

Rune Frederiksen
Eckart Marchand
(Eds.)

Plaster Casts

Making, Collecting and Displaying from
Classical Antiquity to the Present

Transformationen der Antike



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Plaster Casts

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Band 18

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The publication of this volume was made possible through the generous support of the Henry Moore Foundation, Leeds, the Mortimer and Teresa Sackler Fund of Worcester College, Oxford, the Deutsche Forschungsgemeinschaft (using funds provided to the Collaborative Research Centre 644 „Transformations of Antiquity“), the Elizabeth Cayzer Charitable Trust, and the following benefactors and institutions of the University of Oxford: the Craven Committee, the Fell Fund, the Classics Faculty and the History Faculty.

The Henry Moore Foundation

Library of Congress Cataloging-in-Publication Data

Plaster casts : making, collecting, and displaying from classical antiquity to the present / edited by Rune Frederiksen and Eckart Marchand.

p. cm. -- (Transformationen der Antike, ISSN 1864-5208 ; Bd. 18)

Papers originating from an international conference of the same name, held at Oxford University, Sept. 23-27, 2007.

Includes bibliographical references and index.

ISBN 978-3-11-020856-6 (hardcover : alk. paper)

1. Antiquities--Collection and preservation--Congresses. 2. Cultural property--Protection--Congresses. 3. Plaster casts--Congresses. 4. Sculpture, Ancient--Conservation and restoration--Congresses. 5. Art, Ancient--Conservation and restoration--Congresses. 6. Archaeology--Methodology--Congresses. I. Frederiksen, Rune. II. Marchand, Eckart.

CC135.P595 2010

363.6'9--dc22

2010010470

ISBN 978-3-11-020856-6

e-ISBN 978-3-11-021687-5

ISSN 1864-5208

Bibliographic Information published by the Deutsche Nationalbibliothek

The Deutsche Nationalbibliothek lists this publication in the Deutsche Nationalbibliographie; detailed bibliographic data are available in the Internet at <http://dnb.d-nb.de>

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Cover Design: Martin Zech, Bremen

Logo „Transformation der Antike“: Karsten Asshauer – SEQUENZ

Data conversion and typesetting: Dr. Rainer Ostermann, München

Printing: Hubert & Co. GmbH & Co. KG, Göttingen

∞ Printed on acid-free paper

Printed in Germany

www.degruyter.com

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Preface

The present volume originates from the conference of the same name, held in Oxford on 23 to 27 September 2007. The idea of a major international conference on plaster casts arose after a small but enthusiastically received study day *Plaster Casts: Making Collecting and Display* organized by Eckart Marchand at the University of Reading in October 2005. At Oxford, the team of organizers consisted of Prof. Donna C. Kurtz, Director of the Beazley Archive at the University of Oxford and the present editors. The overwhelming response to a call for papers enabled us to bring together a strong and coherent programme. Speakers, chairs and delegates represented a wide community of scholars, curators, conservators and artists with interests in the material and technique from twelve countries across Europe and the Americas. This volume presents revised versions of the contributions, largely in the sequence in which they were presented at the event.

A strong promoter of casts at Oxford, Donna Kurtz contributed decisively to the planning and conception of the conference, and we would like to thank her for those efforts. In addition, the facilities and resources of the Beazley Archive that she directs were of great help for the organization of the event, not the least Nicole Harris, the secretary of the Archive. We should also like to thank R. R. R. Smith, Lincoln Professor of Classical Archaeology at Oxford, and Curator of the Cast Gallery of the Ashmolean Museum, for being a great support at all stages of the conference.

Speakers and delegates were housed in Worcester College, Oxford, and welcomed at a reception by its Provost, Mr Richard Smethurst. We would like to thank him and the College for their interest in and support of the conference. Additional events included an excursion to and generous reception at the house of James Perkins at Aynhoe Park, and visits to the Sir John Soane's Museum and the Royal Academy of Arts' plaster cast collection at Burlington House in London, where groups were guided by Helen Dorey and Helen Valentine respectively. All three excursions provided privileged inside views into exciting collections and we are deeply indebted to our hosts.

An important aim of the conference was to act as a forum for the members of various disciplines and professional groups to exchange ideas and opinions through formal and informal discussions. If the accompanying programme supported the informal exchanges, the sessions provided ample time for structured plenary debates. The chairs contributed greatly to the success of the

conference through their knowledgeable and inspiring steering of sessions and discussion periods. We should like to express our thanks to all of them – David Bone, Christoph Frank, Valentin Kockel, Donna Kurz, Greg Sullivan, Marjorie Trusted, Timothy Wilson, Jonathan Wood and Jan Zahle. We should also like to thank those speakers whose contributions for various reasons did not enter the present volume: Christoph Frank, Martha Gyllenhaal, John Kenworthy Brown, Donna Kurtz, Michael Neilson, Stephan Schmid, R.R.R. Smith and Marina Sokhan. We are grateful to Sabine Vogt and Manfred Link of De Gruyter and to Rainer Ostermann for all their work towards the production of this book. For her extensive contributions during all stages of the editing process we should like to thank Alison Wright, and we are grateful to Bob Cook for scientific advice and to Lena Hoff for help with the compilation of the indexes.

The conference could not have been realized without the generous financial support of the Elizabeth Cayzer Charitable Trust and various benefactors and institutions of the University of Oxford, including the Craven Committee, the Fell Fund, the Classics Faculty, the History Faculty and the Mortimer and Teresa Sackler Fund of Worcester College. The publication of this volume was generously supported by the Henry Moore Foundation, Leeds, and, again, Worcester College's Sackler Fund and the Craven Committee.

Finally, we should like to express our gratitude to the authors of this volume, for their exciting contributions, constructive collaboration and for their patience during the long process of editing.

Rune Frederiksen and Eckart Marchand
Athens and London 2009

Introduction

RUNE FREDERIKSEN AND ECKART MARCHAND

On 28 February 2006 at Sotheby's, New York, the Metropolitan Museum of Art, sold the remains of a plaster cast collection that was once the Museum's pride. In the history of plaster casts the sale may be seen as the grand finale of a century of decline and rejection, during which individual casts and entire cast collections were silently moved into storage (first temporary, then permanent), left to their own devices (and discarded when finally deemed irreparable), violently attacked, or simply professionally removed and destroyed. The reasons for this development are many and they are interrelated, including the rejection of a western canon of art that these casts had come to represent and re-enforce, the twentieth-century veneration of the original and the consequent rejection of casts as worthless copies. Interest in the original's material qualities accompanied rejection of the casts' dull appearance, the increased availability of the originals through cheap mass travel and photography, as well as a more general decline in interest in sculpture and competition for storage space. The fate of the reproductive cast was often shared by collections of cast by individual artists, quite unjustly, as here the status of the cast was often a very different one.¹

Yet, the recent sale in New York also coincided with a renewed interest in plaster casts and cast collections that has built up over the last three decades. To some extent the faithful promoters of the plaster cast as a teaching tool and means of full-scale representation of absent works have learned to make their case more forcefully, but new interests in the history of reception, the history of collecting, artists' training and working methods, as well as a wider recognition of the appeal of these objects when dramatically staged, all contributed to the present revival of the plaster cast. The parameters have changed. Many cast collections now have different functions to those they had when originally set up and the production of new casts competes with modern reproduction technologies and meets, among other obstacles, with curatorial concern

1 See in the present volume the discussion, by Greg Sullivan, of the Chantrey Collection at Oxford.

about the surfaces of originals, for example with regard to traces of polychromy on ancient sculpture that could be eradicated when making casts from them. When it comes to the reproductive plaster cast, that still dominates the perception of what plaster casts are, the emphasis of the present revival lies in questions of use, display, conservation and research into existing and lost works rather than the building up of new collections.

The last decades have seen the re-opening and/or cataloguing of cast collections of different character, including private collections in stately homes, research and teaching collections that belong to university departments and those that relate to individual artists' workshops. The Beazley Archive in Oxford was a pioneer in publishing basic information on plaster casts on-line from 1998, in its case relative to the Ashmolean Museum's Cast Collection. Today many more collections have their own websites, a growing number of them with complete illustrated on-line catalogues.² In the French speaking world, the Association Internationale pour la Conservation et la Promotion des Moulages has since the 1980s convened a series of mainly francophone conferences on plaster casts, published their acts and built up a website that lists an ever-expanding number of plaster cast collections whilst offering itself as a forum for plaster cast research.³ More recently, the Fondazione Canova at Possagno initiated a series of conferences on plaster cast collections and published the proceedings of the first of these.⁴ The present volume is conceived as a contributor and catalyst in this development. As the edited papers of a conference that drew on a widely publicized call for papers, it is representative of the richness and range of present research interests in this area. In some cases the editors complemented this, not least through their own contributions, but generally they did not commission papers. The present intro-

2 Only to mention a few: The Cast Collection at the Danish National Gallery (for the images) <<http://130.226.236.38/smkweb/viskasvarker.asp>> [accessed 1 November 2009], and the homepage of the Friends of the collection (for the catalogue information) <<http://www.gipsen.dk/registrant/kat-ovs.htm>> [accessed 1 November 2009]; Georg-August-Universität Göttingen <<http://www.viamus.de/>> [accessed 1 November 2009]; Ashmolean Museum/University of Oxford <<http://www.beazley.ox.ac.uk/sculpture/ashmolean/default.htm>> [accessed 1 November 2009]. For a complete list of on-line cast catalogues, of which many are in the process of being re-launched with updated information and new photographs, see the website of the 'Association' <www.plastercastcollection.org> [accessed 20 October 2009].

3 *Le moulage*. Actes du colloque international, Paris 1987 (Paris, 1990); website of the Association: <www.plastercastcollection.org> [accessed 20 October 2009]. Further conference publications associated with the 'Association Internationale' are: C. Llinas (ed.), *Moulages*. Actes des rencontres internationales sur les moulages. Montpellier 14-17 février 1997 (Montpellier, 1999); H. Lavagne and F. Queyrel (eds), *Les moulages de sculptures antiques et l'histoire de l'archéologie*. Actes du colloque international, Paris, 24 octobre 1997 (Geneva, 2000).

4 M. Guderzo (ed.), *Gipsoteche. Realtà e Storia*. Atti del convegno internazionale di studi. Possagno, 19-20 maggio 2006 (Possagno, 2008).

duction aims to sketch the wider picture, to point to areas and relevant research that have not been covered in the present volume and to position the presented articles in a wider historical and research context.

Collections of reproductive plaster casts that consist of objects made to substitute absent originals have dominated and conditioned the perception of plaster casts at least for the last hundred years. These collections are, by and large, an invention of the eighteenth and nineteenth centuries. The making of plaster casts and the use of the material for artistic and architectural ends in general, though, go back to Egyptian antiquity and beyond and have remained diverse and versatile practises throughout the history of the material.

Ancient plaster casts are studied in the present volume by Rune Frederiksen and Christa Landwehr who discuss functions of the medium in the workshop, including that of life masks, and as an aid for copying of models, the latter discussed by Landwehr in relation to finds from a Roman sculpture workshop in Baiae in Italy. Frederiksen also discusses casts after sculptures that were apparently displayed in their own right in private contexts.

Casting and moulding techniques in plaster and related materials were also extensively used in antiquity as decoration for built interiors, with the coffered dome of the Pantheon, cast in concrete, and the stucco decorations of the vaults of the Domus Aurea in Rome being two very prominent examples. These traditions continued in the Eastern Roman Empire and it was apparently through Byzantine craftsman that a tradition of stucco sculpture continued in Italy, France and the Holy Roman Empire throughout the Middle Ages. A particular tradition developed in lower Saxony with monuments in Hildesheim, Gernrode and Halberstadt. The article by Daniela and Torsten Arnold and Elisabeth Rüber-Schütte in the present volume introduces this group and focuses on the Choir Screens at Halberstadt (c. 1200), illuminating their technique and present conservation.

During the Renaissance, in and increasingly beyond Italy, casts were made after the famous works of ancient Rome, in plaster and other, more durable and more valued media. Primaticcio's casts made for the King of France are a particularly famous case. Their copying and distribution outside Italy is discussed by Walter Cupperi in the present book, while Eckart Marchand's article addresses the wider artistic and architectural practices that employed the materials and techniques related to casting in plaster during the late Middle Ages and Renaissance in Italy, providing sixteenth-century artists with the skills to produce casts after the antique. Marchand also maps the spread of Renaissance stucco decorations, developed in Rome on the model of the Domus Aurea, a type of decoration that was exported from Italy by Primaticcio together with his casts to Fontainebleau. Nicholas of Modena, one of the artists working in Fontainebleau was in charge of the decoration of the court-

yard at Nonsuch, one of the residences of Henry VIII. The remains of this palace were excavated in 1959 by Martin Biddle who presents and interprets this decoration in his article.

In the sixteenth, seventeenth and eighteenth centuries, plaster casts entered the collections of artists, humanists, the rich and the noble. The Paduan Mantova Benavides Collection, built up in the middle of the sixteenth century, contained plaster casts of limbs that may have belonged to earlier artists' collections, casts after works of art, ancient and contemporary, and casts after artists' models. Some of these may have been displayed as heads of Famous Men, in a tradition that was to extend into the nineteenth century when, for example in Germany, the production of plaster cast busts of Famous Men such as Goethe and Beethoven would develop industrial dimensions. The operations of a London cast maker, Charles Smith, in the late nineteenth and early twentieth centuries is discussed here by Peter Malone.

The wide range of different types of objects found in the Mantova Benavides Collection was typical for the Renaissance and Baroque *Wunderkammer* (the Bavarian *Wunderkammer*, for example, contained a plaster cast of the crippled hands of a peasant⁵), but in the seventeenth and eighteenth century the collecting of casts after ancient statuary would become increasingly a trade in its own right. As Ángeles Solís Parra, Judit Gasca Miramón, Silvia Viana Sánchez and José María Luzón Nogué discuss in this volume, in the seventeenth century the Spanish King sent his court artist, Diego Velázquez, to Rome to acquire casts of the highest quality after some of the most important Roman statues. The demands regarding the quality of these casts as indicated by the surviving contracts demonstrate the power, financial means and technical knowledge of the royal envoy. The Grand Tourists who came to Rome in the following two centuries were generally less well informed and had to rely on a network of cast makers, local and foreign artists, dealers and traders who would obtain, package and send casts to destinations overseas.⁶ The present contributions by Helen Dorey and Valentin Kockel refer to such collections by members of the professional classes in Britain.

The situation in Germany was quite different. The majority of its tiny principalities were land-locked and comparably poor, and the transport of goods across the German territories prohibitively expensive because of con-

5 J. B. Fickler, *Das Inventar der Münchner herzoglichen Kunstkammer von 1598*, in P. Diemer, with E. Bujok and D. Diemer (eds), *Bayerische Akademie der Wissenschaften, Philosophisch-Historische Klasse Abhandlungen*, NF, Heft 125, 2004, p. 130.

6 On the collecting of copies, including plaster casts, in the context of the Grand Tour see the most recent publication of V. Coltman, *Fabricating the Antique: Neoclassicism in Britain, 1760–1800* (Chicago and London, 2006), chapter 5 “‘Familiar objects in an unfamiliar world’ The Cachet of the Copy”, pp. 123–64.

stant demands for duties. The mechanisms of trade in this situation are discussed by Charlotte Schreiter who looks particularly at two protagonists, the local trader and cast maker Carl Christian Heinrich Rost and the Italian traveling firm, the Ferrari brothers.

