Architectural terracottas from Akragas : investigating monumental roofs from the Archaic and Classical period

Rheeder, A.

2 ARCHITECTURAL TERRACOTTAS FROM AKRAGAS

2.1 HISTORY OF RESEARCH

The architectural remains from the Archaic and Classical Greek period had a visible presence in the city of Agrigento throughout the Medieval period and into the present day. In the main part of the city, temple E was incorporated into the church of S. Maria dei Greci.[1] On the temple hill, temple F was similarly turned into a Christian basilica in the 6th century AD before being restored to the Greek phase in the 18th century.[2] Literary sources from the period testify to the visual presence of the site's archaeological material. One example is the account by Johann Wolfgang von Goethe. In his book, *Italienische Reise,* he describes the visual impact of the well-preserved buildings on the temple hill when he visited the city in 1787. Goethe also writes on viewing isolated finds of artistic merit, such as a carved Roman sarcophagus and a red-figure *krater* which were on display within the cathedral.[3]

The visibility of these remains drew the attention of those interested in Greek art and architecture during the 18th and 19th centuries, leading to a number of private explorations and excavations of the necropolis and temple areas. A notable example is the exploration of the urban sanctuary during 1835-36, during which the North-East corner of the temple of the Dioscuri was restored.[4] A summary of the excavation history of areas pertinent to this thesis is provided in table 2-1. Unfortunately, these endeavours were mainly concerned with the discovery of valuables.[5] Excavations in the necropolis in the 19th century provided objects for local private collections, such as that of the abbot Ciantro Giuseppe Panitteri. Through the actions of foreign collectors like Leo von Klenze, collections outside of Italy gained Agrigentine objects. A number of these later ended up in international museum collections; for instance, the pieces purchased by Leo von Klenze first went too the collection of the Bavarian king Ludwig I., and are now part of the state collections of antiquities in Munich.[6] And a terracotta fragment of the eye and forehead of a gorgonieion is now housed in the Copenhagen national museum.[7] This period of private exploration and collection mostly ended after the unification of Italy in the 19th century. Objects found during sporadic activity were then housed locally in the civic museum in the city of Agrigento, instituted in 1864, or in the custodian building near the temple hill. Unfortunately, the provenance of these finds was rarely recorded.[8]

These early explorations of Akragas yielded only a handful of architectural terracottas with no provenance. This might explain why one of the first publications focused on Western Greek architectural terracottas did not mention Akragas: the 1881 publication by Richard Borrmann and Wilhelm Dörpfeld can be considered as the earliest dedicated academic work on Sicilian architectural terracottas.[9] In an attempt to define Western Greek architectural terracottas and to establish a chronology for their stylistic developments, Dörpfeld considered terracotta roofs from Selinus and Syracuse in Sicily, Metaponto in the South of Italy, and the Geloan treasury in Olympia, Greece. While the main focus was on architectural terracottas, the authors also considered plain roof tiles and the supporting stone structures. This approach allowed them to provide reconstructions

1 Mertens 2006, pp. 196-197.

2 Holloway 1991, pp. 116-117; Paul 2002, p. 43.

3 Goethe 1816-17, pp. 219-220; Paul 2002, pp. 39-40.

4 Zoppi 2001, p. 9.

5 Marconi 1933, p. 115.

6 Fiorentini 1992, p. 18.

7 Danner 2000, pp. 23, abb. 2.

8 Fiorentini 1992, pp. 18-19; Mangione 2018, p. 3; Marconi 1929, p. 153.

9 Darsow 1938, p. 9; Dörpfeld et all. 1881; Lang 2010, p. 1.

of the terracotta friezes as well as the wider roof context, including connections with the plain roof tiles, timber structures and walls. Dörpfeld is credited with setting the standard for documenting architectural terracottas by recording not only the decoration, but also the profile and fabric of objects.[10] However, his published drawings rarely differentiate between what is preserved and what is reconstructed.

By the early 20th century, the number of known examples from Sicily had increased significantly. This led to the publication of important and large-scale catalogues on architectural terracottas, such as the 1923 publication by Elizabeth Douglas van Buren.[11] Her work consisted of a description of the various sites in Sicily and Western Greece, including their major buildings and a catalogue of the various types of decorated architectural terracotta. Van Buren's publication included two fragments from Akragas: a satyr antefix from a collection in The Hague, and a ridge tile palmette, then housed in the civic museum of Agrigento. The provenance of these objects is not known, but based on the date of publication these objects can be attributed to the period of 19th century explorations described above. Van Buren's typology is based on the decoration and principle profile characteristics. As can be seen from the publication's figures, the main focus is on the decorative aspects of the elements and not their architectural function.

The first scientific excavations in Agrigento started between the second and third decade of the 20th century. These campaigns were a mixture of state and private endeavours, exemplified by the work of Ettore Gàbrici, who received assistance from the Technical Department of Finance of Agrigento.[12] Between 1922 and 1923, Gàbrici excavated the area to the South-East of temple B (figure 1-2; figure 1-3). He considered the building remains in this part of the ancient city to be poorly preserved except for the naiskos; which contained a large quantity of finds. Gàbrici was also the first to publish the results from his excavations in 1925, presenting the preliminary findings from his excavations at temple A, the city fortifications, and the naiskos to the South-East of temple B. Despite finding more than a hundred fragments of architectural terracottas of various types in this area, Gàbrici only published reconstructed drawings for one sima and geison revetment. These drawings and his descriptions are very limited and raise a number of questions regarding the profile and painted decoration of the objects. Gàbrici also only makes mention of the decorated architectural terracottas, the plain roof tiles are not presented.[13] During this period it was the practise to send excavated finds to the National Museums already established in Palermo and Syracuse, which explains why a number of architectural terracottas from Gàbrici's excavations ended up in Palermo.[14]

The retired British naval commander Alexander Hardcastle made significant contributions to the archaeology of Akragas by financing a number of campaigns directed by Pirro Marconi. These began with excavations in the area of S. Nicola and S. Biagio in 1925.[15] In 1927 there was an excavation in the urban sanctuary, followed by excavations in temple G in 1928 and 1929.[16] Before this investigation, the site of temple G was used as agricultural land, and Marconi remarks that the farmers would regularly find objects while working there.[17] Marconi published his findings in two publications in 1929 and 1933. While brief, his descriptions are slightly more detailed than those by Gàbrici, and include a wider range of objects and a few images. These contain reconstructed drawings for the sima and geison revetment from

10 Winter 2016, p. 94.

11 van Buren 1923.

12 Gàbrici 1925, pp. 437-420.

13 Gàbrici 1925, pp. 440-441.

14 De Miro 1965 note 2.

15 Marconi 1926, p.93.

16 Marconi 1933, pp. 11, 113; Zoppi 2001, p. 10.

17 Marconi 1933, pp. 113-115.

the naiskos inside the foundations of temple G, and photographs of the anthemion sima fragments associated with the naiskos at the Villa Aurea. Like Gàbrici, Marconi makes no mention of the undecorated roof elements.[18]

Marconi excavated extensively in Agrigento until 1932, when he left for a different position.[19] In 1939 the *Soprintendenza alle Antichità per le province di Agrigento e Caltanissetta* was formed, and supported further scientific exploration at Agrigento under the leadership of Pietro Griffo.[20] During his tenure, Griffo led a number of excavations, including some in the urban sanctuary.[21] In 1953 he also directed the excavation of the area between gate V and the temple of Zeus (figure 1-2; figure 1-3).

