Another factor that will cause errors is that infant skeletons survive less in the earth due to them being more fragile.[119] In addition, it is difficult to tell the age from an adult skeleton.[120] Census data is, on the other hand, limited when it comes to area, we only have Egyptian ones, and even where we have such data, they are not complete and represent just a fraction of the population.[121] As a result, we are forced to look at comparative data from the medieval and early modern period. Scheidel, Morley, and Frier have all argued for an 'urban graveyard effect.' [122] Holleran also argues for negative demographic growth, at least in Rome, stating that "widespread poverty and malnutrition, and a dangerous disease environment all resulted in a population that was unable to reproduce itself."[123] Such an argument would probably also be true for the other large cities of the empire. Morley estimates that 10,000 immigrants were needed yearly for

[117] Peter Jones, Memento Mori: What the Romans Can Tell Us About Old Age and Death (London: Atlantic Books, 2018), p. 9.
[118] Tim G. Parkin, Demography and Roman Society (Baltimore: The Johns Hopkins University Press, 1992), p. 42.
[119] Roberta Gilchrist, Medieval Life: Archaeology and the Life Course (Woodbridge: Boydell Press, 2012), p. 48.
[120] Willem Jongman, "Archaeology, Demography, and Roman Economic Growth." In Quantifying the Roman Economy: Methods and Problems, ed. Alan Bowman and Andrew Wilson (Oxford: Oxford University Press, 2009), p. 117.; Walter Scheidel, "Progress and Problems in Roman Demography". In Debating Roman Demography, ed. Walter Scheidel (Leiden: Brill, 2001), p. 19.
[121] Parkin, Demography and Roman Society, p. 21.
[122] Scheidel, "Demography", p. 84.; Neville Morley, Metropolis and Hinterland: The city of Rome and the Italian economy 200 B.C.-A.D. 200 (Cambridge: Cambridge University Press, 1996), p. 43.; Bruce W. Frier,"Demography." In The Cambridge Ancient History Vol. XI: The High Empire, A.D. 70-192., ed. Alan K. Bowman, Peter Garnsey, and Dominic Rathbone (Cambridge: The Cambridge University Press, 2008), p. 813.
[123] Claire Holleran, "Migration and the Urban Economy of Rome." In Demography and the Graeco-Roman World: New Insights and Approaches, ed. Claire Holleran and April Pudsey (Cambridge: Cambridge University Press, 2011), p. 158.

Rome to keep its population-level stable at one million.[124] Scheidel suggests that up to 40 million people would have been needed to populate and sustain the cities of the Roman world over a period of thousand years.[125] Hin, on the other hand, warns against assuming that there was a natural population deficit in Roman cities based on the data from early modern cities in Europe.[126] In fact, the entire urban graveyard effect has been challenged by some.[127] Therefore, it will be necessary to look at some of the most common and deadly diseases in the Graeco-Roman world to assess if it was likely to be natural negative population growth in the cities. This will also help assess Stark's claim that Christianity was the beneficiary of the epidemics in the second and third centuries.[128]

The Disease Ecology of the Roman World

Before discussing the individual diseases that were present in the Roman world, it would be helpful to discuss a few of the key concepts for understanding epidemics, namely 'endemic,' 'herd immunity,' and 'critical community size.' If a disease becomes endemic, it will never go away, but stay in the background at a low level for most of the time, with epidemic outbreaks from time to time. For a disease to become endemic, the population in question must have a large enough population to sustain the disease outbreak, called critical community size.[129] The critical community size can be estimated from the following equation:[130]

$$N = \frac{I * L}{(1 - p - 1/R0) * D}$$

Here N is the critical community size for the disease. L is the life expectancy of an individual, D is the duration of the infectious period, and p is the proportion of the successfully

[124] Morley, Metropolis and Hinterland, p. 44.
[125] Scheidel, "Demography", p. 84.
[126] Saskia Hin, "Population." In The Cambridge Companion to the Roman Republic, ed. Harriet E. Flower (Cambridge: Cambridge University Press, 2014), p. 156.
[127] Laurence E. Tacoma, Moving Romans: Migration in the Roman Principate (Oxford: Oxford University Press, 2016), pp. 146-147.
[128] Stark, The Rise of Christianity, p. 74
[129] Matthew Hartfield and Samuel Alizon, "Introducing the Outbreak Threshold in Epidemiology." PLoS Pathogens 9, no. 6 (2013): E1003277. https://doi.org/10.1371/journal.ppat.1003277, p. 2.
[130] Klaus Dietz, "Some Problems in the Theory of Infectious Disease Transmission and Control." In Epidemic Models: Their Structure and Relation to Data, ed. Denis Mollison (Cambridge: Cambridge University Press, 1995), p. 9.

immunized population. I is the equilibrium number of infectives at the chosen level for a fade-out, while R_0 is the disease's basic reproductive number. This is the number of people that one infected person can directly infect during the infectious period when he or she enters a susceptible population.[131] R_0 is not a constant but will change according to the population density, types of social contacts, et cetera.[132] It can, therefore, be expected to be higher in large urban areas that are more densely populated than in smaller urban and rural areas.

As we can see from the equation, R_0 does not affect the population needed for a disease to become endemic as much as one might think. An increase in R_0 from 5 to 12, the R_0 for smallpox and measles, will only lead to an increase in the critical community size by about 39%. The proportion of the population that has been successfully immunized, p, also plays a role as immigration is likely to push the percentage of the population that has been immunized down. It is unlikely that it would make a large impact, though, as the immigrants to a city would probably not be over 1-2% of the population each year. The importance of L, the life expectancy, is, on the other hand, of great importance for scholars of antiquity. As L, in contrast to R_0 and p, has a linear effect on the equation, it will have a much larger impact on the critical community size. A doubling of the life expectancy will, in effect, lead to a doubling of the critical community size. This is important when one considers ancient cities as the critical community sizes quoted in medical literature for different diseases that have been established from observable data taken from cities in the modern period. Bartlett's data for establishing the critical community size for measles in American cities were taken from 1921 to 1940, a period with much higher life expectancy than the case in the Graeco-Roman world.[133] Therefore, the critical community size that was in effect for a disease in antiquity was likely to be a good deal smaller than the critical community size we find in the literature.

If a city's size is larger than the critical community size, the disease will have few susceptible individuals to infect after the first epidemic outbreaks as most will have immunity. The disease then enters its endemic state and will mostly infect children and immigrants as these have had no chance to achieve immunity. As not every child or immigrant will get infected, the pool of susceptible individuals will slowly grow until it is large enough to sustain another epidemic outbreak. The second epidemic will be milder than the first one, and future

[131] Susan Scott and Christopher J. Duncan, Biology of Plagues: Evidence from Historical Populations (Cambridge: Cambridge University Press, 2001), p. 25.
[132] Scott, Duncan, Biology of Plagues, p. 26.
[133] M. S. Bartlett, "The Critical Community Size for Measles in the United States." Journal of the Royal Statistical Society. Series A (General) 123, no. 1 (1960): 37-44. Accessed November 1, 2020. doi:10.2307/2343186, p. 37.

epidemics will be even milder.[134] Cities can be classified after Kendall Type waves.[135] With this classification, cities that are large enough to sustain an endemic state are called Type I cities. For measles in the modern period, this is cities with a population in the range of 250,000 to 300,000, while Type III cities have a population of less than 10,000.[136] Type II cities have a population between Type I and Type III cities. As illustrated by figure 1, a disease will act differently according to the type of city. In all the types of cities, the first epidemic will be devastating, but only a Type I city will have an endemic state, the other type of cities will have sporadic epidemics as the virus is spread from a Type I city.

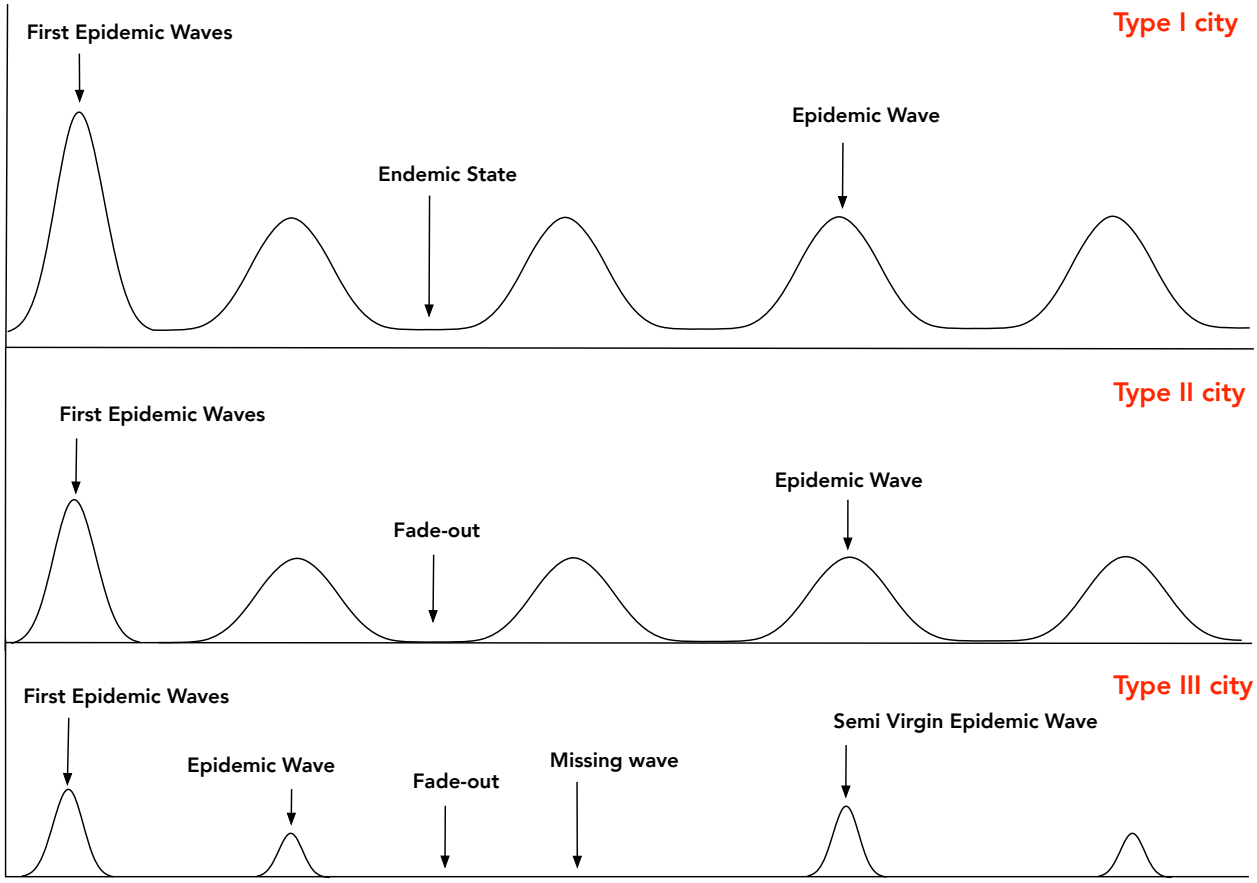

Figure 1. In a Type I city, the population is large enough for the disease to become endemic after the initial epidemic. Smaller epidemics will appear with a few years interval as the pool of susceptible becomes large enough. In a Type II city, the population is not large enough for the disease to become endemic, and there will be years where nobody is infected, fade-outs, and epidemics will appear regularly as the disease is imported from outside. Type III cities have a population less than 10,000, and here there will be a longer time between epidemic outbreaks, which leads to a larger pool of susceptible and thus larger outbreaks when they happen. Source: adapted from Cliff et al., World Atlas of Epidemic Diseases, fig. 9.6 p. 135.

[134] Scott, Duncan, Biology of Plagues, p. 38.
[135] Andrew D. Cliff et al., World Atlas of epidemic Diseases (London: Taylor & Francis, 2004), p. 10.
[136] Cliff et al., World Atlas of Epidemic Diseases, p. 135.

What would the critical community size be for some of the major diseases we could expect to find in the Graeco-Roman world? Measles has, as mentioned, a critical community size of 250,000 to 300,000. Studies of high-density island populations have found that measles can become endemic in populations with about 500,000 people.[137] This may indicate a possibility that smallpox and other diseases that generally are endemic in large cities could have been endemic in Egypt. Egypt can, after all, in many ways, be seen as an island that is relatively isolated from its surroundings, and with an unusually high population density. For smallpox, the critical community size would be expected to be around 200,000.[138] If we use the modern numbers for the critical community size for these diseases, both of them would have been endemic in Rome and Alexandria, and probably also in Antioch if they were present. However, we can easily estimate the critical community size in the Graeco-Roman world due to the dependency on life expectancy.

During the years that Bartlett used for his calculation of the critical community size, the life expectancy in the US was oscillating a lot, from about 57 years to 60 years.[139] Since life expectancy has a linear effect on the critical community size, we can relatively easily estimate the critical community size for these diseases in the ancient world. The average life expectancy in the Roman world has been estimated to be around 25 years.[140] To make it easy to calculate, we can stick with round numbers and say that life expectancy in the US from 1921 to 1940 was about twice what it was in the Graeco-Roman world. If we do that, we end up with a critical community size for the Graeco-Roman world that is half of what is the case for the modern world, roughly 150,000 for measles and about 100,000 for smallpox. These numbers would restrict measles to being endemic in Rome, Alexandria, Antioch, and possibly also Carthage. For smallpox, these numbers suggest that it could have been endemic in several of the largest cities in the empire, making its effect much more devastating than what a single epidemic outbreak ever could be.

If an area that meets the criteria for a disease to become endemic, it would need to achieve herd immunity to prevent such a situation. Herd immunity is given by the expression $p_c > 1-$

[137] Linda A. Newson, Conquest and pestilence in the Early Spanish Philippines (Honolulu: University of Hawai‘i Press, 2009), p. 11.
[138] Frank Fenner et al., Smallpox and its Eradication (Geneva: World Health Organization. 1988), p. 118.
[139] Jóse A. Granados, et al., "Life and Death during the Great Depression." Proceedings of the National Academy of Sciences of the United States of America 106, no. 41 (2009): 17290-7295. Accessed September 19, 2020. http://www.jstor.org/stable/40485181, p. 17290.
[140] Jones, Memento Mori, p. 12.

($1/R_0$) and is thus entirely dependent on R_0.[141] As one can see, the larger R_0 becomes, the larger p_c, the percentage of the population needed for herd immunity, becomes. For smallpox, the R_0 is about 5, which means that herd immunity is reached if 80% of the population has been immunized, which can virtually only be achieved with vaccination.[142]

Food and waterborne diseases

Food and waterborne diseases would be one area where The Roman cities might have had an advantage over early modern cities. The presence of aqueducts and water basins in the Roman cities would have reduced most of the problems that cities in the early modern world had with contaminated water, as they would have more or less eliminated the possibility of contamination from sewers. They would, however, not have been enough to eliminate the problem with waterborne diseases completely. Unless a household had a direct piped connection to the water, and most had not, it would have to be stored in a container that most likely would have been open. Such water containers would have drawn disease-carrying flies, like blow flies, that could have contaminated it. Despite the aqueducts and water basins, there would still have been a large number of food- and waterborne diseases in Roman cities. In Herculaneum, almost 20 percent of the skeletons studied showed that they had suffered from brucellosis infections.[143] The presence of this disease in such a large part of the population suggests that most likely other food and waterborne diseases would have been rampant.

Another potential benefit that Roman cities had was sewers. Sewers can, potentially, significantly reduce the risk of waterborne diseases being spread. There is some evidence that sewers were used to dispose of waste from the latrines in, for example, Herculaneum, even from upper storage latrines, but as Scobie points out, it was unusual for private households to connect their latrines to them.[144] Instead, they seem to have relied on latrines with cesspits.[145] Scobie speculates that the reason may be that the corrosion effects that hydrogen sulfide (H_2S)

[141] Ottar N. Bjørnstad, Epidemics: Models and Data with R. (New York: Springer, 2018), p. 31.
[142] Fred Brauer et al., Mathematical Models in Epidemiolog (New York: Springer, 2019), p. 68.
[143] Robert Sallares, “Ecology”. In The Cambridge Economic History of the Greco-Roman World, ed. Walter Scheidel, Ian Morris, and Richard P. Saller (Cambridge: Cambridge University Press, 2013), p. 34.
[144] Barry Hobson, Latrinae Et Foricae: Toilets in the Roman World (London: Gerald Duckworth, 2009), p. 10.; Alex Scobie, "Slums, Sanitation, and Mortality in the Roman World", *Klio* 68, 68: 399-433, doi: https://doi.org/10.1524/klio.1986.68.68.399, p. 409.
[145] Hobson, Latrinae Et Foricae, p. 46.

has on concrete, and the risk of explosion caused by methane (CH_4).[146] While it is undoubtedly true that hydrogen sulfide would corrode the concrete, this would have taken some time. It is more likely that the Romans would have had more immediate concerns regarding the gas. Hydrogen sulfide is a toxic gas that has an odor like rotten eggs, and low-level exposure over a long period of time will give symptoms ranging from irritated eyes, nose, and throat to headache, dizziness, nausea, vomiting, and heavy breathing.[147] Given that latrines often were located together with the kitchen, it would seem more likely that these symptoms would have been the Romans' prime concern here as they would be almost immediately observable and would also severely affect a person's ability to do any work. They would certainly undoubtedly be able to notice these effects well before any corrosion caused by hydrogen sulfides was detected. In addition, the latrines' location in, or close to, the kitchen would have made the risk of an explosion from methane reasonably high.

While there remained a certain risk of spreading waterborne diseases in Roman cities, the risk of contamination of the food was probably much higher. Since human excrement was used as a supplement to animal fertilizers, there was a constant risk that it would cause possible food contamination. This would, however, not have been a purely urban problem.[148] People in rural areas would have been subject to the same kind of contamination as their urban counterparts. However, such contamination could probably spread to a larger percentage of the population in a city. In a rural area, the contamination on one farm would be unlikely to spread to the populations on the other farms in the village as the food produced on a specific farm would have been consumed on that farm, limiting the infection to that farm. In the city, the situation was different. The food from a single infected farm could reach a large number of people, and the people handling that food in the market or kitchen could, through poor hygiene, spread it to other people. There would, in other words, have been more opportunities for the infection to spread in urban areas.

In Pompeii, the lavatories are usually located either in or in a space partly separated from the kitchen.[149] This would undoubtedly have made life easier for the person cooking as it would

[146] Scobie, "Slums, Sanitation, and Mortality in the Roman World", p. 412.
[147] D. S. Simonton and Morgan Spears, "Human Health Effects from Exposure to Low-level Concentrations of Hydrogen Sulfide." Occupational Health & Safety 76, no. 10 (2007): 102, 104. Accessed September 21,2020. https://ohsonline.com/Articles/2007/10/Human-Health-Effects-from-Exposure-to-LowLevel-Concentrations-of-Hydrogen-Sulfide.aspx?Page=5, pp. 102-104.
[148] Scobie, "Slums, Sanitation, and Mortality in the Roman World", p. 408.
[149] Scobie, "Slums, Sanitation, and Mortality in the Roman World", p. 409.

have been an easy and practical way of getting rid of kitchen waste. From a disease perspective, this would, however, be less than ideal and would have increased the risk of contamination of the food dramatically. The excrements in the cesspit would have been an ideal breeding ground for blow flies.[150] The flies would then have had easy access to both the food and water that was stored or being prepared in the kitchen. In the cesspit, the flies would get bacteria on their hairy appendages and in their gut, which they then would shed again when they stepped on the food or sampled it.[151]

Bathing may also have been a significant source of waterborne infections in the Roman world. The public baths were used both by the sick, and the healthy, and bacteria and parasites would easily have been passed on between the clients. While we have no direct knowledge of the temperatures in Roman baths, it is reasonable to assume that it would have been close to that of Turkish baths. That would mean a floor temperature of 42-44 °C, a higher floor temperature would too warm to walk barefoot, and a room and water temperature of 37-38 °C.[152] Such a water temperature would be close to the ideal temperature for many food and waterborne diseases like, for example, salmonella and E. coli.[153] Therefore, it is not unlikely that the baths would have been a breeding ground for such diseases and a major source of infections in Roman cities.

Tuberculosis

Tuberculosis is one of the most ancient diseases that has plagued humanity, and it can be traced back to the stone age in the archaeological record.[154] Since the disease leaves a distinct sign of erosion and fusion of its victims' vertebrae, it is one of the few diseases discussed in this paper that we can securely distinguish in the archaeological records.[155] It has been identified in the archaeological records of Herculaneum with two out of 162 skeletons having

[150] Scobie, "Slums, Sanitation, and Mortality in the Roman World", p. 420.
[151] Frank M. Snowden, Epidemics and Society: From the Black Death to the Present (New Haven: Yale University Press, 2019), p. 150.
[152] Fikret Yegül, Bathing in the Roman World (Cambridge: Cambridge University Press, 2010), p. 83.
[153] Daniel Brands, Salmonella: Deadly Diseases and Epidemics (New York: Chelsea House, 2009), p. 16.; M. P. Doyle and J. L. Schoeni, "Survival and growth characteristics of Escherichia coli associated with hemorrhagic colitis." Applied and environmental microbiology, 48(4), (1984), 855–856. https://doi.org/10.1128/AEM.48.4.855-856.1984, p. 856.
[154] Cliff et al., World Atlas of epidemic Diseases, p. 56.
[155] Kim Renee Finer, Tuberculosis: Deadly Diseases and Epidemics (New York: Chelsea House, 2003), p. 8.

distinct signes of tuberculosis infection.[156] It can, therefore, be no doubt that it was a disease that plagued the Graeco-Roman world.

Tuberculosis has a rather small critical community size. Mckinney et al. suggest that a population above 200 may be sufficient, while Lougheed puts it in the range of 180-440.[157] Due to the small critical community size, it would have been endemic in most, if not all, of the empire, the rural areas included. This does, however, not mean that the disease affects urban and rural areas equally. A study of white male US navy recruits showed that urban residents had a 50% higher rate of positive skin tests than lifetime rural residents.[158] The difference in over-crowding between urban and rural areas would likely have been even more profound in Roman cities than in modern American, which would have meant that the urban areas of the time would have had an even higher rate of tuberculosis than rural areas.

Tuberculosis does not develop easily in a human host, and it requires repeated and prolonged exposure to spread the disease.[159] This is despite the fact that it requires only 8 to 10 bacili to get infected.[160] The reason for this is that it takes multiple factors for the disease to develop in addition to the host being infected by the tubercle bacillus.[161] The body weight of a person is one factor that massively affects the relative risk of developing tuberculosis. People that are 10% underweight have a relative risk of developing the disease that is 3.4 times higher than a person with an ideal body weight, and being overweight or obese actually reduces the risk further.[162]

If we take a closer look at the infections in Herculaneum, it shows that only a small percentage of the population, about 1.2%, had active tuberculosis infections. Capasso suggests that these cases may be due to the eating of oxen viscera after ritual sacrifices.[163] Presumably, he theorizes that they had contracted *M. bovis* instead of *M. tuberculosis*. If this were the case, then there would be very little tuberculosis in Herculaneum, and presumably,

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[156] L. Capasso, "Infectious Diseases and Eating Habits at Herculaneum (1st Century AD, Southern Italy)." International Journal of Osteoarchaeology 17, no. 4 (2007): 350-57. doi:10.1002/oa.906, p. 354.
[157] John D. Mckinney et al., “Persisting Problems in Tuberculosis”, In Emerging Infections, ed. Richard M. Krause, Biomedical Research Reports (San Diego: Academic Press, 1998), p. 53.; Kathryn Lougheed, Catching Breath: The Making and Unmaking of Tuberculosis (London: Bloomsbury, 2017), p. 24.
[158] Megan Murray, “The Epidemiology of Tuberculosis.” In Tuberculosis: The Essentials, ed. Mario C. Raviglione (New York: Informa Healthcare, 2010), p. 27.
[159] Finer, Tuberculosis, p. 37.
[160] Finer, Tuberculosis, p. 32.
[161] Cliff et al., World Atlas of epidemic Diseases, pp. 57-58.
[162] Murray, The Epidemiology of Tuberculosis, p. 34.
[163] Capasso, Infectious diseases and eating habits at Herculaneum, p. 354.

also other Roman cities, since *M. bovis* does not easily spread between humans as person-to-person transfer have only been reported infrequently.[164] This is, however, most likely, not the case. The damage caused to the vertebrae by tuberculosis is caused by the disease, meaning that the two individuals from Herculaneum had developed an active infection. If we assume that the sample of skeletons is more or less representative for the population of Herculaneum and that the percentage of active infections are in the same range, 5-20% of the people being infected, as in the modern world, then it would mean that the numbers of infected people in Herculaneum would be in the range of 6 to 25% of the population. Given that Herculaneum was a small city barely meeting the urban criteria used in this paper with its population of about 5,000, these numbers are plausible since the city would not have had the over-crowding problems that plagued Rome and large modern cities like London.[165] Such numbers would be unlikely to be caused by *M. bovis* and are more likely the result of *M. tuberculosis* infections. It is no reason to suggest that cases in Herculaneum were due to *M. bovis* infections as it is known that *M. tuberculosis* and *M. bovis* emerged in parallel.[166] Besides, while *M. bovis* shows a preference for cattle, it will readily infect a range of species.[167] Including goats, sheep, horses, and pigs.[168] *M. Bovis* infections of goats have been demonstrated in both the UK and in India, with as many as 24.7% of the goats in a herd testing positive in one Indian case.[169] If *M. bovis* caused the infections in Herculaneum, it would be much more likely that the cause of the infections was either goat or sheep milk as that was used by the Romans both for drinking and making cheese.[170] Since the latest research indicate that *M. bovis* developed from *M. tuberculosis*, and not the other way as previously thought, it is no good reason to suggest that these cases were due to a *M. bovis* infection.