Germany was of course central for the study of classical antiquity and archaeology, shaping the scholarly use of plaster cast collections in the eighteenth and nineteenth centuries. Plaster casts played a role in the milieu of Johann Joachim Winckelmann, as is evidenced, for example, by his own comments on the medium as well as the collection of his close friend, the artist Anton Raphael Mengs. This early collection survives and has recently received a thorough examination by Moritz Kiderlen.⁷ The University of Göttingen with the first Chair of Archaeology anywhere in Europe and its founding professor, Christian Gottlob Heyne, are referenced in the present volume by Schreiter, Daniel Graepler and Jan Zahle, as is the collection of the Berlin Academy of Art in the article by Claudia Sedlarz. The history of the Göttingen cast collection goes back to the later 1760s. The collection has been catalogued and its history documented by Klaus Fittschen in 1990.⁸ Graepler's contribution in this volume focuses particularly on the University's casts after ancient and modern gems, the so-called Dactyliothecae. Another early German university collection, founded in 1820, is that of the University of Bonn. Still, the scholarly study of sculpture through casts was for the most part of the nineteenth century facilitated by the collections of artists' academies and museums. Thus, outside Germany, the model of the University collection as a laboratory that facilitates the study of Classical Archaeology was not immediately emulated. This happened finally in the late nineteenth and early twentieth centuries as a consequence of the installation of Chairs in Archaeology in European countries such as England, France and Italy. The teaching collection of the Department of Archaeology at the University of Padua is comparatively small and late, it is discussed here in the context of its early twentieth-century display. Alessandra Menegazzi's article grants insights not only into the 1920s *mis-en-scène* of this collection with its strong classical references, but also makes tangible the political connotations of the collection and its staging at that time. Finally, Claudia Wagner and Gertrud Seidmann's contribution addresses a contemporary university collection, the above mentioned Beazley Archive at Oxford, with particular focus on its extensive holdings of dactyliothecae.

7 M. Kiderlen, *Die Sammlung der Gipsabgüsse von Anton Raphael Mengs in Dresden* (Munich, 2006).

8 K. Fittschen (ed.), *Verzeichnis der Gipsabgüsse des Archäologischen Instituts der Georg-August-Universität Göttingen* (Göttingen, 1990), pp. 9-20.

Plaster cast collections in artists' academies preceded even the earliest of these scholarly collections. The Florentine *Accademia del Disegno*, founded in 1564 as the first institution of this type, met in its early years in and below the New Sacristy of San Lorenzo. The study and emulation of Michelangelo's tombs of the Medici Dukes in this ensemble was characteristic for the work of the Florentine Academicians⁹ and plaster casts of its allegorical sculptures were soon distributed among artists in Italy. Two full-scale casts of Michelangelo's *Dawn* and *Dusk* were made in 1570 by Egnazio Danti, brother of the Florentine sculptor Vincenzo Danti, and must have been obtained by the Academy in Perugia shortly after its foundation in 1573.¹⁰ But plaster cast collections were not necessarily a feature of the academies that sprang up all over Europe and its colonies. Claudia Sedlarz illuminates the humble beginnings of the collection of the Academy in Berlin and Tomas Macsotay's contribution reveals surprisingly that at the French Academy in Rome the casts had a much more important teaching function than at the Royal Academy in Paris. The Royal Academy in London was a late comer among the European Academies. The hesitant acquisition history of its early years resembles that of the Berlin collection. In the context of the conference the Royal Academy collection was informally discussed in front of its material remains by Helen Valentine who has also published on this subject.¹¹ The academies in Stockholm and Copenhagen, following the European eighteenth-century academy trend, possessed casts from the time of their foundations (1754 and 1768 respectively) as Jan Zahle describes in his article tracing casts of the Laocoön in Scandinavia. In the nineteenth century, the Academy in Madrid was able to provide casts for academic collections in the Spanish colonies, such as the *Academia de San Carlo* in Mexico City, as Elisabeth Fuentes Rojas mentions in the present volume.

Beyond the academies, artists had long used plaster casts as objects of study and in the different stages of the design process including the final work. While Leon Lock's analysis of images of Netherlandish sculptors' workshops from the seventeenth- and eighteenth centuries questions their documentary value, there is certainly plenty of more secure evidence that plaster casts played an important role in artists' workshops from the fifteenth

9 Z. Wążyński, *L'accademia medicea del disegno a Firenze nel cinquecento: Idea e istituzione*, 2 vols (Florence, 1987), I, pp. 75-110, esp. 76-80.

10 D. Zikos in C. Davis and B. Paolozzi Strozzi (eds), *I grandi bronzi del battistero. L'arte di Vincenzo Danti, discepolo di Michelangelo*, exh. cat. Florence (Florence, 2008), pp. 324-5.

11 H. Valentine, *From Reynolds to Lawrence: the first sixty years of the Royal Academy of Arts and its collections : a short catalogue of the paintings, sculptures and plaster casts shown in the private rooms and the new sculpture gallery at Burlington House*, (London, 1991).

century onward, in Italy and increasingly beyond. The section in this volume devoted to casts in artist's workshops and artists' practice cannot claim to be representative, but it puts a due focus on eighteenth-century neo-classicism, late nineteenth and early twentieth century French and Italian art and the diverse uses of plaster and casting techniques by modern and contemporary artists. Johannes Myssok presents the various stages of the design processes in which Antonio Canova employed plaster, traces developments in his career and relates Canova's use of casts to wider issues such as the truthfulness to material. Greg Sullivan in his article on the slightly later British sculptor Sir Francis Chantrey, argues that Chantrey's plaster models had the status of originals.

The neo-classical aesthetic and art production had a formative impact on the use and perception of reproductive plaster casts in museums to the present day. It was in the second half of the nineteenth century that artists, mainly French and Italian, explored the unconventional qualities of the material. A major figure in this context was Rodin;¹² in the present volume, Jean François Corpataux and Sharon Hecker discuss the works of his contemporaries Marcello and Medardo Rosso. Marcello's *Pythia*, including a life cast of the artist's own shoulders, provides an exciting case through which to examine the conceptual implications of the artistic process with regard to nineteenth-century artistic stereotypes of creativity and gender. Addressing the still too little studied work of Medardo Rosso, Sharon Hecker analyses how the sculptor broke with the neo-classical uses of plaster, drawing conceptually on the material's association with cheapness and fragility. The modernity of plaster cast as a material is further evaluated in the Futurist context by Maria Elena Versari's contribution on Boccioni's use of plaster. The final rejection of the plaster cast as a teaching tool after the Second World War is the starting point of Sue Malvern's discussion of the use of plaster casts in the work of late twentieth-century and contemporary artists such as Antony Gormley and Rachel Whiteread. A contribution by a practicing artist, Jane McAdam Freud, whose work frequently employs plaster casts, closes this section. As part of her presentation, McAdam Freud made a conference medal that was displayed at the event.

With the rise of nationalism throughout Europe in the nineteenth century, national museums were instituted to present, conserve and construct the notion of a national heritage, as in the case of the National Museum in Prague, discussed here by Dana Stehlikova, and to improve citizens, and/or national

12 A. Le Normand-Romain, 'Rodin e il gesso: storia di un deposito di atelier', in M. Guderzo (ed.), *Gipsoteche. Realtà e Storia*. Atti del convegno internazionale di studi. Possagno, 19-20 maggio 2006 (Possagno, 2008), p. 75-82.

art production, as in the case of the Victoria and Albert Museum. Both museums, in Prague and London, as well as the National Gallery in Athens hold reproductive casts as well as artists's models and final works in plaster.

Reproductive casts in these museums have fulfilled a variety of functions. They preserved the appearance of endangered works (see the article by Maria Kliafa and Michael Doulgerides in relation to the National Gallery in Athens), represented the narrative of a national style in one place, as in the cases of the Museum in Prague, and filled gaps in a wider art historical narrative, as for example the Royal Cast Collection as part of the National Gallery of Denmark, and the Museum of Fine Art in Boston, mentioned by Stephen Dyson in his account of American plaster cast collections. They also, of course, represented works that were seen as canonical, as in the case of London's Victoria and Albert Museum, discussed by Diane Bilbey and Marjorie Trusted and by Malcolm Baker. In many cases they were integrated into the Museum display alongside originals, in other instances they were given their own museum, like the Musée de Sculpture Comparé in Paris, here discussed in terms of its intellectual conception by Axel Gampp, the Museum of Fine Arts in Moscow, discussed by Tobias Burg, and many American collections, such as the Slater Museum in Norwich, Connecticut, referred to by Dyson. With Ian Cooke's article on the Auckland War Memorial Museum the volume provides insight into the installation, motivations for and reception of a cast collection in a colonial context. Here as in the case of the Mexican academy referred to earlier, art objects by local cultures would play an important counter part in the collections, in Mexico through their influence on the academy's training, in Auckland in terms of the display and space allocation in the museum.

The papers by Malcolm Baker and Axel Gampp address a particular nineteenth-century phenomenon, aptly described by Baker as "the reproductive continuum". Plaster casts in the Victoria and Albert Museum, we find, were displayed in concert with other reproductive media, including fictile ivories, paper mosaics and photography; Gampp directs our attention to the vast collections of postcards of plaster casts issued by the Musée de Sculpture Comparé.

Issues of display are addressed in Helen Dorey's paper on the Sir John Soane's Museum and Alessandra Menegazzi's contribution regarding the Museo di Scienze Archeologiche e d'Arte at the University of Padua. Both are specific cases where original architectural designs and historical displays have been meticulously reconstructed. In the case of the Paduan collection the early twentieth-century display had to be adapted to accommodate modern teaching functions of the collection, while the Sir John Soane's Museum has to keep the requirement to function as a modern museum in mind. Entirely different, but still striking the same historical and topographical keys as the Sir John

Soane's Museum, James Perkin's private display of plaster casts at Aynhoe Park represents a revival of the Country House tradition of displaying casts.

The recent rise in popularity of casts is reflected in a number of recent rearrangements of museum displays to include these objects. Occasionally, old ideas are taken up, albeit in revised form, such as the chronological display of casts in teaching collections, or the display of casts alongside originals. In these, as in most other cases, casts are displayed according to the same principles as originals. A different principle, developed in the late 1980s and early 1990s and applied to the display of a cast collection, is that of the Royal Cast Collection in Copenhagen. The collection, spanning western sculpture uninterruptedly from Ancient Egypt to the Baroque, is arranged according to the same principal display contexts as the various periods themselves. Exhibition areas in the Copenhagen collection today, like the 'Greek Sanctuary', 'Roman Villa' or 'Italian Gallery', not only offer a rough chronological frame to the visitor, but also a sense of authentic visual context for the various sculptural forms. Statues and reliefs are seen together as they might have been experienced at the time the originals were made, but also sometimes as they were used later on throughout history. A number of recent exhibitions have realized another potential of the plaster cast. Thus, painted plaster casts have been used to illustrate the effects of polychromy, for educational purposes both in permanent displays, for example the polychromatic cast of the *Igel Column* in the Landesmuseum in Trier,¹³ and temporary exhibitions, principally the exhibition *Gods in Colour* (2003–8), that toured numerous museums all over the western world.¹⁴

Three articles address issues of conservation. The choir screens in Halberstadt (c. 1200), discussed by Daniela and Torsten Arnold and Elisabeth Rüber-Schütte, and the casts in the collections of the Real Academia de Bellas Artes de San Fernando in Madrid and the National Gallery in Athens, discussed by Solís Parra *et al.*, and Kliafa and Doulgerides, respectively, are very different object types that require specific treatments. The authors address issues raised by the *in situ* restoration and preservation of polychrome stucco work, and heavily over-painted and stained historical plasters as well as problems encountered during the structural reconstruction of casts that had been exposed to the elements; the list could be extended. Beyond this the three papers demonstrate different approaches and schools of conservation. The

13 For the polychromy of the cast of the Igel column see H. Cüppers, 'Die Kopie der "Igeler Säule" in neuem Gewand. An der Nachbildung des Secundinier Grabmals ist die einstige Bemalung rekonstruiert worden.' *Antike Welt* 1994, Heft 1, pp. 89-94.

14 The catalogue of the first exhibition: V. Brinkmann *et al.*, *Bunte Götter. Die Farbigkeit antiker Skulptur* (Munich, 2003).

fragility of plaster in general, and in particular the necessity of periodic cleaning and/or surface treatment of plaster casts mean that any institution holding plaster casts must have a developed and on-going conservation programme in place to ensure appropriate care of these objects. More than with some other types of artwork the appearance of casts is dramatically affected by conservation work and practical handling. This requires close collaboration between conservators and museum curators.

Our volume ends with an article by Bernard van den Driesche, Vice Chairman of the Association Internationale pour la Conservation et la Promotion des Moulages and in charge of the Association's website. Van den Driesche develops the notion of a *grand jardin du plâtre*, his vision of a global garden of plaster casts and cast collections, possibly best achieved through websites and the internet, that brings together all types of plaster cast collection, including not only those that serve artistic ends, but also ethnological, medical and other requirements.

Such an encyclopaedic approach represents the richness of the material. The present volume deliberately focuses on plaster casts for artistic ends. Its aim is to highlight what is specific to individual casts, types of casts and cast collections, and thus to emphasise difference and complexity in a medium that in the past has often suffered from being perceived as familiar and one-dimensional. The inclusion in papers by Marchand, Biddle, Hecker and others of plaster sculpture that involves modelling techniques also serves this purpose, reminding us that the 'pure' cast is a rarity. It is the editors' hope that rather than answering all our questions in the field, the present volume will raise new ones, stimulate debate and facilitate future research on plaster and plaster casts.

Antiquity

Plaster Casts in Antiquity¹

RUNE FREDERIKSEN

The present article discusses the use of plaster casts in antiquity through the evaluation of surviving objects as well as literary evidence.² Many articles in this volume refer to plaster casts as a medium that is closely associated with the revival of antiquity from the early Renaissance onwards. The aim of my contribution, together with that by Christa Landwehr, is to demonstrate that artists' use of plaster casts goes back to classical antiquity itself, and to evaluate our knowledge of the medium in this period. To analyse the functions of plaster casts in antiquity is important as it enables us to understand the uses and concepts of art in the ancient world which can then form the basis of comparisons with later periods. I wish to argue that plaster casts were of great significance in the ancient world, also beyond their basic technical functions in the production and copying of works of art.