The 1938 publication by Wolfgang Darsow and the slightly later one by Hans K. Süsserott of 1944 were instrumental for cataloguing Sicilian architectural terracottas as they established typologies (e.g. 'Blattstabsimen' and 'Anthemiensimen') and their chronological development. Unfortunately, neither of these two publications included images.[22] Charlotte Wikander finds that the overall typological framework proposed by Süsserott is still fairly reliable, except for his 'alt-sizilisches Dach' and his use of material from Corfu to date the beginning of terracotta roofs in Sicily.[23] Of the two publications, only Darsow incorporates material from Akragas, and of that, only the anthemion sima published in 1929 by Marconi.[24]

The work of Lucy Shoe is a rare exception to the academic trend of the first half of the 19th century as exemplified by Darsow and Süsserott. Instead of basing her studies on published excavation records she studied the objects in person; by using new methods she produced highly accurate profile drawings of a wide range of architectural objects. Shoe first published her methodology in 1936, regarding Etruscan mouldings. Her methodology separates form and function from decoration, and allows for the comparison of material from different scholars. In 1952, Shoe published a study that applied the same methods to Western Greek objects, including material from Akragas.[25] In a reappraisal of her work in 1997, Ingrid Edlund-Berry found that Shoe's methods and findings are still relevant.[26]

Significant events occurred in the 1960's that promoted the protection and scientific investigation of the archaeological remains of Akragas. In 1966 the so-called Valley of the Temples was declared a zone of National Interest, which provided legal protection for the archaeological remains. Subsequent laws were passed in the following years for the additional protection and definition of the area.[27] The National Archaeological Museum of Agrigento was inaugurated in 1967. The new museum brought together the collections from the civic museum as well as objects from Akragas that had been sent to museums in Palermo and Syracuse during earlier periods. During this time, Ernesto De Miro was the director of Archaeology for the *Soprintendenza*, and together with the superintendent, Pietro Griffo, he had a significant role in the establishment of the new museum. New finds excavated under the direction of De Miro were also incorporated into the new museum's collection.[28]

De Miro conducted a number of excavations starting in the 1950's that continued for another five decades. In 1958 he revisited the area to the South-East of temple B, which had previously

18 Marconi 1929, 1933.

19 Marconi 1933, p. 7.

20 Fiorentini 1992, p. 19.

21 Zoppi 2001, p. 11.

22 Darsow 1938, pp. 12-13, 35, 42; Süsserott 1944.

23 Wikander 1986, p. 10.

24 Darsow 1938, p. 32.

25 Shoe 1952.

26 Edlund-Berry 1997, p. 77.

27 Unesco World Heritage Centre.

28 De Miro 1965, pp. 39-40, 55, 58; Fiorentini 1992, pp. 20-21; Mangione 2018, p. 3; Wikander 1986, p. 31.

been excavated by Gàbrici. Although Gàbrici had focused on the naiskos, De Miro concentrated his attention on the structures between this building and the Southern edge of the hill. The findings from the 1958 excavation season were published in 1963 and comprised a detailed description of the architectural remains and a catalogue of finds that included a handful of architectural terracottas.[29] De Miro also conducted a number of excavations in the area between gate V and temple B in 1966-1967, 1970-1973, and 1995-1996. His results were published in 2000 in two large excavation reports that also included material from Griffo's previous excavations in the same area (table 2-1). The extensive catalogue also contains a small number of isolated architectural terracotta fragments but not any undecorated roof tiles.[30]

In 1965, De Miro also published a comprehensive overview of the architectural terracottas from Akragas with detailed descriptions and a large number of images. In addition to objects from De Miro's own excavations, the work includes previously unpublished material from Gàbrici's excavations to the South-East of temple B, and stray finds previously housed in the civic museum. De Miro created a stylistic typology in which each type is called a 'frieze'. The typology is based on the terracotta's profile, painted decoration, find location and fabric. He established date ranges based on stylistic comparisons with known objects from Western Greece. Based on 84 fragments, De Miro identified 15 different friezes. A number of objects which cannot be placed within his frieze categories are organized into stylistic groups (e.g. four different groups of acroteria palmettes). De Miro also proposed partial reconstructions for two friezes, A and G, and one acroteria palmette. His reconstruction of the architectural structures that support the terracotta roof is heavily based on a stone geison revetment block found by Marconi in the area of temple G. Yet, it remains unclear on what evidence other aspects of this reconstruction are based. All 84 fragments are photographed, but only a handful of the objects are accompanied by profile drawings, none of which are reconstructions of the entire profile. As already mentioned, De Miro considered the ceramic fabric of fragments when grouping objects into friezes. The colour and consistency of the clay and occasionally the colour of the inclusions are briefly mentioned using verbal descriptions. However, his fabric analysis lacks a clear and systematic methodology. De Miro also proposed some observations regarding the production of these objects, but this was not a major line of investigation.[31]

The 1965 publication by De Miro does exclude a number of objects, such as a gorgoneion antefix published by Marconi.[32] Also omitted was a second gorgoneion antefix fragment found by Graziella Fiorentini during excavations at S. Anna. The S. Anna site lies on private land and was discovered accidentally through agricultural activities. Two structures came to light during the rescue excavation, and Fiorentini identified them as an extra-urban sanctuary.[33] The reason for De Miro's omission might be that Fiorentini conducted the rescue excavation in 1965, the same year as the publication of De Miro's work. Thus, while he was able to include the only other architectural terracotta fragment found by Fiorentini (a sima with a partially preserved waterspout), the antefix might not have been available for publication yet. Fiorentini published both fragments in her excavation report in 1969, but even this was limited to a brief mention and a single photograph.[34] Despite these criticisms, De Miro has made a significant contribution to the study of Sicilian architectural terracottas by publishing descriptions and photographs of the

29 De Miro 1963.

30 De Miro 2000.

31 De Miro 1965, p. 41.

32 Marconi 1933, pp. 40, fig. 17.

33 Fiorentini 1969, p. 63.

34 De Miro 1965, pp. 56, tab. XXIV-1g; Fiorentini 1969, pp. 67-68, fig. XXXII-2.

fragments known at that time, and by placing these into a new chronological typology. To date, his work remains the most important reference for scholars in regards to architectural terracottas from Akragas.

Due to the relative absence of published antefixes, investigations of these objects from Magna Graecia conducted in the 1970's and 1980's were limited to the fragments published earlier by Marconi and Darsow for material from Akragas. With his 1982 publication, Volker Kästner developed a typology for gorgoneion antefixes based on a stylistic analysis of attributes, form and artistic execution. Two other studies from the same period by Janer D. Belson and Josef Floren are similar in approach and content.[35] In his 2000 publication on the urban sanctuary, De Miro uses Kästner's typology to date two antefixes found to the east of gate V.[36]

Apart from the publications on antefixes already mentioned, the works by Darsow (1938) and Süsserott (1944) were the only large-scale studies on Sicilian architectural terracottas until 1986, when Charlotte Wikander published a small volume focused solely on the simas.[37] Wikander provided an overview of the stylistic development of Sicilian architectural terracottas. While her chronological development is based in part on the work by Süsserott, she also incorporated newly discovered finds, such as the material from Akragas that was published by De Miro. Based on revised dates for the Geloan roof in Olympia, Wikander also adjusted the dating of the canonical Sicilian roof. The publication also provided systemized descriptions and drawings of known Sicilian fragments, making it an important reference for the study of architectural terracottas from Sicily.