[164] Bryan Buss et al., "Possible Airborne Person-to-Person Transmission of Mycobacterium bovis" — Nebraska 2014–2015. MMWR. Morbidity and Mortality Weekly Report. 65. (2016). 197-201. 10.15585/mmwr.mm6508a1, p. 199.
[165] Capasso, "Infectious diseases and eating habits at Herculaneum", p. 350.
[166] Lougheed, Catching Breath, p. 37.
[167] Lougheed, Catching Breath, p. 34.
[168] D. V. Cousins, "Mycobacterium bovis infection and control in domestic livestock." Revue scientifique et technique (International Office of Epizootics) vol. 20,1 (2001): 71-85. doi:10.20506/rst.20.1.1263, p. 72.
[169] Tim Crawshaw et al., "TB in goats caused by Mycobacterium bovis." The Veterinary record. 163. 127. (2008). 10.1136/vr.163.4.127., p. 127.; Cousins, Mycobacterium bovis infection and control in domestic livestock, p. 73.
[170] Luigi Capasso, "Brucellosis at Herculaneum (79 AD)." International Journal of Osteoarchaeology 9, no. 5 (1999): 277-88. doi:10.1002/(SICI)1099-1212(199909/10)9:5<277::AID-OA489>3.0.CO;2-0, p. 286.

Malaria

Malaria was undoubtedly one of the more devastating diseases that were endemic in the Roman empire. Sind points to the existence of malaria in some regions of the countryside to argue that mortality was not necessarily lower in rural areas than in urban areas.[171] While this is a fair point, it is still likely that the large cities exposed to malaria had a higher mortality rate for the disease than comparable rural areas. There are several reasons this would have been the case, and they are tied to the nature of both the disease itself and its vectors. For a mosquito to infect a human with malaria, it is necessary first to bite an infected human and then a susceptible human.[172] If this does not happen, then the malaria parasite will not be transferred, and the chain of infection will be broken. Therefore, the R_0 of malaria will depend on both the number of mosquitoes in an area and the feeding habits of the mosquito species in question.[173]

The two most effective mosquito vectors for malaria transmission in the Graeco-Roman world would have been *Anopheles labranchiae* and *Anopheles sacharovi*.[174] *Anopheles sacharovi* has a strong anthropophilic tendency, meaning that it prefer to feed on human blood.[175] *Anopheles labranchiae* on the other hand, has a strong zoophilic tendency, preferring to feed on bovine, equine, and swine blood over human blood.[176] Even though *Anopheles labranchiae* has a strong preference for human blood compared to sheep blood with a forage ratio for humans that are 4.5 times that of sheep, a study from Maremma showed that 40.3 percent of the specimens had fed on sheep compared to just 1.6 percent on humans.[177] This is likely due to the availability of sheep, which were much more abundant in the area than humans. Even in the case of *Anopheles sacharovi*, which is described as highly anthropophilic, a survey from Greece in the 1970s showed that it would feed on a broad range of hosts according to availability.[178] We could probably expect to see a similar pattern in

[171] Hin, "Population", 160.
[172] Cliff et al., World Atlas of epidemic Diseases, p.100.
[173] Andrew Spielman and Michael D'Antonio, Mosquito: The Story of Man's Deadliest Foe (New York: Hyperion, 2001), p. 97.
[174] Cliff et al., World Atlas of epidemic Diseases, p.101.
[175] Robert Sallares, Malaria and Rome: A History of Malaria in Ancient Italy (Oxford: Oxford University Press, 2002), p. 98.
[176] Roberto Romi et al., "Assessment of the Risk of Malaria Re-introduction in the Maremma Plain (Central Italy) Using a Multi-factorial Approach." Malaria Journal 11, no. 1 (2012): 98, p. 12.
[177] Romi et al., "Assessment of the Risk of Malaria Re-introduction in the Maremma Plain (Central Italy) Using a Multi-factorial Approach", p. 9.
[178] P. F. Boreham and C. Garrett-Jones. "Prevalence of mixed blood meals and double feeding in a malaria vector (Anopheles sacharovi Favre)." Bulletin of the World Health Organization vol. 48,5 (1973): 605-14, p. 607.

antiquity, with mosquitoes in rural areas feeding more on animals than on humans as they would have been a more readily available source of food, while mosquitos in urban areas would have had few animals to feed on and an abundance of humans. This would have led to a much higher R_0 for malaria in urban areas than in rural areas and, therefore, a larger number of people dying from malaria. In addition, the flight range of a mosquito is also usually restricted to 1.6 km or less from the source of human blood and infection which also is a restricting factor for infections in rural areas as it is longer between humans and therefore less chance for the mosquito to feed on a susceptible human after first feeding on an infected one.[179] Over time most of the local population would have developed either immunity or partial immunity to malaria. However, for the most part, immigrants would not have had any immunity to the disease and would have been fully exposed to it.[180] This would have been a situation that primarily applied to cities as immigration to rural areas would have been less prevalent. While malaria depends on the local geography as the mosquitos need still waters to breed, it would probably not have helped the average urban death rate that some of the largest cities would have been exposed to malaria, among them Rome, Alexandria, and Carthage.[181] These cities alone would have accounted for 16 to 21 percent of the total urban population.

Malaria would also have been devastating for the children of the cities and villages exposed to malaria-carrying mosquitoes. The reasons for this are that mosquitos have a preference for feeding on children since they radiate more heat than adults do, and children may also develop cerebral malaria where the parasite is isolated in the brain.[182] There is also another reason why child mortality would have been affected by malaria, albeit indirectly. Infants born to mothers who have had malaria during pregnancy will have a lower weight than infants born to healthy mothers and will be more exposed to other diseases.[183] As seen previously, this would especially have been the case with tuberculosis, where low weight dramatically increases the risk of infection, even for adults.

[179] Cliff et al., World Atlas of epidemic Diseases, p.99.
[180] Spielman, D'Antonio, Mosquito, p. 49.
[181] Spielman, D'Antonio, Mosquito, p. 50.; Walter Scheidel, Death on the Nile (Leiden: Brill, 2001), p. 79.
[182] Marcus Bernard, Malaria: Deadly Diseases and Epidemics 2nd ed. (New York: Chelsea House, 2009), pp. 22-23.
[183] Sallares, Malaria and Rome, pp. 126-127.

Smallpox

It is not certain that smallpox was known in the Roman world, but there seems to be a general agreement that the Antonine Plague of 165 to 180 probably was smallpox.[184] If that is the case, it would most likely have been a virgin soil epidemic since it seems like it was unknown to the population. This also fits well with the high mortality that the sources describe. Two different strains of the virus cause smallpox. The mortality of the most deadly of these strains, *variola major*, is 15-25 percent, but the mortality can rise to 40-50 percent for the very young and old.[185] Smallpox will typically infect 58 percent of a susceptible population, which should lead to the death of up to 15 percent of the population of a virgin soil epidemic.[186] In the case of virgin soil epidemics, the population's death rate can be much higher, probably because the percentage of children in these populations was high. The semi-virgin epidemic on Iceland in 1797, for example, killed 18,000 out of a population of 50,000, giving it a mortality rate of 36 percent.[187]

Harper argues that no mention of the return of the Antonine Plague is mentioned after the initial outbreak. He, therefore, concludes that it is likely that it did not become endemic.[188] This is a situation that would be impossible according to epidemiological models. There are only two ways for this to occur. Either the disease had a very small R_0 after the initial outbreak or a very high R_0 from the beginning. The reason for this is that to avoid becoming endemic in Rome, the R_0 of the disease had to be smaller than 1, which only can be achieved in this setting if the population of Rome had achieved herd immunity. This is impossible to achieve with smallpox without vaccination.[189] Alternatively, the R_0 would have to be so high that the disease burned itself out. For this to happen, the R_0 would need to be extremely large, far larger than what is the case for modern smallpox or even measles.

If we compare with London's situation in the early modern period, then we notice that after smallpox had become endemic, the epidemic outbreaks did not kill vast parts of the

[184] Kyle Harper, The Fate of Rome: Climate, Disease, and the End of an Empire (Princeton: Princeton University Press, 2017), p. 105.
[185] Cliff et al., World Atlas of epidemic Diseases, p. 37.
[186] Michael A. Oldstone, Viruses, Plagues, and History: Past, Present, and Future (Oxford: Oxford University Press, 2010), p. 100.
[187] Alfred Jay Bollet, Plagues and Poxes: The Impact of Human History on Epidemic Disease (New York: Demos, 2004), p. 79.
[188] Harper, The Fate of Rome, p. 121.
[189] Brauer et al., Mathematical Models in Epidemiology, p. 68.

population. In the epidemic of 1752, smallpox killed 3,500 people.[190] It is not likely that the situation would have been very different in Rome after the initial outbreak, and such numbers would probably not have registered enough to make it into the writings of the day. However, it would have contributed to the yearly death toll with a steady trickle in its endemic state. In early June 1748 in London, smallpox killed 31 people in a week, making it the fourth largest killer in the city.[191] Moreover, in 1773, another non-epidemic year, 1,039 people died out of a population of about 750,000.[192] This is the kind of situation we would have to envisage for Rome, Alexandria, and other cities where the disease was endemic. For Rome, this would mean somewhere between 1,000 and 1,500 people dying from smallpox every year when it was in an endemic state, and around 3,500 people dying in every epidemic that would hit the city with a few years apart. The primary victims of the endemic disease would be children. In European cities in the 16th century, about a third of the deaths among children was caused by smallpox.[193] It is no reason to assume that the situation would be much different for the largest Graeco-Roman cities. In addition, to be a constant presence in these cities, they would also act as a constant disease reservoir that would infect smaller cities that they were linked to through trade. Villages would then receive the infection from these cities.

The Plague of Cyprian

The Plague of Cyprian was the second of the two large epidemics that hit the Graeco-Roman world and lasted from 249 to 262. While historians are more or less in agreement about the cause for the Antonine Plague, the Plague of Cyprian has proved much more challenging to identify. Both smallpox and measles have been suggested, but there are problems with both. One of the more creative suggestions for the disease's identity comes from Harper, who thinks that the Plague of Cyprian may have been Ebola or a closely related disease.[194] It is doubtful that this hypothesis is correct. While Ebola and related hemorrhagic viruses certainly would have caused a high mortality rate, Cliff et al. put the mortality rate to 20 to 90 percent while Barrett and Armelagos put it to 37 to 100 percent, it would be close to impossible for

[190] Donald R. Hopkins, The Greatest Killer: Smallpox in History with a new introduction (Chicago: The University of Chicago Press, 2002), p. 59.
[191] S. L. Kotar and J. E. Gessler, Smallpox: A History (Jefferson: MacFarland & Company, 2013), p. 17.
[192] Hopkins, The Greatest Killer, p. 74.
[193] Snowden, Epidemics and Society, p. 90.
[194] Harper, The Fate of Rome, p. 143.

such a virus to cause an epidemic of such a scale that is mentioned in our sources.[195] The reason for this is the mortality rate combined with the way that the Ebola virus is transmitted. The virus that causes Ebola is transferred from person-to-person through contact with body fluids such as blood, secretion, or semen.[196] This, combined with a relatively short incubation time, just two to 21 days, means that it would be extremely difficult for a virus of this type to cause a major epidemic as it would be likely to burn itself out in a short time period.[197] Harper states that the Ebola virus spreads easily within households.[198] This is not correct, while it is true that as many as 30% of the primary caregivers may be infected, the rest of the members of the household will generally remain uninfected.[199] If the Plague of Cyprian were a hemorrhagic fever related to Ebola, it would need to be transferred in the same way as, for example, yellow fever, that is, through mosquitos, something which Harper explicitly states don't fit the spread of the disease.[200]

It is much more likely that the Plague of Cyprian was an airborne spread disease previously unknown in the empire as its severity suggests a virgin soil epidemic. While Harper keeps the door open for smallpox, it would be an unlikely candidate if it was responsible for the Antonine Plague as it would undoubtedly have been endemic in the largest cities of the Graeco-Roman world. McNeill has suggested measles as the cause of the Plague of Cyprian, and this may very well be the case.[201] It would at least have to be a disease that had a relatively high R_0 and mortality rate. However, it is difficult to point at a single modern disease as the cause of the Plague of Cyprian, and perhaps it does not even exist anymore. Whatever disease it was, it is likely that it would have become endemic in Rome and Alexandria, and probably also in Antioch and Carthage as it would need to have an unusually high R_0 to avoid that.

[195] Cliff et al., World Atlas of epidemic Diseases, p.172;Ron Barrett and George J. Armelagos, An Unnatural History of Emerging Infections (Oxford: Oxford University Press, 2013), p. 25.
[196] Cliff et al., World Atlas of epidemic Diseases, p.173; Barrett and Armelagos, An Unnatural History of Emerging Infections, p. 25.
[197] Barrett, Armelagos, An Unnatural History of Emerging Infections, p. 25.
[198] Harper, The Fate of Rome, p. 144.
[199] Cliff et al., World Atlas of epidemic Diseases, p.173.
[200] Harper, The Fate of Rome, p. 143.
[201] William H. McNeill, Plagues and Peoples (Cambridge: Anchor Books, 1977), p. 131.

Was There an Urban Graveyard Effect?

We can now return to the question of the urban graveyard effect. There can be no doubt that the disease ecology was much more severe in urban environments than in rural environments, despite the existence of aqueducts in some of the cities. However, that does not mean that there was a negative natural growth in urban areas, only that the natural growth there would be lower than in rural areas. Critics of the urban graveyard effect point to the fact that it was the immigrants to the cities that caused the high mortality rates, and that the natural populations of these cities were capable of reproducing itself.[202] The attackers on the urban graveyard effect do run into a couple of problems.

Firstly, it has been demonstrated that immigrants did marry, at least to some degree, and reproduce. Secondly, it is very hard to see how one mathematically can end up in a situation with a stable urban population in a scenario where the natural population is stable as that demands that none, or very few, of the immigrants live long enough or are capable of reproducing. If we use Morley's suggestion of 10,000 immigrants yearly to Rome and assume that they would leave just 1000 descendants that reach adult age and enter the stable population, then Rome should have had a population increase of 100,000 over a period of 100 years, 200,000 over 200 years, and 300,000 over 300 years. Even halving that number to 5,000 immigrants each year would give an increase of 50,000, 100,000, and 150,000, respectively. A similar situation should be seen in other large urban areas as well. Such an increase does not fit well with the evidence from Rome, which suggests a population decline. Therefore, there is likely that the urban populations were unable to achieve a positive natural growth rate, at least the larger cities.

It could be argued that the absence of some diseases such as cholera, which cannot firmly be traced back further than the early sixteenth century, would have made the Roman cities less deadly than the early modern ones, especially London for which we probably have the best data due to the existence of the Bills of Mortality.[203] On the other hand, the Roman world had to deal with malaria, and probably also other tropical diseases that would have been absent from European cities in the early modern period.[204] All in all, it is therefore unlikely that the

[202] Elio Lo Cascio, Population." In A Companion to the City of Rome, ed. Claire Holleran and Amanda Claridge (Hoboken: John Wiley & Sons, Inc., 2018), p. 147.
[203] Cliff et al., World Atlas of epidemic Diseases, p.172.
[204] Sallares, Ecology, p. 35.

mortality rate would have been very much lower in Roman cities than in early modern ones, and most likely, there was a negative growth rate in urban areas that, at least in part, played a role in immigration from rural to urban areas.

Conclusion

It makes sense to use a demographic definition of what a city is, and define urban as a settlement that has at least a population 5,000 people and a population density of 100 people per hectare or more. This gives us a total urban population of about 7.5 to 8.5 million, or 12.5 to 14.2 percent if we assume, like Stark, that the empire's total population was around 60 million.

Given the size of Rome and the other largest cities, it is clear that the diseases that caused the Antonine Plague and the Plague of Cyprian, possibly smallpox and measles, would have been endemic in them. It is also not unlikely that they were endemic in Egypt due to the high population density there. This would have made a large impact on the mortality in the cities in the Graeco-Roman world as it would have meant a relatively large number of deaths in the endemic state with regular epidemic flareups. This would be similar to what one can observe in European cities in the early modern period, and if one takes into the consideration that Graeco-Roman cities also had to deal with malaria, and possibly also other tropical diseases, it is likely that there was a negative urban growth that would have necessitated immigration from rural to urban areas.

3. A Rural or Urban Church?

The critic offered in the introduction against the numbers presented by Stark and others rests entirely on the validity of the urban thesis. If it can be demonstrated that Christianity in the pre-Constantine era was not primarily an urban movement, then any attempt at estimating the size of the Christian population will be impossible. Therefore, it is necessary to look a little closer into the matter to see if there indeed was a substantial part of the early Christians in the rural areas of the empire. If that is the case, the objections raised in the introduction against the estimated numbers of Christians in the empire would necessarily have to fall.

The Historiography

For decades the historians dealing with the rise of early Christianity have been almost unanimously in favor of the urban thesis. According to them, Christianity was a mostly urban religion. MacMullen probably goes furthest in this view when he states about the Christians that "They are not heard of in the countryside."[205] This view is echoed by Paula Fredriksen, who states, "And for its first three centuries, Christianity in all its varieties remained an urban phenomenon."[206] Fredriksen goes even further and dismisses the idea that the first Christians in Palestine were rural. She does this by rejecting the Galilean itinerary presented in the synoptic gospels and instead follows John's more Judean and Jerusalem oriented itinerary.[207]

Other historians have similar views, although they tend to be not so absolute about early Christianity's urban character than MacMullen. Ehrman writes, for instance, that "in its three first centuries Christianity succeeded primarily in urban settings" and that "These countryside masses were by and large not converted until the fourth century, and even then rather slowly."[208] Frend states that "Not until the time of Irenaeus (c. 180) do we hear of any attempt to carry the word to «the wild and barbarous» peoples beyond the city walls" and that "it was by now almost entirely an urban religion."[209] Meeks, who is the historian most closely

[205] MacMullen, Christianizing the Roman Empire p. 103.
[206] Paula Fredriksen, Christians in the Roman Empire in the First Three Centuries." In A Companion to the Roman Empire, ed. David S. Potter (Oxford: Blackwell, 2006), p. 589.
[207] Paula Fredriksen, When Christians Were Jews: The First Generation (New Haven: Yale University Press, 2018), p. 18.
[208] Ehrman, The Triumph of Christianity, pp. 166-167.
[209] W. H. C. Frend, The Rise of Christianity (Philadelphia: Fortress Press, 1984), p. 132.

identified with the urban thesis, writes, "it was an urban cult that spread through the empire."[210] While Peter Brown writes that "The average adherents of Judaism and Christianity were industrious townsfolk."[211]

Robin Lane Fox concurs and states that "Not until the mid-fourth century, after Constantine, and the rise of the holy men and rural martyr shrines, were the Christian communities turned likewise to the countryside and beyond."[212] Rhee similarly states that the growth in Christianity took place, "particularly in Rome, Carthage, and the urban centers of the eastern Mediterranean, confirmed by its literary and nonliterary sources."[213]

Although the urban thesis has an almost universal adherence among historians that study early Christianity, it has nonetheless met some resistance. For the most part, this resistance has been local in scope, particularly to areas in Asia Minor. Mullen states, for instance, that "If the evidence relating to the upper Tembris valley in Asia is taken into account, though, it may be unwise to conclude that the countryside was largely devoid of Christians."[214] Most other historians have, like Meeks, admitted that there was a minor Christian presence in rural areas from about A.D. 250.[215] Tabbernee, on the other hand, attacks the urban thesis on a more empire-wide level with his statement "From the data presented, there are some surprises in store for those who think that early Christianity was primarily an urban phenomena."[216] Robinson is, however, the one that goes furthest in the attack on the urban thesis as unattainable on an empire-wide level. As he so clearly states:

> I am attacking about the only thing on which MacMullen and Stark agree—that Christianity was an urban religion in the first three centuries and that the countryside did not become part of Christian interest or success until at least the Constantinian period or even later.[217]

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[210] Wayne A. Meeks, The First Urban Christians: The Social World of the Apostle Paul 2nd ed (New Haven: Yale University Press, 2003), p. x.
[211] Peter Brown, The Rise of Western Christendom: Triumph and Diversity, A.D. 200-1000 (Making of Europe) 10th anniversary rev. ed. (Chichester: Wiley-Blackwell, 2012), p. 69
[212] Robin Lane Fox, Pagans and Christians: In the Mediterranean World from the Second Century AD to the Conversion of Constantine (London: Penguin Books, 2006), p. 46.
[213] Helen Rhee, Loving the Poor, Saving the Rich (Ada: Baker Publishing, 2012), p. 43.
[214] Roderic L. Mullen, The Expansion of Christianity: a gazetteer of its first three centuries (Leiden: Brill, 2004), p. 9.
[215] Wayne A. Meeks, "Social and Ecclesial Life of the Earliest Christians." In The Cambridge History of Christianity, vol. 1, Origins to Constantine, ed. Margaret Mary Mitchell and Frances Margaret Young (Cambridge: Cambridge University Press, 2006), p. 153.
[216] William Tabbernee, Early Christianity in Contexts: An Exploration across Cultures and Continents (Ada: Baker Publishing, 2014), p. 19.
[217] Thomas A. Robinson, Who Were the First Christians: Dismantling the Urban Thesis (New York: Oxford University Press, 2017), pp. 12-13.

Robinson points, among other things, to the impossibility of adhering to the urban thesis and simultaneously use numbers for Christians and Jews that would fill the cities of the empire, and still have some to spare.[218] So far, Robinson is a mostly lone voice among the historians of the time period, and there has been little reaction from the community to his challenge to the urban thesis. This may, however, partly be because his book was published as recently as the end of 2017.

The Archaeological Sources

The archaeological evidence for a rural Christianity is mostly limited to grave monuments from the Upper Tembris valley. No other Christian structures are known from rural areas in the period before Constantine's conversion. This may, however, at least partly, be because there has been a tendency to focus on excavations of urban areas, and partly because many of the structures in rural areas would be less solid and therefore less likely to survive.

What remains of a Christian presence in the archaeological record are, as mentioned above, grave monuments, and some areas, such as some of the provinces in Asia Minor, have been said to have had a significant rural Christian presence because of those remains. The problem is that those grave monuments are usually not easy to identify securely as Christian. It was, for instance, not before the late third century that a Christian iconography appears on sarcophagi. Before that, the images were pagan, at times with Christian inscriptions.[219]

Even if one looks at the Christian iconography, much of it is shared with either the pagans or the Jews. Of the more popular Christian themes, is Jesus as the Good Shepherd. The Good Shepherd is usually depicted as a young man carrying a sheep or ram over his shoulders. This is, however, also a common topic on pagan tombs.[220] In the pagan setting, the ram bearer is not Jesus. Then it is either Hermes *Kriophoros* acting as a psychopomp, guiding the deceased to the underworld, or a plain *kriphoros* carrying a sacrificial animal that may signify the deceased's piety. Similarly, the sitting philosopher can, in Christian iconography, be taken as a symbol that indicates that Christianity is the true philosophy.[221] In contrast, for a pagan

[218] Robinson, Who Were the First Christians, p. 14.
[219] Jutta Dresken-Weiland, "Christian Sarcophagi from Rome." In The Routledge Handbook of Early Christian Art, edited by Robin M. Jensen and Mark D. Ellison (London: Routledge, 2018), p. 41.
[220] Robin Margaret Jensen, Understanding Early Christian (Abingdon: Routledge, 2000), p. 37.
[221] Jensen, Understanding Early Christian, p. 44.

audience, the sitting philosopher would just most likely be taken to be a flattering way of showing the deceased.[222]

The orant is another popular figure in Christian iconography. An orant is a praying figure, usually a veiled female, who looks upwards with outstretched hands. While it, in a Christian context, may be interpreted as a representation of the deceased's soul in paradise, it was a universal figure that in a pagan context could signify the deceased person's filial or pious life.[223] In Phrygia, Christian funerary monuments that have Christian inscriptions continue to use the local pagan iconography, such as mirror, comb, and spindle.[224] Both Jews and Christians shared Old Testament topics in their iconography. That said, there are a few symbols that will securely identify a monument as Christian. Among them are the fish, the anchor, the resurrection of Lazarus, and Peter striking the rock. In Phrygia, the early Christian community also developed its own iconography using the eucharistic bread on an altar as a symbol.[225]

When it comes to inscriptions on grave monuments, the situation is not much better. Many of the grave inscriptions are religiously neutral, or they are, at best ambiguous. Very few inscriptions explicitly make it clear that the occupant of the tomb was a Christian. Although several will point to inscriptions that follow the Eumeneia formula, ἔσται αὐτῷ πρὸς τὸν θεόν, as Christian, it can be translated as «He/she will have to deal with God,» and is a curse formula aimed at the person who breaks into or reuses the tomb in question. The formula explicitly talks about «the god» which makes it very tempting to assume that it refers to the Christian God, but there are several other possible explanations for the formula. First off, this kind of curse formula is not found elsewhere in Christian literature at the time, while it is a phenomenon that is well known within Judaism. This would mean that it is just as likely, if not more, that the god in question referred to by the formula is the Jewish God. The situation is, however, even more complicated as a pagan interpretation cannot be ruled out, even if it is less likely. While pagan inscriptions could be expected to specify which god they were summoning in a curse, there was a pagan movement towards henotheism in Hellenistic time. In the *Golden Ass* Isis speech to Lucius vision has clear henotheistic leanings:

[222] Jensen, Understanding Early Christian, p. 44-45.
[223] Jensen, Understanding Early Christian, p. 35.
[224] Peter Lampe, "The Phrygian Hinterland South of Temenothyrai (Uşak)", Early Christianity 7/3. (2016), 381-394. DOI: http://dx.doi.org/10.1628/186870316X14712579797010., p. 389.
[225] Lampe, "The Phrygian Hinterland South of Temenothyrai", p. 390.