Plaster as Material³

The materials of plastic art production and reproduction in antiquity were stone, clay, terracotta, faience, wood, metals, and various minerals.⁴ Plaster, or calcium sulphate, belongs to the last group; its technical properties make it

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- 1 I would like to thank the following friends and colleagues for having read and improved this article at various stages of completion: Mogens Jørgensen (Copenhagen), Eckart Marchand (London), Bert Smith (Oxford) and Jan Zahle (Copenhagen). In addition I would like to thank Eckart for his very thorough and patient editing.
 - 2 For earlier discussions of ancient plaster casts as evidenced from physical remains and written sources, see D'Alessandro and Persegati, *Scultura e calchi in gesso*, 15-24; Barone, *Sabratha*; Landwehr, *Die antiken Gipsabgüsse*; see also articles in *Neue Pauly* and *New Pauly* referred to below.
 - 3 D'Alessandro and Persegati, *Scultura e calchi in gesso*, 69-73 *Der Neue Pauly. Enzyklopädie der Antike*, 12 vols (Stuttgart, 2001–2007), IV, s.v. 'Gips' (C. Hünemörder). For presentation of ancient sources about plaster and critical commentary, see Barone, *Sabratha*, pp. 3-8. See also this volume Arnold *et al.*, pp. 373-76, and Solis *et al.* 387-88.
 - 4 For a sixth-century BC example of sculpture cast in melilite: A. Baltres *et al.*, 'Two Archaic Casts from Histria: Mineralogy, Paint Composition and Storage Products', *Ancient West & East*, 3.1 (2004), pp. 87-99, fig. 1.

particularly suitable for copying three-dimensional art-works with great accuracy; it is easily produced, easy to handle when wet, and when poured into a mould it flows easily into all corners and hardens quickly. In addition, the material seems to have been fairly easily available and hence cheap to use. This is implied in ancient comments on the sources of plaster, and can be deduced from the large quantities of the material used, for example, as wall plaster in ancient Egypt⁵ and for stucco decorations in the Greek and Roman periods.⁶

A number of details about the provenances, properties and uses of plaster can be learned from Theophrastos, writing at the turn from the fourth to the third century BC.⁷ His treatise *On Stones* has a section on γύψος (64-9)⁸, from which we learn that *gyposos* existed in large quantities in Cyprus, and that in Phoenicia and Syria it was made from burning stone, for example marble. Theophrastos informs us how *gyposos* behaves when pulverized and mixed with water, and it is clear that what he describes is the mineral gypsum, and the process by which it can be turned into what we would call plaster and often *Plaster of Paris*.⁹ Plaster behaves as Theophrastos describes, and gypsum is indeed still found in many places around the Mediterranean, for example in Cyprus, on Melos and in Egypt.¹⁰

The ancient Greek term *gyposos* does, however, cover more than our plaster, or *plaster of Paris*, even within the writings of Theophrastos himself, so we cannot point to all ancient attestations of the term and automatically take them to mean only *plaster of Paris*. We are, however, able to demonstrate, that in some instances the term *gyposos*, or its Latin equivalent *gypsum*, are used to denote specifically a cast in that material. A wonderful example is a third to second-century BC cast, now in Princeton, of an earlier Hellenistic horse's nose-piece (probably of bronze) which bears an inscription, incised into the plaster while it was still wet: Ἰσιδῶρου | τὸ γύψινον ("the plaster [...] of Isidoros").¹¹

5 A. Lucas, *Ancient Egyptian Materials and Industries*, 3rd edn (London, 1948), pp. 96-8.

6 *Enciclopedia dell'arte antica, classica e orientale*, 12 vols (Rome, 1958-1984), VII, 524-9 s.v. 'Stucco' (S. De Marinis); *Op. cit. suppl.*, V, 458-61, s.v. 'Stucco' (R. J. Ling); Penny, *Materials*, pp. 191-2.

7 For a detailed treatment of the main evidence for the ancient view and knowledge of the technical aspects of plaster see A. Orlandos, *Les matériaux de construction et la technique architecturale des anciens grecs* (Paris, 1966), pp. 146-8.

8 Caley and Richards, *Theophrastus*. See also Barone, *Sabratha*, pp. 3-4.

9 The name derives from a large gypsum deposit at Montmartre in Paris, W. Morris (ed.), *American Heritage Dictionary of the English Language*, 4th edn (Boston, Mass., 2000).

10 Caley and Richards, *Theophrastus*, p. 213, p. 217; Penny, *Materials*, p. 194.

11 Inscription (and cast) probably from the 3rd-2nd centuries BC, see no. 22.

Plaster and Sculptural Artworks in Antiquity

Judging by the earliest surviving evidence of sculpture production, plaster appears to have been one of the primary materials. The Neolithic seventh-millennium BC statues from A'in Ghazal near Amman in Jordan, frequently referred to as the "oldest statues of the world", were made of modelled plaster over a framework of woven reed.¹² The Egyptians used plaster as a primary sculptural medium as well, often in combination with other materials.¹³ Stone sculpture was sometimes modified with plaster modelled onto the stone and then painted. Well-known examples are the busts of the Egyptian fourth-Dynasty prince Ankhhaf (2520-2494 BC), found in his tomb at Giza¹⁴ (Fig. 1. 1), and now in Boston, and the eighteenth-Dynasty Nefertiti (c. 1351–1334 BC) from Thutmose's workshop in Amarna, now in Berlin.¹⁵

The sculptural properties of plaster were thus known, and the sculptural appearance of the modelled plaster surface appreciated, from a very early point in history. This use of plaster for sculpture, modelled or cast, in combination with other materials, continued into the Greek and Roman periods.¹⁶

Plaster Casts

Ancient plaster casts can be divided into three categories. Firstly, casts were used at various stages of the production of sculpture in other, arguably more durable, materials such as marble or bronze. Secondly, they were used as copies for the purpose of transferring three-dimensional images from one place to another. Finally they also served as artworks in their own right.

Examples of the first category surfaced in Egypt in 1912 during the excavation of the workshop of the sculptor Thutmose at Amarna, dating to the end of the eighteenth Dynasty, between 1351 and 1334 BC.¹⁷ The find included twenty-seven objects in plaster, mostly casts of heads or faces, some of which are clearly portraits of Egyptian Royalty, for example the faces of Pharaoh

12 See e.g. C. A. Grissom, 'Neolithic Statues from 'Ain Ghazal: Construction and Form', *American Journal of Archaeology*, 104 (2000), pp. 25-45.

13 For a recent general treatment of the use of plaster in Egyptian sculpture, see Tomoum, *Sculptors' Models*, pp. 173-7.

14 Boston, Museum of Fine Arts, 27.442. L. Berman *et al.*, *Arts of Ancient Egypt* (Boston, 2003), pp. 78-9 (with fig.).

15 R. Anthes, *Die Büste der Königin Nofretete* (Berlin, 1973); C. Wedel, *Nofretete und das Geheimnis von Amarna* (Mainz am Rhein, 2005), with bibliography.

16 See for example V. M. Strocka, 'Stucco additions to marble sculpture from Ptolemaic and Roman Egypt', *Jahrbuch des Deutschen Archäologischen Instituts*, 82 (1967), pp. 118-36.

17 D. Arnold, 'The Workshop of the Sculptor Thutmose', in Arnold, *Royal Women*, pp. 41-51, with bibliography.



Fig. 1. 1: Bust of Ankhhaf. Mid third millenium BC. Stone with painted plaster, h: 50.5 cm. From Giza in Egypt. Museum of Fine Arts, Boston.

Akhenaten (no. 1a¹⁸, Fig. 1. 2) and his wife or consort Nefertiti (no. 1b, Fig. 1. 3) and the images of an old woman and a man, of unknown and uncertain identity (no. 1c-d, Figs 1. 4-5).

Most of the Amarna casts are faces and were therefore quite simple to cast, in open one-piece moulds. The heads were mostly only cast in two separate parts, which were joined after the casting, as can be deduced, for example, from the vertical line on the neck of the Head of Nefertiti that results from the joining of the two pieces (not visible in Fig. 1. 3, but very clear in D'Alessandro and Persegati, *Scultura e calchi in gesso*, fig. 1). The Amarna casts seem all to have been taken from clay or wax models and served as models for final works in stone: further, they seem to be partial casts of sculptures, not of whole works, and some preserve details that show that the works they were cast from were unfinished. The casts may have been made to be sent to the commissioners, so that further progress could be discussed without them having to make their way to the workshop. Afterwards work would have continued on the clay or wax models, and, when considered finished, these were eventually carved in stone. Thus, the casts' function differed from what in modern sculpture would be called *original models* in that they were not taken of models in their final stage to represent a visual idea that could later be executed in a third and more durable material.¹⁹

18 A provisional list of casts in museums and collections around the world is provided at the end of this article (pp. 26-32).

19 The term can be traced at least back to the sixteenth century. In Britain original models in this sense, used for exhibition in order to find a patron, have been in use at least since the second



Fig. 1. 2: Head of Akhenaten. Mid fourteenth century BC. Plaster, h: 21 cm. From Amarna in Egypt. Ägyptisches Museum, Berlin.

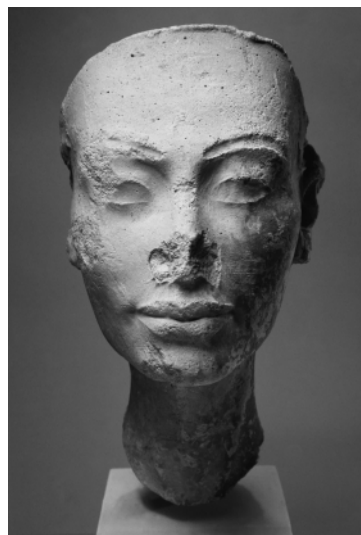


Fig. 1. 3: Head of Nefertiti. Mid fourteenth century BC. Plaster, h: 25.6 cm. From Amarna in Egypt. Ägyptisches Museum, Berlin.



Fig. 1. 4: Head of an old woman. Mid fourteenth century BC. Plaster, h: 26.7 cm. From Amarna in Egypt. Ägyptisches Museum, Berlin.

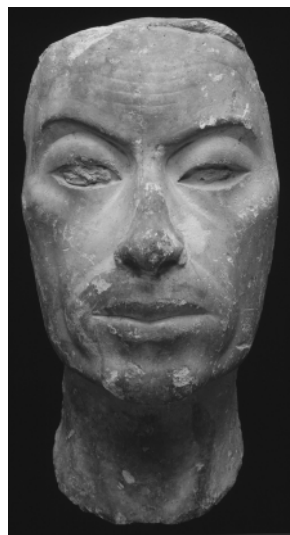


Fig. 1. 5: Head of a man. Mid fourteenth century BC. Plaster, h: 27 cm. From Amarna in Egypt. Ägyptisches Museum, Berlin.

Greece and Rome

Death masks played a significant role in Egyptian art, at least since the time of the Old Kingdom,²⁰ and continued to do so in the Greek and Roman periods. The face of a bust of the Roman period in the museum in Alexandria (no. 3a, Fig. 1. 6) is a remodelled death-mask, whereas the skull and bust are cast in two separate pieces each. A layer of plaster was added onto these five components after they had been assembled, and modelled, while the plaster was still wet. This bust, then, can be classified as partly cast and partly modelled. The tell tale signs of a death mask can be seen in a similar plaster head, in the same museum (Fig. 1. 7). The cheeks are hollow and the flesh around the neck seems to have lost its tension. Unmodified death masks, taken directly of a dead person's face to preserve facial features, have also been found, as, for example, that from Tuna el-Gebel (no. 10b, Fig. 1. 8), in the Egyptian Museum in Cairo, dating from around the birth of Christ.

A plaster bust of a man from Rome (no. 24) is made in the same way as the Alexandria one (no. 3a), but is even more interesting and important because it was found, alongside fragments of two additional busts, in a tomb at Via Prenestina, and thus links plaster and plaster casts to the great Roman tradition of *imagines maiorum* ('images of ancestors').²¹ These seem often to have been of wax – plaster is not explicitly mentioned as a material in connection with them – and they were carried around in funerary processions and exhibited in homes and tombs. With the Via Prenestina heads, we have examples of such plaster portraits of deceased ancestors.

The role of plaster casts in ancient Greek and Roman sculpture production was absolutely central. For Greek sculpture this is mainly a sound assumption, whereas for the Roman period the material and circumstantial evidence is strong. The single most important find of ancient Roman casts was made in 1954 at the Roman town of Baiae, in the bay of Naples.²² This consisted of more than 400 casts of parts of at least thirty different statues²³ including some

half of the seventeenth century, J. S. Symmons, *Flaxman and Europe. The Outline Illustrations and their Influence* (New York and London, 1984), pp. 57-8.

20 D'Alessandro and Persegati, *Scultura e calchi in gesso*, pp. 47-9; Tomoum, *Sculptor's Models*, p. 215 no. 42, pl. 31a-c.

21 For the Roman ancestor cult see Pliny, *Naturalis Historia*, 35.6-7; Polybios, *Historiae*, 6.53; D'Alessandro and Persegati, *Scultura e calchi in gesso*, appendix; D. E. E. Kleiner, *Roman Sculpture* (New Haven, Conn., and London, 1992), pp. 36-8 (basic introduction). The Roman period heads and busts from Egypt, discussed above, may derive from such Roman period tombs in Egypt.

22 The Baiae find is published by C. Landwehr (*Die antiken Gipsabgüsse*) and also treated by the same author in this volume, pp. 35-46.

23 The sides of the casts show cuts rather than fractures so the pieces are parts of casts of statues, not random fragments from smashed casts.



Fig. 1. 6: Bust of a man. Roman first to second century AD. Plaster, h: 29 cm. Museum for Greek and Roman Art, Alexandria.

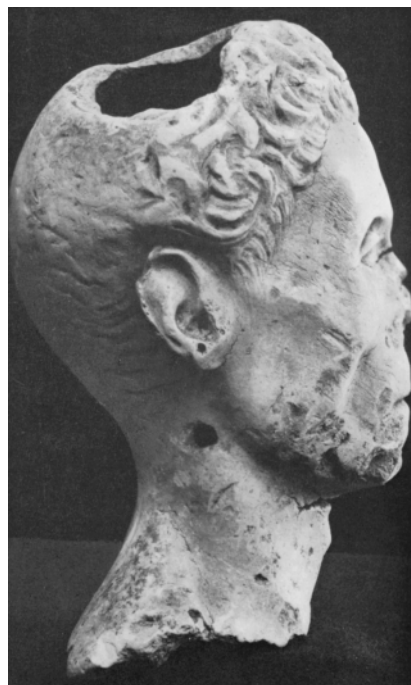
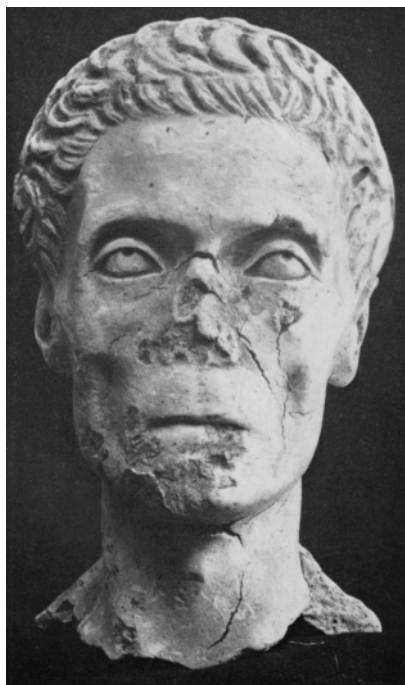


Fig. 1. 7: Portrait head of a man. Roman. Plaster, h: 29.5 cm. Museum for Greek and Roman Art, Alexandria.