In 1988, Madeleine Mertens-Horn published a detailed investigation of lion-headed waterspouts, which included a previously unpublished terracotta fragment from Akragas.[38] Mertens-Horn considered the chronological development of this type of element based chiefly on stylistic characteristics.

The 1993 publication by Nancy A. Winter revisited the development of Greek architectural terracottas.[39] Unlike previous studies, Winter incorporated undecorated roof tiles in order to reconstruct the development of regional roof systems (e.g. Corinthian, Laconian, and Attic systems). In comparison to these systems, Winter's section on Sicilian roofs is not as comprehensive and does not include a reconstruction of a canonical roof. However, Winter did expand on the existing stylistic development typology by, for example, diving Wikander's Geloan phase into three separate phases based on the increasing elaboration of the painted decoration. While the focus of Winter's work was on the development of regional roof systems, she did include a very brief section relating to the production of architectural terracottas.

Peter Danner produced a number of works focused on various types of Western Greek architectural terracottas. Of interest to this investigation is his publication on ridge antefixes and horse rider acroteria in 1996 which incorporates a number of fragments from Akragas, some of which had not been published before.[40] A small number of these objects were presented again in a volume dedicated to pedimental decoration in 2000.[41] Danner's work included a catalogue and a discussion on the architectural context of these objects.

The 2007 publication by Patricia Lulof provided a detailed catalogue (with stylistic and fabric descriptions) for antefixes from the Allard Pierson Museum in Amsterdam.[42] It also included

35 Kästner 1982; Belson 1981; Floren 1977.

36 De Miro 2000, p. 122.

37 Wikander 1986, pp. 7-8.

38 Mertens-Horn 1988, p. 184.

39 Winter 1993, pp. 274-278.

40 Danner 1996.

41 Danner 2000.

42 Lulof 2007.

photographs and drawings of the front, sides, and in some cases, the back of objects. Lulof provides an overview of the stylistic development of antefixes from the Archaic, Classical and Hellenistic periods in Italy, and includes material from Sicily. One of the objects described in this publication was an antefix depicting the head of a silen or satyr that is thought to be from Akragas. This object was previously housed in The Hague and was published by van Buren in 1923.

From 1986 to 2005 the *Soprintendenza ai Beni Culturali e Ambientali di Agrigento* and the *Parco Archeologico e Paesaggistico della Valle dei Templi di Agrigento* have conducted excavations on the fortifications of Akragas. The results were published by Gisella Fiorentini in 2009 and the catalogue includes isolated examples of gorgoneion antefixes. Fiorentini provides a brief description of the objects, including their fabric, estimated dates, and a photograph.[43]

The 2010 Ph.D. dissertation by Matthias Lang is the latest in this line of research; the Akragas objects contained in the catalogue rely on the preceding publications by De Miro, Marconi, Winter, and Wikander.[44] Based on a review of published objects from the Western Greek world, Lang offers a number of refinements to the established developmental phases. This refined typology forms the basis for the revised dates proposed by Lang for the Akragas objects. His work also contains the material analysis of objects associated with the Geloan roof in Olympia in order to prove its provenance. In general, Lang does not pay particular attention to the fabric or the architectural contexts of these objects. His chronological typology is based mainly on stylistic considerations.

This overview of the research and publication history of Greek architectural terracottas demonstrates that the typology established by De Miro in 1965 has been largely retained by modern scholars. In her 1986 publication Wikander discussed five of De Miro's friezes (A, D, E, F, and G) and retained his dating of these objects.[45] Lang's 2010 Ph.D. dissertation slightly modified the 15 friezes defined by De Miro. Lang identified 19 separate roof systems by dividing De Miro's frieze H1 into two individual roofs, and by reorganizing some of De Miro's stylistic groups into new roofs, such as AKRA 14 which consists of a single eaves tile. Lang also published a group of objects which came from De Miro's 1963 publication on the excavations to the South-East of Temple B (AKRA 15).[46] Both Wikander and Lang have only used material based on De Miro's publications. This means that currently, most studies of Sicilian architectural terracottas are based solely on material excavated before 1965. Additionally, the work by Lang demonstrates that the stylistic typology created by De Miro requires revision.

Since 2012 the University of Palermo has been excavating at Akragas in the area to the South-East of temple B. The investigations are directed by Monica de Cesare and Elisa Chiara Portale. Their research revisited the naiskos and proposed an updated interpretation and chronology.[47] They also re-examined the structures located between the naiskos and the edge of the hill. While to date the excavations have not unearthed any additional architectural terracottas, the researchers have revisited the archives of the regional archaeology museum Antonio Salinas in Palermo as part of the on-going investigation. A number of boxes with material from Gàbrici's initial excavations which had been thought lost were subsequently discovered, and these form an important part of the present study.

Since 2013, Natascha Sojc has reinvestigated the area to the North of S. Anna, which was previously

43 Fiorentini 2009.

44 Lang 2010, pp. 87-90.

45 Wikander 1986, pp. 31-32.

46 Lang 2010, pp. 87-90.

47 Danile et al. 2013, p. 133; de Cesare & Portale 2016; de Cesare & Portale 2018.

Table 2.1: The excavation history of areas pertinent to this study in terms of excavation directors and years.

	Gàbrici	**Marconi**	**Griffo**	**De Miro**	**Fiorentini**	**de Cesare and Portale**	**Sojc**
Urban sanctuary		1927	1953-1955				
Sanctuary to the East of gate V			1953	1966-1969, 1970-1973, 1995-1996			
Naiskos inside the foundations of temple G		1928-1929					
Naiskos to the South-East of temple B	1922-1923			1958, 1962		2012-present	
Extra-urban sanctuary of S. Anna					1965		2014-present

excavated by Fiorentini in the late 1960's.[48] To date, the excavations have identified numerous votive deposits, some fragmentary architectural remains, and a handful of architectural terracottas and roof tiles. This material had not yet been published.

The description of the history of research in table 2.1 focuses on material from Akragas, but there are a number of studies dealing with architectural terracottas from a wider Mediterranean context that are important to this investigation. Some of these were discussed above, as they incorporate material from Akragas (Süsserott, Winter, Wikander, Danner, and Lang). However, there are also a number of studies that do not deal directly with material from Akragas. These still merit consideration as they provide important references for this project's methodology and objects for comparison. Of particular interest is the material from Gela, Naxos, Selinus and Syracuse due to the amount of available information, the similarities with objects from Akragas, and the impact of particular scholars on the wider field. A brief overview of the history of research for relevant material is provided below.