> I come, Lucius, moved by your entreaties: I, mother of the universe, mistress of all the elements, first-born of the ages, highest of the gods, queen of the shades, first of those who dwell in heaven, representing in one shape all gods and goddesses.[226]

It is therefore conceivable that a pagan henotheist could call upon «the God» in a curse formula without feeling a need to specify the identity of that god. To make the situation just a little more complicated, there was also a movement towards a pagan form of monotheism among the educated elite in late antiquity, especially in the eastern parts of the empire.[227]

It is, therefore, nothing about the Eumeneia formula that makes it unsuitable for use by either pagans or Jews.[228] The only thing we can say for sure about the formula is that it is an indication of either a monotheistic or henotheistic belief, although Trebilco's interpretation that it is either Christian or Jewish or possibly both is the most probable one.[229] The ambiguity by the Christians both in regard of iconography and inscriptions on their tombs makes sense since these were public monuments, often lining the streets leading in and out of a settlement, and as such, they would have been viewed both by members of the Christian community and their pagan neighbors.[230] It would, therefore, have been wise to use formulations and iconography that could have both Christian and pagan interpretations.

The Upper Tembris Valley

The Upper Tembris valley in Northern Phrygia was a thinly populated area divided into private and imperial estates that were worked by small villages.[231] Phrygia, on the whole, was not very urbanized, and in the northern part of it had an almost complete absence of urban centers.[232] The exception was the cities Appia and Soa. While Appia had a long history as a city, the same was not the case for Soa. Soa had been a village of Appia before gained its city

[226] Apuleius, The Golden Ass 11.5.
[227] Maijastina Kahlos, Debate and Dialogue: Christian and Pagan Cultures C. 360-430 (Abingdon: Routledge, 2007), pp. 141-146.
[228] Gary J. Johnson, Early-Christian Epitaphs from Anatolia (Atlanta: Society of Biblical Literature, 1995), p. 42.
[229] Paul R. Trebilco, "The Christian and Jewish Eumeneian Formula." In Negotiating diaspora: Jewish strategies in the Roman Empire, ed. John M. G. Barclay (London: T & T Clark International, 2004), p. 88.
[230] Adam Levine, "The Image of Christ in Late Antiquity." (PhD thesis, Oxford University, UK, 2012), p. 227.
[231] Peter Thonemann, "Households and families in Roman Phrygia." In Roman Phrygia, ed. Peter Thonemann (Cambridge: Cambridge University Press, 2014), p. 128.
[232] Barbara Levick, "Girdled by Hills: Culture and Religion in Phrygia Outside of the Polis." In Regionalism in Hellenistic and Roman Asia Minor, ed Hugh Elton and Gary Reger (New edition [online]. Pessac: Ausonius Éditions, 2007), p. 109.

status in the second half of the third century.[233] In this remote area of Phrygia, there is ample evidence of marble funerary monuments in rural areas, and it is among these funerary monuments that we find clear and non-disputable evidence for a Christian population in a rural area. The use of marble by the villages was probably made possible by the existence of several marble quarries close to Soa, which would have made cheap marble cutoffs available to a part of the population that normally would have been unable to afford it.[234]

Tabbernee mentions a total of 24 inscriptions on marble funerary monuments that are clearly Christian from this area.[235] The monuments come from the middle of the third and early fourth century, and most of them use the *Χρηστιανοὶ Χρηστιανοῖς*, 'Christians for Christians,' formula. The plural form is used regardless of if there is one or more deceased in the grave, or if there are one or more persons that commemorate the dead. This suggests that it is a formula that has been stereotyped and thus been around for some time.[236] Five of these inscriptions are of unknown provenance, which means that they, on their own, cannot tell us anything about the presence of Christians in rural areas.[237] Three of them come from Appia and one from Soa, the only cities in the region.[238] Soa was a town of a size that probably made it too small to qualify as a city according to the criteria used in this paper, so it will, therefore, be counted as rural here. That leaves 16 inscriptions that are clearly rural, possibly 21, if one count the inscriptions of unknown provenance as being rural. Given the fact that so many of the inscriptions we know the provenance for are rural, it is not unreasonable to conclude that most of the five inscriptions with an unknown provenance most likely also come from rural areas.

The funerary monuments mentioned here are either in the shape of pagan funerary altars or funerary steles, except for one sarcophagus from Aslanapa. They appear at the middle of the third century. The earliest monuments are from Appia and Soa and are dated to 248/249 by Tabbernee.[239] Mullen, on the other hand, chose to use a wider date for the monuments from Appia, and place them to ca.225-274.[240] Both are, however, in agreement that the funerary

[233] A.H.M. Jones, The Cities of the Eastern Roman Provinces (Oxford: Clarendon Press, 1971), p. 69.
[234] Thonemann, Households and families in Roman Phrygia, p. 128.
[235] William Tabbernee, Montanist Inscriptions and Testemonia: Epigraphic Sources Illustrating the History of Montanism (Macon: Mercer University Press, 1997), pp. 181-218, 248-316.
[236] Tabbernee, Montanist Inscriptions and Testemonia, pp. 184-185.
[237] Mullen, The Expansion of Christianity, p. 110.
[238] Tabbernee, Montanist Inscriptions and Testemonia, pp. 181-202.
[239] Tabbernee, Montanist Inscriptions and Testemonia, pp. 181-202.
[240] Mullen, The Expansion of Christianity, p. 90.

monument from Soa date to 248/249.[241] Tabbernee suggests that an inscription from Kuyuçak is slightly older than this date based on a deviation from the *Χρηστιανοὶ Χρηστιανοῖς* formula, instead of using the grammatically correct form *Χρηστιανῷ* for the deceased.[242] While the earliest of the funerary monuments dating to the middle of the third century, it is unlikely that the rural areas of the region were Christianized so late. Most likely, there had been Christians there for a while without having developed a clear way to express their identity on the funerary monuments, and possibly they may not have felt a need to do so either. At the end of the third century, the Christians here start to use a wreath with a cross inside as decoration on the monuments. A total of eleven of the monuments have such decorations, including the sarcophagus from Aslanapa. These decorations are interesting since they are some of the earliest examples of the use of the cross as a symbol by the Christians.[243]

The presence of these grave monuments makes it clear that there was a Christian presence in the Upper Tembris valley in the middle of the third century at the latest. It is also clear that some of them around AD 300 were confident enough about their place in the society to use the cross as a marker of identity on the grave monuments. This suggests that they had little fear of being targeted by persecution from outsiders, which may suggest that the imperial persecutions were not enforced in the area, either because there was little imperial authority in the region, or that the Christians had members that belonged to the local elite that could protect them. The monuments would have mattered little when it comes to the reactions from the local population. Unlike in a city, there would have been very little reason for these Christians not to advocate their religion on the funerary monuments since everybody in the local community already would have known that they were Christians.

Some historians think that the Christian population in the Upper Tembris valley was in the majority before the third century.[244] Mitchell has used the grave monument data from the Upper Tembris valley to estimate a Christian population of about 80% by 300.[245] Such numbers would, given the limited presence of cities in the area, mean that a majority of the rural population in the valley was Christian. These numbers have been challenged as being far

[241] Mullen, The Expansion of Christianity, p. 88; Tabbernee, Montanist Inscriptions and Testemonia, pp. 181-196.
[242] Tabbernee, Montanist Inscriptions and Testemonia, p. 204.
[243] Johnson, Early-Christian Epitaphs from Anatolia, p. 39.
[244] Levick, Girdled by Hills, p. 115.
[245] Stephen Mitchell, Anatolia: Land, Men, and Gods in Asia Minor, Volume II The Rise of the Church (Oxford: Clarendon Press, 1993), p. 63.

too high by MacMullen. He calculates the number of Christians to 20% based on the total number of Christian and pagan monuments from the late third and early fourth century and notes that the Christian epigraphs only show a strong increase after 350.[246] While MacMullen's calculations are too simplistic as the relation between Christian and pagan monuments not necessarily conform to the actual numbers of people that were Christian and pagan at the time, especially since the number of monuments is so small, he uses 43 for Christian monuments and 200 for pagan. We can, for example, not be sure that the composition of the pagan and Christian populations in these areas had a similar economic status, which means that one of the groups could have been more likely to erect funerary monuments of marble than the other. In addition, we know that Christians in Anatolia in the fifth and sixth centuries destroyed pagan funerary monuments, something that could have altered the composition of funerary monuments that are left.[247] He does, however, highlight the point that with only 20% of the grave monuments being identifiable as Christian, it is difficult to conclude that 80% of the population was Christian.[248] Another problem is that these funerary monuments are highly localized, and using them to arrive at a percentage for the total population is problematic.

The Literary Sources

Christian literary sources from rural areas do not exist for the period that this paper is concerned with. The earliest known rural Christian literature comes from North Africa in the fourth century, while it does not show up in other areas before the fifth century.[249] We are, therefore, dependent upon what urban writers can tell us about rural Christianity in the first three centuries. Even so, the literary sources that mention a rural Christian population are extremely thin. The first explicit reference to Christians in rural areas comes from the synoptic gospels that place the mission of Jesus primarily in the rural areas of Galilee. While the early Church seems to relocate to Jerusalem after the death of Jesus, it is unlikely that all

[246] Ramsay MacMullen, The Second Church: Popular Christianity A.D. 200-400 (Atlanta: Society of Biblical Literature, 2009), p. 145 n.20
[247] Kenneth W. Harl, "From Pagan to Christian in Cities of Roman Anatolia during the Fourth and Fifth Centuries." In Urban Centers and Rural Context in Late Antiquity, ed. Thomas S. Burns and John W. Eadie (East Lansing: Michigan State University Press, 2001), p. 307.
[248] Paul McKechnie, Christianizing Asia Minor: Conversion, Communities, and Social Change in the Pre-Constantine Era (Cambridge: Cambridge University Press, 2019), p. 238.
[249] Peter Brown, Through the Eye of a Needle: Wealth, the Fall of Rome, and the Making of Christianity in the West, 350-550 AD (New Jersey: Princeton University Press, 2012), p. 8.

of them would have been able to do so. We can assume that there must have been a continued presence of Christians in the rural areas of Galilee for the first decades of the movement.

Later, at the beginning of the second century, Pliny the younger writes in a letter to Trajan regarding Christians in Pontus and asks advice about how he is supposed to deal with them. There he says, "The infection of this superstition has extended not merely through the cities, but also through the villages and country areas."[250] This is very clear, but Pliny continues to say, "It is at any rate certain that temples which were almost abandoned have begun to be crowded, and the solemn rites which for long had been suspended are being restored."[251] The latter is clearly an impossibility. The idea that Christians dominated the area so thoroughly that the traditional cults had more or less fallen out of use is just not possible given the evidence we have of Christian growth in this period. It is therefore clear that Pliny, in this case, is exaggerating the number of Christians in the area, and possibly also their spread.

There are a few of the early Christian writers that mention Christianity in the countryside, but almost all of them do it in a way that implies that the Christians are many and that they are everywhere. Tertullian writes, for example, around A.D. 200 that:

> We are but of yesterday, and we have filled everything you have - cities, islands, forts, towns, exchanges, yes! and camps, tribes, decuries, palace, senate, forum. All we have left you is the temples![252]

This is an exaggeration as it is clear from the source material that the Christians were very far from being everywhere in this period. Although it is from an apology that aims at refuting pagan attacks on Christianity, it was most likely in reality aimed at fellow Christians. The intention is, therefore, more likely be to boost the morale of Tertullian's fellow Christians than to give an accurate depiction of the spread of the Christian movement.

Around the middle of the third century, Origen is a little more explicit in his reply to Celsius where he states that "Some of them, accordingly, have made it their business to itinerate not only through cities but even villages and country houses, that they might make converts to God."[253] The reference to converts would indicate that he here is talking about missionaries, but he goes on to say:

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[250] Pliny the Younger, Complete Letters 10.96.9.
[251] Pliny the Younger, 10.96.9-10.
[252] Tertullian, Apology 37.4.
[253] Origen, Origen Against Celsus, 3.9.

> And no one would maintain that they did this for the sake of gain, when sometimes they would not accept even necessary sustenance; or if at any time they were pressed by a necessity of this sort, were contented with the mere supply of their wants, although many were willing to share (their abundance) with them, and to bestow help upon them far above their need.[254]

It is not reasonable to think that a pagan would have fed and supplied random missionaries that happened to walk into the village, so it would be more likely that Origen here talks about preachers visiting already established communities in the countryside. The framing of the first quote does, however, indicate that this was not something that many preachers would do, which suggest that the Christian communities in the rural areas were few. The need for visiting preachers also indicates that these communities were small. Otherwise, they would surely not need visiting preachers.

The Chorepiscopoi

The chorepiscopoi were countryside bishops. Although it is difficult to say that they were perceived as such in antiquity, it is clear that the Synod of Ancyra in 314 forbad them to perform certain functions that were the duties of the bishops.[255] That should indicate that at least some of them had performed such functions previously. It is known that at the Council at Nicaea in 325, there were 14 chorepiscopoi present, and except two from Coele-Syria, all of them were from provinces in Asia Minor.[256] The chorepiscopoi from Asia Minor came almost exclusively from Cappadocia and Isauria, who sent nine of the twelve chorepiscopoi from Asia Minor. In addition, two came from Bithynia, and one from Cilicia. That they were invited to Nicaea together with the regular bishops, indicate that they were perceived to have a similar status. The office of chorepiscopos does not appear in the literature before the Synod of Ancyra, but since it is unlikely that the council would have reacted to a newly created office, it is reasonable to assume that it had existed for some time. Eusebius also mentions a bishop Zoticus from the village Cumane in relation to the monatist heresy.[257] Since Apolinarius, who Eusebius quote, uses the word village for Cumane, Zoticus was likely a chorepiscopus. Interestingly enough, Harnack does not mention any chorepiscopoi from

[254] Origen, Origen Against Celsus, 3.9.
[255] Robinson, Who Were the First Christians, p. 200.
[256] Adolf Harnack, The Mission and Expansion of Christianity in the First Three Centuries (Translated by David McInnes Moffatt, New York: Harper & Brothers, 1961), pp. 135, 181, 192, 212, 227.
[257] Euseb., Hist. eccl. 5.16

Phrygia, the only place where we have clear archaeological evidence for a Christian presence in rural areas for the period. However, such an office's existence indicates that there was a Christian presence in rural areas, at least in Asia Minor.

It is difficult to use the number of chorepiscopoi at the Council at Nicaea as an indication of the size of the Christian population in rural areas. Although Robinson makes a great deal out of their presence, the fact is that they accounted for about 5% of the more than 250 delegates.[258] Even for the provinces in Asia Minor the chorepiscopoi was in a minority. For Cilicia they accounted for 10% of the representatives, while they for Bithynia accounted for 20%. For Cappadocia and Isauria, the numbers were 38% and 24% respectively. It is possible that there were many more and that economy or other factors prevented them from attending the council, but it is equally hard to use them as an argument for a significant Christian presence in rural areas. We do not know anything about how many chorepiscopoi there were, nor do we know how widespread the office was within the empire, or have any inclination about the size of their congregations.

The evidence from the Upper Tembris valley combined with the presence of the chorepiscopoi in Asia Minor suggests that there was a Christian presence in some rural areas in this part of the empire. This presence seems to mainly have been located in the interior of Asia Minor, where there was little urbanization. If we look at the provinces that seem to have had the most substantial Christian presence, Phrygia, Isauria, and Cappadocia, we see that they were not densely populated. Large parts of Isauria are mountainous, which would suggest that the population of this province was relatively low.[259] Several uprisings from the fourth century into the fifth also suggests that the highland parts in the interior of Isauria were still mostly pagan at that time.[260] For Phrygia, Pelcer-Vujačić suggests that the total population was about 800,000.[261] The Upper Tembris valley would have had only a fraction of this population, but in order to get a maximum estimate for the Christians in the province, we might tentatively assume a similar situation for the Christian population in the rest of the

[258] Eusebius, Life of Constantine, 3.8.
[259] Günder Varinlioğlu, "Living in a Marginal Environment: Rural Habitat and Landscape in Southeastern Isauria." Dumbarton Oaks Papers 61 (2007): 287-317. Accessed June 11, 2020. www.jstor.org/stable/25472052, p. 290.
[260] Lenski, Relations Between Coast and Hinterland in Rough Cilicia, p. 420.
[261] Olga P. Pelcer-Vujačić, “Society in Lydia and Phrygia from the 1st to the 3rd Century AD.” (PhD thesis, University of Belgrade, Serbia, 2015), p. 251.

province. The population of Cappadocia has been estimated to have been around 900,000.[262] Although population estimates are far from being exact, estimating the total population for these three provinces to about two million would probably not be far off. If we also assume that the urbanization was about 5%, we end up with a rural population of 1.9 million. If we then engage in some very hypothetical speculations and accept MacMullen's estimates for the Upper Tembris valley and project them to these provinces, we get 380,000 rural Christians here. In addition, there would be at least some Christians in the other provinces that sent chorepiscopoi to Nicea. This would give us a very rough and hypothetical population estimate for the rural Christians in Asia Minor somewhere between 400,000 and 500,000. However, it is likely that this is an overestimate, and that there before Constantine's conversion only existed discrete Christian communities in Asia Minor.[263] Given this, it is more reasonable to use this number for the rural Christian population in both Asia Minor and Coele-Syria. There could potentially be more Christians in other parts of the empire, but there is so far no evidence for it, and it is not possible to assume that the situation in the rest of the empire mirrored the situation in parts of Asia Minor.

Conversion in a rural setting

It is clearly impossible to firmly establish the presence of a substantial Christian population in rural areas prior to the conversion of Constantine from written or archaeological sources. The absence of evidence is, however, not evidence of absence. It is entirely possible that there existed a rural Christian population of about 5 to 10 percent, or even more, without leaving any firm evidence behind. There are many factors that could have led to the evidence for such a population to become lost to us.

For written sources, it is likely that the percentage that could write, and therefore leave any written material behind was much smaller in rural areas than in urban. It is, therefore, likely that rural populations would leave less written material behind. It is also likely that a rural population would be less sophisticated, which would mean that later generations would be

[262] Eric J. Cooper and Michael Decker, Life and Society in Byzantine Cappadocia (London: Palgrave Macmillan, 2012), p. 47.
[263] Harl, "From Pagan to Christian in Cities of Roman Anatolia during the Fourth and Fifth Centuries", p. 307.

less likely to copy anything that they may have written down. Finally, if any of the written material would later be found to be heretical, that would decrease its chances of survival.

It is, therefore, necessary to approach the problem from a theoretical angle. Was there something that would make it less likely for people in rural areas to convert? It is here that deviance and sociological theories come in. It is clear from the sources that for people in the Roman empire, being Christian was a deviance both by the Jewish society and the pagan society. It is subject to all the correction mechanisms usually used against deviance, ranging from shaming and mockery to criminal charges.

Robinson challenges the usual arguments that are used to discount a significant Christian presence in rural areas. He points first to Alexander of Abonoteichus and the cult of Glykon as an example of how a rural community could adopt a new religion.[264] The cult of Glykon was founded in the small port-city of Abonuteichos on the Black Sea coast.[265] There is, however, a fundamental difference between the cult of Glykon and Christianity. The cult was not a new religion that demanded that the followers should stop worshipping the ancestral gods. The worshippers of Glykon were free to continue the worship of their ancestral gods, as Glykon merely was a new god that was included into the local pantheon. Therefore, worshipping Glykon would not have made a person deviant as he still could and would have worshipped the ancestral gods and therefore, would not be subjected to attempts by the rest of the population to 'correct' him. Conversion in the Graeco-Roman world was almost unheard of, and only two religions demanded it of new followers, Judaism and Christianity.

Robinson also points out that it is usual to assume that rural populations are more conservative than their urban counterparts.[266] Although people in rural areas are not born any more or less conservative than people in any other place, there are certain factors with life in rural areas that encourage people to become more socially conservative than what is usually the case in urban settings. In rural areas, people tend to know everybody else in their community, and as a result, it is more difficult to be deviant. It is more likely that somebody you know is aware that you are a deviant, and it is also likely that you have stronger social bonds than an immigrant to a city. In addition, the rural community's population tends to be homogenous, and status and authority also tend to be stable, unlike the situation that an

[264] Robinson, Who Were the First Christians, pp. 102-104.
[265] C.P. Jones, Culture and Society in Lucian (Cambridge: Harvard University Press, 1986), p. 134.
[266] Robinson, Who Were the First Christians?, p. 100.

immigrant is likely to face in a densely populated urban area. This is in accordance with the social disorganization theory from sociology.

It would have been almost impossible for someone in a small rural village to convert to Christianity without it being noticed by the rest of the community. A man in a village would have had several religious obligations, both to honor his ancestors and to participate in the many religious festivals that the village would have hold to placate the gods and secure a good harvest.[267] The rest of the village would undoubtedly have noticed a failure to properly honor one's ancestors and to participate in the local religious activities and festivals. This threat to the *Pax Deorum* may not necessarily have been a huge problem in daily life, other than the typical social control reactions. Among farmers that were dependent on the weather conditions being favorable to ensure a good harvest, there must have been a real fear of violating the 'peace of the gods.' This was done by observing the correct cult practices.[268] In crises, the situation could quickly have escalated. It is likely that any failure in the harvest or other calamities that affected the village would have been blamed on the people that had failed to give the gods the respect that they demanded. The calamity that had come upon the village was due to the gods being angry because the village had broken the *Pax Deorum*. Putting the blame on the Christians for anything that goes wrong was attested by Tertullian, that writes that

> They think the Christians the cause of every public disaster, of every affliction with which the people are visited. If the Tiber rises as high as the city walls, if the Nile does not send its waters up over the fields, if the heavens give no rain, if there is an earthquake, if there is famine or pestilence, straightway the cry is, "Away with the Christians to the lion!"[269]

Boine argues that most Christians would accommodate and participate in the festivals.[270] While it is probably true that some Christians did participate in festivals in the cities, it is hard to see how rural Christians could have done so without crossing the line and worshipping other gods. The small number of people in such a community would have made the festivals much more intimate affairs than they were in the larger cities, and taking part in a festival

[267] John D. Mikaelson, Ancient Greek Religion (Chichester: Wiley-Blackwell, 2010), pp. 127-129.
[268] Frank Trombley, "Overview: the Geographical Spread of Christianity." In The Cambridge History of Christianity: Origins to Constantine, ed. Margaret M. Mitchell and Frances M. Young (Cambridge: Cambridge University Press, 2006), p. 311.
[269] Tertullian, Apology 40.
[270] Douglas Boin, Coming Out Christian in the Roman World: How the Followers of Jesus Made a Place in Caesar's Empire (New York: Bloomsbury Press, 2015), pp. 29-30.

without active participation would have been difficult. From the time of Paul, it had also been made clear that sacrificial meat could be consumed in a private setting, but not as part of a religious ritual.[271]

That is not to say that it is impossible to make conversions in rural areas; it is just very difficult as demonstrated by Pentecostal missionaries in southern Italy after World War II. The missionaries were local villagers that had been converted into America. On their return, they tried to convert their families, and their success depended heavily on their success as emigrants. Successful emigrants tended to convert their whole family, while emigrants that were perceived as unsuccessful failed. The effort to expand outside the extended family would depend on the reputation and origin of the family.[272] This would be similar to what one would expect to find in the Graeco-Roman world. It would probably not have been an unknown missionary from the city that tried to make random conversions in a village, but rather a returning immigrant that came home after trying his or her luck in the city. The success of this missionary would then hinge entirely on his or her success in the city and the position of the family in the local community.