Fig. 1. 8: Death mask. Hellenistic-Roman, first century BC to first century AD. Plaster. Archaeological Museum, Cairo.

of the most well-known Classical and Hellenistic Greek works. But the Baiae find has not only deepened our knowledge of these particular masterpieces (Fig. 2. 5). The casts also constitute interesting evidence for the reconstruction of the process by which some or perhaps most of the thousands of Roman marble copies of Greek life size free-standing sculpture were actually made.²⁴ This process, crucial for the understanding of the relationship between Greek originals and Roman copies was previously only known through written sources and the visual evidence of the Roman marbles themselves.²⁵ The Baiae find is interpreted as a dump from a sculptor's workshop, parts of what was once a collection of casts assembled by a workshop, serving as a library of form, from which whole figures or details could be copied to produce tailor-made marble sculptures according to demand.²⁶ It seems logical to assume that a number of such workshop collections of casts existed throughout the Roman world, and that, at least sometimes, Roman marble statues were copied from such casts rather than from other copies made in marble. Casts would have been much easier to transport than marble statues, and – provided they were

24 The first scholar to make this observation in relation to ancient cast finds was Gisela Richter. Richter knew about the important Baiae find from 1955, but only got to see parts of it in 1963. See G. M. A. Richter, 'How Were the Roman Copies of Greek Portraits Made?', *Römische Mitteilungen*, 69 (1962), pp. 52-8, pls 22-6, and 'An Aristogeiton from Baiae', *American Journal of Archaeology*, 74 (1970), pp. 296-7.

25 The first groundbreaking study identifying a number of Greek works through Roman copies was A. Furtwängler, *Meisterwerke der griechischen Plastik: Kunstgeschichtliche Untersuchungen* (Leipzig, 1893) English trans. by E. S. Strong, *Masterpieces of Greek Sculpture* (Chicago, Ill., 1895). A good general introduction with selected bibliography is provided by A. Stewart, *Greek Sculpture. An Exploration* (New Haven, Conn., and London, 1990).

26 Landwehr, *Die antiken Gipsabgüsse*; C. Gasparri, 'L'officina dei calchi di Baia', *Römische Mitteilungen*, 102 (1995), pp. 173-87; Barone, *Sabrattha*, 9.

casts of a form taken of the original – they were more accurate copies than those of marble made by measuring points. Loukianos, writing in the second century AD, describes in passing in his *Iuppiter tragoedus* (33), how a statue of Hermes in the market-place of Athens was covered, on a daily basis, in pitch or resin by sculptors making moulds of it. This is an extremely interesting attestation of the practice of copying,²⁷ in fact of mass making of moulds that would then – we may assume – have been used to make numerous copies in plaster for artists' studios in different regions of the Roman Empire.²⁸

According to Pliny the Elder (*Naturalis historia*, 35.153) copying of statues by taking casts of them was invented already in the Greek period by Lysistratos of Sikyon, brother of the famous sculptor Lysippos, who was active in the fourth century BC.²⁹ Pliny also says that Lysistratos was the first to cast life masks. He describes how Lysistratos would cast from the face of a living person, pour wax into the plaster negative, and rework the wax afterwards. Pliny does not say what was then done to the wax; it was probably cast back into a positive in bronze via a clay or plaster negative mould. Even without the Egyptian finds that take the practice of plaster cast making at least a millennium further back in time it would be difficult to believe Pliny's account of its 'invention'. Considering how advanced Greek sculpture and particularly free standing bronze sculpture was at this time, the plaster casting technique must have been widely practised in the Greek world much earlier than the fourth century. It is indeed hardly surprising that, for example, research on bronze sculpture has led to the suggestion that (plaster) casting from life was practised already in the fifth century BC.³⁰ The earliest mentioned incident of the copying of a statue, possibly by means of a plaster cast, dates from the third century BC. Plutarch, writing in the second century AD, relates how envoys

27 Examples of plaster moulds have been found, for example, in Paphos in Cyprus in a first-century BC bronze foundry. This mould is an instructive example in that it is part of a full size statue, i.e. the back of a male torso. Since it was found in a bronze foundry, however, it is likely to have been a cast made for a different purpose than the moulds described by Loukianos. K. Nicolaou, 'Archaeological News from Cyprus, 1970', *American Journal of Archaeology*, 76 (1972), pp. 315-16, fig. 38.

28 Richter ('An Aristogeiton from Baiae', *American Journal of Archaeology*, 74 (1970), p. 296) believed that moulds were sent from Greece more often than actual casts. Moulds do travel better, since they are less fragile, but have the disadvantage that, if damaged, (proper) repair can only happen with consultation of the original. Sculptors around the Empire could probably order moulds as well as casts from plaster cast makers employed in Athens and other centres of original Greek art. For further discussion, see Barone, *Sabratha*, p. 16.

29 Cf. e.g. Penny, *Materials*, p. 196.

30 The artist Nigel Konstam suggested after close observation of the Riace Bronzes, particularly of the feet, that they were largely made from life casts, rather than having been modelled. N. Konstam and H. Hoffmann, 'Casting the Riace bronzes (2): a sculptor's discovery', *Oxford Journal of Archaeology*, 23.4 (2004), pp. 397-402, figs 1-3.

of Ptolemy I of Egypt, when visiting Sinope on the Black Sea coast, took away a statue of Pluto and left behind one of Persephone after having copied it.³¹ It is not explicitly stated that this copy was a cast, but it is likely that it was.

Attested in much greater abundance are ancient plaster casts of Greek crafts objects, in particular of relief-decorated metal tableware. The most important finds have been made in Begram in Afghanistan, Kara-Tobe in north-west Crimea and at Memphis in Egypt. In addition to these finds, a number of similar casts exist in museums and other collections across the world (e.g. nos 3b, 19, 25).

The Begram find (no. 8) consist of twenty casts of Greek works of a wide chronological range, cast in Roman times, apparently to serve as models for artisans. This function can be more securely established for the Memphis find (no. 12), that was made in a workshop context. Here more than seventy casts similar to those from Begram were found. One example is the small image of a male bust (Fig. 1. 9), believed to be a portrait of the Hellenistic King Ptolemy I, dating from the early third century BC – the same Ptolemy who sent envoys to copy the statue of Persephone mentioned above. The egg-and-dart decorative band framing the image may mean that the relief was conceived of and appreciated as a finished work of art in itself, rather than just as an intermediary model for an artisan who wanted to transfer an image from one durable medium to the other.

Clay and plaster moulds found in a workshop at Chersonesos in the Crimea, and in the market place (agora) of Athens,³² shed light on how these many plaster positives of ancient metal tableware were made. Impressions of clay, or alternatively, plaster³³ were taken from the decoration on the metal



Fig. 1. 9: Relief-bust (cast from mould) of Ptolemy I Soter. Hellenistic, early third century BC. Plaster, h: 8.3 cm. Roemer- und Pelizaeus-Museum, Hildesheim.

31 Plutarch, *Moralia*, 984b.

32 Both ancient moulds and casts were found, see appendix below no. 6.

33 For the Begram moulds in particular, see Menninger, *Untersuchungen*, pp. 93-4; see also Penny, *Materials*, p. 195.

object, the clay impression was then fired, and plaster poured into the mould. The plaster positives themselves would then have been used by artists or craftsmen as examples for commissioners, who apparently desired metal ware with decorative motifs in the proper Greek style.

It is quite telling that plaster casts of metal ware, and evidence for their production, have come to light from the periphery of the Classical world, like the Crimea and Afghanistan, as these were areas of artistic adoption rather than centres of original artistic production, at least with regard to the typical media and styles of the classical world. The finds of ancient Greek and Roman plaster casts from Egypt are probably to be seen in the same way, and their greater numbers probably to be explained by the preservation conditions of the dry plaster-friendly desert.

One more find of plaster casts needs to be mentioned. Whereas the casts from Baiae document part of the copying process of well-known ancient Greek works of art, the finds from Sabratha in Libya (no. 26) consisted of hundreds of fragments of plaster casts and plaster moulds of reliefs, statuettes and statues. These objects show the role of plaster in a more run-of-the-mill category of ancient art. They stem from different private and public contexts, and workshops for mass production of minor arts are also identified.

We have already seen how plaster was used in Egyptian sculpture in combination with other materials, and how death masks played an interesting role from an early point. A vast amount of circumstantial evidence for the use of plaster casts could also be put forward: large numbers of scenes and individual figures in Roman reliefs, sarcophagi, gems and other media, show striking similarities to the designs of those of ancient cast finds.³⁴ This suggests, again, that casts played a role in transmitting images from one place to the other, retaining in great detail the formal qualities of the original works.

Were architectural details copied in the same way as sculpture? It seems very likely that copies of mouldings, floral motifs and other types of architectural decoration were circulating between workshops or building sites of the ancient world, to be copied accurately back into stone at various times and places. So far though, we do not have any evidence for this and concrete suggestions as to where such copying might have occurred have been disproved.³⁵ Finally, I ought to turn to the question of whether plaster casts in antiquity were occasionally appreciated as artworks in their own right, or at least dis-

34 Richter, 'Ancient Plaster Casts of Greek Metalware', gives a number of examples.

35 It has been suggested, for example, that the (column) capitals used in the Forum Augustum in Rome were made from casts of capitals from the fifth century BC Erechtheion temple on the Athenian Acropolis. Valentin Kockel has argued that dissimilarities between these capitals make this rather unlikely. See V. Kockel, 'Antike Gipsabgüsse von Baugliedern', *Archäologischer Anzeiger* (1991), pp. 281-5, figs 1-3.

played as substitutes for originals, as has been the case from the Renaissance and up to our time. Juvenal criticises, in one of his satires (2.4-5) from about 100 AD, some contemporaries for trying to appear learned simply by stuffing their houses with plaster busts of the Greek stoic philosopher Chrysippos.³⁶ The word used is *gypsum*, and there is no doubt that he refers to plaster casts, just as the German ‘Gips’ and the Italian ‘gesso’ can mean both ‘plaster’ as well as a ‘plaster cast of a sculpture’. The alternative reading would be that Juvenal refers to a number of individually created plaster portraits of Chrysippos in the homes of Romans, but this reading does not make sense, because we would then suddenly have original artworks that neither fit the slating remarks of Juvenal, nor what we know of what Romans exhibited in their homes.³⁷ We know from numerous finds and references in the Roman literature that marble copies of certain original Greek portraits of Greek men of letters were standard equipment in Roman villa-libraries,³⁸ for those to whom these marble copies were unavailable, plaster casts may have been an economically viable alternative. Plaster sculpture on display in private homes existed also in Roman Greece, as for example a statue of Dionysos seen by the Roman traveller Pausanias, writing in the second century AD (9.32.1): “Creusis, the Harbour of Thespias, has nothing to show publicly, but at the home of a private person I found an image of Dionysos made of Gypsum and adorned with painting”.³⁹ Given the fragility of plaster and its sensitivity towards water, we should not be surprised that hardly any such plaster casts from private Roman contexts have survived. However, at least one cast, probably of a statue of an athlete (no. 23, Fig. 1. 10), survives from such a context in Seleuceia Pieria in Turkey. The head is quite weathered, but is still an attractive find, since it may be archaeological evidence for an important phenomenon better known from the written sources.

Arguably, Juvenal’s passage may be read as an implicit criticism of plaster casts. The material was cheap, and a great number of almost identical copies could be produced from the same mould, making the fabrication process inexpensive as well. Remembering that Juvenal is a single source attesting to this use of casts, and an attitude towards it, we may safely say that at least in Juvenal’s lifetime, around the middle of the second century AD, casts were

36 *Brill’s New Pauly. Encyclopaedia of the Ancient World. Classical Tradition*, 5 vols (Leiden, 2006–), I, s.v. ‘Cast; Cast Collections B, I’ (I. Kader).

37 The original plasters Romans could have exhibited in their homes, alongside those of wax and other materials, were unique images of their forefathers, based on death (or life) masks, as the one discussed above p. 18 and listed in the appendix, no. 24.

38 R. Neudecker, *Die Skulpturenausstattung römischer Villen in Italien* (Mainz am Rhein, 1988).

39 Pausanias, *Description of Greece, books 1-10*, translated from the Greek, W. H. S. Jones, 5 vols (Cambridge Mass., 1918–).



Fig. 1. 10: Head from a statue of an athlete (?). Late Hellenistic-early Roman. Plaster, h: 24.9 cm. University Art Museum, Princeton.

used in this way in the city of Rome. It is tempting to develop further from the testimony of Juvenal, but while I would believe that the practice he described existed not only in Rome but elsewhere in the Empire, evidence to support this does not exist at present. Of course one could argue that since plaster as a material and casts in that material were cheap, they were, like so many other banalities of daily life, less likely to have been mentioned in our sources. And further, the material is perhaps only described by Theophrastos and Pliny precisely because these authors are dealing specifically with materials, of which gypsos-gypsum-plaster is one among many and of course had to be treated. Along the same lines, Juvenal mentioned plaster casts because, in a specific context, he could frame an attitude held by his audience, that casts were the exhibits of the ambitious middle class as opposed to the old aristocracy and upper class that owned and displayed the 'genuine article', namely the more frequently spoken of statues of stone and precious metals.

To sum up: plaster casts were used in Antiquity both for the transmission of three-dimensional images within the artistic working process and as objects of display in their own right. In fact, all the major functions of the material plaster in plastic art as we know them from post-antique periods existed, in one form or another, already in antiquity, apart from one: the ancient world did apparently not know of cast collections in non-workshop contexts.

Whereas it is difficult to say anything about the extent to which plaster casts were used as substitutes for originals in the ancient world, their role as transmitters of form, from Greek original artworks – reliefs, statues and architectural decoration – into Roman copies of the same categories must have been tremendous.⁴⁰ There would have been no massive spread of Greek art into the Roman world without casts.

Appendix

Provisional list of known surviving plaster casts from antiquity. Numbers occasionally refer to groups of related finds in the same collection, not always to individual pieces.

Place names in italics indicate the original location of the find, those in regular font their present location.

Egyptian

No. 1 a-d. *Amarna*. Ägyptisches Museum, Berlin.

Twenty seven heads and fragments of sculpture in plaster, Egyptian, mid fourteenth century BC. Mentioned in this article are the following heads: Akhenaten (**a**) inv. 21 355; Nefertiti (**b**) inv. 21 349; an (unknown) male (**c**) inv. 21 228; and an (unknown) old female (**d**) inv. 21 261.

Arnold, *Royal Women*, pp. 46-51.

No. 2. British Museum, London. From private collection in France.

Face of a man, Egyptian fourteenth century BC (?). Cast from death or life (?), reworked, h: 13.5 cm, inv. 60.65656.

I. E. S. Edwards, 'An Egyptian Plaster Cast', *British Museum Quarterly*, 22 (1960), pp. 27-9, pl. 6.

Greek and Roman

No. 3. *Alexandria*. Museum for Greek and Roman Art.

a. Plaster bust, cast and modelled, Roman, first to second century AD, h: 29 cm (35 cm as restored), inv. 19120.

⁴⁰ *Contra*: R. Neudecker, *Brill's New Pauly. Encyclopaedia of the Ancient World*, 15 vols (Leiden, 2002–2009), VI, 6, at 'Copies B'.