The scholarship of the early to middle 20th century at the mentioned Greek colonies can be characterized as slightly broader in focus than previous research, and demonstrated an overall interest in architectural reconstructions. One of the earliest works is that of Paolo Orsi on the Athenaion from Syracuse, published in 1918.[49] In essence this publication is an excavation report, but the architectural remains and terracottas received particular attention. He provided a number of reconstructions for different roof revetments, and for different roof sections; the latter included the underlying wall, roof timbers, and in some cases, the undecorated roof tiles. The 1949 publication by Luigi Bernabò Brea on the Athenaion from Gela reflected a similar methodology as the work by Orsi, except that it focused solely on the architectural remains and architectural terracottas,[50] as is the 1956 publication by Gàbrici on material from Selinus.[51] Paola Pelagatti excavated the area around

48 Sojc 2016; Sojc 2018.

49 Orsi 1918.

50 Bernabò Brea 1949.

51 Gàbrici 1956.

temple B at Naxos and published a report in 1964, which included a smaller number of architectural terracottas, these are described in less detail and offer only one revetment reconstruction.[52]

The *Deliciae Fictiles* conferences and the subsequent publications have revitalized the study of architectural terracottas in Sicily. The first conference was held in 1990 and focused on the architectural terracottas from central Italy but included a number of papers on Sicilian material, for instance, the contribution by Concetta Ciurcina on material from Syracuse and Naxos.[53] The second conference took place in 1996 and focused on material from Archaic Italy, including papers by Ciurcina on material from Syracuse, and Maria Lentini on Naxos.[54] The third conference in 2002 also presented a section on material from Sicily. The publication includes papers by Ciurcina on eaves tiles from Syracuse, by Lentini on acroteria from Naxos, and by Pelagatti on gorgoneion antefixes from Sicily and Magna Graecia.[55] The 2009 conference contained the following contributions on Sicilian objects: Ciurcina on material from the regional archaeology museum Paolo Orsi in Syracuse, Pelagatti and Lentini on anthemion revetments and gorgoneion fragments from Naxos, Lentini and Jari Pakkanen on material from Naxos, Giovanna Greco on material from Gela, and lastly Maria Conti on new material from Selinus.[56] The *Deliciae Fictiles* conferences have contributed to the study of architectural terracottas by providing a platform for the publication of new finds and the revision of existing scholarship. Of note is the paper by Charlotte and Örjan Wikander from the 2002 conference which provides a valuable reflection on current scholarship and future directions.[57] The focus of most of these conference contributions is predominantly on the stylistic aspects of decorated and figurative elements. One exception is the paper presented by John Kenfield on the technical aspects of production as seen in the material from Morgantina.[58] Another is the paper by Lentini and Pakkanen, which includes a reconstruction of the terracotta roof associated with the tempietto H at Naxos.[59] While this publication is an important reference on current practises in regards to 3D reconstruction and architectural remains, it unfortunately does not include the undecorated parts of the roof.

The *Deliciae Fictiles* conference proceedings are focused on the architectural terracottas from Italy. Thus, while objects from Greek contexts are included, a large portion of the material comes from Etruria and other Italian sites. Beyond the conferences' publications, impressive collections from sites such as Satricum and Murlo have received significant scholarly attention. Of note is the work by Lulof, who applied a systematic methodology to the documentation and analysis of objects and their fabric, as well as to the subsequent reconstruction of acroteria statues from Satricum. Lulof also worked on objects from Murlo, paying particular attention to the manufacturing techniques used and the identification of a 'technical style'.[60] Winter also produced a number of publications on Italian material, which explored the regional nature of production techniques.[61] A number of scholars have referred to the connection between the architectural terracottas from Sicily, Etruria, and South Italian sites.[62] But the exact nature of this connection and the lines of influence have not yet been studied in greater detail. From a methodological point of view, the research on material from Etruria and South Italy is an

52 Pelagatti 1964.

53 Rystedt et al. 1993; Ciurcina 1993.

54 Lulof & Moormann 1997.

55 Edlund-Berry et al. 2006.

56 Lulof & Rescigno 2011.

57 Wikander & Wikander 2006.

58 Kenfield 1997.

59 Lentini & Pakkanen 2011.

60 Lulof 1991, 1994.

61 Winter 2002, 2009; Winter et al. 2009.

62 Wikander 1986, pp. 26, 29, 30; Winter 1993, p. 27.

important reference point for the present study.

The work by Conti on material from Selinus provided a comprehensive and detailed resource on the decorated architectural terracottas from the Greek colony. Her 2012 publication included a revised typology for the terracotta roofs, a catalogue of fragments, and a systematic description of their fabric, style, provenance, and chronology.[63] As such, this work is an important reference point for current standards of documentation and graphic reconstructions. Although her focus was on material from Selinus, the study does not include objects from the collections of the regional archaeological museum Antonio Salinas in Palermo.

Undecorated roof tiles are largely absent in this overview of research on architectural terracottas from Sicily. Traditionally, these objects were not documented, studied, or even collected, but this is changing. Starting in 1988, Örjan Wikander published a number of investigations on undecorated roof tiles in Greece.[64] And in 1998, Conti published a typological study of undecorated roof tiles from Selinus.[65] This work considered the fabric, structure, and methods of production for pan and cover tiles. Conti's chronological typology of pan tile profiles has been used by other scholars to date Sicilian material, including a collection of tiles from the acropolis at Selinus,[66] and eaves tiles from Syracuse.[67]

2.2 STATE OF RESEARCH

Based on the historical overview of research in the preceding section (section 2.1), it is now possible to summarize the state of scholarship on the architectural terracottas from Akragas. A number of excavations have produced material of significance to this thesis. These are: the excavations by Gàbrici in the area to the South-East of temple B, Marconi at temple G, De Miro in the area to the East of gate V, and Sojc at S. Anna. Other excavations produced only a small number of isolated finds, such as the excavations by Fiorentini at S. Anna and the city fortifications. There are also a number of objects which were collected before the start of scientific research in Agrigento in the 1920's. The provenance of these objects is largely unknown.

The material from Akragas is predominantly published in two ways. The first is in excavation reports, which at best offer a brief description in the catalogue of finds and a photograph. The second type of publication is specialist studies focused on specific types of architectural terracottas (e.g. gorgoneion antefixes, lion-headed waterspouts, or roof revetments). These publications focus primarily on decorated roof elements. In the isolated cases where undecorated elements are considered, such as by Dörpfeld and Wikander, these do not include material from Akragas. Within these publications the analysis of the material is centred on questions relating to style, in order to identify regional and chronological typologies based on profile and decoration. While some publications do consider aspects relating to fabric, production, or the architectural context of architectural terracottas, these are by no means exhaustive lines of investigation and large gaps still remain. There are a number of objects from Akragas which have also not been published before, including material from Gàbrici's excavations recently rediscovered in the regional archaeological museum in Palermo, and objects from the recent excavations at S. Anna.

The most important published work in regards to the architectural terracottas from Akragas is the 1965 publication by De Miro. As mentioned above, his work is the key source of published information currently available to scholars. However, there are a number of concerns regarding his work, the first being that it is a reflection of the state of the art in 1965. Furthermore, while it documents over 80 objects, the majority of which had not

63 Conti 2012.

64 Wikander 1988, 1990.

65 Conti 1998.

66 Jonasch 2009.

67 Ciurcina 2006.

been published before, it is not complete. As shown above (section 2.1), it omits gorgoneion antefixes and undecorated roof elements. Lang demonstrated that the 15 friezes identified by De Miro may also require revision. Lastly, De Miro does not record the profile or the fabric of objects in a consistent and systematic manner.