A similar situation is found among Kyrgyz converts to Christianity. Of the participants in a survey, only 10% converted in villages, while the rest converted in major towns and cities.[273] The majority of the converts were, as could be expected, migrants.[274] A participant also pointed out that it was safe to be a Christian in a city because "nobody cares who you are."[275] Converts that later returned to their villages faced different types of social control, in some cases, even violence. As a result, many returnees decided to conform, either by rejecting their new Christian faith or keeping it hidden.[276] This would, of course, mean that the conversion process would hit a dead end as it is impossible to convert someone if one keeps the faith hidden from them. Such an outcome is entirely in line with what the social disorganization theory would predict.

[271] 1 Corintihians 10.
[272] Maria P. Di Bella, "Conversion and Marginality in Southern Italy." In The Anthropology of Religious Conversion, ed. Andrew Buckser and Stephen D. Glazier (Lanham: Rowman & Littlefield, 2003), p. 87.
[273] David Radford, Religious Identity and Social Change: Explaining Christian conversion in a Muslim world (Abingdon: Routledge, 2015), p. 33.
[274] Radford, Religious Identity and Social Change, p. 34.
[275] Radford, Religious Identity and Social Change, p. 33.
[276] Radford, Religious Identity and Social Change, p. 34.

To explain this, we need to use several of the sociological theories related to deviance. The family of the missionary is known by everyone in the village and will have to cope with the consequences that a conversion leads to, which is negative social feedback from the rest of the community. This is a strong reason for not converting and an example of social control theory. At the same time, they will have to evaluate the possible benefits of converting. That boils down to one question, does this new religion work? If the missionary has had success, the answer is yes, and conversion happens. If he, on the other hand, has failed, the answer is no, and conversion is rejected. This is straight out of the social disorganization theory. The example also fits with the social disorganization theory as the villagers are more likely to convert if families with a high status convert first. This also fits with theories of the psychology of religion as they would predict that people would conform to the beliefs of the leading members of society.

The fact that the success outside the family would depend on the reputation and status of the family is interesting when one takes the monuments in the Upper Tembris valley into account. The presence of a sarcophagus would suggest that a family with a good deal of economic wealth had become Christian. If that family was among the first Christians, then that could explain why Christianity was able to establish itself in this area despite the odds against conversion in a rural area. From psychology, the similarity bias combined with the prestige bias would suggest that such a situation should end up converting a sizeable portion of the population in a village. This is precisely what can be observed in China in 1860. The Christians in rural areas lived in communities where they constituted the entire village or made up a significant portion of the population.[277]

Conversion in an urban setting

How would conversion work in an urban environment then? First, cities in the pre-modern periods would, as discussed in chapter 2, record more deaths than births and would have to rely on immigrants to keep the population stable. These immigrants could, in an early modern city, account for as much as 30% of the population in a city that had a stable population.[278]

[277] Bays, A New History of Christianity in China, p. 60.
[278] Anne Winter, Migrants and Urban Change: Newcomers to Antwerp, 1760-1860 (New York: Routledge, 2016), p. 36.

There is no particular reason to assume that the situation would be radically different in the Graeco-Roman world. For the most part, these immigrants would be without social bonds in their new environment, or their social bonds would be few and weak. That would make it easier to embrace a deviant religion as the adverse reactions designed to control social behavior would be either lacking or weaker than would have been the case in the village society. There is also the possibility of being anonymous in an urban setting. In the village where everybody knows everybody, it would be noticed if a person did not show up for a religious festival, while in the city there are so many people that the absence of a person could not have been noticed even among people. Boin's suggestion that Christians could try to hide their Christianity by compromising would make much more sense in a city where it actually would be possible to do such a thing, at least for some.[279] This is important since if nobody noticed that a person is doing something that is considered deviant, then that person is not deviant in the eyes of society.

Furthermore, the immigrants would probably cluster in the areas of the city that were the poorest and, therefore, the most socially unstable ones. Such areas with an immigrant cluster would also by nature be very heterogenous. According to the social disorganization theory, this would be the areas of the city that had the most socially unstable conditions, something which would favor deviant behavior from the inhabitants. Christianity would then spread through personal networks as some of these immigrants would have made friends that were Christians. These Christian friends would now account for the strongest social ties that the immigrant had in the city, and there would be a pull to convert to Christianity in order to conform to the belief of the group. Not doing so would have made the immigrant a deviant inside the group.

Most of the immigrants would probably have been young men, in their adolescence.[280] That is the age when a person is most likely to convert due to the neurological pruning that occurs at that point in life. While the immigrants may have been mostly male, the evidence suggests that some families were among the immigrants to Rome.[281] According to the social disorganization theory, the children in these families, together with young single immigrants, would be prime candidates for deviant behavior. This is similar to the situation found in

[279] Boin, Coming Out Christian in the Roman World, pp. 29-30.
[280] Holleran, "Migration and the Urban Economy of Rome", p. 165.
[281] T.L. Prowse et al., "Isotopic evidence for age-related immigration to imperial Rome". Am. J. Phys. Anthropol., 132: (2007), 510-519. doi:10.1002/ajpa.20541, p. 518

modern urban areas with a high level of social disorganization. These areas tend to have a much higher youth delinquency than other areas. If the early Christians, for the most part, were drawn from the ranks of adolescent, then that could explain Celsius statements that the Christians counted among them "illiterate country bumkins," and that they tried to convert the young.[282] As Ehrman points out, Origen never refutes Celsus' claim, suggesting that it may be some truth to it.[283] If the first converts to Christianity were to be found among young immigrants in the lower strata of society that would go against Stark's suggestion that converts are to be found among the more educated in society.[284]

The question that needs to be answered is, of course, if there is anything in our sources that suggest that the early Christians were immigrants, and that belonged to the lower strata in society. To evaluate this, we might try to look at the situation in Rome as it was one of the earliest and most important centers of early Christianity. If they indeed were immigrants, we would expect to find them among the poor, and in areas that were on the outskirts of the city.

The first evidence is tied to the names that are mentioned by Paul in Romans. Lampe points out that 2/3 of these are Greek.[285] It would be tempting to conclude that they were immigrants to Rome, but Romans could have eastern names while they had little or no connection to the east.[286] We, therefore, need to look for other pieces of evidence. The next evidence is the language used by the early church. All the written material we have until the second century Latin translation of First Clement is in Greek, and it was not until the third century that Latin came to dominate.[287] This use of Greek as the language of the church strongly suggests that the early Christians were Greek speakers, and thus were immigrants to Rome from the eastern provinces.[288] The second-century translation of First Clement into Latin suggests that at this point, more educated people had joined the church as being able to write in both Latin and Greek would have been relatively rare among the lower strata of the population. The translation itself, however, is in a vulgar language, which leads Lampe to conclude that it betrays the translator's lack of education.[289] The translator would, however, probably not have

[282] Origen, Origen Against Celsus, 3.55.
[283] Ehrman, The Triumph of Christianity, p. 133.
[284] Stark, The Rise of Christianity, p. 33.
[285] Peter Lampe, From Paul to Valentinus: Christians at Rome in the First Two Centuries. Translated by Michael Steinhauser (Minneapolis: Fortress Press, 2003), p. 171.
[286] Mary Beard, John North, and Simon Price, Religions of Rome: A History, Vol. I. (Cambridge: Cambridge University Press, 1996), p. 294.
[287] Lampe, From Paul to Valentinus, pp. 143-144.
[288] Beard et al., Religions of Rome, p. 295.
[289] Lampe, From Paul to Valentinus, p. 144.

been a native Latin speaker. Somebody in the Roman world that was able to read and write in both Latin and Greek would surely not be one that lacked education. Furthermore, a Latin speaker that was able to master Greek in addition to Latin would most likely have a relatively high level of education, which would suggest a more refined Latin. It is more likely that the translator was an immigrant that acquired Latin as a second language later in life. Also worth noting is that such a translation almost certainly would have been entrusted to the person that was best suited to do a translation from Greek to Latin.[290] While the demand for a Latin translation means that there had to be Latin speakers in the Roman church at this time, the use of a translator that most likely was an immigrant suggest that the Latin speakers still was in the minority in the church and that they were poorly educated.

Stegemann and Stegemann suggest, in accordance with Stark's theory, that the absolutely poor did not belong to the early church, and that it primarily was made up of members above the poverty level.[291] Meeks also finds that the first the educational and social level of the first Christians were higher than what has been assumed.[292] It is, however, likely that the majority indeed were poor if one is to take First Clement seriously

> As for our own people, we know that many have surrendered themselves to captivity as a ransom for others, and many more have sold themselves into slavery and given the money to provide others with food.[293]

The fact that members of the early church had to sell themselves into slavery to raise money for the poor does not suggest that it was much wealth in the church at this point. Quite to the contrary, it suggests that the situation was desperate financially. If the early Christians were primarily made up of people above the poverty level, then it would not be necessary for some of the members to go to such an extreme measure as to sell themselves into slavery to support the poor members. This coincides well with the assessment made by other historians that the first Christians belonged to the lowest strata of society and that they were slaves and immigrants.[294]

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[290] Lampe, From Paul to Valentinus, p. 144.
[291] Ekkehard W. Stegemann and Wolfgang Stegemann, The Jesus Movement: A Social History of Its First Century. Translated by O. C. Dean Jr., (Minneapolis: Fortress Press, 1999), p. 309.
[292] Meeks, The First Urban Christians, p. 52.
[293] 1. Clem. 55:2.
[294] Michael Lipka, Roman Gods: Religion in the Graeco-Roman World (Leiden: Brill, 2009), p. 181; MacMullen, Christianizing the Roman Empire, p. 38; Fox, Pagans and Christians, p. 301.

Lampe concludes, based on archaeological evidence, concentrations of tituli, and literary information, that the early Christians predominantly were confined to Travestere and the Appian Lowland from Porta Capena to the Almone River.[295] He also concludes that these areas were the more impoverished areas of Rome based on the fact that the population density here was highest with very few domus, while the density of bakeries in these areas was low.[296] Trastevere and Appian Lowland were also situated at the main points of entrance for immigrants to the city, particularly those from the east.[297] This, again, strongly suggests that the Christians in the early period primarily could be found among the lowest strata of the city and that they were mainly drawn from the immigrant population.

There is some evidence, however, that the early church started to recruit more educated and well-placed people in the second century. Ignatius, who probably was martyred in the 140s, wrote several letters to churches while he was traveling from Antioch to be martyred in Rome.[298] One of these letters was written to the church in Rome, and in it, he seems to be under the impression that not only would the Christians there be able to secure his release but that it would be easy for them to do so.

> For the beginning is auspicious, provided that I attain the grace to receive my fate without interference. For I am afraid of your love, in that it may do me wrong; for it is easy for you to do what you want, but it is difficult for me to reach God, unless you spare me.[299]

That Ignatius thought that the Christians in Rome so easily could secure his release and thus prevent his martyrdom suggest that there must have been either members of the senatorial elite among them at this time, or, more likely, members of the imperial household, most likely imperial slaves or freedmen. Alternatively, he was under the impression that the wealth of the Roman church was so vast that it would be a trivial matter for it to bribe somebody to secure his release, which also suggests that several of its members had risen considerably compared to the early beginnings. Either way, the letter suggests that the Roman church had members with a relatively high standing in society at the middle of the second century.

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[295] Lampe, From Paul to Valentinus, p. 42.
[296] Lampe, From Paul to Valentinus, p. 65.
[297] Lampe, From Paul to Valentinus, p. 46.
[298] Timothy D. Barnes, "The Date of Ignatius." The Expository Times 120, no. 3 (December 2008): 119–30. doi:10.1177/0014524608098730, p. 128.
[299] Ignatius, Rom. 1:2.

Conclusion

While Robinson, correctly, points out that there is not much evidence in favor of the urban thesis, there is even less evidence in favor of a relatively large Christian population in rural areas. There is some evidence for some Christian presence in rural areas in Asia Minor and Coele-Syria. However, it is unclear how significant that presence was, given the fact that what little remains of archaeological evidence can also often be interpreted as either pagan or Jewish. The relatively large number of chorepiscopoi from Asia Minor attending the Council at Nicaea does not necessarily indicate a large number of Christian in rural areas as one would expect that they on average had far fewer worshipers in their congregations than the average urban bishop. It would, however, be possible to defend a hypothetical number of rural Christians between 400,000 and 500,000 around the time of Constantine's conversion.

It is, however, difficult to get around the fact that almost all the evidence we have for Christians in the first three centuries come from an urban setting, and point to a group that initially consisted of people from the lower strata of society that had migrated to the cities. In addition, the theories from sociology that Stark uses strongly suggests that the first Christians were likely to be urban. The same is the case if one compares with modern anthropology, that suggest that it is extremely challenging to make conversions in rural areas, especially if the first converts do not belong to a leading family in the local community.

Therefore, it must be concluded that the evidence so far points to there being far fewer Christians in rural areas than in urban areas around AD 312 and that the urban thesis continues to be the best explanation for the evidence available.

4. Health and Conversion

Stark emphasized the contributions of epidemics and disease as factors that helped Christianity grow since he claims that the Christians would have had substantially higher survival rates than the pagans.[300] He goes on to claim that the Christians, as a consequence, had a larger percentage of the population after an epidemic, even without new converts.[301] There is a series of problems with this statement, which will be investigated in the first part of this chapter. In the last part of the chapter, the possibility of miraculous healing as a way into the new religion will be investigated.

The Mortality Rate of the Plagues

Stark suggests that smallpox and measles are likely candidates for the Antonine Plague and the Plague of Cyprian, respectively.[302] He also considers different mortality rates suggested for the Antonine Plague and rejects all but the highest, the 25 to 30 percent estimate put forward by McNeill.[303] Here he points to the 1707 epidemic on Iceland that had such a high mortality rate. While this may make sense as the 1707 epidemic was a semi virgin epidemic, there are some problems with just taking this number and applying it to the Roman Empire. For one thing, such a high mortality rate would have to assume that every part of the empire was hit by the epidemic, and moreover, that all parts were hit equally hard. This is far from certain given both the size of the empire and the fact that some of the interior areas would have relatively sparse contact with the more densely populated parts of the empire.[304] Some of these areas could very well escape the epidemic. Stark does make the claim that these epidemics hit rural areas as hard as the cities, or possibly harder, but this is an unlikely situation.[305] As we have seen, the R_0 depends, to a degree, on factors in the society, especially how close together people live. As people live much closer together in cities than in rural areas, we may assume that people were less likely to be infected in rural areas, and therefore also less likely to die from these diseases. There are historical examples of epidemics

[300] Stark, The Rise of Christianity, p. 74.
[301] Stark, The Rise of Christianity, p. 74-75.
[302] Stark, The Rise of Christianity, p. 73.
[303] Stark, The Rise of Christianity, p. 76.
[304] Harper, The Fate of Rome, p. 115.
[305] Stark, The Rise of Christianity, p. 77.

affecting rural areas more than urban, but that was the bubonic plague.[306] This particular disease has a very complex mode of transmission, but in its simplest for it relies flies on rodents, usually rats, as the vector. Smallpox, on the other hand, for the most part, relies on an airborne spread. It is, therefore, much more sensitive to population density than the bubonic plague. While there are examples of rural areas that were hit unusually hard by the epidemics of the second and third centuries, for example, the villages of Kerkenouphis and Soknopaiou Nesos in the Fayum, they probably were the exceptions due to the unusually high population density in Egypt.[307] This is also the case for the example that Stark cites to demonstrate that the rural areas were hit as hard as the cities. The example that he presents is Karanis, which, as the examples above, is located in the Fayum. In addition, Karanis was a substantial village with a population that may have been as large as 4,000.[308] This may have made it resemble a small city more than the average village of the empire, which can help explain why the mortality was so high here.

Estimates for the army suggest a mortality of 15 to 20 percent.[309] Since the population density, and therefore the contact rate, was much higher in an army camp than what would be the case in most villages, it is likely that the rural mortality rate was lower than this. Harper suggests an empire-wide mortality around ten percent, with numbers in the cities going at least twice as high.[310] These numbers seem likely, but it may be possible to argue for a somewhat higher mortality rate among civilians because of the increased mortality among very young children. Therefore, this paper will use 30 percent mortality for the cities and 15 to 20 percent for the empire as a whole.

Was the Christian Care for their Sick Unique?

Stark's first point for the plagues to benefit Christianity was that Christians had much better survival rates than their pagan neighbors. This is something that he has borrowed from McNeill and expanded on it. Stark and McNeill both assume that the Christians would give the sick basic care, which would help increase their survival chances, while the pagans did

[306] Ole J. Benedictow, *The Black Death, 1346-1353: The Complete History* (Woodbridge: The Boydell Press, 2004), p. 31.
[307] Harper, The Fate of Rome, pp. 111-112.
[308] James B. Rives, Religion in the Roman Empire (Malden: Blackwell Publishing, 2006), p. 69.
[309] Harper, The Fate of Rome, p. 112.
[310] Harper, The Fate of Rome, p. 115.

not.[311] The first part is relatively uncontroversial. Basic nursing will help with the survival rates of the patients. The latter part that the Christians were much more likely to nurse their sick than the pagans were is more controversial.

The notion that the pagans did not care for their sick while the Christians did is grounded on the reading of two sources. The first source is by Dionysius bishop of Alexandria from 248 to 264. Eusebius cites a letter by him where he writes the following about how the Christians cared for each other during the Plague of Cyprian that hit Alexandria in 252:

> The most, at all events, of our brethren in their exceeding love and affection for the brotherhood were unsparing of themselves and clave to one another, visiting the sick without a thought as to the danger, assiduously ministering to them, tending them in Christ, and so most gladly departed this life along with them; being infected with the disease from others, drawing upon themselves the sickness from their neighbours, and willingly taking over their pains. And many, when they had cared for and restored to health others, died themselves, thus transferring their death to themselves… In this manner the best at any rate of our brethren departed this life, certain presbyters and deacons and some of the laity, receiving great commendation, so that this form of death seems in no respect to come behind martyrdom, being the outcome of much piety and strong faith.[312]

While this text certainly indicates that many Christians were willing to risk illness and potentially death to help their fellow Christians who had fallen ill, it is less clear how common this was. At the beginning of the passage, Dionysius states that "the most … of our brethren" did help without a thought about their own safety. Later he writes "certain presbyters and deacons and some of the laity," suggesting that this may not have been the behavior of the majority. He also points out that many of the people that had been involved in caring for the sick, notably presbyters and deacons, themselves became sick and died. While it is plausible that this caring for the sick helped lower the mortality rate somewhat, it is also not impossible that it, together with the burials, increased the mortality rate since more people would risk becoming infected when they cared for the sick. The death of many of the presbyters and deacons could also leave congregations without leadership, possibly making the members more vulnerable to apostatizing. When it comes to the pagan response to the plague, Dionysius writes the following:

> But the conduct of the heathen was the exact opposite. Even those who were in the first stages of the disease they thrust away, and fled from their dearest. They would even cast them in the roads half-dead,

[311] Stark, The Rise of Christianity, p. 74.; McNeill, Plagues and Peoples, p. 135.
[312] Euseb., Hist. eccl. 7.22.7-8.

> and treat the unburied corpses as vile refuse, in their attempts to avoid the spreading and contagion of the death-plague; a thing which, for all their devices, it was not easy for them to escape.[313]

This is an obvious contrast to how Christians care for each other. However, there is a potential problem here. It is far from certain that Dionysius presents a factual picture of the care that the Christians offered to the sick, or how common it was that pagans abandoned their loved ones. Stark assumes that a bishop would not lie in a pastoral letter and that it would be a lie that would easily have been seen by his parishioners.[314] This uncritical use of the early Christian sources has been criticized by both Ehrman and Castelli, with the latter also accusing him of reading "early Christian sources with a consistently generous benefit of the doubt."[315] To bolster his argument that the pagans, for the most part, did not help their sick, Stark quotes Thucydides:

> Some died in neglect and others died despite constant care. Virtually no remedy was established as a single specific relief applicable in all cases: what was good for one was harmful to another. No particular constitution, strong or weak, proved sufficient in itself to resist, but the plague carried off all indiscriminately, and whatever their regime of care. The most dreadful aspects of the whole affliction were the despair into which people fell when they realized they had contracted the disease (they were immediately convinced that they had no hope, and so were much more inclined to surrender themselves without a fight), and the cross-infection of those who cared for others: they died like sheep, and this was the greatest cause of mortality. When people were afraid to visit one another, the victims died in isolation, and many households were wiped out through the lack of anyone to care for them. If they did visit the sick, they died, especially those who could claim some courage: these were people who out of a sense of duty disregarded their own safety and kept visiting their friends, even when ultimately the family members themselves were overwhelmed by the scale of the disaster and abandoned the succession of dirges for the dead. But the greatest pity for the dying and the distressed was shown by those who had had the disease and recovered. They had experience of what it was like and were now confident for themselves, as the plague did not attack the same person twice, or at least not fatally.[316]

While Thucydides here describes people abandoning their loved ones from the fear of the disease, he also points to people trying to help the sick and dying even if they themselves

[313] Euseb., Hist. eccl. 7.22.10.
[314] Stark, The Rise of Christianity, p. 83.
[315] Ehrman, The Triumph of Christianity, p. 138.; Elizabeth A. Castelli, "Gender, Theory, and The Rise of Christianity: A Response to Rodney Stark." *Journal of Early Christian Studies* 6, no. 2 (1998): 227-57. doi:10.1353/earl.1998.0034, p. 236.
[316] Thucydides. The Peloponnesian War, 2.51.

risked becoming sick. He is, according to Muir, in reality describing a Catch-22 situation.[317] It is also not possible to read from the passage how common it was that families abandoned their loved ones from fear. While Stark seems to assume that it was the norm to abandon a sick person, it may also have been a relatively rare occurrence. Another problem with using Thucydides to show how the stress of an epidemic would break down the social values and norms among the pagans is the unique situation that Athens was in at the time of the plague. The Athenians' social norms would probably be fragile even before the plague arrived since the city probably resembled a modern refugee camp more closely than a city. Having the entire population of Attica behind the walls must have led to a great deal of stress within the population, even without an epidemic. Furthermore, the distance in time between the plague in Athens and the Plague of Cyprian is so large that it is unclear if Thucydides' description can be used to illuminate the pagan behavior during the later plague.

To establish if Christians really were so different from their pagan neighbors, we might try to look at epidemics in later time periods and see whether the Christians in those times fit the picture that Dionysius painted of the early Christians. The first example comes from Paul the Deacon, who writes about the Plague of Justinian in Liguria in 565:

> For as common report had it that those who fled would avoid the plague, the dwellings were left deserted by their inhabitants, and the dogs only kept house. The flocks remained alone in the pastures with no shepherd at hand. You might see villas or fortified places lately filled with crowds of men, and on the next day, all had departed and everything was in utter silence. Sons fled, leaving the corpses of their parents unburied; parents forgetful of their duty abandoned their children in raging fever. If by chance long-standing affection constrained any one to bury his near relative, he remained himself unburied, and while he was performing the funeral rites he perished; while he offered obsequies to the dead, his own corpse remained without obsequies.[318]

Here, Paul the Deacon describes a situation similar to what Dionysius described for the pagans during the Plague of Cyprian. While it almost certainly would have been some pagans left in Liguria at this time, we can probably assume that the Christians were dominant at the time. It is also likely that Paul the Deacon describes the behavior of Christians rather than that of pagans. If it had been the latter that had behaved in such a way while the Christians cared

[317] Stephen C. Muir, "Look How They Love One Another: Early Christian and Pagan Care for the Sick and Other Charity." In Religious Rivalries in the Early Roman Empire and the Rise of Christianity, ed. Leif E. Vaage (Waterloo: Wilfrid Laurier University Press, 2006), p. 223.
[318] Paul the Deacon, History of the Lombards, 2.4.

for the sick, he would most likely have pointed it out since it would have been a very nice demonstration of the superiority of the Christian religion.

During the Black Death, similar stories about family members abandoning their loved ones were reported. In the Decameron, Boccaccio states that " Almost all tended to arrive at the same callous decision, which was to keep the sick and their belongings at a distance, believing that in this way they could save themselves."[319] A little later, he states that many, both men and women, fled Florence in the face of the pestilence.[320] The Decameron is, of course, the story about ten such refugees. Although the Decameron obviously is a piece of fiction, it fits with other stories, both about people fleeing the plague and abandoning the sick to their fate. A similar description of family members abandoning each other to the plague comes from Agnolo di Tura in Siena, who writes: "The father would not attend to his son; one brother fled from the other; the wife abandoned her husband."[321] The Franciscan frier Michele da Piazza wrote the following about what he witnessed from the outbreak in Messina in 1347:

> It bred such loathing that if a son fell ill of the disease his father flatly refused to stay with him, or, if he did dare to come near him, was infected in turn and was sure to die himself after three days. ... No priests, sons, fathers or kinsmen dared to enter; instead they paid porters large sums to carry the bodies to burial.[322]

This behavior continues to be reported through history up to modern times. During the 1793 yellow fever outbreak in Philadelphia, large portions of the population fled from the city, led by the elite, while, again, many were abandoned by their families, either because of fear or because they were too shocked to help.[323] Given that Christians' behavior through history very closely resembles what Thucydides and Dionysius describe as pagan behavior, it is unlikely that Dionysius' description of the Christians' unselfish care for their sick is entirely truthful. It is more likely that Dionysius, in his letter, engaged in a rhetorical exercise where he was comparing the good Christians with the evil and immoral pagans, something which was relatively common for Christian apologetic literature at the time. While we probably can assume that the clergy did, as in later times, care for the sick, it is unlikely that there was much difference in the behavior of the laity and the pagans when it came to nursing their

[319] Boccaccio, Decameron, p. 9.
[320] Boccaccio, Decameron, p. 10.
[321] Arthur White, Plague and Pleasure: The Renaissance World of Pius II (Washington: The Catholic University of America Press, 2014), p. 25.
[322] Rosemary Horrox, The Black Death (Manchester: Manchester University Press, 1994.), p. 36.
[323] Spielman, D'Antonio, Mosquito, p. 60.

loved ones. It is, of course, a possibility that the Christians in the second and third century were much less concerned about death than Christians in other periods, or that the small size of the congregations would make the social control among the early Christians so effective that they would be more willing than Christians in later times to risk disease to nurse others. However, it is likely that the Christian attitude to death did not shift that much between the time of Dionysius and Cyprian and the time of Paul the Deacon.