L. Bacchielli, 'Un ritratto cirenaico in gesso nel Museo greco-romano di Alessandria', *Quaderni di archeologia della Libia*, 9 (1977), pp. 97-110, figs 1-3, 6.

b. Ten fragments of casts of relief-decorated tableware: Inv. 22501, 22510, 24344, 24346-7, 25102, 25106-9.

Reinsberg, *Studien zur hellenistischen Toreutik*, pp. 10-11; for 24344 and 24347 see also G. Barone, 'Due modelli di gesso del Museo Greco-Romano di Alessandria', in Bonacasa and Di Vita (eds), *Alessandria e il mondo ellenistico-romano*, pp. 329-33, pl. 58.1-3.

No. 4. Memphis. Museum for Greek and Roman Art, Alexandria.

Ilioupersis scene with Triptolemos seated and the killing of a Trojan captive (?), Roman.

H. Froning, 'Die ikonographische Tradition der kaiserzeitlichen mythologischen Sarkophagreliefs', *Jahrbuch des Deutschen Archäologischen Instituts*, 95 (1980), pp. 336-41, fig. 16.

No. 5. Allard Pierson Museum, Amsterdam.

a. Relief cast from a statuette of a standing Zeus, Roman, h: 9.6 cm, inv. 7082. Bought in Egypt before 1921. From Memphis (?).

R. L. Scheurleer, 'A Note on Two Casts in the Allard Pierson Museum Amsterdam', in Bonacasa and Di Vita (eds), *Alessandria e il mondo ellenistico-romano*, pp. 359-62, pl. 62.4, 6.

b. Relief cast from a relief of a standing Athena, Hellenistic, late third century BC, h: 11.5 cm, inv. 7085. Bought in Egypt before 1921. From Memphis (?).

R. L. Scheurleer, 'A Note on Two Casts in the Allard Pierson Museum Amsterdam', in Bonacasa and Di Vita (eds), *Alessandria e il mondo ellenistico-romano*, pp. 359-62 pl. 62.3, 5.

No. 6. Athens, Agora.

Various fragments of casts and moulds. Example: Fragment of a relief cast in mould. Lower body, upper thighs and right arm of a standing draped figure. Classical Greek (?).

E. D. Reeder Williams, 'Ancient Clay Impressions From Greek Metalwork', *Hesperia. The Journal of the American School of Classical Studies at Athens*, 45 (1976), pp. 41-66, pl. 7 no. 9.

No. 7. Athens, Kerameikos (at Hagia Triada). National Museum (now lost ?).

'Face of a dead man' (death mask ?) and right arm of a male figure.

C. Curtius, 'Der attische Friedhof vor dem Dipylon', *Archäologische Zeitung*, 1872, pp. 12-35, at p. 35 (mentions left male arm of plaster with bone as well as moulds for tools (?)); L. von Sybel, *Katalog der Sculpturen zu Athen* (Mar-

burg, 1881), p. 208 no. 2921 (mentions the arm but also a death-mask with ref. to Martinelli no. 216); N. F. Martinelli, *Catalogue of Casts in Gypsum Taken Direct from the Masterpieces of Greek Sculpture* (Athens, 1881), p. 37 no. 216 (mentions death-mask with ref. to Curtius and Sybel (?)).

No. 8. Begram. Archaeological Museum, Kabul.

Dozens of relief-decorated objects, mostly medallions, largely with mythological scenes and figures. Hellenistic.

G. Gullini et al., *L'Afghanistan. Dalla preistoria all'islam. Capolavori del museo di Kabul* (Turin, 1961), pp. 95-101, pls 1-9; Reinsberg, *Studien zur hellenistischen Toreutik*, p. 11; Menninger, *Untersuchungen*, pp. 93ff.

Example: Begram Symplegma. The Siren and Silenos symplegma, *Lexicon iconographicum mytologiae classicae* (Zurich and Munich, 1974-) 8.1 (suppl.): Sirenes no. 89b (E. Hofstetter).

No. 9. Ägyptisches Museum, Berlin.

Cup from Athribis with Isis, Harpokrates and sacrificial scene. Hellenistic.

T. Schreiber, 'Die Alexandrinische Toreutik. Untersuchungen über die Griechische Goldschmiedekunst im Ptolemaeerreiche', *Abhandlungen der Sächsischen Akademie der Wissenschaften zu Leipzig. Philologisch-historische Klasse*, 14.5 (1894), pp. 470-9, pl. 5; Reinsberg, *Studien zur hellenistischen Toreutik*, p. 11; Thompson, 'Quae saga; quis magus', p. 315, pl. 56.8.

No. 10. Archaeological Museum, Cairo.

a. 24 sculptural objects in plaster of various periods and provenance in Egypt.

C. C. Edgar, *Catalogue générale des antiquités égyptiennes du musée du Caire* (Cairo, 1906), pp. x-xii, pp. 80-6, pls 42-3.

Reinsberg, *Studien zur hellenistischen Toreutik*, p. 11; Tomoum, *The Sculptor's Models*, nos 40, 46, 48, 90, 98, 115, 122, 157-8, 161, 166 (98, 122, 157, 161 and 166 also published in Edgar).

b. Death mask, Tuna el-Gebel, inv. JdE. 46.593. Egypt, first century BC to first century AD.

G. Lefebvre, *Le tombeau di Petosiris* (Paris, 1924), I, p. 28; A. Adriani, 'Ritratti dell'Egitto greco-romano', *Römische Mitteilungen*, 77 (1970), pp. 72-109, at p. 108, pl. 35.1-2. G. Grimm, *Die Römischen Mumienmasken aus Ägypten* (Wiesbaden, 1974), pp. 122-3, believes that the mask was made in a mould (which was not taken from the face of a person).

No. 11. Kestner-Museum, Hanover.

Head from a small statue or bust of a king, h: 11.1 cm, inv. 1951.109. Hellenistic, early third century BC.

Tomoum, *Sculptor's Models*, p. 214 no. 39, pl. 30a, b.

No. 12. Roemer- und Pelizaeus Museum, Hildesheim.

Find from Memphis, Egypt, of more than seventy casts. Example: relief with portrait of Ptolemy I Soter, h: 8.3 cm, inv. 1120. Hellenistic, early third century BC

Bianchi, *Cleopatra's Egypt*, p. 146 no. 51 (ill.); Reinsberg, *Studien zur hellenistischen Toreutik*, p. 311 cat. no. 36, figs 49-50.

No. 13. Museum of Antiquities of North-Western Crimea, Kara-Tobe.

Four fragments of casts of silver vessels, first century BC – first century AD. S. Y. Vnukov, S. A. Kovalenko, M. Y. Treister, 'Plaster casts from Kara-Tobe' (Russian with English abstract), *Vestnik drevnej istorii*, 1990.2, pp. 100-119 (figs, pls).

No. 14. University of London.

a. Maenad, from Egypt (?), h: 10.3 cm.

Richter, 'Ancient Plaster Casts of Greek Metalware', p. 373, pl. 92 fig. 21; Reinsberg, *Studien zur hellenistischen Toreutik*, p. 11.

b. Dionysos and Satyr, from Egypt (?), h: 10.3 cm.

Richter, 'Ancient Plaster Casts of Greek Metalware', p. 373, pl. 93 fig. 24.

No. 15. Antikensammlung, Munich.

a. Rhytonfragment with Hermes and Dionysos, h: 11 cm.

J. Sieveking, 'Erwerbungen des Antiken-Sammlungen Münchens 1914', *Archäologischer Anzeiger*, 1916, pp. 66-9, fig. 25a. Reinsberg, *Studien zur hellenistischen Toreutik*, p. 12.

b. Plate fragment with birds, sphinxes and ornaments, h: 10.5 cm.

J. Sieveking, 'Erwerbungen des Antiken-Sammlungen Münchens 1914', *Archäologischer Anzeiger*, 1916, pp. 66-9, fig. 25b. Reinsberg, *Studien zur hellenistischen Toreutik*, p. 11.

No. 16. Museum für Kleinkunst, Munich. From the Dattari collection, orig. from Memphis (?).

a. Relief bust of a maenad with wreath in her hair, h: 12 cm, inv. 13006.

Richter, 'Ancient Plaster Casts of Greek Metalware', p. 373, pl. 92 fig. 22; J. Sieveking, 'Erwerbungen der Antiken-Sammlungen Münchens 1914', *Archäologischer Anzeiger*, 1916, pp. 66-9, fig. 25c.

b. Relief, sacrificial scene, h: 8.5 cm, inv. 13007.

Richter, 'Ancient Plaster Casts of Greek Metalware', p. 374, pl. 94 fig. 29.

No. 17. Staatliches Museum Ägyptischer Kunst, Munich.

a. Face-fragment of a head from a statue of a king: Nectanebo I, Ptolemy IX or X, h: 28 cm, inv. ÄS 5339.

Tomoum, *Sculptor's Models*, p. 215 no. 42, pl. 31a-c.

b. Face-fragment of a head from a statue of a king, h: 20 cm, inv. ÄS 7093.

Tomoum, *Sculptor's Models*, p. 215 no. 43, pl. 32a.

No. 18. Metropolitan Museum of Art, New York.

a. Relief from a mirror cover with upper part of a woman, from Egypt (?), h: 7 cm, inv. 31.11.16.

Richter, 'Ancient Plaster Casts of Greek Metalware', p. 373, pl. 93 fig. 25.

b. Relief with lower part of seated woman, from Egypt (?), h: 7 cm, inv. 31.11.17.

Richter, 'Ancient Plaster Casts of Greek Metalware', p. 373, pl. 93 fig. 26.

c. Medallion with three figures, from Egypt (?), d: 11 cm, inv. 31.11.15.

Richter, *Handbook of the Greek Collection*, p. 129, pl. 109h.

No. 19. Ashmolean Museum, Oxford.

Cup-fragment with festive scene in front of a tree and walled city (Handley and Thompson ('Quae saga; quis magus') for different interpretation), h: 11 cm, inv. 1968.777. Bought in Cairo, probably from Memphis.

D. B. Thompson, 'ΠΑΝΝΥΧΙΣ', *Journal of Egyptian Archaeology*, 50 (1964), pp. 147-63, pl. 15; E. W. Handley, 'The Poet Inspired?', *Journal of Hellenic Studies*, 93 (1973), pp. 104-8, pl. 1a; Thompson, 'Quae saga; quis magus', p. 315, pl. 56.5.

No. 20. Louvre, Paris.

a. Relief with Ajax and Cassandra, from Egypt (?), h: 9 cm, inv. MND 195.

Richter, 'Ancient Plaster Casts of Greek Metalware', p. 372, pl. 91 fig. 17; Burkhalter, 'Moulages en plâtre antiques et toreutique alexandrine', pp. 334-47, pl. 60.3-4.

b. Relief with Herakles and the Nemean Lion, from Egypt (?), h: 13 cm, inv. MND 2049.

Richter, 'Ancient Plaster Casts of Greek Metalware', p. 372, pl. 92 fig. 19.

c. Relief with Aphrodite and Eros, from Egypt (?), d: 6 cm, inv. MND 273.

Richter, 'Ancient Plaster Casts of Greek Metalware', p. 373, pl. 93 fig. 23; Burkhalter, 'Moulages en plâtre antiques et toreutique alexandrine', pp. 334-47, pl. 60.3-4.

No. 21. Musée Guimet, Paris.

a. Inv. 193. From Begram. Relief medallion, Meleager (?) standing next to the boar, d: 18 cm.

Burkhalter, 'Moulages en plâtre antiques et toreutique alexandrine', pp. 334-47, pl. 61.3-4.

b. Inv. 194. Relief medallion, Zeus (?) standing next to an altar holding a phiale, d: 14.6 cm.

Burkhalter, 'Moulages en plâtre antiques et toreutique alexandrine', pp. 334-47, pl. 61.5-6.

c. Inv. 199. From Begram. Cast of an impression of a relief decorated skyphos (?) with standing and seated figure, d: 7.2 cm.

Burkhalter, 'Moulages en plâtre antiques et toreutique alexandrine', pp. 334-47, pl. 61.1-2.

No. 22. Art Museum of the University, Princeton.

A horse's nose-piece with relief of warrior on pile of armour, Hellenistic, third to second century BC, h: 16.6 cm, acc. no. 48.52. From Egypt (?).

G. M. A. Richter, 'A Plaster Cast of a Horse's Nose-Piece', in *Records of the Art Museum Princeton University*, 18 (1959), pp. 53-9, (with fig.), with 'A Note on the Inscription on the Plaster Cast', by A. E. Raubitschek p. 90.

No. 23. Art Museum of the University, Princeton.

Head from a statue of an athlete (?), late Hellenistic – early Roman, h: 24.9 cm, no. 2000–120. From Seleuceia in Pieria, Turkey, sector 19-k, excavation 2, around the 'Painted Floor'.

J. M. Padgett, *Roman Sculpture in the Art Museum, Princeton University* (Princeton, 2001), pp. 211-12 (with fig.).

No. 24. Rome, Antiquarium Comunale.

Head of balding beardless man, third century AD. Inv. 16.347.

From tomb at Via Prenestina, Rome, found with two other fragmentary heads of plaster. This head is cast in three pieces.

D'Alessandro and Persegati, *Scultura e calchi in gesso*, pp. 50-3, figs 6-7.

No. 25. Library, Vatican (Rome).

Relief, Amazonomachia.

Richter, 'Ancient Plaster Casts of Greek Metalware', pp. 374-5, pl. 94 fig. 34, pl. 95 figs 35-7; Reinsberg, *Studien zur hellenistischen Toreutik*, p. 12.

No. 26. *Sabratha*, Libya. Museum of Sabratha.

Hundreds of fragments of statues, statuettes, reliefs, plaster moulds and architectural decoration. Roman Imperial period.

Barone, *Sabratha*.

No. 27. From Egypt (?), private collection.

Left side of a face (profile), fourth to second century BC, h: 25.4 cm.

Bianchi, *Cleopatra's Egypt*, p. 129 no. 34 (with fig.).

No. 28. From Egypt (?), private collection.

Face-part of a portrait head of Ptolemy X (?), c. 107-88 BC, h: 27 cm.

J. A. Josephson, *Egyptian Royal Sculpture of the late Period 400-246 B.C.* (Mainz am Rhein, 1997), pl. 5.

No. 29. From Egypt (?), private collection, USA.

Plaster relief (Roman?) from a mould of a Hellenistic metal vessel, h: 5 cm.

D. B. Thompson, 'ΠΑΝΝΥΧΙΣ', *Journal of Egyptian Archaeology*, 50 (1964), pp. 147-63, pl. 15; Reinsberg, *Studien zur hellenistischen Toreutik*, p. 13.

No. 30. Purchased in Alexandria, private collection.

Plaster relief with head of Serapis and snake, second century AD, h: 8 cm.

P. M. Fraser, 'A Plaster Anguiform Sarapis', in Bonacasa and Di Vita (eds), *Alessandria e il mondo ellenistico-romano*, pp. 348-50, pl. 62.1.