A large corpus of research from other Sicilian sites is of importance to this study. These include newly published materials from Naxos, Syracuse, and Gela in the *Deliciae Fictiles* conference proceedings as well as the work by Conti on Selinus. The wider context of scholarship contains a number of trends in regards to the field's research aims and methodology, which will be outlined below.

2.2.1 ESTABLISHED AREAS OF INVESTIGATION

Historically, one of the main aims of research on architectural terracottas is the establishment of a chronological typology by considering aspects related to style, including painted decoration, profile, and relief. For Sicilian revetments this process started with the work by Dörpfeld and Borrmann and was continued by van Buren, Süsserott, Darsow, Shoe, Wikander, Winter and most recently Lang (see section 2.1 in detail). Roof types such as a canonical Sicilian sima or the anthemion sima have been classified according to these categories and assigned a chronological time span. Scholars such as Mertens-Horn, Danner, Kästner and Belson also have defined stylistic typologies for other types of architectural terracottas (e.g. gorgoneion antefixes, lion-headed waterspouts, horse rider acroteria, and ridge tile antefixes). One of the main reasons for this focus on style likely comes from the art historical origin of the specialization. In addition to style, a chronological typology is also important for dating objects. Stratigraphic data are not available for a large percentage of architectural terracottas as they come from earlier excavations. Where archaeological data are available they are not always conducive to the establishment of precise dates, for example, the stratigraphic context may date only the final collapse of the roof elements and not when the roof was first erected. For these reasons, both Winter and Wikander consider stylistic chronology to be the most widely used method for dating architectural terracottas.[68]

The chronological typology of Sicilian roof terracottas, especially revetments, have been established by a long and relatively intensive history of research with the latest contributions by Wikander, Winter and Lang (section 2.1). These more recent studies do not depart dramatically from previously established typologies, instead they offer further refinements for the chronology, and in some cases, the more detailed definition of existing typologies. The main developmental stages as described by these researchers are accepted in the wider field, and have been used in the works by Mertens-Horn and the Italian reference entry by Maria José Strazzulla.[69] Therefore, based on existing knowledge and methodology, there is no reason at this point to reconsider the established typology. Instead, the existence of a reliable stylistic typology provides the opportunity to expand research into areas that have received less attention to date, which will be described below (section 2.2.2). But this does not mean that stylistic chronology is not of relevance to this investigation since it is integral to dating objects. For this reason, a brief overview of the established stylistic chronology for Sicilian terracotta roofs is provided below.

2.2.1.1 MAIN DEVELOPMENTAL STAGES OF SICILIAN TERRACOTTA ROOFS

Terracotta roofs from Sicily during the Archaic period mainly consist of two types. The main distinction is seen on the eaves: one type has a

68 De Miro 1965, p. 40; Wikander 1986, p. 10; Winter 1993, p. 4.

69 Mertens-Horn 1988, p. 79; Strazzulla 1997, pp. 705-707.

lateral sima, the other has antefixes and eaves tiles. The lateral sima roof type is mainly confined to the Archaic period and appears to be the preferred type for monumental buildings. The antefix roof type is used into the Classical and Hellenistic periods but is confined to monumental buildings of lesser status.[70]

The lateral sima roof type is generally divided into three main developmental stages; the early period, the canonical Sicilian sima and the anthemion sima. Lang also identified an intermediate stage consisting of composite revetments, in which the sima and geison revetment is connected as a single element. The majority of roofs of this composite type is from Lokri, on mainland Italy, and Naxos and are dated to the beginning of the 6th century BC. Thus, this type predates the first terracotta roofs at Akragas, which appear only in the middle of the 6th century (section 1.2). As this period falls outside the chronological limits of the present study, it is not represented in the material under investigation.[71] The three main development phases for the lateral sima are described below.

The first architectural terracottas appear in Sicily in the last quarter of the 7th century BC. This early phase extends into the first quarter of the 6th century. Sima fragments from Syracuse, Grammichele, Naxos, and Himera are associated with this first phase. Winter puts the objects from Naxos and Himera into a second, transitional phase, but Lang does not agree with subdividing the early stage since it has so few examples. Lang also identified a sima from Megara Hyblaea as being part of this early stage.[72] The early system of the lateral sima roof type is thought to form the basis of the later canonical phase. However, given the small amount of available material, this phase and its stylistic influences are not well understood at this time. As with the composite revetments described above, the early stage predates the first terracotta roofs from Akragas.

The second development phase is considered to be particular to Sicily and dates from the first quarter of the 6th until the first quarter of the 5th century BC. While the sima profile is based on the earlier Sicilian roofs it developed features quite distinct from roofs on mainland Greece. The canonical Sicilian sima consists of three main profile components, each separated and bordered by single or double rolls. The top component is a narrow band or fascia, the middle component is a high cavetto and at the bottom there is a base with tubular waterspouts inserted on the eaves (figure 2 in the glossary). While there is consensus among scholars that this roof system is a truly Sicilian development, they refer to it by different names. Wikander calls it the 'Sicilian system', while Winter terms it the 'Geloan sima' since the roof of the Geloan treasury in Olympia is seen as one of the best examples of this type. Lang terms this type the 'canonical Sicilian roof', which is perhaps the most appropriate term as it does not link the type to a single colony.[73] The city where this sima type was first developed is not known at this point. What is certain is that by end of the first quarter of the 6th century this canonical system is found at a number of locations in Sicily, and that these roofs show a high level of consistency in terms of their profile and decoration. The canonical system was in use until the end of the 6th century, and during this time the main profile components remained the same.[74] The decoration, however, shows a development that Winter and Lang formalized into three different phases which are summarized below.

Decoration phase 1: the first phase is from the first

70 Belson 1981, p. 99; Lulof 2007, p. 11; Strazzulla 1997, pp. 705-707; Winter 1993, p. 271.

71 Lang 2010, pp. 11-60; Wikander 1986, p. 9; Winter 1993, pp. 274-277.

72 Lang 2010, pp. 11-14; Wikander 1986, p. 12; Winter 1993, p. 275.

73 Lang 2010, p. 31; Wikander 1986, p. 12; Winter 1993, p. 275.

74 Shoe 1952, p. 23; Strazzulla 1997, p. 707; Wikander 1986, pp. 12-17.

quarter of the 6th century. The main characteristic is the painted decoration on the cavetto that consists of only thin Doric leaves. The top fascia is decorated with a hooked meander, chequer-board, or tooth pattern. The bottom fascia is decorated either with a chequer-board or lozenge pattern.[75]

Decoration phase 2: the leaf pattern on the cavetto becomes more elaborate during this phase. The leaves now have tapered ends with smaller leaves inserted between the standing leaves. Some examples also have a wavy band or lyre-shaped leaves. The decoration for the top fascia remains relatively the same, but rosettes and lozenges are more often used on the bottom fascia to facilitate the insertion of waterspouts in the pattern without disruption. This phase starts around 570 BC and lasts until the third quarter of the 6th century.[76]

Decoration phase 3: Further elaboration of the established canonical features is evident, as is the addition of ionizing elements. Some of the rolls are now bead-and-reel mouldings, and palmettes are inserted into the lyre-shaped leaf pattern or a wavy band on the cavetto. Elements from this phase date between 550 and 480 BC.[77]