It is also likely that taking care of the sick would have caused a high mortality rate among the clergy. Thucydides writes that it was "a particularly high mortality among doctors because of their particular exposure," which seems to fit with what Dionysius writes above.[324] This is also something that Michele da Piazza noted, writing that the Franciscans and Dominicans died in such numbers that their priories were deserted.[325] All in all, we may assume that the clergy probably saved some patients through their care, but they would themselves have been extremely exposed to infection and death. Therefore, it is unlikely that the mortality numbers would differ much between the pagans and the Christians, although it is possible that the Christian mortality rate was slightly lower than what the pagans experienced in the cities.

Christian Care for the Pagans

Did the early Christians care for the sick pagans as well as their own? Stark assumes this is the case and quotes Julian's complaints about the Christians helping the pagan poor as evidence for this.[326] There are two problems with his line of argument. The first is that Julian wrote in 362, 50 years after Constantine's conversion. During these years, the Christian church has been the beneficiary of both imperial protection and patronage. Therefore, the church in Julian's time was very different from the one that Cyprian and Dionysius knew. In the years before Constantine's conversion, the church was not wealthy, and it would have been challenging for it to give the same kind of help to the pagan poor as it did in Julian's time.[327] This would have been even more true during the Antonine Plague when they were few in numbers and seem to have had few elite members. The second problem is that Stark assumes that giving alms to the pagan poor is the same as being willing to sacrifice one's life

[324] Thucydides. The Peloponnesian War, 2.47.
[325] Horrox, The Black Death, p. 36.
[326] Stark, The Rise of Christianity, pp. 83-84.
[327] Muir, Look How They Love One Another, p. 227.

for the pagan sick. Dionysius talks about the people dying after caring for the sick in the same language as one would use for martyrs, and we know that martyrs were not plentiful in the early church.[328] Brown points to the early Christian communities consisting of two groups, the ones that had Christianity as an ancestral faith and the converts and half-participants that were predictable *lapsi* during persecutions.[329] This suggests that there must have been a good number among the recent converts that would have been very reluctant to attempt 'martyrdom' to save a pagan from death. Furthermore, these recent converts would have accounted for a substantial part of the Christian community.

Stark does acknowledge that it most likely was family and friends that were the beneficiary from such help from the Christians.[330] However, one would have to question if the help of family members would lead to a conversion. If one read Thucydides, it seems like help when one was sick was something one would expect from one's family members and friends. The pagans that got help from their Christian family and friends would probably be grateful to them, but that does not automatically translate into them being grateful to their religion.

The Effect of Basic Nursing

Stark states that "Modern medical experts believe that conscientious nursing without any medications could cut the mortality rate by two-thirds or even more".[331] This statement is somewhat difficult to evaluate as he does not cite the source for the information. It is unclear if the medical experts he quotes talk about illness in general or smallpox or talks about basic nursing at home or professional nursing at hospitals. Nonetheless, Stark uses this statement to suggest that the Christian mortality rate would be just ten percent because of the availability of better care, while the pagans would suffer a 30 percent mortality rate.[332] To illustrate that it really was a noticeable difference, Stark again quotes Dionysius, "Its full impact fell on the heathen."[333] While this certainly can be taken to mean that people were able to distinguish the mortality difference between the Christians and pagans in Christian favor, it also has an

[328] Candida Moss, The Myth of Persecution: How Early Christians Invented a Story of Martyrdom (New York: HarperOne, 2014), p. 255.
[329] Brown, The Making of Late Antiquity (Cambridge: Harvard University Press, 1993), p. 73.
[330] Stark, The Rise of Christianity, p. 92.
[331] Stark, The Rise of Christianity, p. 89.
[332] Stark, The Rise of Christianity, p. 89.
[333] Stark, The Rise of Christianity, p. 83.

apparent rhetorical element to it that was popular among the early Christian writers, namely God punishing the pagans and protecting his own people. Furthermore, the sources are not in agreement on this. Another bishop, Cyprian of Carthage, wrote the following:

> Many of us are dying in this mortality, that is many of us are being freed from the world. This mortality is a bane to the Jews and pagans and enemies of Christ; to the servants of God it is a salutary departure. As to the fact that, without any discrimination in the human race, the just also are dying with the unjust, it is not for you to think that the destruction is a common one for both the evil and the good.[334]

Cyprian seems to be stating that there is no noticeable difference between the Christians' mortality rates and the other groups. If he had, it would have been likely that he mentioned it. Cyprian also states that "Now it troubles some that the infirmity of this disease carries off our people equally with the pagans."[335] Again there seems to be no difference in the mortality between the pagans and Christians in Carthage, at least none that is noticeable by Cyprian and his congregation. In the opening of Mortality, Cyprian even rebukes some of his parishioners for being weak in the faith because the plague did not spare them.[336] While it is understandable that they would be disappointed that the Christians were not spared, one would assume that their faith would be bolstered if they easily could observe a noticeably better survival rate among their own brethren. That their faith wavered is probably an indication that they did not see anything like that.

As pointed out in chapter 2, smallpox usually has a mortality rate of 15 to 25 percent. While it is true that effective nursing can help with the mortality rate, it is hard to see how it could go as low as ten percent. If we look at evidence from modern smallpox hospitals in the UK, it becomes clear that even with a relatively large staff of trained nurses, a mortality rate that is that low would be extremely difficult to achieve. During the Middlesbrough outbreak from 1897 to 1898, 1,405 patients were treated, with 201 dying, making the mortality rate 14 percent.[337] If we assume that the case fatality rate would have been 25 percent if no care were given, then the mortality was cut by 44 percent with nursing alone. In Britain's last great smallpox epidemic in 1902, 7,916 patients were treated, out of which 1,337 died, a mortality rate of 17 percent.[338] This would translate into a cut in the mortality rate of 32 percent.

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[334] Cyprian, De mortalitate 15.
[335] Cyprian, De mortalitate 8.
[336] Cyprian, De mortalitate 1.
[337] Margaret R. Currie, Fever Hospitals and Fever Nurses: A British Social History of Fever Nursing: A National Service (London: Routledge, 2005), p. 127.
[338] Currie, Fever Hospitals and Fever Nurses, p. 120.

Therefore, it is plausible to suggest that professional nursing could cut the mortality rate by 32 to 44 percent. However, that does not necessarily mean that basic nursing given in a home by amateurs would result in a similar lowering of the mortality rate. Professional nurses treated the patients in these two examples with a relatively high nurse-to-patient ratio in addition to having access to some types of treatment that would be unlikely to be available to the early Christians. For example, they were able to give the patients cold baths to cool down the fever if they became delirious or comatose.[339] The high number of professionally trained nurses also meant that they were able to monitor every little change in the patients' conditions and temperature during these outbreaks.[340] It is highly questionable that the early Christians could have cared for their patients in a similar fashion.

If professional fever nurses could not get the mortality rate of smallpox down by two thirds, then it is doubtful that the early Christians could have done much better. At best, the Christians could possibly have managed to cut the mortality down by a third of what the pagans experienced, provided that the pagans never cared for their sick. This assumption is, of course, unrealistic. Thucydides stated very clearly that at least some sick got care in Athens during the plague, and it is unlikely that this would have changed. The archaeological record also shows that the pagan population cared for their sick.[341] Therefore, we cannot, as Stark does, rely on only the Christian sources and then paint an entirely black and white picture. It is likely that among the Christians, the clergy and some volunteers gave care to people who otherwise would not have received it. This would have led to increased mortality among these caregivers, but the total mortality rate may still have been somewhat lower than what the pagans experienced. However, it is doubtful that the mortality rate among the Christians would have been very much lower than among the pagans.

To illustrate how the Christians' superior health care would have helped the Christian growth, he does a calculation based on a fictional city with 10,000 inhabitants. As a result, he gets a city in 260 with 20 percent Christians compared to 12 percent if the plagues never happened. He does, however, make a mathematical error in this basic calculation. He calculates that the converts for the decade after the Antonine plague would be 16.[342] This is not correct as it is based on the pre-plague population. He must calculate it from the surviving Christian

[339] Currie, Fever Hospitals and Fever Nurses, p. 125.
[340] Currie, Fever Hospitals and Fever Nurses, p. 126.
[341] Ray Laurence, "Health and the life course at Herculaneum and Pompeii." In Health in Antiquity, ed. Helen King (Abingdon: Routledge, 2005), p. 92.
[342] Stark, The Rise of Christianity, p. 89.

population as dead people do not engage in converting other people. While it is not a big mistake, the error would give the Christian population a four percent increase. A larger problem with the exercise is that Stark, to make the calculation easier, assumes that the population of the cities would be stable, except the deaths caused by the epidemics. While this indeed makes the calculations much more manageable, it also leads to a very misleading picture as it creates a completely unrealistic scenario. For this calculation to work, one would have to assume that the city's population was stable demographically, which would be unlikely to be the case, and we would have to assume zero immigration, again extremely unlikely. Stark is basically using a mathematical example that would cut the urban population of the empire in half. In reality, people would continue to migrate from the rural areas into the cities after the epidemics, and the migrants would have been pagans. If one considers the immigration and assumes that the population at least makes a partial recovery to the pre-plague levels, then one would be likely to end up with a percentage of Christians in the city that would be close to what would be the case if the plagues did not happen at all. The total percentage of Christians in the empire would, however, have increased in Stark's calculation since he uses an extremely low number for the Christian mortality rate and the same high pagan mortality rate in both urban and rural areas.

If we instead try to use a Christian mortality rate of 20 percent, the picture changes dramatically. While the Christians still die less often than their pagan neighbors in the city, their total percentage of the empire's population will at best be stable, or more likely fall. This is because the mortality rate in rural areas would be lower than in urban areas. Besides, the endemic state of the diseases in the largest cities, where the Christians had their largest numbers, would decrease their percentage even further compared to the pagan rural population. Therefore, the Christians were unlikely to have benefitted from these diseases, at least in the long run, and it is more that the Christians grew in numbers despite these epidemics rather than because of them.

Miracles and Religious Explanations

Stark assumes that the pagans would notice and be impressed by the Christians' noticeably better survival rates and see it as a miracle.[343] They would then convert to Christianity as it proved to be the superior religion. While superior survival numbers may have been seen as a miracle by the pagans and Christians alike, is that it is not entirely evident that the average pagan would have been aware of the mortality rate among the Christians. For a pagan to have any inclination of the situation among the Christians, it would require him to know multiple Christians, and if we look at the low numbers at the time, combined with the fact that they probably would have kept their faith secret, that would be extremely unlikely. Most pagans probably did not know a single Christian, and many of the pagans that did know a Christian would probably not be aware of the fact unless that Christian had tried to convert them. Being a Christian was probably not something that one necessarily wanted to broadcast to everybody. The case of Gaius Marius Victorinus illustrates that this was the case for many, even in a time where the Christians had little fear of outright persecutions. Living well after the conversion of Constantine, Victorinus still kept his Christian faith secret for a long time, fearing the reaction from his pagan friends and, presumably, patrons.[344] The Christians' need for secrecy would probably have been especially strong during the Plague of Cyprian as that coincided with two major empire-wide persecutions, the Decian persecution and the persecution ordered by Valerian. While both persecutions ended after a relatively short period, it is unlikely that most Christians were interested in attracting more attention than necessary.

Cyprian opens *De mortalitate* with a statement that while most of his congregation remain faithful in the face of the plague, some waivered in their faith. If one combines this with the passage that some of them were troubled by the fact that the disease killed indiscriminately of faith, it is likely that some of the Christians at the time thought that being a Christian should have been a protection from such calamities, and when that failed to materialize, they became disenchanted with their new faith. It is, therefore, unlikely that these epidemics had any positive effect on the conversion rate. It is indeed quite possible that there was a negative effect with recent converts apostatizing because their expectations of being protected did not come to pass. Bede later reported such a situation during the plague in the 660s, where king

[343] Stark, The Rise of Christianity, p. 75.
[344] Augustine of Hippo, Confessions, 8.2.4.

Sigehere of Essex and his nobles abandoned Christianity for the old faith.[345] It is quite likely that some recent converts would have reacted to the epidemics by apostatizing as it would be a natural reaction to seek what was familiar in such a situation, especially during the Plague of Cyprian as the threat of persecution would be very real for many of them.

Stark suggests that some of the Christians that helped caring for the sick would catch the illness at an early point, recover, and then continue to care for the sick while being immune, something that would seem to make them into 'miracle' workers.[346] Muir considers this to be credible speculation.[347] It is, in fact, very doubtful that these immune helpers would be seen as miraculous. Thucydides had around 600 hundred years before the Antonine Plague pointed out that he, and others, observed that people that became sick and recovered would become immune, and while they initially entertained hopes that it was something like a wonder cure for all diseases, they in time came to understand that it was nothing particularly miraculous about the immunity. Moreover, the presence of malaria in the Roman world would have made people well aware that people who recovered had full or partial immunity for that disease. Therefore, it is very likely that people understood the concept of immunity reasonably well at the time. There is, however, one type of immunity that could be seen as miraculous by the people at the time. It is possible for a person to become infected without becoming symptomatic. For this to happen, a caregiver will have to have been exposed repeatedly to low-level exposures to the virus in order to build up immunity to the virus. Dobson and Carper suggest that this may have convinced pagans to convert to Christianity.[348] While we can be almost sure that such a thing would be seen as a miracle, we still run into some problems here. The first is that our sources do not mention this at all. We may assume if there indeed were miracles like this happening among the Christians, then both Dionysius and Cyprian would have mentioned it as it would have been a powerful demonstration of the power of the Christian god. Instead, Dionysius is remarking that it is precisely these caregivers that are dying in great numbers. It also requires the Christians to have invented some way of taking care of the sick that the pagan caregivers did not know because we know that there would be at least some pagan caregivers. If these pagan caregivers also received a 'miraculous' immunity, then it would be nothing special if the Christians also got it. Lastly,

[345] Bede, The Ecclesiastical History of the English People, 3.30.
[346] Stark, The Rise of Christianity, pp. 90-91.
[347] Muir, Look How They Love One Another, p. 220.
[348] Andrew P. Dobson and Robin E. Carper, "Infectious Diseases and Human Population History: Throughout history the establishment of disease has been a side effect of the growth of civilization", *BioScience*, Volume 46, Issue 2, February 1996, Pages 115- 126, https://doi.org/10.2307/1312814, p. 119.

we return to the question of what the pagans would know about the situation among the Christians. It is unlikely that many pagans would be so well informed about the Christian communities that they would have known who received immunity after being sick and who got it 'miraculously.' While the idea of miracles would be a likely path to conversion is attractive, it is unlikely that the kind of miracles suggested by Stark and Dobson and Carper would have been the ones that led to the growth of Christianity.

Stark also assumes that Christianity would receive converts because that religion alone explained the calamities that struck the empire.[349] This is a rather odd thing to state since paganism definitely had an explanation ready when calamities of different kinds struck. Disasters struck communities because the *pax deorum* had been broken. The gods had, for some reason, been offended by the behavior of the people. The magistrates would then attempt to determine why the gods were angry and then attempt to appease them.[350] For example, this was the case after the great fire in Rome in 64 AD when the Romans consulted the Sibylline books and conducted a series of sacrifices and prayers to different gods and goddesses in an attempt to appease them.[351] It was also one of the charges used against the Christians during the persecutions, they angered the gods by their refusal to take part in the religious ceremonies, and as a result, the *pax deorum* was broken, and the gods punished the whole community.[352]

Another point made by Stark is that the Christian belief in a happy afterlife came them a benefit at this time of excessive death as this world was just a stepping stone before eternity.[353] This because the pagans, according to Stark, did not have any such hopes for an afterlife. While it probably is true, as Muir contends, that the most pagans considered the next life to be a fairly dreadful existence according to the shades that Homer describes in the Odyssey, that did not pertain to all.[354] As already mentioned in chapter 1, the pagans had a whole range of beliefs when it came to an afterlife. Some did not believe in an afterlife at all.[355] Others would have believed in reincarnation, which is what Virgil seems to refer to in

[349] Stark, The Rise of Christianity, p. 79.
[350] John Scheid, An Introduction to Roman Religion (Translated by Janet Lloyd. Edinburgh: Edinburgh University Press, 2003), p. 150.
[351] Tacitus. The Annals, 15.44.
[352] G. E. M. De Ste. Croix. "Why Were the Early Christians Persecuted?" *Past & Present*, no. 26 (1963): 6-38. Accessed October 25, 2020. http://www.jstor.org/stable/649902, p. 26.
[353] Stark, The Rise of Christianity, p. 88.
[354] Muir, Look How They Love One Another, p. 217.
[355] Valerie M. Warrior, Roman Religion (Cambridge: Cambridge University Press, 2006), p. 39.

the Aeneid as most of the souls in the underworld are to get a second chance.[356] The initiates of the different mystery cults also seem to have had hopes of a better afterlife.[357] The promise of an afterlife may not have been the primary cause for them to join the cult, but the close relations they had with the god or goddess would have made an afterlife in the Elysian Fields possible.[358] This seems to be the case with the Isis cult as Isis in the Golden Ass tells Lucius that he will have a happy and glorious life in this world with an expanded lifespan and then will spend eternity in the Elysian Fields worshipping her.[359] Therefore, one should be careful when it comes to what the pagans in the second and third centuries believed in when it comes to an afterlife. It may be that most believed that would end up as the shadows in the Odyssey or that they would just cease to exist, but we really do not know what the average person in the Graeco-Roman world believed in when it comes to the afterlife. What we do know is that Christianity was not the only option for a person that craved a happy afterlife.

The Pagan Flight

Stark is on somewhat firmer ground when he assumes that the pagans would flee the cities in the face of these epidemics.[360] He points to Galen's attempted flight from Rome to make his case.[361] There are other examples available. The Roman Senate did, for example, adjourn for September and October during the Principate so that the senatorial elite could leave the city during the worst malaria season.[362] We can therefore be reasonably sure that the pagans, if they had the opportunity, would flee if an epidemic hit the city, especially in the case of a virgin soil epidemic. What is a little more problematic are his numbers and the assumption that it would only be the pagans that fled.

Stark suggests that 20 percent of the pagans fled from the cities.[363] During the 1793 yellow fever epidemic in Philadelphia, thousands fled the city, among them President Washington and the rest of the government.[364] Then during the 1878 yellow fever epidemic in Memphis,

[356] Virgil, The Aeneid, 6.810-30.
[357] Muir, Look How They Love One Another, p. 217.
[358] Bowden, Mystery Cults of the Ancient World (Princeton: Princeton University Press, 2010), p. 23.
[359] Apuleius, The Golden Ass, 11.6.
[360] Stark, The Rise of Christianity, pp. 91-92.
[361] Stark, The Rise of Christianity, p. 85.
[362] Walter Scheidel, "Germs for Rome". In Rome the Cosmopolis ed. Catharine Edwards and Greg Woolf (Cambridge: Cambridge University Press, 2003), p. 166.
[363] Stark, The Rise of Christianity, p. 92.
[364] Spielman, D'Antonio, Mosquito, p. 61.

more than half of the city's population fled.[365] These cities had a population from about 33,000 to 55,000 at the time. Therefore, it is possible that the numbers that Stark use here could be possible for smaller cities. Here many would have had ties to the surrounding countryside, and it may have been possible for them to call upon relatives living in the surrounding villages, or at least they would have felt like that they could do so. This may not have been easy even in small cities as it would require some traveling. To illustrate, we can look at the medieval town of Exeter, with a population of around 3000.[366] Here half of the population came from within a range of 32 km, while 27 percent had their origins between 32 and 64 km away.[367] It would probably be a similar situation for the smaller cities in the Graeco-Roman world. The average city dweller would likely have had to walk to the village where he had connections, and he would also have to take his wife, children, and his valuables with him. It might be feasible for such a family to travel 32 km in one day if the terrain was not too rugged, but a longer distance would likely have required a stay overnight somewhere.[368] If most of the city were on the move, that would probably mean sleeping outside for most of the travelers. This would also have made the travel more dangerous as robbery would be a real threat during the night. This would have made a flight seem less attractive, and it would probably not be very tempting for people that had their roots outside the area that one could reach in one day walking.

In cities and towns that were larger than Exeter, the distance that the inhabitants would have to travel to reach 'home' would have been greater, and thus even fewer people would have tried to attempt it. In the largest cities, most of the population with any connections outside would probably have them so far away that it would be completely unrealistic for them to attempt to travel there. In these cities, a flight would be something that the elites, their households, and possibly their clients would do. The elite's flight may very well have created a feeling of 'pagan' flight among the Christians as their flight most likely would have been noticeable, with most of their great households leaving the city with them.

[365] Timothy C. Winegard, The Mosquito: A Human History of Our Deadliest Predator (New York: Dutton, 2019), p. 340.
[366] Maryanne Kowaleski, Local Markets and Regional Trade in Medieval Exeter (Cambridge: Cambridge University Press, 2002), p. 371.
[367] Christopher Dyer, Making a Living in the Middle Ages: The People of Britain, 850-1520 (New Haven: Yale University Press, 2002), p. 194.
[368] Lionel Casson, Travel in the Ancient World (Toronto: Hakkert, 1974), p. 189.

It is also uncertain that it would have been just pagans that fled. Fleeing from epidemics is, as mentioned, a normal response, also in Christian societies. As we have seen, it is mentioned by both Paul the Deacon and Boccaccio, and it was a typical response to yellow fever epidemics in the US in the eighteenth and nineteenth centuries. Flight from cities during epidemics was also a reality in the Byzantine empire during the Plague of Justinian.[369] Therefore, we cannot assume that this was something that just pagans did, even if our sources do not explicitly mention Christians doing so. If the Christians, for the most part, were among the more impoverished strata in the cities, then that may explain why they did not flee. They would have been unable to do so.

Stark's calculations for the survival of the attachments are, as we will see, based on the assumption that fleeing pagans will not return to the city after the epidemics were over. This is, after all, the only way that flight could have broken social bonds permanently. This is not a very likely scenario since the people that fled would have been the people that could afford to do so. The people who could afford to flee would most likely also be the ones who had the most to gain by returning to the city after the epidemic was over. The return of the fleeing people to their city is, for example, described by Gregory of Tours in his description of the plague in Marseilles in 588:

> At the end of two months the plague burned itself out. The population returned to Marseilles, thinking themselves safe. Then the disease started again and all who had come back died. On several occasions later on Marseilles suffered from an epidemic of this sort.[370]

The people that fled Marseilles in 588 returned to their city after they believed that the plague was over. This makes sense since they would have had their homes and livelihood there. Most likely, we can assume that the same would be the case in the Roman empire after these plagues. As the ones fleeing would have been the ones that were better off in the society, we can assume that they would be better fed and more healthy than the ones left behind, thus increasing their chances of survival. In addition, they would also have several slaves that would have had little choice than to nurse their sick masters and their families and friends, something that should increase their survival rate to at least the same level as the Christians.

[369] Dionysios Stathakopoulos, "Crime and Punishment: The Plague in the Byzantine Empire, 541-749", In Plague and the End of Antiquity: The Pandemic of 541-750, ed. Lester K. Little (Cambridge: Cambridge University Press, 2007), p. 112.
[370] Gregory of Tours, The History of the Franks, 9.22.

Attachment Rates

To illustrate the effects that Christian nursing had on the likelihood of conversions, Stark calculates the survival rate of attachments.[371] Stark calculates the survival rate for Christian-Christian attachments to be 0.81 based on a ten percent mortality rate for the Christians. The survival rate of pagan-pagan attachments is calculated to 0.49, while the survival rate of pagan-Christian attachments is calculated to 0.63. Stark tries to further lower the survival rate of pagan-pagan attachments by deducting the pagans that fled the city, which gives him pagan-pagan attachments of 0.25.[372] The survival rate for Christian-pagan attachments falls to 0.45 as a consequence. Therefore, Stark gets a situation where the survival of the Christian-pagan attachments is 80 percent higher than the pagan-pagan attachments, while the Christian-Christian attachments have a survival rate that is more than three times as high as the pagan-pagan. The problem here is that this is not a valid calculation since there is nothing that suggests that these people would stay away from the city permanently. This is especially so because we would expect the city elites to flee, which would be precisely the ones who would have the most to gain by returning after the epidemic was over. If we correct for this, the survival rate of Christian-pagan attachments will be 29 percent higher than pagan-pagan attachments, while Christian-Christian attachments will have a 65 percent higher survival rate. While these numbers still would favor conversions, it is not quite as bad for the pagans as Stark tries to make it look.