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The Baiae Casts and the Uniqueness of Roman Copies

CHRISTA LANDWEHR

In 1954 some curious artefacts came to light during excavations in a complex of ruins which were once the luxurious baths of Baiae.¹ Located on the Gulf of Naples a short distance from Puteoli, the modern town of Pozzuoli, Baiae was a flourishing resort from the first century BC. The numerous irregular and badly battered pieces of plaster evidently belonging to life-size plaster casts were found in a mass of debris used to fill a cellar room.² Legs and hands showed signs of having been deliberately hacked apart. The reason for this may have been the lead wire and iron dowels used to reinforce the plaster;³ at some point the value of the small amounts of these materials may have exceeded that of the large statues made of plaster.

According to our calculations the 400 odd fragments originate from at least twenty-four and at most thirty-three statues.⁴ Gisela Richter examined the fragments in the 1960s and noticed the face of Aristogeiton, which she subsequently published.⁵ I was able to identify fragments of eleven other statues, among them Harmodios, the *Sciarra, Mattei* and *Sosikles Amazons*, the *Athena Velletri*, the *Aphrodite Borghese*, and *Eirene carrying Ploutos*.⁶ The identifications prove beyond doubt that the Baiae plaster fragments are the remnants of casts of famous Greek bronze masterpieces of the fifth and fourth centuries BC. It is safe to assume that the casts belonged to an important atelier and that they were used to create true-to-scale marble copies.

In order to provide compelling visual evidence for the identification of the Baiae fragments, I chose to have new plaster casts made from them and to have these introduced into plaster casts taken from Roman copies: the part corresponding to the Baiae fragment is simply chiseled away and the replica

1 Landwehr, *Gipsabgüsse Baiae*, pp. 5-6 and pl. 1 a.

2 Landwehr, *Gipsabgüsse Baiae*, p. 6 and pl. 1 b and c.

3 Landwehr, *Gipsabgüsse Baiae*, pp. 19-22.

4 Landwehr, *Gipsabgüsse Baiae*, pp. 177-80.

5 G. M. A. Richter, 'An Aristogeiton from Baiae', *American Journal of Archeology*, 74 (1970), pp. 296-7, pl. 74, figs 1-3.

6 Landwehr, *Gipsabgüsse Baiae*, pp. 27-111, cat. nos 1-67.



Fig. 2. 1: *Sciarras Amazon*. Right: the Copenhagen copy. Second half of the first century AD. Marble, h (shoulder): 1.56 m. Ny Carlsberg Glyptotek, Copenhagen. Cast with replicas of Baiae casts inserted; upper left: close-up of inserted arm fragment; lower left: close-up of inserted breast fragment.



Fig. 2. 2: *Mattei Amazon*. Right: the Vatican copy. Second half of the first century AD. Marble, h (shoulder): 1.59 m. Vatican Museums, Rome. Cast with replicas of the Baiae casts inserted. Upper left: close-up of an inserted fragment with a segment of the strap of the quiver; lower left: close-up of an inserted fragment with folds of the chiton.

of the latter is then inserted. This project, carried out by the sculptor und restorer Silvano Bertolin, demonstrates the astonishing precision of the ancient copying technology.

Reconstructions of this sort were carried out, for instance, on a cast of the Copenhagen copy of the Sciarras Amazon (Fig. 2. 1, right panel),⁷ into which replicas of the Baiae casts, for example parts of the right arm and right breast (Fig. 2. 1, left panels),⁸ were inserted.

A cast of the Vatican copy of the Mattei Amazon was combined with a cast of the right arm of the Tivoli copy (Fig. 2. 2, right panel),⁹ into which

7 Landwehr, *Gipsabgüsse Baiae*, pp. 60-4, cat. nos 29-33 and pls 26-31.

8 Landwehr, *Gipsabgüsse Baiae*, cat. nos 29 and 30, pl. 26 a and c and pl. 28 c.

9 Landwehr, *Gipsabgüsse Baiae*, pp. 64-70, at p. 65: Vatican = 'Kopie B'; Tivoli = 'Kopie C'; pl. 32 a.

replicas of the Baiae casts,¹⁰ for example, two fragments of drapery (Fig. 2. 2, left panels),¹¹ were introduced.

Numerous observations made on the Baiae casts reveal the meticulous care that went into the making of the cast itself. Silvano Bertolin, who is not only a restorer but also a sculptor with training in traditional copying techniques, was kind enough to calculate the labour (in man-hours) required to make a cast of a full-sized statue such as the *Sciarra Amazon*. Since elastic materials such as silicon for making moulds were unknown in antiquity, this was a time-consuming process. Plaster casts of small zones of the surface of the original statue were made one by one. These fit together like a three-dimensional puzzle and for the casting process they were held together by removable plaster caps.¹² The casting was done in sections: the head, the arms and the column were all cast separately. The torso was cast in two parts.¹³ For the *Amazon* about 195 form pieces and thirty-eight caps would be required. About 400 man-hours would be needed for the job. Subsequently, another 100 odd hours would be required to work over the partial casts. For sculpting a true-to-scale marble copy based on the plaster replica an experienced sculptor must work about 2200 hours. In addition to the costs of the labour of two different specialized craftsmen, the expense of transportation of the plaster cast to an overseas workshop must be taken into account.

On the other hand, to sculpt 'free hand' a marble statue of the size and shape of the *Sciarra Amazon*, an artist must work approximately 1400 hours.

The point I want to make here is that the Roman copy, often maligned by modern art historians as an inferior product of mechanical replication, must have had a different value in the eyes of sophisticated Roman connoisseurs. The two time-consuming and laborious processes, the production of the full-size plaster cast of the bronze original and the creation of a full-scale copy in marble via the pointing technique, made the marble copy a costly work of art, much more costly than a statue executed without the constraint of fidelity to an original.

The full-size plaster casts of the bronze statues, which must have been the work of skilled specialists, were probably quite rare. The atelier in Baiae was, based on the number of casts on hand, well equipped for producing marble copies. The copies found in the vicinity of Baiae seem to reflect the activity of

10 Landwehr, *Gipsabgüsse Baiae*, pp. 64-70, cat. nos 34-9, pls 32-40.

11 Landwehr, *Gipsabgüsse Baiae*, cat. nos 34-5, pl. 32 a-b and pl. 34 b.

12 Landwehr, *Griechische Meisterwerke in römischen Abgüssen*, pp. 16-17, fig. 13; Landwehr, *Gipsabgüsse Baiae*, pp. 16-17.

13 Landwehr, *Griechische Meisterwerke in römischen Abgüssen*, p. 18, figs 14-15; Landwehr, *Gipsabgüsse Baiae*, pp. 20-3.



Fig. 2. 3: *Aphrodite Borghese*. Marble statues from Baiae. Left: By Aphrodisios Athenaios, first quarter of the first century AD, h: 1.95 m. Museo Nazionale, Naples; Right: third quarter of the first century AD, h: 1.68 m. Museo Nazionale, Naples.

our atelier: a large torso of *Eirene* was found in Cumae,¹⁴ a head of the *Sosikles Amazon* in Baiae itself.¹⁵

The *Aphrodite Borghese* must have been very popular: two statues were found in Baiae (Fig. 2. 3),¹⁶ a large torso in Misenum,¹⁷ a smaller one in Pozzuoli.¹⁸ A fifth copy survives in Portici.¹⁹ It makes of course economic sense to use a plaster cast over and over again to create copies: the more copies that are made from a plaster cast, the better the return on the initial investment. The *Aphrodite* was without a doubt a hit because it could be combined with portrait heads of noble ladies.²⁰ More intriguing is the question of who, among the wealthy owners of the

- 14 Naples, Museo Nazionale. E. La Rocca, 'Eirene e Ploutos', *Jahrbuch des Deutschen Archäologischen Instituts* 89 (1974), pp. 112-36, at p. 113, no. 2, figs 1-3; B. Vienneis-Schlörb, *Glyptothek München. Katalog der Skulpturen, II* (Munich, 1979), cat. no. 25, p. 261, note 4: List of replicas, no. 2; Landwehr, *Gipsabgüsse Baiae*, pp. 103-4; Landwehr, *Skulpturen, I: Idealplastik. Weibliche Figuren. Benannt* (Berlin, 1993), pp. 61-2.
- 15 Naples, Museo Nazionale, inv. 150 401. M. Weber, 'Die Amazonen von Ephesos', *Jahrbuch des Deutschen Archäologischen Instituts*, 91 (1976), pp. 28-96, at p. 47, no. 16, figs 15-16 (photographs of a plaster cast in Basel).
- 16 Statue 'Baiae I' (Fig. 3, left panel): Naples, Museo Nazionale, inv. 150 383. Sculptor's signature: Aphrodisios Athenaios. Landwehr, *Gipsabgüsse Baiae*, pp. 88-94, at p. 89 ('Kopie A'), pl. 54 a, c; Valeri, *Marmora Phlegraea*, pp. 98-102, fig. 99; Statue 'Baiae II' (Fig. 3, right panel): Naples, Museo Nazionale, inv. 150 384. A cornucopia has been added to the left arm. Sculptor's signature: Karos Puteanos Landwehr, *Gipsabgüsse Baiae*, pp. 88-94, at p. 89 ('Kopie B'), pl. 54 b, d; Valeri, *Marmora Phlegraea*, fig. 100.
- 17 Baia, Museo dei Campi Flegrei. Landwehr, *Gipsabgüsse Baiae*, pp. 88-94, at p. 89 ('Kopie C'), pl. 55 b; Valeri, *Marmora Phlegraea*, fig. 101.
- 18 Baia, Museo dei Campi Flegrei, inv. 292866. Valeri, *Marmora Phlegraea*, pp. 98-102, figs 97-8.
- 19 Portici, Villa Reale. P. Zancani Montuoro, 'Repliche romane di una statua fidiaca', *Bollettino Comunale*, 61 (1933), pp. 25-58, no. 2, figs 4-6, pl. I; Landwehr, *Gipsabgüsse Baiae*, pp. 88-94, at p. 89, note 422 ('Kopie H'); Valeri, *Marmora Phlegraea*, p. 102.
- 20 The right arm of the statue 'Baiae II' (Fig. 3, right panel; see above, note 15) held a cornucopia. The latter is not only an attribute of Aphrodite, but rather is – in many cases – carried by female mem-

opulent villas on the Gulf of Naples, commissioned a copy of the *Tyrant Slayers* (Harmodios and Aristogeiton).

Outside Rome and Campania full-scale copies have only been found in a few places. One of those places is the ancient city of Caesarea Mauretaniae, the present-day Cherchel in Algeria. The city was founded in 25 BC by Juba II, the newly proclaimed King.²¹ The Numidian prince, who had been raised and educated at the imperial court in Rome, was installed by Augustus as King of Mauretania. Augustus had also arranged the wedding of Juba II and Cleopatra Selene.²² The numerous sculptural works of exquisite quality document the keen interest of the royal couple in art, and show that they had the means to bring first-rate sculptors to Caesarea. They adorned the town and their palace with fine statuary comparable in quality to the best masterpieces of Rome and Campania. Among these works are the twin female figures referred to as 'Demeter'.²³ The workmanship of the figures is so precise that it is hard to tell the statues apart (Fig. 2. 4).

The lesson to be learned here is simple: if in Juba's time duplication had been considered inferior, he would never have commissioned this pair of statues, let alone displayed them together in his palace. The ability to create exact replicas must, on the contrary, have been considered to be a consummate artistic skill.

The juxtaposition of the Baiae casts and their cognate Roman copies makes us very aware of another aspect that is equally important. In spite of the mechanical replication of the dimensions of the original, each copy is unique due to the individual treatment of details. A glance at the Roman copies of Aristogeiton is enough to convince anyone of this.²⁴

bers of the imperial family. The fact that the statue 'Baiae I' (Fig. 3, left panel) has a concave surface prepared for inserting a separately sculpted head is a good indicator that this was a portrait figure.

- 21 M. R.-Alföldi, 'Die Geschichte des numidischen Königreiches und seiner Nachfolger', in H. G. Horn and C. Rüger (eds), *Die Numider* (Bonn, 1979), pp. 43-74; D. W. Roller, *The world of Juba II and Kleopatra Selene* (New York, 2003); C. Landwehr, 'Les Portraits de Juba II, Roi de Maurétanie, et de Ptolémée, son fils et successeur', *Revue Archéologique*, 43 (2007), pp. 65-110; Landwehr, *Skulpturen*, IV: *Porträtplastik. Fragmente von Porträt- oder Idealplastik* (Mainz am Rhein, 2008), cat. nos 275-80, pls 1-11, and figs 3-7.
- 22 Cleopatra Selene portrait in Cherchel: Musée inv. S 66. J. Mazard and M. Leglay, *Les portraits antiques du Musée St. Gsell d'après les sculptures et les monnaies* (Alger, 1958), p. 20, fig. 9; C. Sintès and Y. Rebahi, *Algérie antique* (Avignon, 2003), p. 53, no. 17 with fig. (Y. Rebahi); Landwehr, *Skulpturen*, IV: *Porträtplastik. Fragmente von Porträt- oder Idealplastik* (Mainz am Rhein, 2008), cat. no. 281, pl. 12.
- 23 Statue I (with head): Cherchel, Musée inv. S 88. Statue II (headless, fitted with a plaster cast of the head of Statue I): Alger, Musée National des Antiquités, inv. 8; Landwehr, *Skulpturen*, I: *Idealplastik. Weibliche Figuren benannt* (Berlin, 1993), cat. nos 35-6, pls 48-53.
- 24 Landwehr, *Gipsabgüsse Baiae*, pp. 27-34, fragment of face: cat. no. 1, pls 4, 6; Roman statue copy (Capitoline Museums): pls 5 c, 7 c; separate head in Rome (Capitoline Museums): pls 5 b, 7 b.



Fig. 2. 4: Cherchel 'Demeters'. Marble statues. Left: statue I. 25-5 BC. H: 2.075 m. Musée Archéologique, Cherchel; right: Statue II. 25-5 BC. H: (shoulder) 1.8 m. Musée National des Antiquités, Alger.

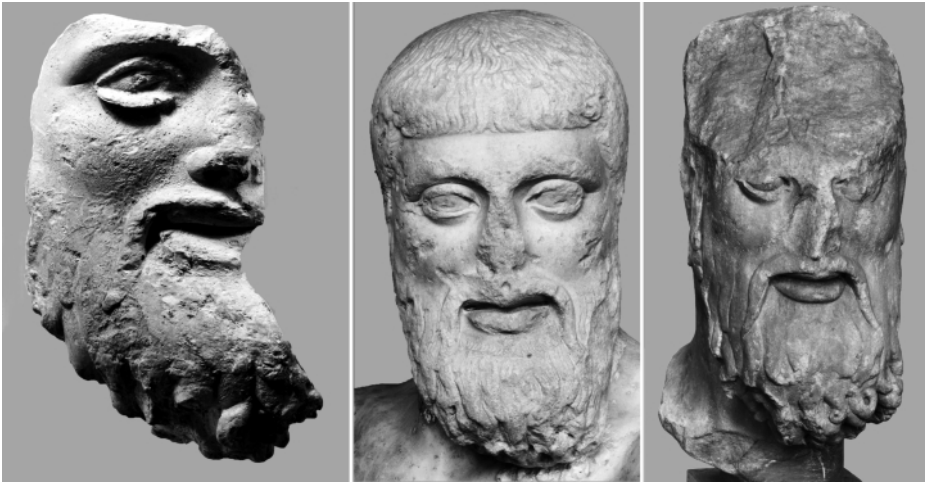


Fig. 2. 5: Aristogeiton. Left: Baiae cast, h: 21.6 cm; middle: head of statue, c. 50 BC. Marble, h (whole statue): 1.805 m. Capitoline Museums, Rome; right: head. Marble, h: 32.5 cm. Capitoline Museums, Rome.

