Roma Subterranea

The Catacombs of Late Antique Rome | Marenka Timmermans

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Leiden, June 15th, 2012

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Chapter 1. Introduction

The subject of this BA-thesis is the catacombs of Late Antique Rome. The catacombs are formed by large subterranean complexes, consisting of extensive galleries. Inside of the catacombs burial rituals were performed by Jews, Christians and pagans in the major part of Late Antiquity, the period between the end of the Classics and the beginning of the Middle Ages that is characterized by the emergence and the rise of Christianity. The catacombs were actively used for burial purposes for several centuries, roughly from the early 2nd up to the early 6th century AD and are widely spread throughout the whole of Rome. When the amount of burials decreased and slowly became non-existing in the 6th century (see Chapter 2), people continued to visit the catacombs because of the Christian martyrs who were laid to rest within.

1.1 Research goal, methodology and research questions

In this thesis it is attempted to give an analysis and comparative evaluation of research perspectives and methods applied to the Jewish, Christian and pagan catacombs of Rome, performed from the 17th to the 21st century.

In order to perform the abovementioned analysis and evaluation, it is attempted to apply an interdisciplinary approach. A variety of literary sources were consulted. Both original texts from the 17th and 18th century and modern scientific publications have been studied to create an overview of the research performed on the catacombs. No less than 44 sources were consulted, amongst them two medieval sources, one from the 17th century, five from the 19th century, five from the period between 1900 and 1950, and 31 books, articles and websites from after 1950. At first, books and articles on the catacombs themselves were read, to obtain an idea of the average knowledge on the catacombs as it is known to the general public. Subsequently, the earlier sources, i.e. those from the 17th up until the late 20th century (see chapter 3), were covered in order to get an idea of their work and to be able to compare it with the work of modern researchers, which was read at the end. Having gained the knowledge from the literary sources, the writing process started, the result of which lies now in front of you.

Throughout this thesis, the most objective view possible on the catacombs is sought. By examining the previously published works, an ideal research plan concerning the origins, history and use of the Roman catacombs, is hopefully within reach. This will be done by

assessing the ways in which the perspectives of the mainly Christian researchers have influenced the research performed on the catacombs and the knowledge about them coming out of this research. The following research questions will be posed: With what sort of methods were the catacombs investigated in the different time periods? What were the research questions of those researchers and what did they hope to find out? And finally, what was the motivation for their research and in what way was their work influenced by their own, often Christian, religious views?

Although the catacombs are used for burials by people from different religions which are all mentioned in this thesis, the most available material is still from the Christian catacombs, simply because they outnumber the Jewish and pagan ones by far. As a result of this, there is also more literature available on the Christian catacombs as they have been investigated more extensively.

Chapter 2. The origins and further development of the catacombs

The soil of the area in and around Rome consists for the largest part of the volcanic rock tuff. Tuff is quite soft and relatively easy removed from the rest of the soil, but strong enough to support hollow spaces at the same time. These convenient characteristics make the Roman subsoil ideal for the creation of underground spaces such as tunnels for the water supply system and *cryptoportica*, recreation rooms underneath summer villas. The catacombs find their origins in the quarries as well, and when they became out of use in the early 2nd century, people considered them appropriate places to lay their beloved ones to rest (Rutgers 2000, 43). This custom became a habit and the old quarries were enlarged so that enough space was created for all the dead. Many catacombs were originally family tombs, and they were privately owned and controlled. This is still visible in the galleries, when a *ambulacrum*, a gallery, suddenly stops, the end of the property was reached. Roman law declared the tombs a sacred and religious place later and jurisdiction was ascribed to the pontiffs (Maruchhi 1935, 78). One has thought for a long time that all the catacombs originated from the quarrying based upon the enormous quantity of rock that has been removed, this would not have happened just for burials. Another argument has been found in several texts about the martyrs in which *arenarea*, literally quarries, are mentioned. Later it has been concluded that most catacombs are dug specially for burial purposes and that only a few have really been quarries. The most important reason was that the soil material removed from the later catacombs was found not suitable for building and construction (Albers 1916, 16). New catacombs were created by simply digging a hole into the ground that was formed into a staircase, from the bottom of the staircase galleries were dug in different directions, parallel to the surface (Toynbee 1971, 237).

Just as the catacombs originate at the quarries, so does the word 'catacomb' as well. The word comes from the Latin *cumba*, which originates from the Greek *κύμδος,* meaning something as a depth or a fold in the terrain (Bakhuizen - van den Brink 1933, 9. Marucchi 1935, 73). It can also be translated as 'near the hollows' and the hollows in this translation relate to the quarries (Rutgers 2000, 43). The quarry meant, is the one that brought the catacombs of San Sebastiano on the Via Appia forth. This catacomb lies in a land fold that runs from the west towards the Via Appia and was once referred to with its topographical indication *'ad catacumbas'* (Albers 1916, 15). This denomination was later

also used for other catacombs but not until the early Middle Ages. Before that, they were called *hypogea*, by which smaller family tombs are meant nowadays, or *cryptae* (Rutgers 2000, 43).

In the literature, two catacombs are mentioned as options for the first catacomb to have been taken in use, namely the catacombs of San Priscilla and of San Callisto. Marucchi stated already in 1935 that the catacomb of San Priscilla had to be the oldest as many inscriptions form a body of evidence that the catacomb had to be one of great antiquity (Marucchi 1935, 79). It had once originated from the tomb of Manius Acilius Glabria who died around 94/95 AD. There are also inscriptions on many of his descendants in both Greek and Latin (Marucchi 1935, 79). Others believe that the catacomb of San Callisto has to have been the first as it was founded by the then deacon Callisto in order of Pope Zephyrinus. The pope had ordered Callisto to found and organise the first public Christian cemetery, which is represented by the oldest part of the catacomb, around the year AD 200 (Toynbee 1971, 236). The public catacombs were, in contradiction with the privately owned tombs, not so expensive because the Catholic Church covered most of the costs (Stevenson 1978, 11). The surviving dependants only had to pay the wage of the *fossarii*, the grave diggers, and the costs of the closing tile, according to the Classic writer Hippolytus of Rome (Dix 1995). One of these two will probably be the first Christian catacomb, but not the very first of Rome. The Jewish catacomb of Villa Torlonia is radiocarbon dated to the 2nd century AD, (see Chapter 4). Some believe that these Jewish catacombs have been the inspiration for the Christians to bury their death underground as well (Rutgers et al. 2005).

The catacombs of Rome have, most likely, been used for burials from the 2nd to the early 6th century, although the opinions about this vary in the available literature. In the second half of the 4th century, an estimated fifty percent of the burials took place aboveground, this was going on ever since Christianity was declared the state religion by Emperor Constantine. As a result, the number of subterranean burials decreased until they became a rarity in the 6th century (Albers 1916, 27). The earlier colossal development of the catacombs was caused by the cult of the martyrs. As the first Christians had often died while practising and defending faiths, many later Christians sought burial closer to their sacred tombs. With this they believed it was almost guaranteed that they would receive salvation (Mancinelli 1981, 8). This enormous development shows in the number that are still countable in the catacombs. The galleries take up some 1000 kilometres divided over

more than sixty catacombs in which 500.000 (Rutgers et al. 2005) or even 5 to 10 million people are buried (Bakhuizen van den Brink 1933, 6). The catacombs often have more storeys, in the case of the catacomb of San Callisto there are five, going 25 metres deep. Within one level, a maximum of 14 graves on top of each other is found. In contradiction with regular archaeological stratigraphy, where the highest layer of soil is usually the youngest, this phenomenon is called *superposition*, the highest graves are in this case the oldest. When no more space was available, but still needed though, the floor was simply deepened (Albers 1916, 17). A deceased was wrapped in sheets before he or she was

Figure 1. *Ambulacrum* with an *arcosolium* on the right and multiple *loculi* elsewhere in the catacombs of San Callisto. Source (26-4-2012): http://www.sacred-destinations.com/italy/rome-catacombs. Photo: Jim Forest.

placed into his or her grave, which could be a *loculus*, a simple rectangular cavity in the wall of a gallery, or an *arcosolium*, an arched vault that was often frescoed, a *cubiculum*, a burial chamber that was in most cases meant for one family or the employees of one corporation (Mancinelli 1981, 8). These *cubicula* were in some cases equipped with *luminaria*, light shafts in the ceiling. Exceptions in which one can find *arcosolia* together with *loculi* in an *ambulacrum* also occurred, see Figure 1. *Loculi* existed of different measurements and could be meant for more people. If so, two, three or four persons were laid down next to each other in, respectively a *bisomus*, *trisomus* or *quatrisomus*. These *loculi* are the general grave form in the Roman catacombs, the more elaborate *arcosolia* were only built by or for those who had enough capital. For this Latin terminology, see also Appendix II. The elite were laid to rest often surrounded by religious frescoes, which were meant to stimulate visitors to pray for those who were buried there (Albers 1916, 18).