The third and final developmental stage for the lateral sima is the anthemion sima present from the third quarter of the 6th century BC onwards. The profile of the lateral sima now changes dramatically from that of the previous stage. The sima is decorated with an anthemion pattern. On the canonical sima the decoration is normally only a painted motif, but decoration in relief is also used on the anthemion sima. Water from the roof is discharged not through tubular waterspouts, but through perforations made within the pattern. The horizontal and raking simas (e.g at Selinus) appear to retain some of the features of the canonical form in that the profile is still separated into different bands. Yet, the cavetto is no longer present. There are two main anthemion patterns used for the lateral sima. The pattern from Selinus has an interwoven volute running through the middle, with a palmette growing on one side and a lotus flower on the reverse. The anthemion pattern on objects from Naxos has a volute at the bottom, with alternating palmette and lotus flowers on top. Although examples of both types are found at Akragas, this type is only found at a few other sites in Sicily. Lion-headed waterspouts are considered to form part of the anthemion sima roof system.[78] The dating of this development has fluctuated, as it is based on differing dates ascribed to the examples from Selinus. For the earliest examples, Conti suggested that this phase began in the third quarter of the 6th century; these dates will be followed by the present study.[79]

Both the canonical and the later anthemion sima type of Sicilian roofs are characterized by the use of a separate geison revetment element that is almost the same size as the sima. In general, the geison revetment experiences a much simpler development over time than the sima. The main elements of the geison are a fascia decorated by a guilloche, and a border with single or double rolls. On earlier examples associated with the canonical Sicilian sima, the bottom edge of the fascia is decorated but later a horizontal soffit plaque is added (figure 2 in the glossary), probably in the second quarter of the 6th century BC. The geison revetment found with the final decorative phase of the canonical sima, described above, is characterized by the use of bead-and-reel mouldings in place of (one or more of) the rolls from the previous stage. There does not appear to be a chronological difference in the use of a single or double guilloche; while the single guilloche

75 Lang 2010, pp. 35-36; Wikander 1986, p. 13; Winter 1993, pp. 275-276.

76 Lang 2010, pp. 37-38; Wikander 1986, p. 17; Winter 1993, p. 276.

77 Lang 2010, pp. 39-40; Wikander 1986, pp. 18-20; Winter 1993, p. 276.

78 Mertens-Horn 1988, pp. 79-80.

79 Conti 2012, pp. 163, 321; Mertens-Horn 1988, pp. 79-80; Strazzulla 1997, p. 707; Wikander 1986, pp. 21-26; Winter 1993, p. 277.

occurs less frequently it is present in both early and late stages. The geison revetment associated with the anthemion sima involved the addition of a hawksbeak moulding above the main fascia.[80]

Although the sima and geison revetment roof system seems to be favoured in Sicily, numerous examples exist on the island of roofs with antefixes on the eaves. The earliest examples of this type of roof are known from the first quarter of the 6th century BC from Syracuse and Megara Hyblaea. The first figurative representations appear at Morgantina in the middle of the 6th century. There is a variety of types, including those with painted and moulded decoration. Gorgons and silens are popular figurative motifs and they are frequently used in combination. It appears that lateral antefixes were used for smaller buildings, and the canonical sima systems were favoured for larger and more important structures.[81] The study of Sicilian antefix roofs is not as well developed as the canonical Sicilian and anthemion sima roofs. For example, the appearance of the gable of this type of roof is not very well known. One of the few examples where the antefix, geison revetment, and raking sima of a roof have been identified is from the ship sheds at Naxos.[82]

2.2.2 NEW AREAS AND METHODS OF INVESTIGATION

In a review of current scholarship of architectural terracottas, Charlotte and Örjan Wikander raised concerns regarding the predominance of stylistic studies applied only to selected roof elements. The authors advocated for the study of architectural terracottas within their wider archaeological and architectural context, which required the inclusion of all undecorated roof terracottas. They also viewed the study of production methods and regional traditions as important new areas to investigate.[83] While these suggestions were important, the Wikanders were not the first to advocate for this line of inquiry. The 1993 publication by Winter had already departed from the traditional stylistic analysis. This work considered architectural terracottas as an element within a larger combination of roof elements, and included a brief discussion on methods of manufacture.[84] Slightly later, Edlund-Berry also argued for the importance of investigating the roof as a whole and to investigate the methods of its production.[85] While studies exploring these new areas are still a minority compared to the traditional stylistic approach, they are crucial to the research direction of this work and will therefore be discussed in greater detail below.

2.2.2.1 ARCHITECTURAL TERRACOTTA AS PART OF A BUILDING

Some publications on architectural terracottas from the first half of the 20th century did include partial roof reconstructions, most often in the form of a section. This was done to demonstrate the connection between different roof elements, the supporting wooden structure, the stone geison block, and the wall. But as already mentioned, these reconstructions provide only a single view of a portion of the roof, and it is not always clear what evidence informed a particular hypothesis. The reconstruction by De Miro, for example, shows the horizontal tile portion of the lateral sima as well as pan tiles, but these elements are not described elsewhere in his publication.[86] In essence, these reconstructions provide little more than a suggestion of the architectural context for the decorated roof elements, or more accurately, the decorated parts of the decorated revetments. As

80 Wikander 1986, pp. 26-29; Winter 1993, pp. 277-278.

81 De Miro 1965, p. 73; Lulof 2007, p. 41; Mertens-Horn 1997, pp. 244-245; Strazzulla 1997, p. 707; Winter 1993, p. 279.

82 Lentini et al. 2008.

83 Wikander & Wikander 2006, pp. 42-43.

84 Winter 1993.

85 Edlund-Berry 1997, p. 75.

86 De Miro 1965 fig. 1.

described in section 2.2.1, the main research focus has traditionally been on the decorative elements of the roof. Some studies did briefly mention undecorated roof tiles, but this was only in the context of a particular building or excavation site.[87] However, it was not until the work of Wikander on undecorated roof tiles in the 1990's that these objects experienced greater scholarly attention.[88]

Both Winter and Strazzulla credit a greater interest in the study of the whole roof beyond the decorated edge to the larger corpus of available material . As already mentioned, this approach was taken by Winter, when she reconstructed the various roof systems as complete roofs, including ridge tiles and plain tiles.[89] This approach is also seen in later publications such as the 1996 publication by Matthew R. Glendinning on the Archaic period roof at Gordion in Turkey.[90] As the growing number of recent publications indicate, plain roof tiles are now included in the investigation of architectural roofs with greater frequency than in the past.[91] These studies represent an important shift in how researchers interpret and investigate architectural terracottas. While previous research viewed these objects as decoration, recent studies show a greater appreciation for these objects as architectural elements which functioned within a larger architectural context.