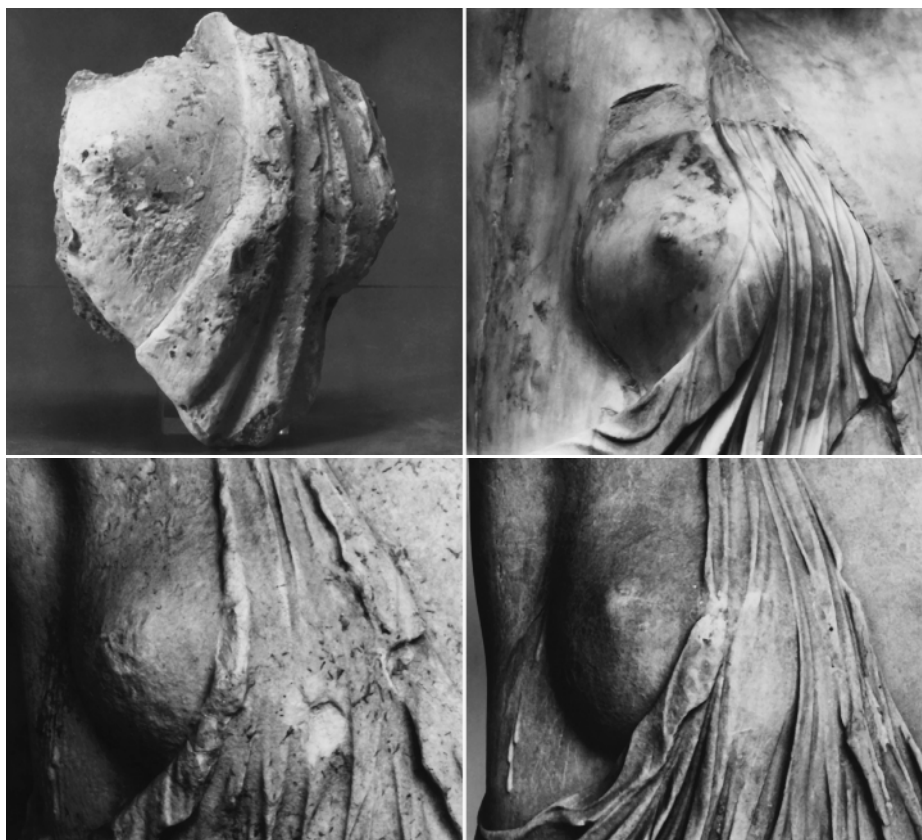


Fig. 2. 6: *Sciarra Amazon*. Upper left: Baiae cast with the right breast and close-ups of the corresponding parts of the Roman copies; upper right: Copenhagen copy, Ny Carlsberg Glyptotek; lower left: Tivoli copy, Villa Adriana, Antiquario; lower right: Berlin copy, Staatliche Museen zu Berlin.

The head of the statue in Rome (Fig. 2. 5 middle) is the more accurate portrayal of the features of the original (Fig. 2. 5 left). However, the full cheeks of this copy make the figure appear younger. The opposite effect is evident in the copy of the separate head in Rome (Fig. 2. 5 right): due to the sunken cheeks here Aristogeiton looks older and the expression is quite different.

We can make similar comparisons for the Amazons. It is interesting to compare the Baiae cast of the right breast of the *Sciarra Amazon* (Fig. 2. 6, upper left panel) and the breasts of the copies in Copenhagen, Tivoli and Berlin.²⁵ The sculp-

25 Landwehr, *Gipsabgüsse Baiae, Sciarra Amazon* (see above, note 7), right breast: cat. no. 29, pl. 26; Copenhagen copy (Ny Carlsberg Glyptotek): pl. 27 b; Tivoli copy (Villa Adriana, Antiquario): pl. 27 d; Berlin copy (Staatliche Museen zu Berlin, Preussischer Kulturbesitz): pl. 27 c.

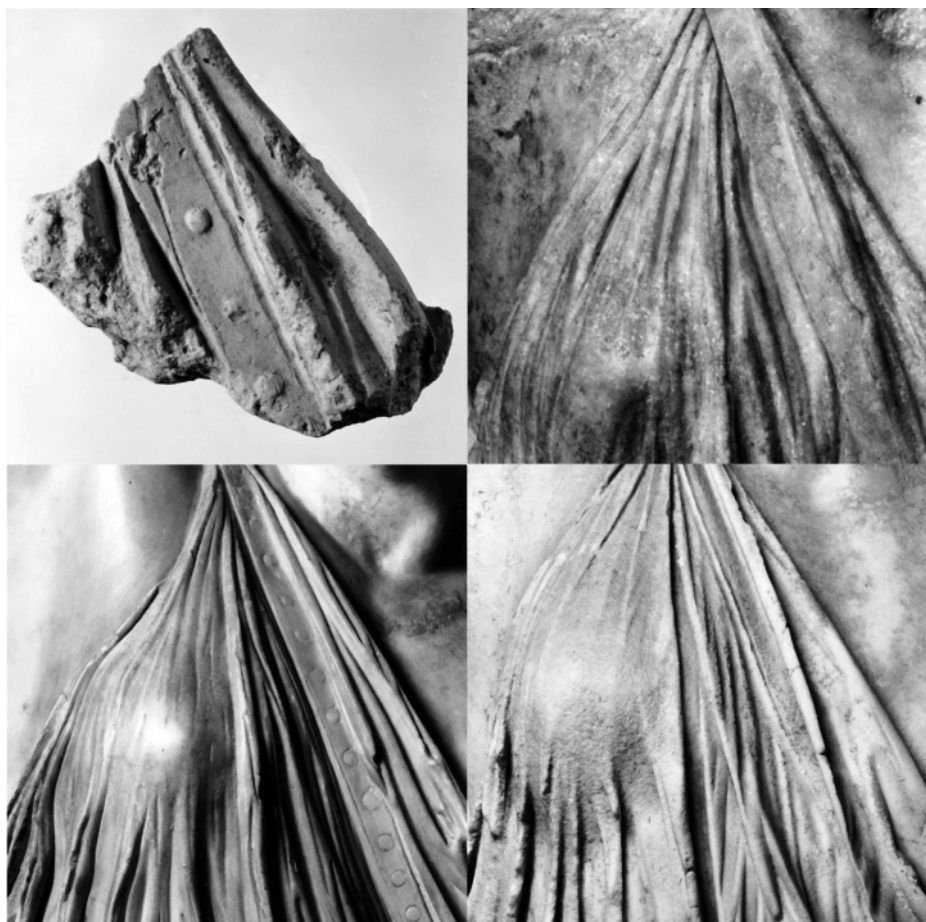


Fig. 2. 7: *Mattei Amazon*. Baiae cast with a segment of the leather strap of the quiver and close-ups of the corresponding parts of the Roman copies; upper left: Baiae cast, h: 8.8 cm; upper right: Trier copy, Landesmuseum; lower left: Capitoline copy, Capitoline Museums, Rome; lower right: Tivoli copy, Villa Adriana, Museo.

tor of the Copenhagen copy (Fig. 2. 6, upper right panel) has sensuously rendered the breast as fuller and firmer with a visible nipple. The folds of the chiton are richer and more accentuated. In contrast, the Tivoli and Berlin copies (Fig. 2. 6, lower left and lower right panels, respectively) have sagging breasts. The material of the chiton appears very thin and there are fewer folds.

The copies differ significantly in the portrayal of details, as can be seen in juxtapositions of the small fragment of the cast of the *Mattei Amazon* with the

corresponding parts of the copies. In the Baiae fragment some folds of the garment and the leather strap of the quiver are preserved (Fig. 2. 7, upper left panel).²⁶ The Capitoline copy (Fig. 2. 7, lower left panel), a work of the Augustan period, authentically reports the plasticity of the drapery and the studs on the leather strap. The Tivoli (Villa Hadriana) copy (Fig. 2. 7, lower right panel) leaves out the studs and the folds of the garment are flat. The statue in Trier (Fig. 2. 7, upper right panel), the latest of the three and attributable to the Antonine period, includes the studs. They are, however, not rendered as knobs but rather as circles scratched into the surface of the marble. The garment has greater relief than the Villa Hadriana copy and the treatment of the drapery is completely different from the Capitoline copy.

All of the Roman statues mentioned above are true-to-scale copies executed by taking measurements with the help of a pointing machine and all of them are sculptural works of excellent quality. Through juxtaposition and careful comparison of the copies we can obtain a reliable picture of the composition and dimensions, and gather detailed information on the original. But each of the examples has its own unique character and stylistic qualities, which allow us to date the Roman work. This is paradoxical, since the Roman craftsmen were perfectly able to imitate the style of the original had they wanted to.

Let me jump once again to Chercel and its rich collection of statuary. Full-scale copies were not just made during the era of the Numidian Kings, but well into the second century AD. The *Tiber Apollo* is one of these works.²⁷ The original and the copy found in the River Tiber (Fig. 2. 8, left panel) probably



Fig. 2. 8: *Tiber Apollo*. Left: Tiber copy, Antonine period. Marble, h: 2.04 m. Museo Nazionale, Palazzo Massimo, Rome; right: Chercel copy, Antonine period. Marble, h: 2.04 m. Musée Archéologique, Chercel.

26 Landwehr, *Gipsabgüsse Baiae, Mattei Amazon* (see above, note 10), fragment of drapery and quiver: cat. no. 34, pl. 32 b; Roman copy (Capitoline Museums): pl. 32 c; Tivoli copy (Villa Adriana, Antiquario): pl. 33 c; Trier copy (Landesmuseum): pl. 33 d.

27 'Tiber Apollo' type. Landwehr, *Skulpturen*, II: *Idealplastik. Männliche Figuren* (Mainz am Rhein, 2000), pp. 1–12; Roman copy (Museo Nazionale, Palazzo Massimo, inv. 608): suppl. 1–3, 4c, 5c, 6c, 7c and 8c; Chercel copy (Musée, inv. S 30): cat. no. 67, pl. 1–7, suppl. 4d, 5d, 6d, 7d and 8d.



Fig. 2. 9: *Tiber Apollo*. Details of Fig. 2. 8. Left: Tiber copy, Museo Nazionale, Palazzo Massimo, Rome; right: Cherchel copy, Musée Archéologique, Cherchel.

held a laurel branch in the left hand. The statue in Cherchel (Fig. 2. 8, right) is leaning on a large laurel tree. This appears to be a variant of the original. Both copies originated in the Antonine period. A conspicuous feature of the figure is the flat, boyish anatomy of the chest and abdomen that is well preserved in the Cherchel copy. The back of the statue forms a surprising contrast, the well-developed musculature is that of a mature man.

For full-scale copies the rendering of the shoulder length tresses of hair in these two sculptures is remarkably different. The Tiber copy (Fig. 2. 9, left panel) has wild, tangled locks. In contrast, the tresses of the *Cherchel Apollo* (Fig. 2. 9, right panel) are arranged very neatly next to one another. They look as if they were extruded and their texture reminds us of the icing used to decorate a cake. The two copies share stylistic characteristics of the Antonine age. Beyond this, the Cherchel copy reveals the personal style of the Cherchel sculptor – unmistakable in the unique portrayal of the long locks.

Thinking it unlikely that two sculptors of the same artistic stature worked in Caesarea at the same time, I was prompted to look for other works by the same artisan. A portrait bust of a noble lady of Cherchel may be one of them (Fig. 2. 10, left panel).²⁸ Both the *Apollo* (Fig. 2. 10, right panel) and the portrait

28 Cherchel, Musée inv. S 36. C. Sintès and Y. Rebahi, *Algérie antique* (Avignon, 2003), p. 34, no. 31



Fig. 2. 10: Left: Portrait bust of a noblewoman. Antonine period. Marble, h: 81 cm. Musée Archéologique, Cherchel; right: *Tiber Apollo*, Cherchel (detail of Fig. 2. 8).

bust are works of exceptional quality, and both originated in Caesarea in the Antonine period. Among the common features are the extruded locks – the signature of the ‘Apollo sculptor’. This is, by the way, not the only example in Cherchel of a pair of works – a copy and a portrait – executed in the same high quality by the same artisan. We have here more evidence that full-scale copies were highly esteemed. It is definitely not the case that portraits were created by accomplished and elite sculptors, while the production of copies was relegated to inferior craftsmen.

By this somewhat roundabout argument I want to make a case for the place occupied by copies in the Roman scale of artistic values. On the one hand, the Roman artists used complicated and expensive techniques to make full-scale copies of Greek and – in the case of the *Tiber Apollo* – even Roman masterpieces. On the other hand, they made sure that their work bore the stamp of their own era. Perhaps it is just this seemingly paradoxical nature – the unification of two works of art in one statue – that made them so fascinating

with fig. (F. Baratte); Landwehr, *Skulpturen*, IV: *Porträtplastik. Fragmente von Porträt- oder Idealplastik* (Mainz am Rhein, 2008), cat. no. 310, pls 46, 48 and 49.

to the Roman connoisseur.²⁹ We should once and for all revise our notion that the Roman copies are mere ‘second class’ reproductions.

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29 cf. Landwehr, *Skulpturen*, II: *Idealplastik. Männliche Figuren* (Mainz am Rhein, 2000), pp. 12–18, cat. no. 68 (‘Omphalos’ Apollo), pl. 8; see especially pp. 13–14.

The Renaissance

Plaster and Plaster Casts in Renaissance Italy

ECKART MARCHAND

The sixteenth-century casts by Primaticcio and Leone Leoni spring to one's mind when mention is made of plaster casts from the Italian Renaissance.¹ As reproductions in plaster of the most famous sculptures of ancient Rome they are the direct predecessors of millions of reproductive casts, mostly made during the last two centuries. In hundreds of collections all over Europe, America and beyond they conveyed and confirmed a western canon of art. In Renaissance Italy reproductive plaster casts of ancient works of art were a new and, especially in the fifteenth century, rare phenomenon that had developed in response to a new interest in the material remains of classical antiquity. As such they might appear as a paradigmatic 'Renaissance' phenomenon, that is, as a part of the wider project of the revival of classical antiquity.

For Primaticcio's casts, this assessment is certainly not wrong, but when it comes to the use of plaster and plaster casts in the Renaissance in general, it is at best highly selective. The present article aims to demonstrate that plaster cast making in the Renaissance was closely related to a wider range of practices some of which had direct medieval traditions, and some of which did not relate to the project of a classical revival. It was because of these traditions and practices that the medium and technique were available to sixteenth-century artists as a means of reproduction. The discussion will start with an evaluation of medieval traditions of plaster sculpture.