After the Constantinian declaration of Christianity as the state religion and the following decrease of subterranean burials, the people of Rome came almost solely to the catacombs to visit the martyrs' graves. They became a pilgrimage for those early Christians (Hirschfield 2008, 14). This period in catacomb history lasted only until the late 8th and early 9th centuries when the bodies of the martyrs were moved to aboveground sanctuaries on papal orders. The catacombs became forgotten by the large part of the Roman population until the so-called rediscovery in 1578 (Rutgers 2000, 9).

2.1 Chapter summary

The Roman catacombs arose from the tuff quarries, which had already demonstrated the qualities of the rock and of the underground spaces left behind after the quarrying. The catacombs flourished in numbers of burials and visitors after the Christian martyrs were laid to rest in them, for several centuries they were actively used but this became less and less in the 5th and 6th century. The Roman population began to bury their deceased aboveground, which led to an decrease in numbers for the catacombs. Finally, in the late 8th and early 9th century, the martyrs remains and relics were moved aboveground and with them the visitors. The greater part of the people forgot about Rome's subterranean burial complexes until the so-called rediscovery in the 16th century.

Chapter 3. Research done in the catacombs up to the late 20th century

During the long life that the catacombs have had up until now, many scholars have felt the need to write about them. Some of them did this out of religious perspectives, some out of pure interest and some out of a scientific desire to find out what their history has been. In this chapter an overview of the most important texts, authors and their opinions will be given.

3.1 The 'rediscovery' of the catacombs

The Roman catacombs have been used between the early 2nd and the early 6th centuries AD by Christian, Jews and pagans (Albers 1916, 16), although separate from each other, to bury their dead. They were most intensively used in the 3rd and the 4th centuries, but after that it gradually became less and less. The Early Medieval citizens of Rome appear to have preferred burying aboveground, in and near churches. The catacombs were still regularly visited as a result of the cult of the martyrs. Pilgrims from all over Europe came to visit the catacombs to pay their respects to those have had been laid to rest there, to thank and to honour them for all that they had done for Christianity. The belief in purification and remission of sins in the presence of martyrs' relics accounted for much of the power of attraction of the catacombs to visitors (Hirschfield 2008, 15). Pope Hadrian and Pope Leo III are, in an indirect way, responsible for the decrease in the numbers of visitors to the catacombs, when they ordered to move the remains of the martyrs and other relics to several churches in Rome. Because of these *translationes*, the pilgrims stayed away and slowly there was no one left who would visit the catacombs. That is at least the story that has been believed for a long time, one thought that the catacombs were completely forgotten from the 9th to the 16th century, when they were 'rediscovered' (Rutgers 2000, 9). The employees of Vigna Sanchez, a vineyard at the north of Rome, were picking grapes when they came across a cavity in the fields. This cavity turned out to be a catacomb, the very first to be rediscovered, in 1578, after seven centuries of darkness.

Recent research has come up with multiple arguments indicating that people in the Late Middle Ages were certainly aware of the existence of the catacombs. There are multiple catacombs, those of San Sebastiano, San Lorenzo, San Pancrazio, San Agnese and San Valentino, that are actually connected with aboveground sanctuaries or churches, so these

have always been accessible and must have been known to the people of those churches. Certainly for the San Sebastiano catacomb this was the case, as it had become a shrine for the veneration of the holy Peter and Paul already by the end of the 3rd century. Evidence for this is found in the Latin and Greek graffiti attending to the matter which was left behind there by pilgrims (Nicolai et al. 1999, 9). The *Mirablia Urbis Romae* was a series of popular guidebooks, that were published for several centuries starting from the 12th. In almost all editions the Roman catacombs, e.g. those of Commodilla, San Callisto, San Priscilla and San Domitilla, were mentioned (Nichols 1986). The 15th century *Accademia Romana degli antiquari* was a group of *unanimes perscrutatores antiquiatis* (investigators of Antiquity), as they called themselves. They wished to gain more knowledge about the Classical Period and in order to do that, they visited some catacombs, upon which Pope Paul II considered them heretical, based on wrong assumptions. They were sent to prison and were locked up in the famous Castel Sant'Angelo in Rome but had to be released after only one year, due to a lack of evidence (Testini 1966, 15-16). The evidence the pope needed was found several centuries later by De Rossi in the catacomb of San Callisto. In a scholarly based work by Hertling and Kirschbaum they are called *'half-pagan humanists with no interest in Christian antiquities'* (Hertling and Kirschbaum 1956, 3).

One of the first to study Christian Archaeology, and with that the catacombs as well, was the Augustinian monk Onofrius Panvinius (1529-1568). He concentrated on cemeteries and went through all the literary sources available at that time. From his work it can be concluded that the general region of locations of 43 catacombs were known then (Hirschfield 2008, 16).

San Philip Neri (1515-1595) was a devoted catholic and tried to do his share in the Counter Reformation by restoring early Christian practices. He spent much time in the catacombs, meditating and praying. He preached to his followers to do so too. His intense focus on the martyrs laid to rest in the catacombs and on the message they had send into the world with their suffering and redemption, had set the stage for the intense interest in the exploration of the catacombs by Bosio and others in the 16th century and also set the devotional tone that would characterise many catacomb studies (Hirschfield 2008, 16).

When the Vigna Sanchez catacomb on the Via Salaria Nuova was discovered in 1578, it marked the so-called rediscovery of the catacombs, for reasons that still remain unclear.

3.2 Early Catacomb Archaeology

A history of the catacombs and its archaeology from the late 16th to the late 19th century will be given in this paragraph.

3.2.1 Antonio Bosio (1575-1629)

Antonio Bosio was the first to study the catacombs after their so-called 'rediscovery' in the late 1500's and for this he was called the Columbus of subterranean Rome. When he was eighteen years old, the at Malta born jurist paid a visit to the catacombs of San Domitilla with his friends. They were badly prepared and during their search for early Christian inscriptions, they found that they had not brought enough candles. As a result they nearly got lost in the huge underground complex and so they almost *'polluted the holy monument with their impure bodies'* as Bosio told the story afterwards (Bakhuizen van den Brink 1933, 48. Rutgers 2000, 16). After this visit Bosio was greatly impressed by the grandeur and mystery that shined from the catacombs and decided to dedicate his life to them. He chose for a systematic approach after he had figured that the catacombs would be located along the major roads of ancient Rome. After his trip to the catacombs of San Domitilla he started to examine the country fields alongside the Via Tiburtina. In the following year he went on with the ones along the Via Appia, the Via Labicana, the Via Nomentina, the Via Salaria Antica and the Via Salaria Nuova and finally the Via Flaminia, the year after that he examined the catacombs near the Via Ostiense, then the Via Latina and in the year 1600 he finished with the rural grounds alongside the Via Portuense, see Appendix I.

Bosio's systematic and extensive examinations of the catacombs resulted in a large amount of newly gathered knowledge, which he started to write down in what later was going to be the most important source of information on the catacombs for more than two hundred years. Although he spend many hours underground over the years, he did not actually excavate or clear obstructed passages, so his writings were only as complete as he chose for them to be. Instead of looking at the architectural and cultural remains, as a well trained contemporary archaeologist would do, he turned to the literary sources to obtain new clues about the whereabouts of catacombs to be discovered and about the identities of catacombs and the deceased laid to rest there. One of these sources were the

itineraries, Early Medieval guidebooks written by and for pilgrims who wanted to pay a visit to the graves of the martyrs buried in the catacombs (Rutgers 2000, 19). As the pilgrims were devoted to the martyrs and wanted to honour and to thank them for their sufferings during the rise of Christianity, they had been very accurate while writing down the location of the various catacombs and within them the relevant graves. A nice example is Notitia Ecclesiarum Urbis Romae, in which the author states as follows: '...Afterwards you arrive by the Via Appia at St. Sebastian, martyr, whose body lies in a very low spot; and there are the sepulchres of the Apostles Peter and Paul, in which they rested forty years' (Northcote and Brownlow 1819, 265. *Notitia Ecclesiarum Urbis Romae*, 23).

The Catholic Church was very interested in Bosio's work as it supplied them with, in their opinion, definitive prove of early Christianity, which was a very sensitive subject in these times of the Counter Reformation (Rutgers 2000, 14). Bosio shared their ideas on the subject, his main concern was not the scientific side of the research but the spiritual value he saw in the catacombs (Hirschfield, 2008, 19). He laid the foundations for the Catacomb Archaeology and his book, that was published in 1632, almost three years after his death, has been the major standard work on the catacombs for more than two hundred years (Bosio 1632).

The Italian writer Giovanni Severani edited and changed Bosio's Roma Sotterranea, so that it would not help the Protestants in their battle against the Catholics (Hirschfield 2008, 20). These changes occurred on pieces of text that Bosio probably had written while going for a full examination on the catacombs, not thinking of what it could mean for the Catholic Church.

Two decennia later, Paolo Aringhi had translated the book into Latin and so it became available to scholars throughout whole Europe. He also changed the contents intensively, giving it a twist that fitted the Counter Reformationists far better than Bosio would have ever hoped (Hirschfield 2008, 20). Despite all this, Roma Sotterrranea is, even until today, the most well-known text on the catacombs and has inspired others to research and investigate them their selves too (Rutgers 2000, 29).