We can now try to make the same calculation with a somewhat more realistic mortality rate of 20 percent for the Christians. In this case, the survival rate for Christian-Christian attachments will be 0.64, and the survival rate for pagan-pagan attachments will stay at 0.49 since the pagan mortality rate will remain at 30 percent. The survival rate of Christian-pagan attachments will be 0.56. In this case, the survival rate for the pagan-Christian attachments will be 14 percent higher than for pagan-pagan attachments, while Christian-Christian attachments will have a 30 percent higher survival rate than the pagan-pagan. While this scenario still favour some increased conversion to Christianity, it is far from being as dramatic as Stark wants to paint it. While there is little evidence to suggest that there was any noticeable difference at all between pagan and Christian survival rates, we cannot entirely rule

[371] Stark, The Rise of Christianity, p. 91.
[372] Stark, The Rise of Christianity, p. 92.

out that there may have been some small differences, so a hypothetical calculation of survival rates may be instructive if the numbers are somewhat realistic.

As an illustration of the situation, Stark illustrates with an example of a pagan with four pagan friends and one Christian.[373] In his example, the pagan is left with one pagan and one Christian friend after Stark again assumes that the fleeing pagans will never return. He also decides to round the number of surviving pagans down from 1.5 to one. It would probably have been more correct to say that it would be one to two pagan friends left. If one instead assumes that the pagans that fled return, the pagan in the example is left with one Christian friend and two to three pagan friends. So even with Stark's survival rates, our pagan would still have more pagan friends than Christians left after the epidemic.

Christianity as a Healing Cult

While Stark's theory that the epidemics of the second and third century helped Christian growth likely is wrong, it is possible that health issues did contribute to the growth of Christianity in another way, namely its message of healing. While some, Stark included, have pointed at the promise of an afterlife as the most attractive part of Christianity, this is not necessarily the case. As discussed in chapter 1, there is not likely that the topic of resurrection would have been a compelling topic when it comes to conversion. It is even far from certain that the afterlife was much of a concern for the converts. That it later became the most important topic for the church does not mean that it was the case for pagans that considered conversion to the new religion. The topic of healing can be found in the earliest Christian writings. The gospels have several accounts of Jesus as a miracle worker that heals. In John 9:1-12, Jesus heals a man that has been blind from birth; in Luke 17:11-19, he heals ten lepers, while in Mark 5:25-34, Matthew 9:18-22, and Luke 8:43-48, he heals the bleeding woman without even being aware of it before it healing has occurred as the mere touch of his cloak was enough to heal the woman. Even the resurrection stories, the resurrection of Lazarus in John 11:1-10 being the most famous, can be seen through the lens of the healing topic since Lazarus and the others that were raised from the dead by Jesus was not resurrected to eternal life. They were just as vulnerable to disease and death as they had been before they

[373] Stark, The Rise of Christianity, p. 92.

died.[374] After Jesus, the apostles continued his healing miracles both in Acts and in apocryphal gospels and acts. In Acts 19:11-12, it is even described how Paul's handkerchiefs and aprons had healing powers because they had touched his skin. Thomas both heals by his mere shadow and resurrect the dead in the Acts of Thomas as he establishes the church in India.[375]

Healing was a topic that was important to the people in the Graeco-Roman world. MacMullen goes as far as stating that "The chief business of religion, it might then be said, was to make the sick well."[376] Although all the gods, and some of the heroes, could heal, some were considered to be more effective than others. The healing god par excellence in late antiquity was undoubtedly Asclepius. In the second century, Asclepius was worshipped alone, or together with other gods, in 670 temples in the Mediterranean world.[377] The healing miracles that Jesus and the apostles performed would, therefore, have been something that the pagans of the time both understood and, perhaps more importantly, something that would interest them.

The early Christian writers attacked several of the pagan gods, but they were especially vehement in their attacks on Asclepius.[378] The extra attention that these writers gave Asclepius would only have made sense if there was some kind of competition between the two deities. While the writers stress the role of Jesus more as a healer of the soul than the body, the ordinary Christians and converts were probably just as focused on the bodily healing that he offered. In such a competition, the acts of resurrections that Jesus performed would probably have made a powerful impression on many in the Roman world, not because it would hold out a promise of an attractive afterlife, but because it demonstrated the superiority of Jesus over Asclepius. While Asclepius did raise the dead at least once, that was something that he was not allowed to do, and he was punished for it by Zeus, who killed him with a thunderbolt.[379] Jesus, on the other hand, raised Lazarus and others from the dead without suffering any divine punishment. Tellingly enough, even some of the apostles raised

[374] Lee M. Jefferson, Christ the Miracle Worker in Early Christian Art (Minneapolis: Fortress Press, 2014), p. 19.
[375] Acts of Thomas, 6:59, 6:54.
[376] Ramsay MacMullen, Paganism in the Roman Empire (New Haven: Yale University Press, 1981), p. 49.
[377] Garry B. Ferngren, Medicine & Religion: A Historical Introduction (Baltimore: The Johns Hopkins University Press, 2014), p. 67.
[378] Jefferson, Christ the Miracle Worker in Early Christian Art, pp. 55-56.
[379] Jefferson, Christ the Miracle Worker in Early Christian Art, p. 19.

the dead in the name of Jesus, which indeed must have been seen as a powerful demonstration by the new religion.[380]

Ferngren dismisses the idea that healing miracles played an important role in attracting converts based on the observation that the Christian writers at the time were unable to point to current cases of healing.[381] However, this is not enough to dismiss the idea that healing was important for the believers and converts at the time. As Ehrman points out, many Christians today believe in healing miracles being possible without ever having witnessed healing themselves.[382] They hear stories told about a friend of a friend of a friend, and they chose to believe these stories. The healing message of Christianity was a powerful message both in the days of the apostles if we are to believe our sources and at the time of Augustine of Hippo.[383] Healing continued to be a central theme in Christianity through the middle ages, with healing being the prime motive for the veneration of the saints, with up to 90 percent of the miracles recorded involving healing.[384] The concept of faith healing has continued to be an important component within groups of Christianity up to our time. Pentecostalism has experienced rapid growth in Africa during the latter part of the twentieth century and the beginning of the twenty-first precisely because of its spiritual healing practices.[385] Similarly, Chinese converts seek help in this life, especially the healing of incurable diseases, and not eternal happiness in the afterlife.[386] It does not seem likely that the time between the first century and fourth century would be the only time in Christianity's history where healing did not occupy a central place. That the early Christian writers did not offer up specific examples that they knew about or that such information for some reason have not survived is not sufficient evidence that healing was not an important topic for the early Christians and converts to Christianity. On the contrary, Irenaeus Bishop of Lyons stressed the importance of healing in Against Heresies:

> Wherefore also in His Name those who are truly His Disciples, having received the grace from Him, fulfil the same for the benefit of the rest of men, according as each of them hath received the gift from Him. For some cast out devils really and truly, so that often those same persons, who are purged of the evil

[380] Acts 9.36-42; Acts 20.9-11.
[381] Garry B. Ferngren, Medicine & Health in Early Christianity (Baltimore: The Johns Hopkins University Press, 2009), p. 69.
[382] Ehrman, The Triumph of Christianity, p. 143.
[383] Ferngren, Medicine and Health Care in Early Christianity, p. 78.
[384] Amanda Porterfield, Healing in the History of Christianity (Oxford: Oxford University Press, 2005), p. 70.
[385] Porterfield, Healing in the History of Christianity, pp. 150-151.
[386] Han et al, "Urban Residents' Religious Beliefs and Influencing Factors on Christianity in Wuhan, China", p. 11.

> spirits, become believers, and are in the Church. Others again have foreknowledge of things future, and visions, and prophetic sayings: And others heal the sick by the imposition of their hands, and restore them whole. And before now, as we have said, dead persons have been raised, and have abode with us a good number of years. And what shall I say? There is no numbering the gifts, which in all the world the Church hath received from God, and in the name of Jesus Christ crucified under Pontius Pilate, exercises daily for the benefit of the nations, neither deceiving any, nor stripping them of their money.[387]

There is nothing here that suggests that the early Christians thought that healing was something that stopped after the time of the apostles. On the contrary, Irenaeus insists that this is happening in his own time and frequently. Besides, while Ferngren is correct in stating that healing and exorcism are not the same, they are both miracles performed by Jesus and the apostles.[388] The early Christians clearly believed that the miracle of exorcism was being done throughout the third century. This is clear from the mentions of 52 exorcists being on the pope's payroll in the middle of the third century.[389] Eusebius also mentions exorcists being targeted during the persecutions.[390] If exorcism was possible, it is difficult to understand that the early Christians would think that healing no longer occurred in the world. To explain how conversions happened, Ferngren instead points to persuasive arguments and theology as factors.[391] That theology should have played a significant role in a conversion process is highly questionable. Theological arguments tend to be counterintuitive and, therefore, would require a lot of effort to communicate, thus being unlikely to cause conversions.[392] It is also questionable if the average person in the Roman world would be very interested in complex theological arguments of any kind. Furthermore, a god will not be very attractive unless he can produce actions that are detectable in the world.[393] A god that is unable to do anything for his worshippers would therefore be unlikely to attract much interest. Here stories about healing miracles would act as proof of God's ability to produce such actions to the benefit of the worshippers.

Avalos points to the cost of healing in the pagan religions as a reason for Christianity's growth as the latter offered to heal for free.[394] This is something that Porterfield also stresses, stating

[387] Irenaeus, Against Heresies, 2.32.4.
[388] Ferngren, Medicine and Religion, p. 75.
[389] Euseb., Hist. eccl. 6.43.
[390] Euseb., Hist. eccl. 8.6.
[391] Ferngren, Medicine and Health Care in Early Christianity, p. 71.
[392] Barrett, Cognitive Science, Religion and Theology, p. 134.
[393] Barrett, Cognitive Science, Religion and Theology, p. 108.
[394] Hector Avalos, Health Care and the Rise of Christianity (Ada: Baker Academic, 1999), pp. 91-92.

that healing rituals both by the priests of Isis and Asclepius were expensive.[395] However, this is a complicated matter as the historians seem to be divided on whether the poor had to pay for healing at Asclepius's sanctuaries. Muir does, for example, suggest that fees usually was not charged at the Asclepieia and that the time one had available for recovery was the only restriction.[396] However, it is probably the case that few poor people would have the means to stay at these sanctuaries for extended time periods. They would also probably have felt that they would be obligated to promise a votive offering to Asclepius if he healed them. Therefore, it would seem like Avalos and Porterfield do have a point, although they may overemphasize it. While the Christians could expect healing for free at any place, the pagans would be more restricted both when it came to place and cost involved in the healing. Even if no fee were required, there would probably have been an expectation of a votive offering if one were healed.

Conclusion

While Stark does investigate an interesting path for the Christian growth, it ultimately leads nowhere. Given that Dionysius and Cyprian do not seem to agree on the difference in mortality between Christians and pagans, we cannot take it for granted that there was one. Besides, a comparative study of epidemics in the western world shows Christians engaging in precisely the same 'morally questionable' practices that pagans, according to Dionysius, did during virgin soil epidemics. We can, therefore, not, as Stark does, assume that there was any meaningful difference in the mortality rate between the two groups.

There is also questionable that any care the Christians could administer to the sick would be able to reduce the mortality to the level that Stark claims as such numbers were out of reach for trained fever nurses at the end of the nineteenth century. It would be close to impossible for the early Christians to achieve the improvement in mortality rate that the fever nurses managed, and even such an improvement would not have been enough to increase the relative numbers of Christians in the empire. This is because the pagans in the countryside would have had similar or lower mortality during the epidemics and a positive demographic growth rate in

[395] Porterfield, Healing in the History of Christianity, p. 49.
[396] Muir, Look How They Love One Another, p. 226.

normal years. On the contrary, the calculations indicate that Christianity did not grow because of the epidemics as Stark claims, but in spite of them.

The idea that healing and miracles contributed to Christianity's growth is much more attractive, as healing and other miracles were something that the pagans both expected from a god and something that they could understand. While specific instances of healing that are not done by the apostles are not common in the early church's writings, that does not in itself mean that the early Christians at the time believed that such miracles no longer happened. The argument put forward by Avalos and Porterfield about the lower cost and greater availability of healing in Christianity being a reason for its success may be valid, but the cost of pagan healing is disputed. It is just as likely that Jesus would be seen as superior to Asclepius because he and his followers had the ability to raise the dead without incurring divine wrath.

5. Counting the Christians

There are evident problems with how Stark uses numbers in *The Rise of Christianity* and *Cities of God*, but before one attempt to look into those problems, it might be worth to look into the more general problems with numbers in the time period. Numbers are difficult to come by with certainty during antiquity. This was demonstrated in chapter 2, where the estimates for the urban population range from a low 7 to a high 14.8 million. For the most part, we do not have any data that let us make demographic estimates with much higher certainty than that. The estimates that we do have are also usually based on somewhat limited sets of data. While estimating the number of people in cities, provinces, or the empire as a whole is difficult enough. It is even more complicated to estimate numbers of people belonging to sub-groups that are more or less indistinguishable from their neighbors. It might even be impossible. Therefore, it is evident that we cannot arrive at any hard numbers for how many Christians, or any other sub-group, within the empire at any given time. Such a situation may lead to the conclusion that it is futile to try to establish the number of Christians in the time period. While this certainly is a valid opinion, Stark is probably correct in his assessment that we should try to establish some estimates. Estimates can help us to understand the developments even if they are rough. However, we have to make sure that such estimates are plausible and that one understands the numbers' weaknesses. That means that the numbers suggested cannot be at odds with the urban thesis unless one is prepared to challenge it. Here Stark, and many others, fail since the numbers offered around 10 percent of the population in 300, as Robinson correctly points out, means that the urban thesis cannot be correct.

Stark and the Christian Growth Rate

In the first chapter in *The Rise of Christianity*, Stark tries to establish the Christians' growth rate to show that miracles and mass conversions were not needed to explain the rapid rise in numbers during the third century.[397] While he indeed manages to do that, that is not very surprising given that we lack stories of mass conversions in the third century. If there had been mass conversions as a result of large-scale missionary activity, it would probably have been mentioned by the Christian writers at the time, especially since the missionaries would

[397] Stark, The Rise of Christianity, p. 14.

have been prime candidates for martyrdom. It is also doubtful that this is a very revolutionary contribution to the study of early Christianity as few historians these days would use miraculous mass conversions as part of their narrative these days.[398] What is more problematic is that Stark seems to be confident enough with his suggested growth rate to imply that the number of Christians actually grew along these lines.[399] He does this by comparing the growth rate to that of the Mormons and comparing his calculated numbers to numbers offered by Bagnall for Egypt.[400]

There are three obvious problems here. The first is the idea that the growth rate would have been more or less stable, something his calculations for different years indicate he believes. This completely ignores how growth rates will be dependent on a number of different changeable factors both in the society at large and within the Christian communities and the faith. The second problem is that he seems to be of the impression that the Mormons could tell us anything of value regarding the growth rate of the early Christians. Here he forgets that he compares two very different time periods, and more importantly, two very different demographic situations. The Mormons started their growth during a time of demographic transition that was characterized by a high fertility rate and a low mortality rate. To illustrate the situation in the nineteenth-century, one can take a look at Norway. Here the population grew from about 900,000 in 1815 to 1.3 million in 1845.[401] This would translate into a growth rate of 14 percent each decade. The Mormons would probably have experienced a similar or larger natural demographic growth, and therefore they would only have needed to convert 26 persons per hundred believers each decade to reach a growth rate of 40 percent. For the early Christians, the situation would have been completely different as they would have needed to convert the entire 40 percent, and if they were urban even more, to achieve the growth that Stark postulates. The third problem, which is probably more severe, is that Stark's idea of a more or less constant growth rate combined with his relatively high estimate of Christians is incompatible with his own sociological theories. The social disorganization theory predicts that it would be more difficult for Christianity to spread to rural areas because social control is more effective there than in urban areas. Therefore, one would expect to see that the growth

[398] Joseph M. Bryant, "The Rise of Christianity: A Sociologist Reconsiders History by Rodney Stark." Sociology of Religion 58, no. 2 (1997): 191-95. Accessed November 1, 2020. http://www.jstor.org/stable/3711877, p. 192.
[399] Stark, The Rise of Christianity, p. 6.
[400] Stark, The Rise of Christianity, pp. 7, 12-13.
[401] Anne-Lise Seip, Aschehougs Norgeshistorie. Bind 8: Nasjonen bygges 1830-187 (Oslo: Aschehoug, 1997), p. 78.

rate slows down as the number of Christians in the cities reaches the limit, and further growth has to occur in rural areas. This is something that Stark basically ignores.

Furthermore, it cannot be taken for granted that the growth rates for the Mormons can be transferred to the early Christians. If we look at Christians in East Asia, we see that they grow at a very different pace. In China, they have had a growth rate similar to that of the Mormons in America. In Japan, on the other hand, the story is somewhat different. Initially, the Christian fate had a tremendous growth rate from its introduction in 1549 to 1612 when the Christians numbered around 300,000.[402] This would have amounted to about two percent of the total population at the time, which was between 15 and 17 million.[403] From this relatively high number, the growth rate has been fairly low, with only 1,13 million Christians in 2008.[404] While the absolute number is higher than what it was in 1612, it is now less than one percent of the population. In the last four hundred years, the percentage of Christians in Japan has been halved. Or in other words, the growth of Christians has been much lower than the natural demographic growth in Japan in the last 400 years. When we turn to Korea, we see yet another picture. Here the growth rate has been much higher than what is the case in both China and Japan. Around 2000, about 25 percent of the South Koreans identified as Christians.[405] This would translate into about 16.7% of all Koreans being Christians since few if any, Christians are located in North Korea. Unlike the relatively early beginnings in China and Japan, Christianity did not reach Korea before 1777.[406] Therefore, Christian growth has been much higher there than what Stark postulated for the early Christians based on the Mormon growth rate. This again suggests that we cannot just take a theory or incident that we can observe in the modern western world and try to use it to explain the situation in other cultures, whether they be modern or ancient.

Ehrman states that Stark as "a sociologist, he knows how to calculate population growth."[407] This is a statement that there would be considerable disagreement on. The fact is that Stark

[402] Timon Screech, "The English and the Control of Christianity in the Early Edo Period." Japan Review, no. 24 (2012): 3-40. Accessed September 23, 2020. http://www.jstor.org/stable/41592686., p. 8.
[403] William Wayne Farris, Japan's Medieval Population: Famine, Fertility, and Warfare in a Transformative Age. Honolulu: University of Hawai'i Press, 2006, p. 5.
[404] Mark R. Mullins, "Christianity in Contemporary Japanese Society." In Handbook of Contemporary Japanese Religions, ed. Inken Prohl and John Nelson, 133-232. Leiden: Brill, 2012, p. 138.
[405] Robert E. Buswell and Timothy S. Lee, "Introduction." In Christianity in Korea, ed. Robert E. Buswell and Timothy S. Lee (Honolulu: University of Hawai'i, 2006), p. 1.
[406] James Huntley Grayson, "A Quarter-Millennium of Christianity in Korea." In Christianity in Korea, ed. Robert E. Buswell and Timothy S. Lee (Honolulu: University of Hawai'i, 2006), p. 9.
[407] Ehrman, The Triumph of Christianity, p. 287.

has been under criticism for the way he uses numbers before, both in the case of his use of numbers when it comes to the Mormons and for his use of numbers for the predicted growth of Christians in China. In an article in 1984, he predicted that the Mormon Church would be the next great world religion by 2080, claiming that it may have 265 million members by that time.[408] He repeated this claim in 2005 in the book *The Rise of Mormonism*.[409] However, recent studies have shown that the growth rate for Mormons has fallen dramatically, especially after 2000, and is now down to 1.1% percent annually compared to the 4.1 percent predicted by Stark.[410] In 2015 Stark and Wang published *A Star in the East: The Rise of* Christianity *in China*, where they tried to explain the growth of Christianity in China as well as making predictions for the future. Stark was again criticized for the way he used statistics to explain the growth and to predict future numbers.[411] Furthermore, he has been accused of 'massaging' the numbers to fit his narrative and explain away numbers that he does not like.[412] The idea of using a fixed growth rate for a lengthy period is somewhat dubious, especially if there are changing factors within that period. Stark does not seem to be willing to acknowledge that the rate of conversion at any given time will have to depend on a whole range of factors within the society and culture in question. Similarly, factors within the religion in question will affect how likely or easy it is for people to convert. Early Christianity was not a static religion with all the theological implications set in stone from the start. On the contrary, it took centuries to work out which beliefs were to be considered orthodox and which were to be considered heretic.

Stark and the Total Number of Christians

Stark decided to use the ten percent, or 6 million, estimate for the Christians in 300.[413] While it may be understandable that a non-expert on the period uses a number that there seems to be more or less agreement on, it is more difficult to understand how he can use a estimate that

[408] Rodney Stark, "The Rise of a New World Faith." Review of Religious Research 26, no. 1 (1984): 18-27. Accessed November 1, 2020. doi:10.2307/3511039, p. 23.
[409] Rodney Stark and Reid Neilson, The Rise of Mormonism (New York: Columbia University Press, 2005), p. 22.
[410] Lawson, Xydias, "Reassessing the Size of Mormons, Adventists and Witnesses", p. 416.
[411] Chris White, "Counting Christians in China: A Critical Reading of "A Star in the East: The Rise of Christianity in China"." Cultural Diversity in China 2, no. 1 (2016): 101-09. Doi: 10.1515/cdc-2016-0001, p. 2-3.
[412] White, "Counting Christians in China", p. 1.
[413] Stark, The Rise of Christianity, p. 6.

directly contradicts his own assertion that the early Christians, for the most part, were urban. This is especially so because Stark uses such a low estimate for the urban population. If there were 6 million Christians in 300, that would mean that Stark has them filling up his cities since he estimates that there were 3 million people living in cities, and then there would be an additional 3 million in the countryside. In 313, he has 16.2 percent Christian in the Graeco-Roman world, which would mean that there was around 9.7 million Christians.[414] That is more than three times the number that he uses for the urban population. Even with more reasonable numbers for the urban population, 7.5 to 8.5 million, the number of urban Christians are as Robinson points out, still too high.[415] Numbers on the scale that Stark, and others, use means that the cities had so many Christians that there was no room for Jews or pagans in them. There are only two solutions to this problem. Either one does as Robinson and reject the urban thesis, or one tries to come up with alternative numbers for the Christian population. Since it was argued in chapter 3 that the urban thesis most likely holds, it will here be attempted to investigate alternative numbers for the early Christians.

Alternative Calculations and Numbers

Ehrman recognizes two of the problems with Stark's calculations. The first has been discussed earlier in this chapter, namely the use of a constant growth rate. The second is the use of 1,000 Christians in the year 40 as a start number.[416] Ehrman uses 20 Christians in the year 30 instead and suggests a very rapid growth rate for the first decades, which then slows down over time.[417] Starting out with only 20 Christians in the year 30 may, however, be slightly low. There must have been some Jesus followers that were not mentioned in the gospels. On the other hand, the 120 mentioned in Acts is also suspect.[418] The number twelve has a high symbolic value in both Christianity, with 12 disciples, and in Judaism, the 12 tribes, so the 120 is probably grounded in symbolism rather than factual numbers. That said, it makes sense with a very rapid growth rate for the first decades as the apostles seem to have been doing a lot of missionary work in this period. Paul alone must have converted several hundred people in the years he was active. The numbers offered by Ehrman do initially, as shown in Table 1, match Stark's numbers reasonably well, but from around 200, the two

[414] Stark, The Rise of Christianity, p. 13.
[415] Robinson, Who Were the First Christians, p. 18.
[416] Stark, The Rise of Christianity, p. 5.
[417] Ehrman, The Triumph of Christianity, p. 289.
[418] Acts 1:15.

growth projections start to diverge rapidly, with Ehrman's projection growing much slower than that of Stark. Despite the fact that Ehrman's growth projection fits better with the urban thesis than that of Stark, there are still some problems. The data points available for such calculations are few, and there are considerable time laps between many of these data points. Furthermore, it is doubtful that it is possible to make any accurate estimates, even within the ranges offered by Ehrman.

Table 1. Christian Growth Projections by Stark and Ehrman

Year	Number of Christians, Stark	Number of Christians, Ehrman
30	?	20
60	1,960	1,000 to 1,500
100	7,530	7,000 to 10,000
200	217,795	140,000 to 170,000
250	1,171,356	600,000 to 700,000
300	6,299,832	2,500,000 to 3,500,000

Table 1. Sources, Stark, *The Rise of Christianity* p. 7, Ehrman, The Triumph of Christianity p. 294.