2.2.2.2 PRODUCTION TECHNIQUES

To some extent an awareness of the importance of the material characteristics of terracottas has been present in the discipline from an early period. Previous large-scale studies included at least a basic description of the fabric colour in the catalogue.[92] The colour, the texture of the fabric, and the type and size of inclusions are utilized to identify architectural terracottas that share a common point of origin. This is based on the theory that objects manufactured from the same clay source or within the same workshop would likely have a similar fabric. While such considerations of the terracotta's material properties do form part of current research approaches this does not mean that its results are highly influential. In the majority of instances, material characteristics form only an ancillary set of criteria for evaluating assemblages, and the primary focus still rests on stylistic characteristics such as form and decoration.[93]

The fabric, or internal composition of objects, reveals a great amount of information regarding the raw materials used and the methods of the object's production. This area of investigation offers a valuable source of information on modes of production and craft activities, which is why many scholars advocate for more of this kind of research.[94] To date, only an isolated number of such investigations exist for Sicilian and Greek architectural terracottas. One example is the study on architectural terracottas from Morgantina carried out by Kenfield, in which different manufacturing techniques were a central point of analysis. Kenfield connected the presence of different production techniques to craftsmen from different production traditions.[95] A larger sample of studies relating to the production of architectural terracotta exists for Etruria and other Italian sites. The work by Lulof is of particular note here, as it includes the identification of a 'technical style' for the acroteria of Murlo, as well

87 Broneer 1971; Darsow 1938, pp. 61-63; Gàbrici 1956.

88 Wikander 1988, 1990.

89 Strazzulla 1997, p. 701; Winter 1993, pp. 202-203.

90 Glendinning 1996.

91 Hostetter 1994; Kenfield 1990; Lentini et al. 2008; Roebuck 1990.

92 Darsow 1938; Van Buren 1923.

93 De Miro 1965; Hemans 1989; Simantoni-Bournias 1990; Winter 1990.

94 Edlund-Berry 1997, p. 75; Glendinning 1996, pp. 102-103; Lulof 1994, pp. 221-222; Wikander & Wikander 2006, pp. 42-43.

95 Kenfield 1997.

as a detailed reconstruction of the manufacturing process for acroteria from Satricum.[96] Winter's publications also contain a detailed reconstruction of manufacturing techniques, based on visual observation of objects in Etruria.[97]

In comparison to decorated roof elements, the production of undecorated roof elements is better understood. This is due to a small number of experimental and ethnographic studies on the manufacture of undecorated roof tiles.[98] These studies provided a number of important insights into the methods of terracotta production, and the traces which these methods leave on the finished objects. These studies also produced reference points in regards to the time, facilities, and necessary skills required for production.

2.2.2.3 MATERIAL ANALYSES

There is an isolated number of examples of archeometric analysis on Greek architectural terracottas, such as the analysis of objects associated with the Geloan treasury in Olympia using Neutron Activation Analysis (NAA).[99] However, the majority of these studies have been carried out on non-Greek terracotta roofs, such as the petrographic and chemical analysis of Roman roof terracottas done by Giménez et al., and petrographic analysis of terracotta objects from Satricum by Lulof and Remier Knoop.[100] Robert C. Henrickson and M. James Blackman investigated the Hellenistic roof tiles from Gordion using NAA.[101] There are a number of studies from Sicily which included undecorated roof tiles as part of wider ceramic studies. This includes two studies on the provenance of coarse ware objects, one study on material from the Alcantara River valley,[102] and another on selected Greek colonies (e.g. Akragas, Gela, Messina).[103] These studies are of great value to the present investigation as the published data provide benchmarks for the chemical and mineralogical composition of terracotta objects from various locations in Sicily.

In comparison to other types of terracotta objects from the Greek period in Sicily, such as amphorae, the use of archeometric methods on architectural terracottas is comparatively rare.[104] While there might be a number of factors contributing to this situation, one point is the fact that the majority of archeometric methods are destructive. Therefore, it is more difficult to obtain permission to study decorated architectural terracottas compared to undecorated amphora sherds.

2.3 RESEARCH AIMS AND QUESTIONS

As demonstrated above, the perception of architectural terracottas has gradually shifted; from viewing these objects as little more than a decorative roof edge to recognizing that the objects are complex architectural elements which exist within a wider architectural context. The final form of each object is governed not only by aesthetic considerations, but also by functional, structural, and material requirements, to name but a few variables. These variables have been classified and investigated in different ways by different scholars, for example: Dwight W. Read separates these factors into the material and ideological.[105] Material requirements include the choice of raw materials, methods of production, and the object's intended function. Ideological requirements incorporate the social and cultural influences which impact the choices made by

96 Lulof 1991, 1994.

97 Winter 2009.

98 Henrickson 1999; Rostoker & Gebhard 1981; Sapirstein 2009.

99 Lang 2006.

100 Giménez et al. 2005; Lulof 1996; Knoop 1997.

101 Henrickson & Blackman 1999.

102 Belfiore et al. 2010.

103 Barone et al. 2003.

104 There are a number of archeometric studies on amphorae from Sicily, for example, from: Gela and Akragas (Barone et al. 2003), Messina (Barone et al. 2011), and Naxos and Taormina (Belfiore et al. 2010).

105 Read 2007.

craftsmen. While a craftsman might have access to a number of different responses to these material and ideological requirements, it is apparent that only specific solutions were considered appropriate in a specific period or at a given location. When there was a wider consensus among craftsmen in terms of which specific production technique or decorative scheme was the most appropriate, it is possible to identify a 'style'. Style therefore not only applies to architectural aesthetics, but also production techniques.[106] One of the main aims of this thesis is to develop a research approach which investigates these complex objects in light of both the material and ideological conditions which gave them form.

The first step in research involves placing objects within their spatial and temporal context. Generally this entails organizing objects according to various categories including date, find location and form. This classification system or typology then forms the basis for subsequent analysis.[107] As discussed in the above sections, the current typology for architectural terracottas from Akragas was created in 1965 by De Miro. This typology does not reflect the advances made in the research field in the subsequent decades, nor does it cover the entire corpus of material that is presently available from Akragas. His typology is also mainly based on profile and decorative styles, and only provides a cursory mention of material aspects. For this reason, one of the primary aims of the present investigation is to revise the current typology based not only on the decorative style, but also on other material factors (chapter 5). The revised typology is a synthesis of results obtained through an analysis of the style, production techniques, material composition, and the architectural function of these objects (chapter 4). While a revised typology is a key research result, it is also important to the successful investigation of the main research question posed by this thesis.

The main research questions are as follows:

Through over a century of research on the architectural terracottas from Sicily, the stylistic development of the objects and their major stylistic influences have been well established on a regional level. What is not yet understood is how the regional stylistic development is reflected on a local level in Akragas. It is not yet clear if there is a pattern behind the adoption and adaptation of regional stylistic innovations in different time periods by local craftsmen. **Is it possible to identify stylistic characteristics particular to Akragas and can such a local character be placed in the larger context of colonies and their influence?**

In recent studies on Etruscan architectural terracottas a theory emerged regarding the identification of a 'technical style' based on the characteristic use of specific techniques and materials. This technical style can then be related to particular workshops or regions.[108] The second research question asks: **are different technical styles identifiable in the material from Akragas and how do these styles relate to wider regional trends?**

Traditional art-historical methods have identified a number of stylistic links between the objects from Akragas and other colonies, including Naxos and Selinus.[109] But the exact nature of these connections have not yet been determined as this involves establishing provenance. While provenance testing normally requires destructive analysis, the recent use of portable X-ray fluorescence (XRF) technology has opened up the possibility of performing non-destructive analysis on archaeological material. However, the use of this method on terracotta objects is not well-established. The third question **will explore the use of portable XRF on architectural terracottas to identify possible imports.**

106 Van Eck et al. 1995, pp. 4-5; Van Eck, C. A., Versluys, M. J., ter Keurs, P., 2015, pp. 5-6.

107

108 Arnold 2000, p. 113; Lulof 1994, pp. 221-222.

109 De Miro 2000, p. 67.

The functional aspects of terracotta roofs have not received extensive consideration in current scholarship. For example; the connection between the canonical sima and the rest of the roof is not well understood, nor are the measures used to protect this area against water seepage. The fourth and final research question addresses questions related to **the architectural function of terracotta roofs by considering its architectural context and the details of its construction.**

Consideration of the research questions requires the investigation of different aspects of roof terracottas including style, fabric, production techniques, material composition and architectural context. It is important to examine the different aspects independently, since each is influenced by different factors. For example, the profile of objects can change due changing regional styles, but the method of production might stay the same. The independent investigation are detailed in chapter 4. The relationship between different aspects are then investigated in chapter 5, which is a synthesis of the results obtained in chapter 4. This synthesis includes the revised typology. In order to answer the research question it is therefore necessary to draw on results from both chapter 4 and 5 and thus will only be considered in the discussion chapter 6.