3.2.2 Giovanni Battista De Rossi (1822-1894)

It was more than two hundred years after the original publication of Bosio's *Roma Sotterranea* (Bosio 1632) when the next scholar came to the playground. Giovanni Battista De Rossi was the first after Bosio who conducted lasting scientific research in the catacombs, as it would turn out later. He spent many hours underground, excavating and exploring the enormous complexes that he found there. He excavated many burial chambers, the long galleries and all the rest he found, throughout various catacombs in the whole of Rome, e.g. the catacombs of San Callisto with its Crypt of the Popes, see below (Rutgers 2000, 30). In his search for the graves of the famous martyrs from the early Christian days, he got interested in the medieval pilgrims itineraries as a source of indicators about possible catacomb locations. Just as Antonio Bosio had realised two centuries earlier, they formed an extensive data set, and they were very detailed and precise on the information about the catacombs and what to be found within. De Rossi travelled to many different destinations in Europe, to read the original manuscripts and copy the investigational allocations so he could follow them himself once back in Rome. With this he laid a scholarly base for the study of the itineraries (Rutgers 2000, 30) which has been proved to be useful later for his own research as well as further research performed by others. De Rossi conducted his excavations together with his brother Michele, who was educated as a mathematician and as a geologist. The two of them performed a detailed topographical study of the catacombs, which was published in three separate volumes as 'La Roma Sotterranea Cristiana' between 1864 and 1877 (De Rossi 1864, 1867, 1877). During his life De Rossi wrote some two hundred publications, many of them concerning the catacombs, by means of which he has an enormous influence on the research of the catacombs. For the greater part these publications arose from the Bullettino di Archeologia Cristiana that he had set up himself.

In 1849 De Rossi was on a visit to the Amendola vigna, a vineyard in the southeast of Rome, between the Via Appia and the Via Ardeatina, he came across a few shards of an epitaph, which later turned out to be from Pope Cornelius' grave. Upon this news, Pope Pius IX immediately bought the property and in the following years De Rossi excavated the site. These excavations led to the discovery of the so-called Crypt of the Popes, in which nine 3rd century popes are laid to rest, along with several deacons and bishops, in 1854. The Crypt of the Popes is located in the catacombs of San Callisto, the one believed to be one of the oldest catacombs of Rome (Mancinelli 1981, 21). The shards of Pope

Cornelius' epitaph do eventually not originate from the Crypt of the Popes, but in there De Rossi found some other fragments of inscriptions. After reconstruction they turned out to be an inscripted plaque of marble, installed on the back wall of the crypt by Pope Damascus, nearly 150 years after the building of the catacomb by Popes Zephyrinus and Callisto (Mancinelli 1981, 21). The inscription revealed an ode to the martyrs and bishops buried there, to thank and to honour them. The discovery of the Crypt of the Popes turned out to be one of the highlights of De Rossi's work. De Rossi maintained good relationships with the popes of his age, Pope Pius IX and Pope Leo XIII, from which he benefited of course himself the most. Especially Pius IX supported and favoured De Rossi during his career, this is found particularly in a report in the *Giornale die Roma* of 1854. When Pope Pius IX came to visit the recently discovered Crypt of the Popes, he asked De Rossi: "Is it really true what you are telling me; is it not possible that we are dealing with some sort of an illusion here?" De Rossi answered that his discoveries were not about illusions, but about hard data, such as inscriptions and that if the Pope would only take the effort and help him in putting together the fragmented inscription, then the names of those that had preceded him, Pope Pius IX, would readily appear. And so it happened, the Pope helped De Rossi with the reconstruction and when the names of his third century predecessors began to appear, Pius IX burst into tears, see Figure 2 (Rutgers 2000, 33).

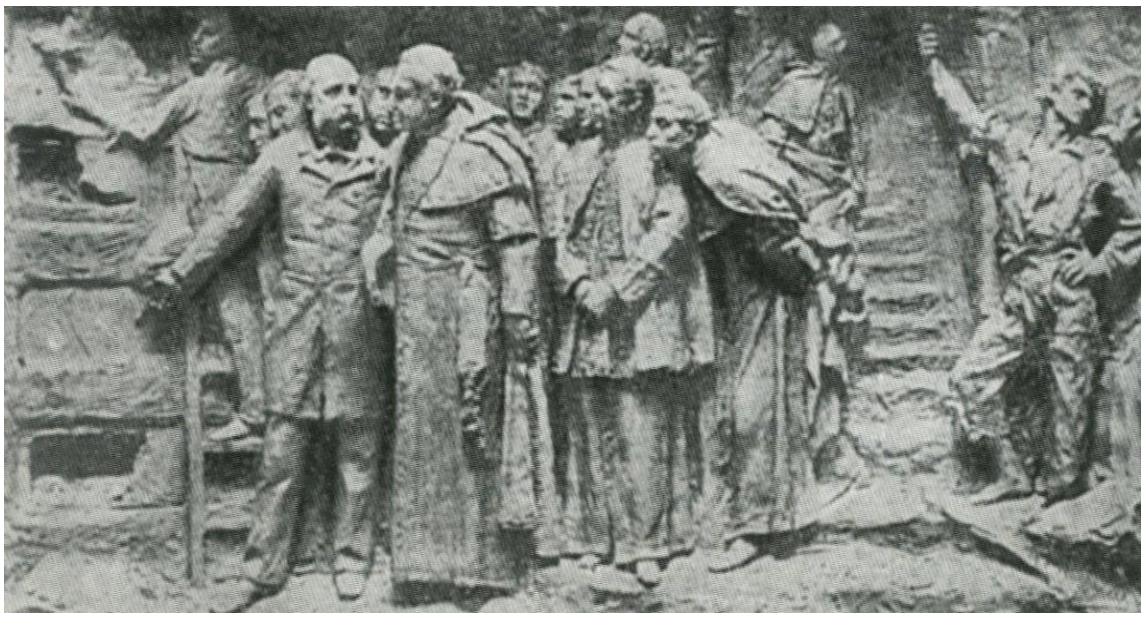

Figure 2. Relief depicting the visit of Pope Pius IX tot the Domitilla catacomb and its Crypt of the Popes. De Rossi explains about his discoveries on the left of the relief. After Rutgers 2000, 33. Relief is now lost, original source unknown.

Giovanni De Rossi played an important role in the foundation of the Pontifical Commission for Sacred Archaeology (from now on this will be abbreviated as PCSA) on the sixth of January 1852 by Pope Pius IX (Hirschfield 2008, 21) in order to direct and promote catacomb research. The founding of the PCSA was a result of the discovery of the Crypt of the Popes. After Pope Pius IX had purchased the land on which the crypt was located, he also spend an annual amount of money on the excavations and research. This led to the formation of the Commission, at that moment existing out of De Rossi, Father Marchi, Mgr. Vincenzo Tizzani and Professor Marino Marini. From that moment onwards this commission was in charge of the catacombs and all who wanted to go there were expected to ask permission from them. They controlled who could enter them and who could explore and excavate, not only by simply admitting or denying access but also by giving scholarships for scientific research (Hirschfield 2008, 21). The commission tried to stop the misuse, vandalism and looting that was going on in the catacombs. The Pontifical Commission for Sacred Archaeology does still exist and acts in the same fields nowadays as at the time of the foundation in the 19th century (see website of the PCSA).

Despite the good and friendly relationship De Rossi had with the Pope, he has always tried to avoid the apologetic and theological discussions going on in the Catacomb Archaeology, because he also knew back then already, that those had characterised it since the beginning during the Counter Reformation back in the 16th century (Rutgers 2000, 34).

3.3 Archaeological research in the late 19th and up to the late 20th century

During the later 19th and the major part of the 20th century, one kept holding on to the ideas originally formed by Bosio and De Rossi in Catacomb Archaeology. There have been several scholars who have stepped into their footsteps during this period. A selection of them is shortly mentioned in this paragraph.

One of them is the Italian archaeologist Orazio Marucchi (1852-1931) who continued De Rossi's magazine under the name *Nuovo Bollettino d'Archeologia Cristiana* and wrote several other books about the Roman catacombs, e.g. *Le catacombe Romane secondo gli ultimi studi e le più recente scoperte: compendio della Roma Sotterranea con molte piante parziali dei cimiteri e riproduzioni di monumenti* (Marucchi 1903), which covers

the latest discoveries and conclusions of the moment. Marucchi was a religious man, noticeable through his position as director of the Lateran Christian Museum and as co-founder of the *Collegium Cultorum Martyrum*, a society of martyr admirers.