The best we can do is probably to offer some high-end estimates. Such high-end estimates will only be able to say something about the maximum number of Christians at any given time. The numbers could be considerably lower than the suggested range. Such estimates should, as far as possible, be based on the data that we have available. Given that any such data for the time period are localized, this means that the estimates necessarily will be very rough. Nevertheless, if we want some estimates for the number of Christians in this period, we will have to accept that they will be very rough. For starting numbers, we have some data from around the year 60. If we look at the number of known Christian communities mention by Paul in his letters, 65, and in acts, 13, we have a total of 78 Christian communities.[419] These communities were probably not the only ones. Since we are only interested in establishing an upper limit for the Christians, we may make a very rough guess of about 150 such communities at the time. These communities were house-churches and were probably

[419] Ehrman, The Triumph of Christianity, p. 291.

relatively small. The early Christians would have been taken part in the *agape* meal, but we do not know if everybody in the community would take part in every meal. Even if not everybody in the community were present at every *agape* meal, it would have been a restraining factor on the numbers in a community. If the communities were too large, it would have made such communal meals impossible. The average size of the communities may therefore have been somewhere between 20 and 30 people. That would mean that it is unlikely that there could have been more than between 3,000 and 4,500 Christians in the year 60.

The next data point we have comes from Rome around the middle of the third century. Eusebius cites a letter from Cornelius, the bishop of Rome:

> This vindicator, then, of the Gospel did not know that there should be one bishop in a catholic church, in which he was not ignorant (for how could he be?) that there are forty-six presbyters, seven deacons, seven sub-deacons, forty-two acolytes, fifty-two exorcists, readers and door-keepers, above fifteen hundred widows and persons in distress, all of whom are supported by the grace and loving-kindness of the Master.[420]

Since Cornelius became bishop in 251 and was martyred in 253, this letter gives us a relative firm date for this data point. Based on a comparison with the information provided by John Chrysostom about the church in Constantinople in the fourth century, Ehrman suggests that there were 50,000 Christians in Rome at the time of Cornelius.[421] If we use Hanson's estimate for Rome's population, this would be around 7 percent of the population. These numbers only count the Christian communities that recognized Cornelius as bishop. There may very well have been heretical groups in Rome that rejected the bishops' authority so that we can adjust the percentage of Christians to 10 percent. Rome probably had one of the largest Christian communities compared to the population at the time, so if we use 10 percent as the average number of urban Christians within the Roman empire, we are probably not underestimating the Christian numbers. That will put the urban Christians around 250 to about 850,000 if we assume 8.5 million urban residents.

For the next data points, we have to go to Egypt. Bagnall has studied tax and land registers from Egypt that contained Christian names and tried to estimate the number of Christians from these. The data from the tax register from Karanis are dubious as the two Christian

[420] Euseb., Hist. eccl. 6.43.
[421] Ehrman, The Triumph of Christianity, p. 165.

names found in the register, Apollos and Paulos could be pagan as well as Christian.[422] Given the rural nature of this tax register combined with the uncertainty with the names, it will be omitted here. Bagnall's next record from Egypt is based on land registers concerning residents from Hermopolis and Antinoopolis.[423] Both of these cities were metropolis, and we can, therefore, safely assume that all the Christians found in them are urban. Bagnall dates these registers to 350, which means that the fathers in the register would have had a birthdate around 280, while the sons would have a birthdate around 315. The percentage of Christians in these registers is estimated at 13.5 percent in 280 and 18 percent in 315.[424] Since we aim to establish an upper boundary for the Christians, we should probably round these numbers up to 15 percent in 280 and 25 percent in 315. Doing so would give us 1,275,000 urban Christians in 280 and 2,125,000 in 315.

The last dataset that Bagnall analyzed is the Abinnaeus archive, which Bagnall dates to 348.[425] The Abinnaeus archive is more mixed and includes both urban and rural residents, and unfortunately, Bagnall does not clarify whether the Christians he finds in this dataset are urban or rural residents even if he states that most of the population comes from Arsinoite villages.[426] The dataset has a nice fit with the land registers from Hermopolis and Antinoopolis, but since it is impossible to make an assessment of whether they are rural or urban, they must be dismissed here as we attempt to find urban Christians. A closer study of the Abinnaeus archive would, however, be interesting and could possibly tell us something about rural Christianity in Egypt before the conversion of Constantine.

Of course, these data points will only give us the maximum number of urban Christians in the Roman empire. To get the total number of Christians in the empire, we will need to do some more guess work regarding the rural Christians. There are two options, either to use the estimates given in chapter 3 for the presence of Christians in rural areas, 400,000 to 500,000, or to take the percentage of chorepiscopoi at the Council at Nicaea. The first method may work for the number of Christians around the time of Constantine's conversion, giving us a maximum number of Christians of about 2,525,000 to 2,625,000 in 315. These numbers

[422] Roger S. Bagnall, Religious Conversion and Onomastic Change in Early Byzantine Egypt." *The Bulletin of the American Society of Papyrologists* 19, no. 3/4 (1982): 105-24. Accessed October 25, 2020. http://www.jstor.org/stable/24518914, p. 112.
[423] Bagnall, "Religious Conversion and Onomastic Change in Early Byzantine Egypt.", p. 114.
[424] Roger S. Bagnall, ""Conversion and Onomastics: A Reply." *Zeitschrift Für Papyrologie Und Epigraphik* 69 (1987): 243-50. Accessed October 25, 2020. http://www.jstor.org/stable/20186672, p. 249.
[425] Bagnall, "Religious Conversion and Onomastic Change in Early Byzantine Egypt.", p. 114.
[426] Bagnall, "Religious Conversion and Onomastic Change in Early Byzantine Egypt.", p. 115.

would, however, assume that the presence of rural Christians outside Asia Minor is negligible. At the Council of Nicaea, the percentage of chorepiscopoi was really low, but this may have been due to the cost of travel or other factors that may have limited the chorepiscopoi from attending. Here we will, therefore, only take the provinces in Asia Minor that sent chorepiscopoi into account. There were 38 bishops and 12 chorepiscopoi from Cilicia, Bithynia, Cappadocia, and Isauria.[427] The average percentage of chorepiscopoi from these provinces were, therefore, 24 percent. If we round up to 30 percent and use this as the average percentage of the Christians that live in rural areas, we get 1,214,000 rural Christians around 250, 1,821,000 in 280, and 3,036,000 in 315. In the year 60, we can probably assume that the Christians were more or less entirely urban, so the number of Christians in total will be equal to the number of urban Christians.

While 30 percent of the Christians being rural seems to be a good fit with the little evidence we have, however, it might be prudent to make an additional calculation where 50 percent of the Christians are rural in case someone would think that 30 percent of the Christians being rural is too low. In this case we get 1,700,000 Christians in 250, 2,550,000 in 280, and 4,250,000 in 315. This should be close to the upper limit of the number of Christians that there could possibly be in the Roman empire as much higher numbers either would require an unrealistically high number of Christians in the cities or an abandonment of the urban thesis.

Table 2. Maximum Number of Christians

Year	The Number of Urban Christians	Total Number of Christians, 30 Percent Rural	Total Number of Christians, 50 Percent Rural
60	3,000 to 4,500	3,000 to 4,500	3,000 to 4,500
250	850,000	1,214,000	1,700,000
280	1,275,000	1,821,000	2,550,000
315	2,125,000	3,036,000	4,250,000

It is important to remember that the numbers presented in Table 2 are not estimates of the number of Christians in the Roman empire but an upper limit of how many they could be given the assumptions that the calculations are based on. The actual number of Christians would probably be somewhat lower than this as it would probably not be many cities that had a Christian population of 25 percent, and quite a few had none or close to none. It is, for

[427] Harnack, The Mission and Expansion of Christianity in the First Three Centuries, pp. 181, 192, 212, 227.

example, clear that many cities in Asia Minor, which probably was one of the most Christian areas in the empire, show no evidence at all for a Christian population around 300.[428] For example, Robinson states that in Antioch, there were over 50 percent Christians at the end of the fourth century, and estimates that it would have been less than 20 percent at the time of Constantine's conversion.[429] Since Antioch was one of the cities with the largest Christian community, it is probably safe to assume that an average number that is much higher than that would be unlikely.

Conclusion

It is apparent that we cannot arrive at any hard and reliable data for the numbers of Christians at any point during the first 300 years of the faith. However, Stark is correct in the belief that this should not discourage us from making an attempt to arrive at some approximate numbers. While the numbers necessarily have to be rough estimates, it is possible to arrive at some high numbers for the Christians at the time of Constantine's conversion. If we assume that the Christians indeed, for the most part, were located in the cities, they would probably not number more than somewhere between 3 and 4 million depending on how many rural Christians one thinks existed. Any higher numbers would need to presuppose a much more significant Christian presence in the rural areas than most historians have been comfortable with so far.

Stark's idea of using a more or less constant growth rate is bound to be misleading since such a growth rate must be based on a tremendous amount of guesswork both when it comes to the starting number and the end number. This will make the growth rate suggested questionable in itself. In addition, it is highly unlikely that there would be anything like a constant growth as the growth rate at any given time would be dependent on a large number of factors both within the different Christian communities and within the society in which they operated. Such a mathematical exercise is, therefore, unlikely to give us much value.

[428] Freeman, A New History of Early Christianity (New Haven: Yale University Press, 2009), p. 219.
[429] Robinson, Who Were the First Christians, pp. 33-34.

Conclusion

Stark's books *The Rise of Christianity* and *The Cities of God* are both interesting because of the attempt to use sociology as a tool to explain the rise of Christianity in the Roman empire and, by extension, the entire western world. Although any offer to include new tools to the study of history should be welcomed, the books are unfortunately problematic, partly because Stark is no historian. This can most easily be seen in his highly problematic and perhaps naïve treatment of the sources available. For all practical purposes, he does not attempt to see the sources in a critical light and assumes that they, especially the Christian sources, are written to be factual and informative. This is, of course, not the case. Authors in antiquity, pagan and Christians alike, had their own agendas and used rhetorical elements to pursue those agendas. His lack of training as a historian also shows itself in his understanding or lack of understanding of the pagan religions of the time. With his narrow focus on the pagan religions as client cults, he is missing several aspects of these cults, like the mystery cults, the voluntary associations, and maybe most importantly, the public aspect of the cults. In his narrative on the afterlife, he completely ignores that the mystery cults did offer an afterlife and, maybe more worryingly, that the Egyptian religion definitely had a well-developed belief in a meaningful afterlife. It is also problematic that he assumes that a good and meaningful afterlife would have been the most significant benefit a cult since it is far from clear that this would have been the case for most people in the Graeco-Roman world. This is another serious problem with Stark's line of reasoning. That something is considered to be important for us today does not mean that it had the same importance to all, or even most, groups in antiquity.

On the aspect of the great epidemics of the second and third centuries, he again runs into the problem that he has with source criticism. He also does not attempt to show how the Christians could have achieved the mortality rate that he claims they had other than to issue a non-referenced statement that medical experts say it is so. It is likely that, contrary to Stark's claim, the Christians suffered more deaths than the pagans as a result of these epidemics due to the predominantly urban character of Christianity. That means that despite Stark's claims, the truth is probably that the Christian movements grew and, eventually, prospered not because of these epidemics but in spite of them.

Stark tries to use some simple mathematical calculations to show how the Christian communities grew and to demonstrate that there would be no need for miraculous mass

conversions in the third century to achieve the numbers suggested by some historians around the time of Constantine's conversion. There are a couple of problems here. To suggest a more or less steady growth rate for such a long period of time confuses more than it enlights as the growth rate, in reality, must have fluctuated widely as the factors that encouraged or discouraged conversion changed. The estimates that Stark uses for the years 300 and 313 are much too high, given that he adheres to the urban thesis. One cannot, as Stark does, insist that the Christians predominantly were urban and then offer estimates that are several times higher than the estimate that one uses for the total number of the urban population.

The alternative numbers for the number of Christians in this thesis are only meant to suggest a maximum number for how many Christians there could have been at various points in time. These numbers are, of course, not meant to be taken as hard facts but as very rough estimates. The extremely limited data available will not make it possible for us to make very reliable estimates. It is also important to stress that these estimates rest entirely on the validity of the urban thesis. If that should be rejected, which may very well happen in the future, then it would be completely impossible to make any estimates of the number of Christians at all.

When it comes to sociological theories, Stark relies heavily on an economic theory that looks at religions as competing 'firms' and the believers as 'consumers.' According to Stark, only Christianity could have collective production of religion and was therefore superior as a 'firm.' This is, as demonstrated, false as pagan religions were capable of collective production of religion. It can also be demonstrated that monotheistic religions are not inherently more competitive than polytheistic religions, as Stark would have one to believe. The 'firm' side of Stark's economic theory, therefore, fails to explain why Christianity succeeded. At the same time, the 'consumer' side of his theory is a rational choice model that operates under the assumption that people rationally weigh up the benefits and costs of conversion before they make their choice. That people always make rational choices like this has been demonstrated to be false by psychological studies. Our decision processes are much more complicated than Stark allows for, and even decisions that feel like they are rational will be subject to the interference of, for example, the emotions felt by the decision-maker at the time.

The part of Stark's theories that use social control and deviance stand on much firmer ground. This is because it is difficult to see how it would be possible for a society to operate without social control. More importantly, we also know from our sources that social control, as can be expected, was a part of the Graeco-Roman world. The idea of introducing attachment rates to

the study of history also has value. Even though Stark's use of attachment rates is hampered by the use of dubious numbers, the idea itself is sound. The main problem with the use of attachment rates is that we do not have any reliable data to do such calculations for antiquity, so it will necessarily have to be used at a theoretic level. Even so, the idea itself may help us understand what happened.

Despite all the problems that stem from Stark's lack of training as a historian, which one could say is understandable since it is not his field, and the problems with his reliance on an economic theory that fails both in its 'firm' and 'consumer' aspects, the main problem with Stark's analysis is the assumption that sociological theories operate on the same level as natural laws. This is clearly not the case. Theories from both sociology and psychology are not universal but are dependent on factors in both culture and society. Although some of the theories in these fields, like social control and deviance theories, seem to be universal, many are, as demonstrated in chapter 1, not. When we deal with theories from the social sciences we need to first to establish if the theories in question are universal, and if they are not we need to establish if the society and culture we wish to apply them to resemble the society and culture in which they were developed. If the two societies are different, then we would need to either reject the theories or apply them with extreme caution. Unfortunately, most of the theories that are used in the social sciences have been developed in the western world, which is far removed from the Graeco-Roman world, both in how the societies functioned and in culture. This makes the uncritical use of such theories hazardous. When it comes to conversion, we must seek the success, and failure, of religions in the social and cultural factors present at the time in addition to the benefits offered by the religion in question. To only to rely on theories from the social sciences would be doing history a disservice.

Even with all of these problems, there is a place for both sociology and psychology in the study of history, even the study of the Graeco-Roman world. As long as we are careful, these theories can help us explain what we see in our sources, and even in some cases, make predictions about what may have happened even when we do not have any sources. It would have been interesting to see the result if Stark, or another sociologist and maybe even a psychologist, had teamed up with some historians to write a proper in-depth analysis of the growth of Christianity. Such a project would have removed some of the most obvious problems with Stark's books about early Christianity and might have made more real and lasting contributions to the field. In such a research team, with participants across different

fields, the non-historians could ensure that the theories from their fields are understood and used correctly. At the same time, the historians could point out when they run at odds with the source material and the way historical societies and cultures operated and ensure that sufficient source criticism is applied. Such cross-field collaborations should be sought as often as possible since few, if any, have sufficient knowledge and understanding of all the fields required to explain many of the phenomena that we encounter in history, whether it is the rise of Christianity or the impact of climate on history.

Bibliography:

Abrahamson, Mark. *Urban Sociology: A Global Introduction*. Cambridge: Cambridge University Press, 2014.

Apuleius. *The Golden Ass*. Translated by E. J. Kenney. London: Penguin Books, 2004.

Argyle, Michael. *Psychology and Religion: An Introduction*. London: Routledge, 2000.

Augustine of Hippo. *Confessions*. Translated by Henry Chadwick. Oxford: Oxford University Press, 1998.

Avalos, Hector. *Health Care and the Rise of Christianity*. Ada: Baker Academic, 1999.

Avari, Burjor. *Islamic civilization in South Asia: a history of Muslim power and presence in the Indian subcontinent*. London: Routledge, 2013.

Bagnall, Roger S. *Egypt in Late Antiquity.* New Jersey: Princeton University Press, 1993.

Bagnall, Roger S. "Religious Conversion and Onomastic Change in Early Byzantine Egypt." *The Bulletin of the American Society of Papyrologists* 19, no. 3/4 (1982): 105-24. Accessed October 25, 2020. http://www.jstor.org/stable/24518914.

Bagnall, Roger S. "Conversion and Onomastics: A Reply." *Zeitschrift Für Papyrologie Und Epigraphik* 69 (1987): 243-50. Accessed October 25, 2020. http://www.jstor.org/stable/20186672.

Banich, Marie T. and Compton, Rebecca J. *Cognitive Neuroscience 4th ed.* Cambridge: Cambridge University Press, 2018.

Bargh, John A. *Before You Know It: The Unconscious Reasons We Do What We Do.* New York: Simon & Schuster, 2017.

Barnes, Timothy D. “The Date of Ignatius.” *The Expository Times* 120, no. 3 (December 2008): 119–30. doi:10.1177/0014524608098730.

Barrett, Justin L. *Cognitive Science, Religion and Theology: From Human Minds to Divine Minds.* West Conshohocken: Templeton Press, 2011.

Barrett, Lisa Feldman. *How Emotions are Made: The Secret Life of the Brain.* London: Macmillan, 2017.

Barrett, Ron and Armelagos, George J. *An Unnatural History of Emerging Infections.* Oxford: Oxford University Press, 2013.

Bartlett, M. S. "The Critical Community Size for Measles in the United States." *Journal of the Royal Statistical Society. Series A (General)* 123, no. 1 (1960): 37-44. Accessed November 1, 2020. doi:10.2307/2343186.

Bays, Daniel H. *A New History of Christianity in China*. 1. Aufl. ed. Wiley Blackwell Guides to Global Christianity. Chicester: Wiley-Blackwell, 2011.

Beard, Mary, North, John, and Price, Simon. *Religions of Rome: A History, Vol. I.* Cambridge: Cambridge University Press, 1996.

Beck, Roger. "The Religious Market of the Roman Empire: Rodney Stark and Christianity's Pagan Competition." In *Religious Rivalries in the Early Roman Empire and the Rise of Christianity*, edited by Leif E. Vaage, 233–252. Waterloo, Ont.: Wilfrid Laurier University Press, 2006.

Bede. *The Ecclesiastical History of the English People*. Edited by Judith McClure and Roger Collins. Oxford: Oxford University Press, 1991.

Benedictow, Ole J. *The Black Death, 1346-1353: The Complete History*. Woodbridge: The Boydell Press, 2004.

Bernard, Marcus. *Malaria: Deadly Diseases and Epidemics 2nd ed*. New York: Chelsea House, 2009.

Bjørnstad, Ottar N. *Epidemics: Models and Data with R*. New York: Springer, 2018.

Boin, Douglas. *Coming Out Christian in the Roman World: How the Followers of Jesus Made a Place in Caesar's Empire*. New York: Bloomsbury Press, 2015.

Bollet, Alfred Jay. *Plagues and Poxes: The Impact of Human History on Epidemic Disease*. New York: Demos, 2004.

Boreham, P F, and C Garrett-Jones. “Prevalence of mixed blood meals and double feeding in a malaria vector (Anopheles sacharovi Favre).” *Bulletin of the World Health Organization* vol. 48,5 (1973): 605-14.

Bowden, Hugh. *Mystery Cults of the Ancient World.* Princeton: Princeton University Press, 2010.

Brands, Daniel. *Salmonella: Deadly Diseases and Epidemics.* New York: Chelsea House, 2009.

Brauer, Fred, Castillo-Chavez, Carlos, and Feng, Zhilan. *Mathematical Models in Epidemiology.* New York: Springer, 2019.

Brown, Peter. *The Making of Late Antiquity.* Cambridge: Harvard University Press, 1993.

Brown, Peter. *Through the Eye of a Needle: Wealth, the Fall of Rome, and the Making of Christianity in the West, 350-550 AD.* New Jersey: Princeton University Press, 2012.

Brown, Peter. *The Rise of Western Christendom: Triumph and Diversity, A.D. 200-1000 (Making of Europe) 10th anniversary rev. ed.* Chichester: Wiley-Blackwell, 2012.

Bryant, Joseph M. “The Rise of Christianity: A Sociologist Reconsiders History by Rodney Stark.” *Sociology of Religion* 58, no. 2 (1997): 191-95. Accessed November 1, 2020. http://www.jstor.org/stable/3711877.

Buss, Bryan, Keyser-Metobo, Alison, Rother, Julie, Holtz, Laura, Gall, Kristin, Jereb, John, Murphy, Caitlin, Iwen, Peter, Robbe-Austerman, Suelee, Holcomb, Melissa, and Infield, Pat. “Possible Airborne Person-to-Person Transmission of Mycobacterium bovis” — Nebraska 2014–2015. MMWR. Morbidity and Mortality Weekly Report. 65. (2016). 197-201. 10.15585/mmwr.mm6508a1.

Buswell, Robert E. and Lee, Timothy S. “Introduction.” *In Christianity in Korea*, edited by Robert E. Buswell and Timothy S. Lee, 1-3. Honolulu: University of Hawai‘i, 2006.

Capasso, Luigi. "Brucellosis at Herculaneum (79 AD)." *International Journal of Osteoarchaeology* 9, no. 5 (1999): 277-88. doi:10.1002/(SICI)1099-1212(199909/10)9:5<277::AID-OA489>3.0.CO;2-0.

Capasso, L. "Infectious Diseases and Eating Habits at Herculaneum (1st Century AD, Southern Italy)." *International Journal of Osteoarchaeology* 17, no. 4 (2007): 350-57. doi:10.1002/oa.906

Casson, Lionel. *Travel in the Ancient World*. Toronto: Hakkert, 1974.

Cliff, Andrew D., Haggett, Peter, and Smallman-Raynor, Matthew. *World Atlas of epidemic Diseases.* London: Taylor & Francis, 2004.

Castelli, Elizabeth A. "Gender, Theory, and The Rise of Christianity: A Response to Rodney Stark." *Journal of Early Christian Studies* 6, no. 2 (1998): 227-57. doi:10.1353/earl.1998.0034.

Cooper, J. Eric and Decker, Michael J. *Life and Society in Byzantine Cappadocia*. London: Palgrave Macmillan, 2012.

Cousins, D V. "Mycobacterium bovis infection and control in domestic livestock." *Revue scientifique et technique (International Office of Epizootics)* vol. 20,1 (2001): 71-85. doi:10.20506/rst.20.1.1263.

Crabbe, Lester L. *Judaic Religion in the Second Temple Period: Belief and Practice from the Exile to Yavneh*. London: Routledge, 2000.

Crawshaw, Tim, Daniel, Roger, Clifton-Hadley, Richard, Clark, Jane, Evans, Helen, Rolfe, Simon, and de la Rua-Domenech, Ricardo. "TB in goats caused by Mycobacterium bovis." The Veterinary record. 163. 127. (2008). 10.1136/vr.163.4.127.

Currie, Margaret R. *Fever Hospitals and Fever Nurses: A British Social History of Fever Nursing: A National Service.* London: Routledge, 2005.

Cyprian *The Fathers of the Church: St. Cyprian Treatises*. Translated by Roy J. Deferrai. Washington, D.C.: The Catholic University of America Press, 2007.

Delia, Diana. "The Population of Roman Alexandria." *Transactions of the American Philological Association (1974-)* 118 (1988): 275-92. Accessed May 20, 2020. doi:10.2307/284172.

Di Bella, Maria P. “Conversion and Marginality in Southern Italy.” In *The Anthropology of Religious Conversion*, edited by Andrew Buckser and Stephen D. Glazier, 85–93. Lanham: Rowman & Littlefield, 2003.

Dietz, Klaus. “Some Problems in the Theory of Infectious Disease Transmission and Control.” *In Epidemic Models: Their Structure and Relation to Data*, edited by Denis Mollison, 3-16. Cambridge: Cambridge University Press, 1995.

Dobson, Andrew P. and Carper, E. Robin. “Infectious Diseases and Human Population History: Throughout history the establishment of disease has been a side effect of the growth of civilization”, *BioScience*, Volume 46, Issue 2, February 1996, Pages 115-126, https://doi.org/10.2307/1312814.

Doyle, M. P. and Schoeni, J. L. “Survival and growth characteristics of Escherichia coli associated with hemorrhagic colitis.” *Applied and environmental microbiology*, *48*(4), (1984), 855–856. https://doi.org/10.1128/AEM.48.4.855-856.1984.

Dresken-Weiland, Jutta. “Christian Sarcophagi from Rome.” In *The Routledge Handbook of Early Christian Art*, edited by Robin M. Jensen and Mark D. Ellison, 39–55. London: Routledge, 2018.

Dunbar, Robin, Barrett, Louise, and Lycett, John. *Evolutionary Psychology: A Beginner’s Guide*. London: Oneworld Publications, 2007.