2.4 MATERIAL USED IN THIS STUDY

The preceding section 2.2 has demonstrated that the published information currently available does not include all the known architectural fragments from Akragas. Neither does the published record provide all the information which is required for the investigation of the proposed research questions. For this reason, a number of research campaigns were conducted in Sicily between 2012 and 2016 to study and document the available material. The drawings, photographs, and observations on the decoration, fabric, and production techniques will form the basis of this investigation. Due to the number of objects and the volume of data a custom database was created to aid in the qualitative and quantitative analysis of the data.

The new database includes objects currently housed in a number of different locations and which are under the control of different authorities (table 2-2). In total 265 objects are used in this study. As the inventory numbers of objects in the various collections can be conflicting, confusing, or unavailable, it was necessary to devise a new numbering system for the fragments in this study. The resulting Visual Inventory Number (VIN) for each fragment will be used throughout this investigation, but the object's original museum inventory number and current location are provided in appendix A.

The majority of the material, especially that published by De Miro in 1965, is part of the collections of the regional archaeological museum of Agrigento. In total 188 known architectural terracotta fragments were studied and documented. The remaining material comes from different locations. As mentioned above in section 2.1, during the early 20th century some objects excavated in Agrigento were sent to the museums of Palermo and Syracuse. At the establishment of the museum in Agrigento in 1967, the majority of these objects were returned to Agrigento but unfortunately some objects were misplaced during the move. This included material from Gàbrici's excavations at the naiskos to the South-East of temple B.[110] Fortunately 49 of these fragments were recently rediscovered. The incorporation of these previously unpublished objects is an important component of the present investigation. Material from more recent and current excavations are housed in the *Parco Archeologico e Paesaggistico della Valle dei Templi di Agrigento.* This includes 27 fragments from the recent excavations by Sojc at the extra-urban sanctuary of S. Anna. This group is important for the proposed compositional

110 De Miro 1965, pp. 39, 58; Wikander 1986, p. 31.

Table 2.2: The number of objects used in this study according to their current location.

Location of object	Number of fragments
Allard Pierson museum, Amsterdam	1
Regional archaeological museum Pietro Griffo, Agrigento	188
Regional archaeological museum Antonio Salinas, Palermo	49
Archaeological parks of Agrigento	27
Total	**265**

analyses: unlike the objects from museum collections, permission for the collection of samples for destructive analysis was granted.

As detailed in section 2.1, a small number of objects found before the start of scientific exploration in Agrigento were sold on the international market and currently form part of museum collections outside Italy. One of these fragments, an antefix, is currently housed in the Allard Pierson Museum in Amsterdam, and was recently documented by Lulof. The antefix was included in this investigation based on the published data and not on direct observation.[111]

The provenance of the material is of importance for a number of reasons. The find location of objects can impact the identification of types, and the period in which the object was excavated can influence the level of documentation and the type of material collected. As shown in section 2.1, in the period before 1920, a small number of sporadic finds was collected without provenance information. During the early excavations it was not the practise to document or keep undecorated roof elements. In terms of this study, the provenance of the various fragments was based on published data and the museum documentation and is provided in appendix A. Figure 2-1 summarizes the number of fragments according to the period when they were excavated, and demonstrates that the vast majority of material was excavated before 1970. It is only in recent excavations that undecorated roof elements have been documented and kept for investigation. However, isolated finds from the recent excavations of the city's fortifications by Fiorentini were not included in this study.[112]

The majority of the material used in this study are objects that are clearly identifiable as architectural terracotta fragments. There are a number of figurative terracotta elements (e.g. heads, hands, and feet) from a number of different excavations in the collection of the regional archaeological museum of Agrigento. The fragmentary nature of these elements makes it very difficult to distinguish between sculpture and acroteria statues. For this reason, only clearly identifiable acroteria fragments are included in this investigation.

The use of architectural terracotta in Sicily, with the exception of antefixes, decreased rapidly after 480 BC with the rise in popularity of monumental stone simas. Academic attention has focused on the Archaic material, as seen with the work of Wikander and Lang. Yet, there are a number of from the Classical period that have been published, including palmettes published by De Miro in 1965.[113] Some of these objects bridge the transition between the Archaic and Classical periods and they also provide a more comprehensive view of production at Akragas and how it developed over time. For this reason, the chronological scope of the material under investigation includes both the Archaic as well as the Classical periods.

This work is based on data collected through first

111 Lulof 2007.

112 Fiorentini 2009.

113 De Miro 1965, p. 76, tab. XXIX-1a, b.

hand observation of 264 objects from Akragas (Table 2-2, the object in the Allard Pierson museum is only known through publication). Due to time and resource constraints architectural terracottas from other cities within Sicily or mainland Italy were not studied in person. Any comparison between the material from Akragas and the wider region is therefore restricted to information available in existing publications. As described in section 2.1 and 2.2 there are considerable variations in the type of information which is recorded and certain aspects including production techniques, undecorated roof tiles and the architectural context is under represented. The exploration of the main research topics of this thesis within the broader scope of Sicilian architectural terracottas beyond Akragas is therefore constrained by the limitations within the published documentation.

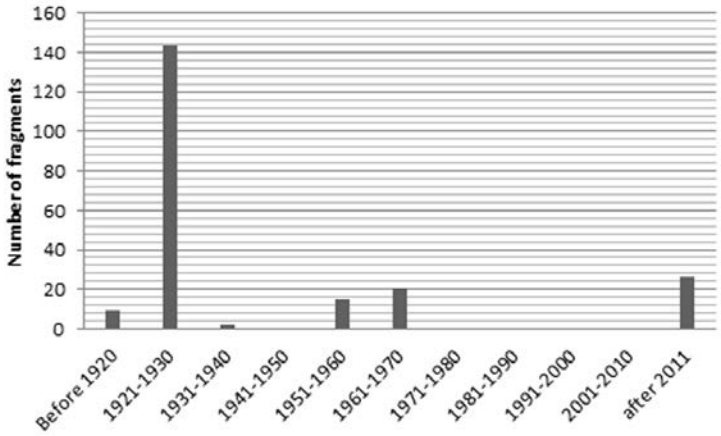

Figure 2-1: The number of architectural terracotta fragments according to period in which they were excavated.