In 1935 Orazio Marucchi and Hubert Vecchierello's book *Manual of Christian Archaeology* was published post mortem, in which a substantial part is about the Roman catacombs (Marucchi and Vecchierello 1935, 73-109). They claim that the catacombs were not used as a refuge, only in cases of exception and if so, for a very short period of time (Marucchi and Vecchierello, 1935, 74). Unfortunately, they appear to be unable to give solid arguments or evidence and in a slight contradiction with the prefacing, they state that the Christians used their subterranean places for prudence. This is based upon the inscriptions found in the catacombs and outside of them. In the outside world, Early Christian inscriptions are more or less veiled, while inside the catacombs the inscriptions are far more clearly written and more free in tone, for instance the phrase *'Vivas in Christo*' (Marucchi and Vecchierello 1935, 76).

Joseph Wilpert, who was protonotary apostolic, did many new discoveries within the catacombs, e.g. the decryption of the fresco of Christian figures on the ceiling of the catacomb of San Pietro and Marcellino, which made him the only true successor of his mentor De Rossi (Bakhuizen van den Brink 1933, 53-54). By all the success he had in his work and the many publications (e.g. Wilpert 1903, 1916) about the frescoes of the catacombs, he became a member of the Pontifical Commission for Sacred Archaeology.

3.4 Chapter conclusion

This chapter has shown that the catacombs were not forgotten during the later Middle Ages and that there is no question about this so-called rediscovery. But this moment in time did mark the beginning of a new interest in the catacombs as they became more widely known again, and it instigated the scientific researching of the catacombs. Especially Bosio and De Rossi have delivered great work, they led a base of information on which later researchers could build on. Although they were both professing Christians, unfortunately this is noticeable in their work, De Rossi has been more able to separate this from his work better then Bosio has as he was aware of the risk of influencing his work with subjective ideas.

The base Bosio and De Rossi laid out has been useful for other researchers but the tone of their work has influenced Catacomb Archaeology for a long time.

Chapter 4. Modern catacomb research

In contradiction to the scholars that have been working in the catacombs in the last four centuries, recent researchers have done things differently. Instead of focusing on the martyrs' graves and their location and the descriptive approach on the art found in the catacombs, they also turned their attention to other sciences for which the catacombs are rich in material as well. Examples are demography, physical anthropology and Science-based Archaeology. This chapter will cover multiple examples of how the catacombs can be researched as well as in the old fashion way, but attention will also be paid to cases in which the catacombs are used to serve other sciences.

4.1 Demography

Although De Rossi had made a start with a demographic counting of the graves of the Lucina area of the catacomb of San Callisto and meanwhile dividing them into adults and non-adults (De Rossi 1864, 78), his work was useless for further research as he did not do anything with the results (Van der Linde 2008, 54). Other researchers followed his example in the 19th and 20th century, one of them was Mariano Armellini who investigated the catacomb of San Agnese through a more detailed inventory of 5753 graves (Armellini 1880, 350).

The first modern demographic and physical anthropological study in the catacombs was performed in 1993 by Mancinelli and Vargiu (Mancinelli and Vargiu 1994). They worked in the catacombs of San Pietro and Marcellino on the Via Labicana and chose at random the skeletal remains of 44 individuals to examine on the following criteria: estimated age at death, sex determination and the degree of caries and enamel hypoplasia effects on the dentition. The examinations resulted in a diverse group of individuals: 22 were male, nine female, 13 indefinable qua sex. In this group were 31 adults, four adolescents in the age category from 13 to 19, and nine children of zero to 12 years old (Mancinelli and Vargiu 1994, 45). Pathologies are not mentioned nor examined, despite their presence and the good preservation conditions. This is one of the critiques coming from Constance Van der Linde, the author of *Roman Catacombs and Demography* (Van der Linde 2008), which is the only known extensive demographic study of the Roman catacombs. Another point of critique is the lack of an 'infant' category when estimating the approximate age at death,

which would be advisable as circa 35 % of the Roman new-borns and infants died within their first year of life (Laes 2006, 20). Van der Linde also seems to regret the fact that Mancinelli and Vargiu examined the remains of only 44 individuals, which is not enough for demographic purposes. She also contradicts the assumption that enamel hypoplasia lesions were more present on mandibular teeth than on maxillary teeth, as this condition develops simultaneously in teeth of the lower and upper jaw (Van der Linde 2008, 48).

A case study of the Liberian region in the catacombs of San Callisto was used by Van der Linde as the main structure of her work, that is part of the larger project 'Rise of Christianity' led by Prof. Dr. Leonard Rutgers from Utrecht University. The inventory that was made from all the graves in the Liberian region was used to serve its purposes (Van der Linde 2008, 64). The first of these purposes was the determination of the amount of graves of infants, children and adults, by means of which the relations between infant mortality, child mortality and adult mortality could be established. As the dimensions of a grave were an indicator for the number of people buried in it and it was measured whether these were infants, children or adults. These measurements, in combination with the counting of individuals, resulted in a quite precise idea of how many individuals were buried in the Liberian region. The ranges that were set for the lengths of individuals to divide them into the different age categories were as follows: infants (< 0.70m), non-infant children (> 0.70 - 1.49m), adults (> 1.50m).

Table 1. Number of individuals divided in age categories in each section of the Liberian Region. Van der Linde 2008, 89.

Section	Infant	Non-infant child	Adult	Indeterminable	Total
A	17	187	1100	8	1312
B	62	486	1212	53	1813
C	5	64	281	14	364
D	35	262	537	42	876
H	9	71	166	11	257
cubicula	81	296	774	9	1160
Total	209	1366	4070	137	5782

As is shown in Table 1 a total amount of 5782 individuals was buried in 5164 graves. From this number 70.4 % was adult, 27.2 % non-adult and 2.4 % of the graves contained the remains of individuals of on unclear age category. From these data it can be

calculated that the average life expectancy lay between 20 and 28 years old (Van der Linde 2008, 96).

According to Van der Linde an interdisciplinary approach is unavoidable if it is one's to determine a population structure of a nation long gone. When skeletal remains are available it is necessary to attend to the data deriving from them. Especially in combination with information originating from, for example, epigraphs, they can throw light on social relationships, seasonal mortality, birth patterns and marriage customs as well as approximated age at death and living conditions (Van der Linde 2008, 49).

4.2 Science-based Archaeology

Science-based Archaeology is the development and application of new scientific technologies. Examples are stable isotope analysis and radiocarbon dating techniques, which are both recently used for catacomb research.

4.2.1 Stable isotope analysis

Stable isotope analysis is a biochemical technique used to study the consumption profile humans or animals by means of the investigation of bone collagen. Isotopes are atoms of a certain element of which the number of protons in the nucleus is equal to the number of electrons in the outer ring, but differ in atomic weight. This is caused by the presence of a different number of neutrons in the nucleus (Prowse 2001, 36). The elements carbon and nitrogen cover approximately two-thirds of bone collagen and they both occur in two stable isotopes (Van der Linde 2008, 139). This makes them particularly suitable for the investigation of dietary habits. As different food types vary in carbon and nitrogen ratios, those differences, see Figure 3, are also transmitted to the bones of the consumer. When the consumer dies, his dietary habits are saved within his bones and as the stable isotopes ratios do not change over time, those values can be measured even after a long period of time, for example after almost two thousand years, like in the case of the catacombs of San Callisto.

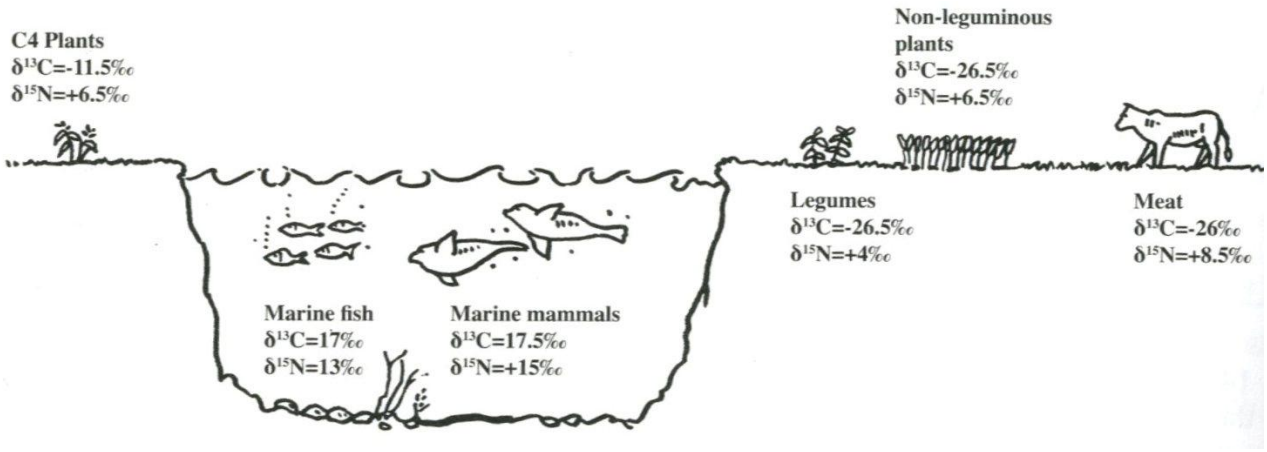

Figure 3. Approximate mean stable isotope values for some major food classes (adapted from Mays 2002, Figure 9.1).