Dyer, Christopher. *Making a Living in the Middle Ages: The People of Britain, 850-1520*. New Haven: Yale University Press, 2002.

Ehrman, Bart D. *The Triumph of Christianity: How a Forbidden Religion Swept the World*.London: Oneworld Publications, 2018.

Ehrman, Bart D. *Heaven and Hell: A History of the Afterlife*. New York: Simon & Schuster, 2020.

Erdkamp, Paul. “Urbanism”. In *The Cambridge Companion to the Roman Economy,* edited by Walter Scheidel, 241-265. Cambridge: Cambridge University Press, 2012.

Eusebius. *The History of the Church from Christ to Constantine*. Translated by G.A. Williamson, revised and edited by Andrew Louth. London: Penguin Books, 1989.

Eusebius. *Life of Constantine*. Translated by Averil Cameron and Stuart G. Hall. Oxford: Claredon Press, 1999.

Farris, William Wayne. *Japan’s Medieval Population: Famine, Fertility, and Warfare in a Transformative Age*. Honolulu: University of Hawai'i Press, 2006.

Fenner, Frank, Henderson, Donald A, Arita, Isao, Jezek, Zdenek, Ladnyi, Ivan Danilovich. et al. *Smallpox and its Eradication*. Geneva: World Health Organization. 1988.

Ferngren, Gary B. *Medicine & Health in Early Christianity*. Baltimore: The Johns Hopkins University Press, 2009.

Ferngren, Gary B. *Medicine & Religion: A Historical Introduction*. Baltimore: The Johns Hopkins University Press, 2014.

Finer, Kim Renee. *Tuberculosis: Deadly Diseases and Epidemics*. New York: Chelsea House, 2003.

Fox, Robin Lane. *Pagans and Christians: In the Mediterranean World from the Second Century AD to the Conversion of Constantine*. London: Penguin Books, 2006.

Fredriksen, Paula. “Christians in the Roman Empire in the First Three Centuries.” In *A Companion to the Roman Empire*, edited by David S. Potter, 587–606. Oxford: Blackwell, 2006.

Fredriksen, Paula. *When Christians Were Jews: The First Generation*. New Haven: Yale University Press, 2018.

Freeman, Charles. *A New History of Early Christianity*. New Haven: Yale University Press, 2009.

Frend, W.H.C. *The Rise of Christianity*. Philadelphia: Fortress Press, 1984.

Frier, Bruce W. “Demography.” In *The Cambridge Ancient History Vol. XI: The High Empire, A.D. 70-192 2nd ed.*, edited by Alan K. Bowman, Peter Garnsey, and Dominic Rathbone, 787–816. Cambridge: The Cambridge University Press, 2008.

Frykenberg, Robert Eric. *Christianity in India: From Beginnings to the Present.* Oxford: Oxford University Press, 2008.

G. E. M. De Ste. Croix. "Why Were the Early Christians Persecuted?" *Past & Present*, no. 26 (1963): 6-38. Accessed October 25, 2020. http://www.jstor.org/stable/649902.

Gilchrist, Roberta. Medieval Life: Archaeology and the Life Course. Woodbridge: Boydell Press, 2012.

Granados, José A. Tapia, Ana V. Diez Roux, and Alejandro Portes. "Life and Death during the Great Depression." *Proceedings of the National Academy of Sciences of the United States of America* 106, no. 41 (2009): 17290-7295. Accessed September 19, 2020. http://www.jstor.org/stable/40485181.

Grayson, James Huntley. “A Quarter-Millennium of Christianity in Korea.” *In Christianity in Korea*, edited by Robert E. Buswell and Timothy S. Lee, 7-25. Honolulu: University of Hawai‘i, 2006.

Gregory of Tours. *The History of the Franks*. Translated by Lewis Thorpe. New York: Penguin Books, 1974.

Hagras, H. “Xi’an Daxuexi Alley Mosque: Historical and Architectural Study.” Egyptian Journal of Archaeology and Restoration Studies, 9(1), 97-113. Accessed September 19, 2020. Doi: 10.21608/ejars.2019.38462.

Han, Junqiang, Meng, Yingying, Xu, Chengcheng, and Qin, Siqi. “Urban Residents’ Religious Beliefs and Influencing Factors on Christianity in Wuhan, China.” *Religions*. 8. 244. (2017). 10.3390/rel8110244.

Hanson, J.W. *An Urban Geography of the Roman World, 100 BC to AD 300*. Oxford: Archopress, 2016.

Harl, Kenneth W. “From Pagan to Christian in Cities of Roman Anatolia during the Fourth and Fifth Centuries.” In *Urban Centers and Rural Context in Late Antiquity*, edited by Thomas S. Burns and John W. Eadie, 301–322. East Lansing: Michigan State University Press, 2001.

Harl, Kenneth W. *Coinage in the Roman Economy, 300 B.C. to A.D. 700.* Cambridge: Johns Hopkins University Press, 1996.

Harnack, Adolf. *The Mission and Expansion of Christianity in the First Three Centuries*. Translated by David McInnes Moffatt, New York: Harper & Brothers, 1961.

Harper, Kyle. *The Fate of Rome: Climate, Disease, and the End of an Empire*. Princeton: Princeton University Press, 2017.

Hartfield, Matthew, and Alizon, Samuel. "Introducing the Outbreak Threshold in Epidemiology." *PLoS Pathogens* 9, no. 6 (2013): E1003277. https://doi.org/10.1371/journal.ppat.1003277.

Hartle, James B. *Gravity: An Introduction to Einstein’s General Relativity*. Harlow: Pearson, 2014.

Heine, Steven J. "Self as Cultural Product: An Examination of East Asian and North American Selves." *Journal of Personality* 69, no. 6 (2002): 881-905.

Henry, Stuart, Howard, Lindsay M. *Social Deviance 2nd ed*. Cambridge: Polity Press, 2019.

Henslin, James M. *Sociology: A Down-to-Earth Approach 10th ed*. New York: Pearson Education, 2010.

Hick, John. *The New Frontier of Religion and Science: Religious Experience, Neuroscience and the Transcendent*. New York: Palgrave Macmillan, 2006.

Hin, Saskia. “Population.” In *The Cambridge Companion to the Roman Republic 2nd ed.*, edited by Harriet E. Flower, 149–166. Cambridge: Cambridge University Press, 2014.

Hirshleifer, David, and Tyler Shumway. "Good Day Sunshine: Stock Returns and the Weather." *The Journal of Finance* 58, no. 3 (2003): 1009-032. Accessed September 23, 2020. http://www.jstor.org/stable/3094570.

Hobson, Barry. *Latrinae Et Foricae: Toilets in the Roman World*. London: Gerald Duckworth, 2009.

Holleran, Claire. "Migration and the Urban Economy of Rome." In *Demography and the Graeco-Roman World: New Insights and Approaches*, edited by Claire Holleran and April Pudsey, 155–180. Cambridge: Cambridge University Press, 2011.

Holmes, Micheal W. *The Apostolic Fathers: Greek Texts and English Translations 3rd ed*. Grand Rapids: Baker Academic, 2007.

Hopkins, Donald R. *The Greatest Killer: Smallpox in History with a new introduction.* Chicago: The University of Chicago Press, 2002.

Hopkins, Keith. "Christian Number and Its Implications." In *Sociological Studies in Roman History*, edited by Christopher Kelly, 432–480. Cambridge: Cambridge University Press, 2017.

Horrox, Rosemary. *The Black Death.* Manchester: Manchester University Press, 1994.

Huff-Corzine, Lin, and Corzine, Jay. "Social Disorganization Theory." In *Encyclopedia of Social Deviance*, edited by Craig J. Forsyth and Heith Copes, 657–661. Los Angeles: Sage Publications, 2014.

Hurtado Larry W. *Why on Earth did Anyone Become a Christian in the First Three Centuries*? Milwaukee: Marquette University Press, 2016.

Inderbitzin, Michelle, Bates, Kristin A., and Gainey, Randy R. *Deviance and Social Control: A Sociological Perspective 2nd Ed.* Los Angeles: SAGE, 2017.

Jefferson, Lee M. *Christ the Miracle Worker in Early Christian Art*. Minneapolis: Fortress Press, 2014.

Jensen, Robin Margaret. *Understanding Early Christian Art.* Abingdon: Routledge, 2000.

Johnson, Gary J. *Early-Christian Epitaphs from Anatolia*. Atlanta: Society of Biblical Literature, 1995.

Jones, A. H. M. *The Cities of the Eastern Roman Provinces.* Oxford: Clarendon Press, 1971.

Jones, C. P. *Culture and Society in Lucian.* Cambridge: Harvard University Press, 1986.

Jones, Peter. *Memento Mori: What the Romans Can Tell Us About Old Age and Death.* London: Atlantic Books, 2018.

Jongman, Willem. "Archaeology, Demography, and Roman Economic Growth." In *Quantifying the Roman Economy: Methods and Problems*, edited by Alan Bowman and Andrew Wilson, 115–162. Oxford: Oxford University Press, 2009.

Kahlos, Maijastina. *Debate and Dialogue: Christian and Pagan Cultures C. 360-430*. Abingdon: Routledge, 2007.

Kirkpatrick, Lee A. "An Attachment-Theory Approach to the Psychology of Religion." In *The Psychology of Religion: Theoretical Approaches,* edited by Bernard Spilka and Daniel N. McIntosh, 114-135. New York: Routledge, 1997.

Kirkpatrick, Lee A. *Attachment, Evolution, and the Psychology of Religion*. New York: The Guildford Press, 2005.

Kotar, S. L., and Gessler, J. E. *Smallpox: A History.* Jefferson: MacFarland & Company, 2013.

Kowaleski, Maryanne. *Local Markets and Regional Trade in Medieval Exeter*. Cambridge: Cambridge University Press, 2002.

Köse, Ali. *Conversion to Islam.* Abingdon: Routledge, 2010.

Lampe, Peter. *From Paul to Valentinus: Christians at Rome in the First Two Centuries*. Translated by Michael Steinhauser. Minneapolis: Fortress Press, 2003.

Lampe, Peter. "The Phrygian Hinterland South of Temenothyrai (Uşak)", Early Christianity 7/3. (2016), 381-394. DOI: http://dx.doi.org/10.1628/186870316X14712579797010.

Laurence, Ray. “Health and the life course at Herculaneum and Pompeii.” In *Health in Antiquity*, edited by Helen King, 83-96. Abingdon: Routledge, 2005.

Lawson, Ronald, and Xydias, G. Kenneth. "Reassessing the Size of Mormons, Adventists and Witnesses: Using Census Data to Test the Reliability of Membership Data and Accounting for the Disparate Patterns Found." *Review of Religious Research*, 2020, Review of Religious Research, 2020-05-05. https://doiorg.ezproxy.uio.no/10.1007/s13644-020-00408-z.

Lenski, Noel Emmanuel. "Relations Between Coast and Hinterland in Rough Cilicia." *Publications De L'Institut Français D'Études Anatoliennes* 13, no. 1 (2001): 417-24.

Levenson, Michael R., Aldwin, Carolyn M, and D’Mello, Michelle. “Religious Development from Adolescence to Middle Adulthood.” In *Handbook of Psychology of Religion and Spirituality.*, edited by Raymond F. Paloutzian and Crystal L. Park, 144–161. New York: The Guildford Press, 2005.

Levick, Barbara. “Girdled by Hills: Culture and Religion in Phrygia Outside of the Polis.” In *Regionalism in Hellenistic and Roman Asia Minor*, edited by Hugh Elton and Gary Reger, 107–116. New edition [online]. Pessac: Ausonius Éditions, 2007 (generated 24 janvier 2019). Available on the Internet: http://books.openedition.org/ausonius/1127. ISBN: 9782356132765. DOI: 10.4000/books.ausonius.1127.

Levine, Adam. “The Image of Christ in Late Antiquity.” PhD thesis, Oxford University, UK, 2012.

Lipka, Michael. *Roman Gods: Religion in the Graeco-Roman World*. Leiden: Brill, 2009.

Lo Cascio, Elio. “Population.” In *A Companion to the City of Rome*, edited by Claire Holleran and Amanda Claridge, 139-154. Hoboken: John Wiley & Sons, Inc., 2018.

Lougheed, Kathryn. *Catching Breath: The Making and Unmaking of Tuberculosis*. London: Bloomsbury, 2017.

MacMullen, Ramsay. *Paganism in the Roman Empire*. New Haven: Yale University Press, 1981.

MacMullen, Ramsay *Christianizing the Roman Empire: (A. D. 100-400)*. New Haven: Yale University Press, 1986.

MacMullen, Ramsay *The Second Church: Popular Christianity A.D. 200-400*. Atlanta: Society of Biblical Literature, 2009.

McKechnie, Paul. *Christianizing Asia Minor: Conversion, Communities, and Social Change in the Pre-Constantine Era.* Cambridge: Cambridge University Press, 2019.

McKinney, John D., Jacobs Jr., William R., and Bloom, Barry R. "Persisting Problems in Tuberculosis", In *Emerging Infections*, edited by Richard M. Krause, 51-146. Biomedical Research Reports. San Diego: Academic Press, 1998.

McNeill, William H. *Plagues and Peoples.* Cambridge: Anchor Books, 1977.

Meeks, Wayne A. *The First Urban Christians: The Social World of the Apostle Paul 2nd ed.* New Haven: Yale University Press, 2003.

Meeks, Wayne A. "Social and Ecclesial Life of the Earliest Christians." *In The Cambridge History of Christianity, vol. 1, Origins to Constantine,* edited by Margaret Mary Mitchell and Frances Margaret Young, 145–173. Cambridge: Cambridge University Press, 2006.

Mikaelson, Jon D. *Ancient Greek Religion 2nd. ed.* Chichester: Wiley-Blackwell, 2010.

Mitchell, Stephen. *Anatolia: Land, Men, and Gods in Asia Minor, Volume II The Rise of the Church.* Oxford: Clarendon Press, 1993.

Morley, Neville. *Metropolis and Hinterland: The city of Rome and the Italian economy 200 B.C.-A.D. 200*. Cambridge: Cambridge University Press, 1996.

Morley, Neville. "The Salubriousness of the Roman City." In *Health in Antiquity*, edited by Helen King, 192-204. Abingdon: Routledge, 2005.

Moss, Candida. *The Myth of Persecution: How Early Christians Invented a Story of Martyrdom*. New York: HarperOne, 2014.

Muir, Stephen C. “Look How They Love One Another: Early Christian and Pagan Care for the Sick and Other Charity.” In *Religious Rivalries in the Early Roman Empire and the Rise of Christianity*, edited by Leif E. Vaage, 213-232. Waterloo: Wilfrid Laurier University Press, 2006.

Mullen, Roderic L. *The Expansion of Christianity: a gazetteer of its first three centuries*. Leiden: Brill, 2004.

Mullins, Mark R. “Christianity in Contemporary Japanese Society.” In *Handbook of Contemporary Japanese Religions*, edited by Inken Prohl and John Nelson, 133-232. Leiden: Brill, 2012.

Murray, Megan. “The Epidemiology of Tuberculosis.” In *Tuberculosis: The Essentials 4th ed.*, edited by Mario C. Raviglione, 23–59. New York: Informa Healthcare, 2010.

Newson, Linda A. *Conquest and pestilence in the Early Spanish Philippines*. Honolulu: University of Hawai‘i Press, 2009.

Oldstone, Michael A. *Viruses, Plagues, and History: Past, Present, and Future*. Oxford: Oxford University Press, 2010.

Origen Adamantius. *Origen Against Celsus*. Translated by Frederick Crombie and Andrew Overett. Savage: Lighthouse Publishing, 2016.

Paloutzian, Raymond F. *Invitation to the Psychology of Religion 3rd ed*. New York: The Guildford Press, 2017.

Parkin, Tim G. *Demography and Roman Society*. Baltimore: The Johns Hopkins University Press, 1992.

Paul the Deacon. *History of the Lombards*. Translated by William Dudley Foulke. Philadelphia: University of Pennsylvania Press, 1974.

Pelcer-Vujačić, Olga P. “Society in Lydia and Phrygia from the 1st to the 3rd Century AD.” PhD thesis, University of Belgrade, Serbia, 2015.

Pliny, the Younger. *Pliny the Younger - Complete Letters*. Translated by P.G. Walsh. Oxford: Oxford University Press, 2006.

Porterfield, Amanda. *Healing in the History of Christianity*. Oxford: Oxford University Press, 2005.

Prowse, T.L., Schwarcz, H.P., Garnsey, P., Knyf, M., Macchiarelli, R. and Bondioli, L. "Isotopic evidence for age-related immigration to imperial Rome". Am. J. Phys. Anthropol., 132: (2007), 510-519. doi:10.1002/ajpa.20541.

Radford, David. *Religious Identity and Social Change: Explaining Christian conversion in a Muslim world*. Abingdon: Routledge, 2015.

Rhee, Helen. *Loving the Poor, Saving the Rich*. Ada: Baker Publishing, 2012.

Rives, James B. *Religion in the Roman Empire*. Malden: Blackwell Publishing, 2006.

Robinson, Thomas A. *Who Were the First Christians: Dismantling the Urban Thesis*. New York: Oxford University Press, 2017.

Romi, Roberto, Boccolini, Daniela, Vallorani, Roberto, Severini, Francesco, Toma, Luciano, Cocchi, Maurizio, Tamburro, Angelo, Messeri, Gianni, Crisci, Antonio, Angeli, Luca, Costantini, Roberto, Raffaelli, Irene, Pontuale, Giorgio, Thiéry, Isabelle, Landier, Annie, Le Goff, Gilbert, Fausto, Anna Maria, and Di Luca, Marco. "Assessment of the Risk of Malaria Re-introduction in the Maremma Plain (Central Italy) Using a Multi-factorial Approach." Malaria Journal 11, no. 1 (2012): 98.

Saint Augustine. *Confessions*. Translated by Henry Chadwick. Oxford: Oxford University Press, 2009.

Saliba, John A. *Understanding New Religious Movements 2nd ed*. Walnut Creek: Altamira Press, 2003.

Sallares, Robert. *Malaria and Rome: A History of Malaria in Ancient Italy.* Oxford: Oxford University Press, 2002.

Sallares, Robert. “Ecology”. *In The Cambridge Economic History of the Greco-Roman World*, edited by Walter Scheidel, Ian Morris, Richard P. Saller, 15-37. Cambridge: Cambridge University Press, 2013.

Scheid, John. *An Introduction to Roman Religion*. Translated by Janet Lloyd. Edinburgh: Edinburgh University Press, 2003.

Scheidel, Walter. “Progress and Problems in Roman Demography”. *In Debating Roman Demography*, edited by Walter Scheidel, 1-81. Leiden: Brill, 2001.

Scheidel, Walter. *Death on the Nile.* Leiden: Brill, 2001.

Scheidel, Walter. “Germs for Rome”. *In Rome the Cosmopolis* edited by Catharine Edwards and Greg Woolf, 158-176. Cambridge: Cambridge University Press, 2003.

Scheidel, Walter. “Demography”. *In The Cambridge Economic History of the Greco-Roman World*, edited by Walter Scheidel, Ian Morris, Richard P. Saller, 38-86. Cambridge: Cambridge University Press, 2013.

Scobie, Alex. "Slums, Sanitation, and Mortality in the Roman World", *Klio* 68, 68: 399-433, doi: https://doi.org/10.1524/klio.1986.68.68.399.

Scott, Susan, and Duncan, Christopher J. *Biology of Plagues: Evidence from Historical Populations*. Cambridge: Cambridge University Press, 2001.

Screech, Timon. "The English and the Control of Christianity in the Early Edo Period." *Japan Review*, no. 24 (2012): 3-40. Accessed September 23, 2020. http://www.jstor.org/stable/41592686.

Seip, Anne-Lise. *Aschehougs Norgeshistorie. Bind 8: Nasjonen bygges 1830-1870*. Oslo: Aschehoug, 1997.

Shaw, Julia. *Falske Minner: Om Vår Svikefulle Hukommelse*. Translated by Aleksander Melli. Oslo: Spartakus, 2018.

Simonton, D S, and Spears, Morgan. "Human Health Effects from Exposure to Low-level Concentrations of Hydrogen Sulfide." *Occupational Health & Safety* 76, no. 10

(2007): 102, 104. Accessed September 21,2020. https://ohsonline.com/Articles/2007/10/Human-Health-Effects-from-Exposure-to-LowLevel-Concentrations-of-Hydrogen-Sulfide.aspx?Page=5.

Snowden, Frank M. *Epidemics and Society: From the Black Death to the Present*. New Haven: Yale University Press, 2019.

Spielman, Andrew, and D'Antonio, Michael. *Mosquito: The Story of Man's Deadliest Foe*. New York: Hyperion, 2001.

Stark, Rodney. "The Rise of a New World Faith." *Review of Religious Research* 26, no. 1 (1984): 18-27. Accessed November 1, 2020. doi:10.2307/3511039.

Stark, Rodney. *The Rise of Christianity: How the Obscure, Marginal Jesus Movement Became the Dominant Religious Force in the Western World in a Few Centuries*. New York: HarperCollins, 1997.

Stark, Rodney. *Cities of God: The Real Story of How Christianity Became an Urban Movement and Conquered Rome*. New York: HarperCollins, 2006.

Stark, Rodney, and Finke, Roger. *Acts of Faith: Explaining the Human side of Religion*. Los Angeles: University of California Press, 2000.

Stark, Rodney, and Neilson, Reid. *The Rise of Mormonism*. New York: Columbia University Press, 2005.

Stathakopoulos, Dionysios. "Crime and Punishment: The Plague in the Byzantine Empire, 541-749", In *Plague and the End of Antiquity: The Pandemic of 541-750*, edited by Lester K. Little, 99-118. Cambridge: Cambridge University Press, 2007.

Stegemann, Ekkehard W., and Stegemann, Wolfgang. *The Jesus Movement: A Social History of Its First Century*. Translated by O. C. Dean Jr., Minneapolis: Fortress Press, 1999.

Tabbernee, William. *Montanist Inscriptions and Testemonia: Epigraphic Sources Illustrating the History of Montanism*. Macon: Mercer University Press, 1997.

Tabbernee, William. *Early Christianity in Contexts: An Exploration across Cultures and Continents*. Ada: Baker Publishing, 2014.

Tacitus. *The Annals*. Translated by J. C. Yardley. Oxford: Oxford University Press, 2008.

Tacoma, Laurens E. *Moving Romans: Migration in the Roman Principate*. Oxford: Oxford University Press, 2016.

Tertullian, Minucius Felix. *Tertullian: Apology and De Spectaculis. Minucius Felix: Octavius*. Translated by T.R. Glover and Gerald H. Rendall. London: Loeb Classical Library, 1931.

Thonemann, Peter. "Households and families in Roman Phrygia." In *Roman Phrygia*, edited by Peter Thonemann, 124–142. Cambridge: Cambridge University Press, 2014.

Trebilco, Paul R. "The Christian and Jewish Eumeneian Formula." In *Negotiating diaspora: Jewish strategies in the Roman Empire,* edited by John M. G. Barclay, 66-88, London: T & T Clark International, 2004.

Trombley, Frank. "Overview: the Geographical Spread of Christianity." In *The Cambridge History of Christianity: Origins to Constantine*, edited by Margaret M. Mitchell and Frances M. Young, 302–313. Cambridge: Cambridge University Press, 2006.

Thucydides. *The Peloponnesian War*. Translated by Martin Hammond. Oxford: Oxford University Press, 2009.

Ugelvik, Thomas. *Sosial kontroll*. Oslo: Universitetsforlaget, 2019.

Varinlioğlu, Günder. "Living in a Marginal Environment: Rural Habitat and Landscape in Southeastern Isauria." *Dumbarton Oaks Papers* 61 (2007): 287-317. Accessed June 11, 2020. www.jstor.org/stable/25472052.

Virgil. *The Aeneid*. Translated by Robert Fagles. London: Penguin Books, 2010.

Warrior, Valerie M. *Roman Religion*. Cambridge: Cambridge University Press, 2006.

White, Arthur. *Plague and Pleasure: The Renaissance World of Pius II*. Washington: The Catholic University of America Press, 2014.

White, Chris. "Counting Christians in China: A Critical Reading of “A Star in the East: The Rise of Christianity in China”." *Cultural Diversity in China* 2, no. 1 (2016): 101-09. Doi: 10.1515/cdc-2016-0001.

Wilson, Andrew. “City Sizes and Urbanization in the Roman Empire”. I*n Settlement, Urbanization, and Population*, edited by Alan Bowman and Andrew Wilson, 161-195. Oxford: Oxford University Press, 2013.

Winegard, Timothy C. *The Mosquito: A Human History of Our Deadliest Predator*. New York: Dutton, 2019.

Winter, Anne. *Migrants and Urban Change: Newcomers to Antwerp, 1760-1860*. New York: Routledge, 2016.

Yang, Fenggang. "Lost in the Market, Saved at McDonald's: Conversion to Christianity in Urban China." *Journal for the Scientific Study of Religion* 44, no. 4 (2005): 423-41. Accessed September 23, 2020. http://www.jstor.org/stable/3590555.

Yegül, Fikret. *Bathing in the Roman World*. Cambridge: Cambridge University Press, 2010.