Leonard Rutgers has performed stable isotope analysis on 22 samples from the Liberian region of the San Callisto catacombs. From the results was concluded that 25 % of the food intake came from fresh water sources (Rutgers et al. 2009).This was quite unexpected, as it was known from the ancient literature that fish was not a major component of the average Roman diet, and if so, it was sea fish (Garnsey 1991a + b). Another stable isotope analysis was conducted in the Liberian region of the catacombs of San Callisto by Constance Van der Linde. She examined 45 bone samples, originating from 16 individuals and came to the same conclusion as her mentor Rutgers. The individuals whose skeletal remains were used in her analysis are also believed to have consumed a significant amount of freshwater fish, as the carbon and nitrogen ratios were not high enough to have been produced by sea fish. Van der Linde states that it was always assumed that the poor ate more freshwater fish and the rich more sea fish, as this was considered luxurious food because it had to be transported to the city opposed to the freshwater fish that was most likely caught in the Tiber. This contradicts with outcome of the stable isotope analysis, seeing that there were no differences in carbon and nitrogen values found between the simple graves, the so-called *loculi*, and the more elaborate and larger burial chambers, *cubicula*, with *arcosolium* graves (Van der Linde 2008, 166). With this assumption made, she contradicts herself, in a previous chapter of her work she states that "up to present moment, nothing is known about the palaeo-diet of the people interred in the Roman catacombs" (Van der Linde 2008,48).

4.2.2 Radiocarbon dating

The radiocarbon dating technique is also based upon the stable isotope carbon, 14-C in this case. It is used to measure the approximate age of organic materials. Plants take in carbon dioxide from the atmosphere during photosynthesis and when the plants die the 14-C rate is saved within them, or when the plant gets eaten by humans or animals, this 14-C is transmitted. After the death of the organism, the 14-C rate within the organic material declines at a fixed exponential rate, caused by radioactive decay. When the remains of this organism are later found, for example during an archaeological excavation, they can be dated by comparing the remaining rate of 14-C to the atmospheric rate, which can be calculated backwards to any given moment in time, up until circa 60.000 years ago. This is possible because it is known that 14-C has a half-life of 5730 years, which means that 14-C is halved in this time, and because it decays exponentially, the process will slow down more and more.

Radiocarbon dating is the only known absolute dating method that has been applied in the Roman catacombs, and as far as known, only by Leonard Rutgers. In his 2007 publication, he discusses the dating of organic residue from 4 oil lamps originating from the Jewish Monteverde catacomb, which are typologically dated to the 3rd or 4th century, although the original excavation report (Müller 1912) set them at the 1st century. The lamps were dated to the period from 170 to 530 AD, which would confirm the typological date. But according to Rutgers *'it is the archaeological context that should date the lamp, and thus help refine lamp typologies, rather than vice versa*' (Rutgers et al. 2007). In this case the 14-C dates helped to recreate the history of the Jewish people of Rome as well as the study of the terracotta oil lamps.

The *loculi* of the Jewish catacombs of Villa Torlonia were all sealed with a little wall made of rubble and bricks, covered with a layer of lime. As pieces of charcoal of the limekiln were captured in the lime, there was organic material available to date. The results came out at the 2nd century, by which this Jewish catacomb would predate the Christian ones by at least a century. As these dates were so close to each other, attention was even paid to the age of the trees. It requires young wood to get the fire hot enough to transform limestone into lime because it oxidises better than older wood. This suggests that the Roman catacombs are inspired by the Jewish and that the catacomb burials are a Jewish tradition instead of a Christian one as is always believed. As Rutgers says in his

concluding statement, only radiocarbon dating of the Christian catacombs can deny or confirm this thought (Rutgers et al. 2005).

This answer came eventually from his own work. Sixteen bone samples from the Liberian region of the San Callisto catacombs were radiocarbon dated using an accelerator mass spectrometry (AMS), which gives even more accurate dates then normal 14-C measurements (Rutgers et al. 2009). The bone samples all originated from approximately AD 130, some 70 years before the founding of the catacombs, based on historical and literary evidence. Organic materials from the Liberian region itself were dated from the mid 3rd to the early 5th century, matching the historical date. As errors are always possible, it seems that the radiocarbon dates are too old compared to the historical ones (Rutgers et al. 2009). This leads to the preliminary conclusion that Rutgers and his colleagues were correct in their 2005 publication, carefully stating that the Jewish catacombs predate the Christian ones.

4.3 Physical Anthropology

As made clear in paragraph 4.1 as well, physical anthropology can be a valuable addition to the catacomb research. Much information can be retrieved from the skeletal remains of those who found their final resting place in the subterranean complexes of Rome. Such information covers the approximate age at death, sex determination, length of the individual, general health status during growth, dietary habits, some diseases and possibly even cause of death.

Human dentition is often better preserved than the rest of the skeletal remains, caused by the enamel coating, which functions as a protective layer, on the teeth and molars. In the roman catacombs this is the case as well. Skeletons are in most cases badly preserved while the dentition is in a far better shape. In the only study available in which physical anthropology is applied on skeletal remains, only the dentition could be used due to bad preservation of the bones (Van der Linde 2008, 99). No less than 383 teeth or fragments of teeth, deriving from 360 individuals buried in 308 graves in the Liberian region of the San Callisto catacombs were used for dental examination. The teeth were examined for an age at death estimation, this resulted in 222 non-adults (up to and including 17 years old), 128 adults and 10 indeterminable teeth (Van der Linde 2008, 107). These are

relatively many non-adults in proportion to the adults at this random sample. The counting and identification of the teeth found per grave indicate that it occurred that there are sometimes more people buried in a *loculus* then estimated bases on the dimensions of it (Van der Linde 2008, 132). Physical anthropology can be a relevant addition to the traditional archaeological-topographical research conducted in the catacombs (Van der Linde 2008, 131).

4.4 Other sciences in and around the catacombs

The last decades, the Roman catacombs have been used to serve the research conducted in other scientific fields as well. Several research projects in which this was the case are mentioned below to demonstrate the use of the catacombs in other sciences.

The high relative humidity in combination with the constant temperature of 17°C year round and the limited amount of light increases the growth and development of many bacteria and fungi, for example in the catacombs of San Callisto and San Priscilla (Albertano and Urzi 1999). Microbiologists have even proved the emergence of new species in the catacombs of San Callisto and San Domitilla (Saarela et al. 2003).

Ascenzi and his colleagues performed a investigation on multiple Italian sites, such as the Necropolis of Gaudo in Paestum and the San Senatore catacomb (which is located some 15 kilometres outside of Rome but has the same origins as those in the city) that held skeletal material. They developed an immunochemical method which is supposed to help in investigations in paleopathological problems and trough that help physical anthropologists as well (Ascenzi et al. 1985).

The Austrian START Project *'The Domitilla catacomb in Rome'* aims to create a graphic 3D-model of the catacomb by the use of laser range scanning technologies in combination with digital photography and photogrammetry. A detailed representation of the actual state of an archaeological site or object can be made, see Figure 4a and 4b (for a more detailed version see the image source). Archaeologists are given the opportunity to study their object from a distance and, in case of the catacombs and other subterranean located sites, from above ground (Abdelhafiz 2009, Scheiblauer et al. 2009, Zimmerman and

Eβer 2007). This does not only increase the accessibility of the catacombs but it also prevents further damage caused, unintentionally, by scholars.

4.5 Chapter conclusion

In Chapter 4 new ways of applying science to the catacombs are demonstrated as well as cases in which the catacombs have been useful for studies not directly related to Archaeology and Antiquity (see Chapter 4.4). It has been made clear that the catacombs offer more research opportunities than previously thought. In most cases it was thanks to the possibilities of new techniques that shifted research interests, and along with them motivational backgrounds too, from the old-fashioned thoughts from out of which Bosio and De Rossi had worked to innovative and more objective ideas that could deliver absolute facts and numbers. Until the late 20th century catacomb research was considered a separate branch and the catacombs themselves were considered to be an isolated topic apart from ancient society, but in modern research the catacombs are reintegrated into the rest of Rome and the Roman society.

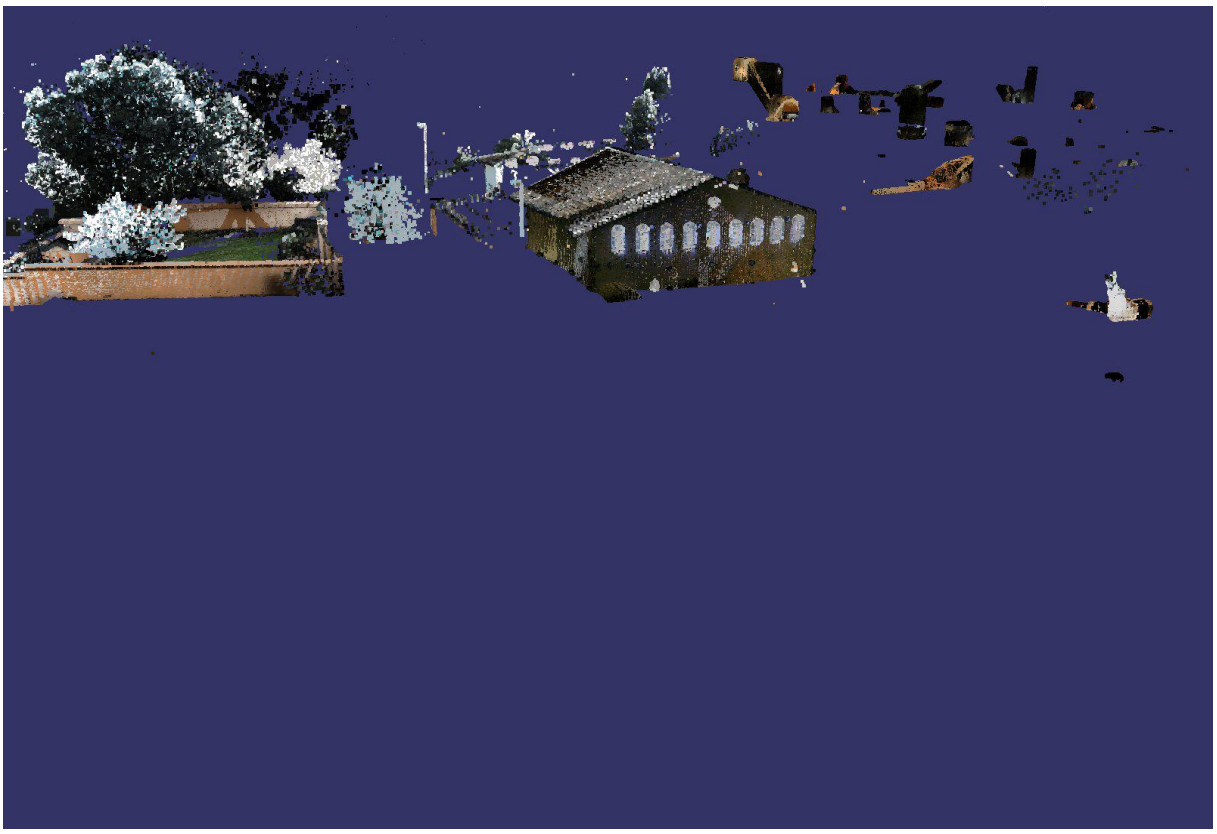

Figure 4a. The aboveground part of the San Domitilla Basilica. Scheiblauer et al. 2009.

Figure 4b. The above- and belowground parts of the San Domitilla Basilica and catacombs combined. Scheiblauer et al. 2009.

Chapter 5. Discussion

In this chapter the previously chapters mentioned authors and motivations, research questions and methods will be brought up for discussion. Each of them will be assessed on their achievements and shortcomings. The methods used in these investigations vary considerably much. It all began with an almost art historical approach and the early works suffer from a large influence by the Catholic Church and other religious angles. Those early works were all very systematic and descriptive in nature. Little attention was paid to the deeper meaning and the story behind the catacombs. When other fields in archaeology evolved when certain specific technologies became available, Catacomb Archaeology remained the same: an example of one of these technologies is the radiocarbon dating technique, which was developed already in the 1950's (Libby 1955) but never conducted in Catacomb Archaeology even though the precise date of catacomb origins was unclear and highly debated.

Catacomb research has been like this for a long time, only the last few decades the tone of the research has changed. Its apologetic and theological nature gradually became less and was replenished with new excavation methods, which were not that focussed on the martyrs' graves anymore. Nowadays, radiocarbon dating is used in the catacombs, as well as other science-based techniques (see Chapter 4), and form another source of information besides the art historical and literary data sets.

Being the so-called Columbus of the catacombs and the founder of Catacomb Archaeology and research, Antonio Bosio cannot be left out of this section. By means of the extensive study he performed, he created a general overview of the catacombs known at that time. His main accomplishment was the locating of many catacombs, martyrs graves and relics, based on an intensive literary study. Bosio's exploration of the catacombs delivered tangible proof of Early Christianity, pleasing himself and the Catholic Church. He valued the spiritual side of his research even more than the scientific meanings. The catacombs as proof of Early Christianity was welcomed by the Church, as it came at a perfect moment in time in the struggle between Reformationists and the Church itself.

Giovanni Battista De Rossi was very active in the field of the so-called Sacred Archaeology, all archaeological findings concerning Christian sites or artefacts. His

dedication resulted in a close relationship between him and the Catholic Church. Especially Pope Pius IX favoured De Rossi while he conducted his research in the catacombs, founded and managed his Bullettino di Archeologia Cristiana and not the least, his contribution in the founding of the Pontifical Commission for Sacred Archaeology in 1852. The founding of the PCSA has been very important for Catacomb Archaeology as the commission takes care of the catacombs and everything that is going on in and around them, but also functions as a medium for scientific publications. The foundation turned out to be an advantageous influence on the preservation of the catacombs and the artefacts found within as well, thereby initiating an early version of heritage management. Although De Rossi has always been on his guard not to get restricted in the apologetic and theological discussions about the catacombs, which points out that he was aware of the differences between scientific findings and the religious interests that had dominated Catacomb Archaeology, he was still a child of his age. His bonds with the Church have left their mark on his mind and so also on his work. A nice example of the emotional load that covered De Rossi's work as well is given in Chapter 3.2.2, on the visit of Pope Pius IX to the newly discovered Crypt of the Popes in the catacombs of San Callisto in 1854. Through his journeys throughout Europe and also the large amount of publications on his name, De Rossi stimulated other researchers and interested them in Christian Archaeology, e.g. Josef Wilpert, Mariano Armellini, Orazio Marucchi and the English duo Northcote and Brownlow who realised an English copy of De Rossi's *La Roma Sotterranea Cristiana* (Northcote and Brownlow 1879). De Rossi gained his knowledge on the catacombs through excavations, literary studies and his cooperation with his brother, who was a mathematician and a geologist, in a topographical study.

Both Bosio and De Rossi have influenced future Catacomb Archaeology and the research of early Christianity greatly. As they both have spent many hours underground in order to investigate the catacombs, no future researcher would be taken as seriously as they were if he had not spend the inevitable hours on actual in situ research. According to Leonard Rutgers, this has on the one hand perpetuated the approach on catacomb research and on the other hand it will always be limited by the theological aspect. As Bosio and De Rossi, the two most important catacomb researchers, were both influenced by their own Christianity cq. the Christian background of the societies they lived in, catacomb research has been send in this theological direction from which it is still not entirely recovered

(Rutgers 2000, 36). Even though these two instigators of the catacomb research have done many great things, they have had a major negative influence on it too. Probably unintentionally they have both left a Christian mark on their scientific work which has, unfortunately, distorted some of their results.

The authors of, inter alia, the Manual of Christian Archaeology, Orazio Marucchi and Hubert Vecchierello, followed De Rossi underground in the late 19th and early 20th century. In their manual, the two Italian archaeologists have attempted to disprove the claim that the catacombs served as a refuge for early Christians. Unfortunately, they do not give any solid arguments or evidence and in a slight contradiction with the prefacing, they state that the Christians used their subterranean places for prudence. This example did not give them a very reliable reputation, but opened up a scientific debate about the function of the catacombs, whether they served purely as a burial place or possibly also as a safe haven.

Just as Marucchi, who was a devoted Christian, the director of the Lateran Christian Museum and co-founder of the *Collegium Cultorum Martyrum*, a society of martyr admirers, Joseph Wilpert was a religious man conducting research in the catacombs too. He had achieved the status of protonotary apostolic within the Catholic Church and also became a member of the PCSA.

The involvement of these researchers in the Catholic Church has most likely not been a surplus value to an objective view on their research. Their religious beliefs have possibly served as a motivator for their research on the catacombs and early Christianity in general. These researchers have, conscious or not, been pushing the researching of the catacombs into becoming a separate branch of archaeology, the so-called Sacred Archaeology, while it actually fits in within the larger and more established branches of Roman and/or Christian Archaeology.

In the early 20th century most of the now known catacombs were already known, explored and mapped. The findings have led to assumptions that in some cases have been proved wrong in the meantime, for example the predating of Jewish or Christian catacombs.

In Chapter 4 contemporary research in and about the Roman catacombs was covered. Many of these researchers have used techniques that simply were not available to earlier researchers, and especially not to those mentioned in Chapter 3, but besides that,

catacomb researchers have started to broaden their horizons. They have used these newly discovered techniques to gain more knowledge on parts of catacomb research that were barely noticed nor acknowledged. These new methods shed a new light upon the established ideas, e.g. the idea that the catacombs of San Priscilla or San Callisto were the first catacombs in Rome, recently has been proved, by the absolute radiocarbon dating method, that the Jewish catacomb of Villa Torlonia predates the Christian ones by at least a century.

Being the first to conduct a modern demographic investigation in the Roman catacombs, Mancinelli and Vargiu explored a new path in catacomb research. Although demography was used in other archaeological fields before, this was of course a highlight for catacomb research. Unfortunately they used only 44 bone samples, coming from the same number of individuals. This number is quite small and presumably not very representative for all the catacombs. Other points of critique are the lack of assessment of the pathologies that were available and well preserved, the wrong conclusions about the enamel hypoplasia lesions on teeth and molars in the mandibula and maxilla, and at last the lack of an infant category within the age estimations, which would be advisable as a 35 % of all new-borns and infants died before their first birthday.

In the prolongation of this demographic study of the Italian couple lies the work of the Dutch Constance Van der Linde, which is also demographic and physical anthropological in nature. Corresponding to her own comments on Mancinelli and Vargiu's work she did spread the 5782 individuals over multiple age categories, taking infants into account. The skeletal remains of those 5782 individuals were retrieved from only 5164 graves. Van der Linde did take into account that more individuals could have been buried in the same grave, even though the proportion of the grave did not indicate this. Unfortunately she appears to have been unable to conduct more physical anthropological assessments, apparently due to the bad preservation of the bone material. One other negative point about Van der Linde's work is the small sample she used for stable isotope analysis. Only 45 samples from 16 individuals were used to get an idea about the dietary habits of the inhabitants of Late Antique Rome. These 16 individuals cannot be a reliable representative of the whole of Rome's population. Van der Linde's biggest plus point is her awareness of the possibilities of demography and physical anthropology within archaeological research. It can give new understandings about the society from that day,

in demographic ways but also long term developments such as population growth, especially in combination with other specialism's such as epigraphy.

A year after Van der Linde's publication in 2008, Leonard Rutgers and his colleagues published an article on their stable isotope analysis of the Liberian Region of the San Callisto catacombs as well. Once again, only a small number of bone samples was used, in this case only 22. This does still not seem in proportion to Rome's population. Van der Linde and Rutgers et al. came to the same conclusion, but that is not surprising as they performed their analysis on samples from the same source, the Liberian Region of the San Callisto catacombs. They both concluded that the individuals on whose skeletal remains the analysis were conducted, had eaten a considerable amount of freshwater fish, in the case of Rutgers's research up to 25%. This conclusion was quite unexpected as literary sources have always indicated that the Roman population did not eat much fish (Garnsey 1991a + b). By this, a great example of the benefits of natural sciences over old fashioned sources has been demonstrated as these absolute data correct the relative data based upon literature.

Rutgers has also conducted several absolute datings in the Roman catacombs. He was the first and up till today the only one known to have done this. Rutgers et al. also dated four terracotta oil lamps from the Jewish Monteverde catacomb, this shows that the Jewish catacombs are also becoming of interest now. The dating of these oil lamps has helped to recreate the history of the Jews in Rome and also to gain more knowledge about the oil lamps themselves. In his 2005 article Rutgers speaks about the radiocarbon dating of pieces of charcoal, coming from the limekiln, that were captured in the lime from which the grave cover was made, from the Jewish catacombs of Villa Torlonia. As the absolute date of this Jewish catacomb and the relative date of the Christian catacombs were so close together, he even paid attention to the age of the wood from which the pieces of charcoal came, as this could range over several decennia.

With these finds the question about the absolute age of the Christian catacombs was raised once more. Rutgers and co. have tried to answer this question by conducting an AMS radiocarbon dating on the Liberian Region of the San Callisto catacombs. Although the idea that they wanted to answer the question they had raised themselves is admirable, the execution is possibly not entirely correct. AMS dating is more precise then the regular

radiocarbon dating used on the Jewish catacombs and therefore is this comparison possibly not genuine.

In chapter 4.4 examples of the use of the catacombs for other scientific fields are mentioned. The catacombs offer benefits to researchers that cannot be found elsewhere due to the unique circumstances of the large subterranean complexes.

Instead of working out of a religious motivation, this new turn in catacomb research is focused on proving certain assumptions right or wrong, based upon absolute evidence gained by established scientific research methods.

Chapter 6. Conclusion

For this thesis multiple researchers and research methods have been investigated and evaluated. A division was made between the earlier ones, from the 17th to the first half of the 20th century, and the contemporary ones. This distinction is based upon the largest difference between them, namely the availability of the modern techniques that simply did not exist previously. In order to answer this research's questions an analysis and a comparative evaluation were performed.

A first goal was to find out what sort of investigation methods were used during the different periods of research in the catacombs. For the earlier researchers goes that they worked often in a topographical, systematic and descriptive way. Many catacombs have been located through the systematic surveying of the urban and rural grounds of Rome. The studies performed by especially Bosio and De Rossi have been of great value because of the detailed description of the catacombs and the documentation of the artefacts found within them. Subsequent researchers have neglected to be innovative in their research and as a result they worked in ways similar to their predecessors.

For the modern researchers goes that they have used recently discovered, invented or developed technical methods to reach their goals. Techniques such as absolute dating methods, physical anthropology, biological analyses and laser scanning have been used in the catacombs. In contradiction with the earlier researchers, they have used the catacombs in the interests of other fields of science then just archaeology and history, thus supporting and interdisciplinary approach.

The second purpose of this thesis was to investigate the research questions of the catacomb researchers were and to get to know what they hoped to find out. Generally speaking it can be concluded that the early researchers, Bosio and De Rossi, simply wanted to learn as much as possible about the catacombs. As they were the first to explore the catacombs and write down their findings they just had to see what they came across instead of making specific research plans. Their work suggests that they would like to find proof of early Christianity more than anything, this is to be signalled in the discovery of the Crypt of the Popes by De Rossi, see chapter 3.2.2.

The modern researchers differ, not only from the earlier ones but also from each other. Van der Lindes main focus was to find out more about the Roman population. Not only

the demographic investigations she conducted but also the science-based archaeological tests have resulted in new insights on the population of Rome as a whole.

The works from Leonard Rutgers used for this thesis do not stand alone, for his project 'The Rise of Christianity' he hopes to gain an objective overview of the early days of Christianity through measureable results coming from absolute techniques. An example is the radiocarbon dating of Jewish and Christian catacombs, in order to find out which are, proving from out of which religion the burying in catacombs originates. At this moment, the field of catacomb research lies completely open, e.g. Rutgers and Van der Linde, although they are using similar methods, they are headed in different directions, respectively the investigation of early Christianity and the study of Rome's demography.

The last research goal for this thesis was to find out what the motivation of all these researchers was and in what way their work was influenced by their own, often Christian, religious views. As already discussed it was especially for the researchers of the 17th, 18th and 19th centuries important to find proof of early Christianity and along with that the remains and the final resting places of the martyrs. They were mostly driven by religious aspects and also in a, financial, collaboration with the Church.

It is more difficult to point out a specific drive or motivation for the modern researchers, the application of new methods certainly plays a role. Religion has played no part in this as none of them actually discusses this within their work.

If one was very fortunate and a relevant catacomb would be discovered in Rome, a multidisciplinary approach would be recommendable for further research. The combination of the earlier used techniques, e.g. the art historical and topographically descriptive approach but minus the religious influences, with the recent techniques derived from the natural sciences, would assumedly be the best manner to gain as much objective knowledge from the catacomb as possible.

Summary

This thesis has covered many literary sources, some of them dating back to the 17th century, some more recent of date. This was done in order to achieve the research goal and to answer the research questions. The main goal was to reach the most objective view possible, concerning the origins, history and use, on the catacombs and catacomb research.

The research performed on the catacombs in the last 450 years was divided into two main categories. The first concerns all the research performed in the 17th, 18th, 19th and the major part of the 20th century, differing from the second methodological category. These differences are mainly caused by the fact that those earlier researchers did not have the technological means to perform certain investigations, in contradiction with the later researchers who did. Another difference between the two categories is the presence or absence of religious influences. Especially the authors of the early works, some of them written in the time of the Counter Reformation (Bosio 1632), were professing Christians with close connections with the Catholic Church. Their own believes and religiously founded motivation have distorted their work. Whether the later researchers are religious or not is not clear, but if so, then it has not influenced their work as none of them mention religion. The fact that Jewish catacombs are also a subject of research nowadays indicates that the Catacomb Archaeology has changed (Rutgers et al. 2005, Rutgers et al. 2007). Instead of only focussing on the remains of early Christianity, the horizon has broadened. This also shows through other recent works, the catacombs offer more possibilities than previously thought and can serve both as subject and object of research (Abdelhafiz 2009, Ascenzi et al. 1985, Saarela et al. 2003, Scheiblauer et al. 2009, Zimmerman and Eβer 2007).

In the fortunate case of finding an unexplored catacomb in Rome, an interdisciplinary approach is recommendable. The combinative approach of the exploring, mapping and descriptive approach with recently developed techniques would assumedly be the best manner to gain as much objective knowledge from the catacomb as possible.

Samenvatting

In deze scriptie zijn verschillende literaire bronnen, waarvan sommige zelfs uit de 17e eeuw dateren, andere zijn van meer recente datum, behandeld. Dit is gedaan om het onderzoeksdoel te behalen en de onderzoeksvragen te kunnen beantwoorden. Het hoofddoel was het kunnen samenstellen van de meest objectieve manier mogelijk, aangaande de oorsprong, geschiedenis en het gebruik, van de catacomben en catacombenonderzoek.

Het onderzoek dat de laatste 450 jaar op de catacomben is uitgevoerd is verdeeld in twee categorieën. De eerste betreft al het onderzoek uit de 17e, 18e, 19e en het grootste deel van de 20e eeuw, voornamelijk verschillend van de tweede categorie in de gebruikte methodes. Deze verschillen zijn vooral veroorzaakt door het feit dat de vroegere wetenschappers niet de technologische middelen hadden, die men later tot zijn beschikbaar waren. Een ander verschil tussen deze twee categorieën is de aanwezig- of afwezigheid van religieuze invloeden. Vooral de auteurs van de eerdere werken, waarvan sommigen zijn geschreven ten tijde van de Contra Reformatie (Bosio 1632), waren belijdende Christenen met nauwe banden met de Katholieke Kerk. Hun eigen geloftes en op religie gebaseerde motivatie hebben hun werk gekleurd. Of de latere onderzoekers geloven is niet duidelijk, maar ook niet relevant aangezien zij geen van allen beïnvloed lijken te zijn. Er worden immers geen religie gerelateerde zaken genoemd in hun werk. Het feit dat de Joodse catacomben tegenwoordig ook onderwerp van onderzoek zijn geeft aan dat het catacombenonderzoek veranderd is (Rutgers et al. 2005, Rutgers et al. 2005). Dit wordt ook duidelijk in andere recente publicaties. De catacomben bieden meer mogelijkheden dan voorheen werd gedacht en kunnen zowel als subject dan wel object dienen (Abdelhafiz 2009, Ascenzi et al. 1985, Saarela et al. 2003, Scheiblauer et al. 2009, Zimmerman and Eβer 2007).

In het fortuinlijke geval dat er in Rome een onbekende catacombe wordt ontdekt, is een interdisciplinaire aanpak aan te raden. De combinatie van het verkennen, in kaart brengen en beschrijven samen met het gebruik van recentelijk ontwikkelde technieken zou waarschijnlijk de beste manier zijn om zo veel mogelijk objectieve informatie te kunnen winnen van deze catacombe.

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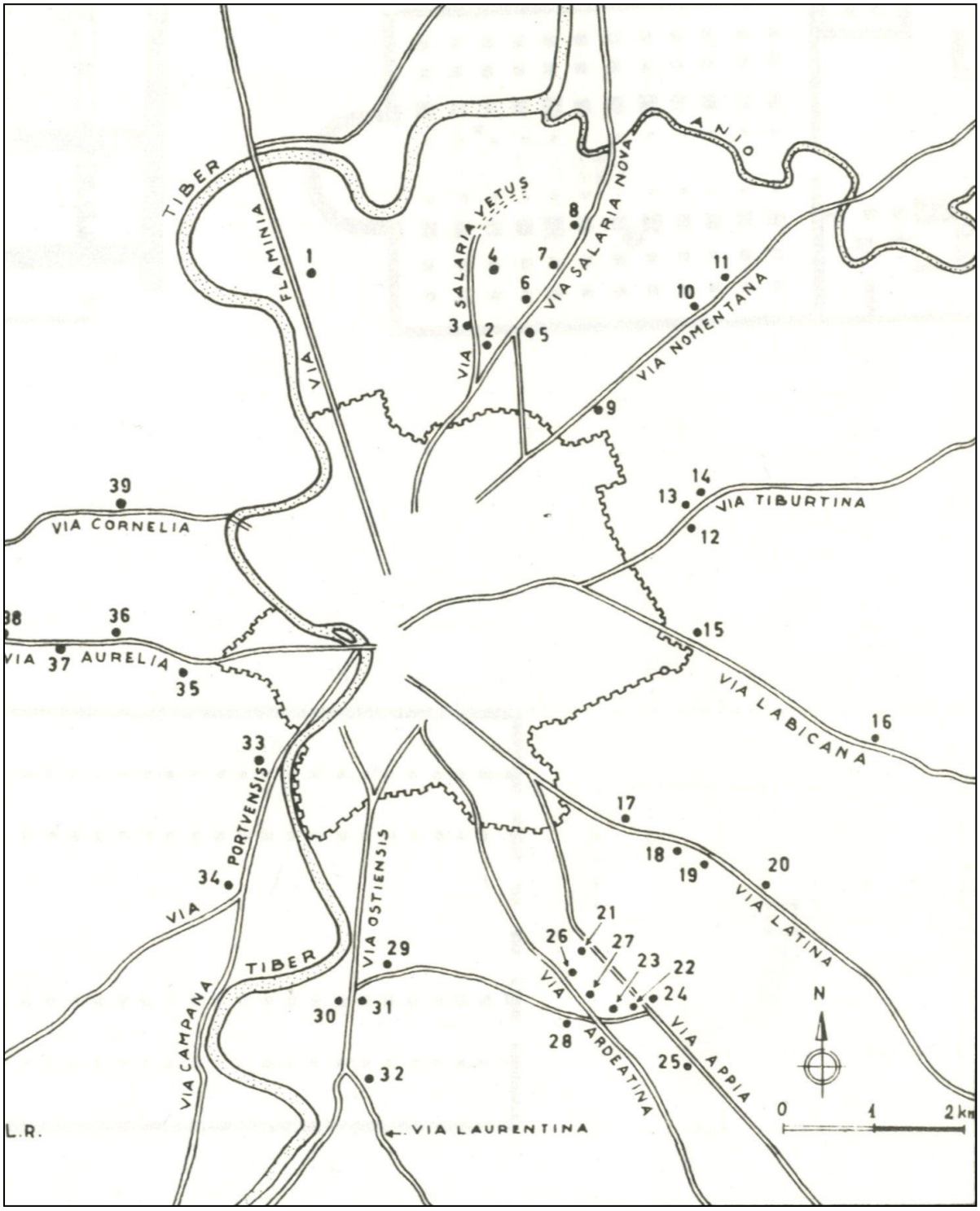
Appendix I

Map of Rome with the most important catacombs highlighted, after Reekmans 1978, 142.

For a very detailed and up to date map, see the website of the International Catacomb Society: http://www.catacombsociety.org/maps.html



Clarification

Via Flamina	1. S. Valentino
Via Salaria Vetus (Antica)	2. S. Panphilo
	3. Bassilla - S. Hermes
	4. Ad clivum Cucumeris - Ad caput S. Iohannis
Via Salaria Nuova	5. Maximo - S. Felicitas
	6. Thrason
	7. Jordani
	8. S. Priscilla
Via Nomentana	9. Nicomedes
	10. S. Agnese
	11. Majus
Via Tiburtina	12. Cyriaca - S. Lorenzo
	13. Novatianus
	14. Hippolytus
Via Labicana	15. S. Castulus
	16. Ad duas lauros - S. Pietro and S. Marcellino
Via Latina	17. S. Gordianus and S. Epimachus
	18. Apronianus
	19. Via Latina - Via Dino Campagnii
	20. Tertullinus - S. Eugenia
Via Appia	21. S. Soteris
	22. Crypts of Lucina
	23. S. Callisto
	24. Praetextatus
	25. S. Sebastiano
Via Ardeatina	26. Balbina - S. Marco
	27. Basileus - S. Marco and S. Marcelliano

	28. S. Domitilla - S. Nereus and S. Achilleus
Via Ostiensis	29. Commodilla - S. Felix and S. Adauctus
	30. S. Paulus
	31. Timotheus
Via Laurentina	32. S. Thecla
Via Portuensis	33. Pontianus - S. Abdon and S. Sennen
	34. Ad Insal(s)atos - S. Felix
Via Aurelia	35. S. Pancratio
	36. S. Processus and S. Martiniano
	37. Duo Felices
	38. Calepodius - S. Callisto
Via Cornelia	39. S. Pietro

Appendix II

Glossary

Ambulacrum	Catacomb gallery.
Arcosolium	More elaborate burial cavity, often part of a *cubiculum* .
Bisomus	Wider *loculus*, meant for two people.
Catacomb	Large underground burial complex, existing out of multiple galleries, often on multiple storeys.
Cryptoporticum	Recreation rooms underneath summer villas.
Cubiculum	Burial chamber, often for families or employees of a particular corporation.
Fossari	Professional grave digger, working on the Roman catacombs.
Hypogeum	Smaller (family) tomb.
Loculus	Small and simple burial cavity, cut out in the wall of a *ambulacrum*.
Luminarium	Light shaft, often found in *cubicula*.
Translationes	Large-scale moving of martyrs remains and relics to aboveground sanctuaries and churches in the late 8th and early 9th century.
Trisomus	Wider *loculus*, meant for three people.
Quatrisomus	Wider *loculus*, meant for four people.