Given the variety of different types of plaster used in the period, a clarification of the terminology is needed. 'Plaster' in this article is used as the generic term for the material, regardless of its chemical composition. 'Stucco', though often employed in the secondary literature to describe plaster made of lime, will denote plasterwork in architectural contexts, where it decorates architecture or permanent furnishings, such as choir screens and pulpits. Such architectural plaster decorations are more often made of lime rather than *gesso*, but the term '*stucco*', as it is used here, is not intended to indicate a material distinction.²

1 For Primaticcio's casts see the contribution by Walter Cupperi in this volume, pp.81-98.

2 I follow largely the argument of C. Gapper, 'What is Stucco? English Interpretations of an Italian Term', *Architectural History, Journal of the Society of Architectural Historians of Great Britain*, 42 (1999), pp. 333-44; cf. Marchand, 'Reproducing Relief', pp. 194-6.

Medieval Stucco Decorations

Freestanding sculpture in the Middle Ages was extremely rare. Relief was the dominant mode while sculptures in the round were usually located in niches and other architectural settings, such as facades or portals, where they are largely conceived for frontal viewing. Sculpture made of plaster is no exception and therefore constitutes stucco work as defined above. Such stucco decorations can be found across Europe of the highest quality from the sixth to the fourteenth century.³ Apart from window surrounds and in courtyards,⁴ it usually survives on the inside of buildings – not surprisingly, given the relative vulnerability of the material when exposed to the elements. In Italy, the most striking medieval stucco relief decoration is that of the so-called *Tempietto Longobardo* at Cividale in Friuli (Fig 3. 1), consisting of six over-life size figures of unidentified female saints and extensive architectural decorations.⁵ There are no documentary sources for this group and comparative material is rare. Consequently attempts to date the ensemble fluctuate between the eighth and tenth century. Other important Italian examples include the high altar tabernacle in S. Ambrogio in Milan, that can be dated confidently around 972.⁶

While in Cividale (North Italy), Disentis⁷ and Münstair⁸ (both Switzerland) these stucco decorations formed complete decorative systems for architectural spaces such as chapels (Cividale, Münstair) or a courtyard (Disentis), in other cases individual stone monuments, such as choir screens (Halberstadt; Pls 20. B and C; and Hildesheim)⁹, tabernacles (S. Ambrogio, Milan)¹⁰ and pulpits

3 For a general introduction to medieval stucco see: A. Segagni Malacart, 'Stucco', in Istituto della Enciclopedia Italiana (ed.), *Enciclopedia dell'arte medievale*, 12 vols (Rome, 1991–2002), XI (2000), pp. 1–18. For Italy: Poeschke, *Skulptur des Mittelalters in Italien*, I, *Romanik* (1998), pp. 22–7; C. Gaberscek, 'L'Alto Medioevo', in M. Buora (ed.), *La Scultura in Friuli, I, Dall'Epoca Romana al Gotico*, (Pordenone, 1983), pp. 189–259. For Germany: Grzimek, *Deutsche Stuckplastik 800 bis 1300*; H. Wilm, *Gotische Tonplastik in Deutschland* (Augsburg, 1929), pp. 39–40; K. Niehr, *Die mitteldeutsche Skulptur der ersten Hälfte des 13. Jahrhunderts* (Weinheim, 1992), pp. 55–75 *et passim*; Exner, 'La sculpture en stuc'.

4 For stucco window surrounds see e.g. Exner, 'La sculpture en stuc', p. 327.

5 Today known as the Oratorio di Santa Maria in Valle; see Poeschke, *Skulptur des Mittelalters in Italien*, I, *Romanik* (1998), pp. 22–3.

6 Exner, 'La sculpture en stuc', p. 332.

7 For the monastery of St. Martin in Disentis see: W. Studer, 'Technisch-Kunsthawerkliche und Künstlerische Indikatoren der Frühbyzantinischen Ausstattung von Disentis', in Sapin (ed.), *Stucs et décors*, pp. 143–65.

8 For the church of the monastery of St. John at Münstair see: C. Sapin in *idem* (ed.), *Le Stuc*, pp. 192, 214–16.

9 For the choir screens in the Church of Our Lady at Halberstadt see the discussion by Daniela and Thorsten Arnold and Elisabeth Rüber-Schütte in this volume, pp. 369–78, see also S. B. Hoh-



Fig. 3. 1: Six female saints, Tempietto Langobardo at Cividale, Friuli. Stucco decoration, eighth to tenth century.

(Moscufo and Cugnoli, both southern Italy¹¹), tomb monuments (Quedlinburg),¹² and, in the case of Gernrode, a holy sepulchre, are decorated in this technique and material. The ninth-century figure of Charlemagne in Münstair forms a rare example of a freestanding, if wall mounted sculpture.¹³ In

mann, *Die Halberstädter Chorschränken: Ein Hauptwerk der niedersächsischen Kunst um 1200* (Berlin, 2000). For Gernrode see Grzimek, *Deutsche Stuckplastik 800 bis 1300*, pp. 47-50, for the choir screens in St. Michael at Hildesheim see e.g. K. Niehr, *Die mitteldeutsche Skulptur der ersten Hälfte des 13. Jahrhunderts* (Weinheim, 1992), pp. 271-5.

10 Poeschke, *Die Skulptur des Mittelalters*, p. 23.

11 For the pulpits in the churches of St. Maria del Lago in Moscufo (1159) and S. Stefano in Cugnoli (1166) see F. Gandolfo, 'L'uso dei modelli in una bottega di stuccatori abruzzesi alla metà del XII secolo', in Sapin (ed.), *Stucs et décors*, p. 319-29.

12 For the tomb monuments in the Collegiate Church of Quedlinburg, see: A. Middeldorf Kosegarten, "'Die hässlichen Äbtissinen': Versuch über die frühen Grabmäler in Quedlinburg", *Zeitschrift des Deutschen Vereins für Kunstwissenschaft*, 56-57 (2002-2003), pp. 9-47.

13 C. Sapin in *idem* (ed.), *Le Stuc*, 217; J. Gantner and A. Reinle, *Kunstgeschichte der Schweiz*, I, pp. 220-3.

northern Germany this stucco tradition can be traced into the early fifteenth century; Italian works from the thirteenth and fourteenth century on the other hand seem very thinly spread indeed.¹⁴

The choice of material can often be related to the local occurrence of the relevant raw material and/or absence of other stone and marble.¹⁵ No documentary evidence about the workshops survives, but the high quality of design and level of technical skill make it unlikely that these were entirely disconnected local traditions. Regarding Cividale and Disentis, it has been argued that these ensembles were the work of travelling workshops from Byzantium.¹⁶

The majority of the decorations appear to be modelled and/or carved by hand, rather than cast. Artists may have followed pattern books, in some cases also three-dimensional models. There is though, occasional evidence, for example, at Gernrode and Hildesheim, that moulding techniques had been used. In the fourteenth century in Germany entire figures were cast using a mould for the front and a second one for the back.¹⁷ In other cases, individual elements, such as faces or repeat patterns were cast or squeezed on the ground into moulds (made out of wood, clay, or simply sand), and then attached to the supporting wall or plastered stone uprights with the help of iron pins. Alternatively, the wet plaster may have been applied to the wall and then moulded by pressing a wooden form against it.¹⁸ In both cases, the plaster would have been re-worked afterwards, either modelled while still damp or carved when dry.

As mentioned above, during the thirteenth and fourteenth centuries stucco work in Italy became an increasingly rare phenomenon. At this time, from the twelfth century onwards, in the stone-less planes of the river Po (including Piedmont, the Emilia Romagna and Lombardy), a strong tradition of architectural terracotta decorations developed.¹⁹ In comparison to *stucco*, terracotta

14 See C. Nenci, 'Gli stucchi italiani: Nuove ricerche su alcune opere in stucco dell'Abruzzo', in Sapin (ed.), *Stucs et décors*, pp. 269-83, at 270-1.

15 A typical example is the "high-temperature" plaster local to the area of the German Oberharz; see the contribution by Arnold, Arnold and Rüber-Schütte in this volume, p. 373.

16 See e.g. C. Gaberscek, 'L'Alto Medioevo' in B. Buora (ed.), *La Scultura in Friuli, I, Dall'epoca romana al gotico*, (Pordenone, 1983), pp. 189-259; esp. pp. 203-4. For Disentis see W. Studer, 'Technisch-Kunsthandswerkliche und Künstlerische Indikatoren der Frühbyzantinischen Ausstattung von Disentis', in Sapin (ed.), *Stucs et Décors*, pp. 143-65.

17 H. Wilm, *Gotische Tonplastik in Deutschland* (Augsburg, 1929), p. 40; Grzimek, *Deutsche Stuckplastik 800 bis 1300*, p. 11; Arnold, Arnold und Rüber-Schütte in this volume, pp. 369, 376.

18 Grzimek, *Deutsche Stuckplastik 800 bis 1300*, pp. 11-12.

19 On Italian Renaissance terracotta see B. Boucher, 'Italian Renaissance Terracotta: Artistic Revival or Technological Innovation?', in B. Boucher et al. (eds), *Earth and Fire: Italian Terracotta Sculpture from Donatello to Canova*, exh. cat., Museum of Fine Arts, Houston and Victoria and Albert Museum, London (New Haven, Conn., and London, 2001), pp. 1-31, especially

had two major advantages. The raw material (clay) was locally available and once fired, the resulting terracotta was resistant to the elements. Bricks were an established building material in these regions and so supply chains, technical expertise and facilities for the firing of clay were readily available. Ornamental terracotta elements could be modelled by hand before firing, repeat patterns produced, much like bricks, using wooden moulds, into which the clay was squeezed or poured. In many cases the clay was then further manipulated, both before firing, when still wet, and afterwards, when carving tools were required.²⁰ This tradition continued well into the fifteenth century when a Renaissance repertoire of forms appeared. It was in late fifteenth-century Milan under Bramante that this technique was directly combined with *all-antica* stucco decorations.²¹

Renaissance Stucco Decorations

In Book Seven of his treatise *On the Art of Building* Leon Battista Alberti (1452) remarks on the suitability of stucco reliefs for the exterior decoration of temples which he describes as an ancient practice, and in Book Six he discusses how to make such reliefs. Here he mentions the possibility of using cast moulds for this purpose.²² Alberti's remark followed Vitruvius, though there were also Roman remains that demonstrated the use of this technique in Antiquity. The practice was soon emulated by Renaissance architects and cast and moulded barrel vaults were designed and executed as part of domestic architecture in Rome, Florence and elsewhere; examples being the cast coffering of the barrel vault in the entrance halls of the Palazzo Venezia in Rome (towards the Piazza di Venezia, c. 1465 and occasionally attributed to Alberti; Fig. 3. 2) and Giuliano da Sangallo's Palazzo Scala in Florence (1473–80) and Palazzo della Rovere in Savona, as well as several of the vaults of private

pp. 2-5 for technique of terracotta production. For the Northern Italian tradition of architectural decoration in terracotta (with further bibliography): R. Rossi Manaresi, 'Ornamenti architettonici: Decorazioni e sculture in terracotta', in M. G. Vaccari (ed.), *La scultura in terracotta* (Florence, 1996), pp. 47-63, especially pp. 50-9 for an extensive discussion of technical issues. A rich collection of photographs of Italian terracotta work is G. Ferrari and C. Ricci, *La terracotta e pavimenti in laterizio nell'arte italiana* (Milan, 1928), pp. 37-83 (Romanesque terracotta decoration); pp. 85-159 (Gothic terracotta decoration), see especially pp. 93-4 for a repeat pattern (the decoration of the fourteenth-century Abbey of S. Antonio di Ranverso near Turin).

20 See note 19 above.

21 See the discussion of Renaissance stucco decoration below.

22 Marchand, 'Reproducing Relief', p. 217; L. B. Alberti, *On the Art of Building in Ten Books*, transl. by J. Rykwert, N. Leach and R. Tavernor (Cambridge, Mass., 1988), p. 177 (Book VI, chapter 9).

rooms, including the Cappella del Perdono in the Palazzo Ducale in Urbino (c. 1475).²³ Bramante's design of the illusionistic choir of S. Maria presso San Satiro in Milan (1482–94), entirely executed in stucco may reflect these precedents, but as a mainly pictorial conceit it may also have been influenced by Mantegna who from 1465 to 1474 had been working in the Castello di San Giorgio in nearby Mantua on the decoration of the *Camera Picta* with its *all'antica* vault and illusionist *oculus*. Vasari's claim that Bramante had invented moulded stucco decoration in the context of his work at New Saint Peter's (1503–14) is contradicted by the earlier Florentine and Roman evidence.²⁴

The barrel vaulted entrance of the Florentine Palazzo Scala leads into a courtyard that is decorated with figurative stucco reliefs.²⁵ While their position was certainly foreseen by the architect of the palace, Giuliano da Sangallo, the design is generally attributed to Bertoldo di Giovanni and dated in the 1490s. Nothing is known about their execution.²⁶ They are based in design and iconography on ancient sarcophagus reliefs and may thus be seen as distant predecessors of the stucco decorations that appear, next to imitations of newly discovered grotesque paintings, in Raphael's Vatican Loggias (1518–19). Here the stuccoes form narrative panels of low relief that are based on sarcophagi, rather than the airy designs of the recently discovered stucco decorations in the Domus Aurea.²⁷ It is only in the Villa Madama,

23 Clarke, *Roman House*, pp. 254, 258, 268–9 with figs. 160–1, 170. On the ancient technique of casting and moulding vaults the author refers to J.-P. Adam, *Roman Building. Materials and Techniques* (London, 1994), pp. 177–91.

24 The first mention of this occurs in the *Life* of Bramante: “For this work [the choir of New-St Peter’s] he invented the method of casting vaults in plaster, using wooden moulds carved with his friezes and foliage [...]” “Egli trovò in tal lavoro il modo di buttar le volte con le casse di legno, che intagliate vengano co’ suoi fregi e fogliami di mistura di calce [...]” Vasari-Milanesi, IV p. 162; my translation. In the context of Giovanni da Udine’s *Vita*, Vasari returns to Bramante’s achievement, but this time he describes a different technique, mentioning “moulds of clay [terracotta?]” [“nei cavi di terra”] Vasari-Milanesi, VI, p. 552.

25 The barrel vaults of the courtyard in the Palazzo Scala reproduced in Clarke, *Roman House*, fig. 171 are nineteenth-century replacements; see L. Pellecchia, review of Clarke, *Roman House*, in *Burlington Magazine* 148 (2006), pp. 420–1 with further literature. I am indebted to Georgia Clarke for this reference.

26 See Marchand, ‘Reproducing Relief’, p. 217, n. 56; Clarke, *Roman House*, p. 122, fig. 58; J. D. Draper, *Bertoldo di Giovanni: Sculptor of the Medici Household: Critical Reappraisal and Catalogue Raisonné*, (Columbia, S. C., and London, 1992), pp. 220–53, on authorship and date: pp. 220–5; on the role of Giuliano da Sangallo, architect of the palace as inventor of the reliefs’ setting: p. 223. For an attribution of both reliefs and architecture to Giuliano da Sangallo, see A. Tönnemann, *Der Palazzo Gondi in Florence* (Worms, 1983), pp. 93–8. One of the few other stucco decorations from the late fifteenth century in Florence is the Pollaiuolo-esque *Hercules and Caecus* relief in the entrance of the Florentine Palazzo Guicciardini; C. Seymour Jr., *Sculpture in Italy: 1400–1500* (Harmondsworth, 1966), p. 211, pl. 155 A.

27 The wide range of sources for the stuccoes in the Vatican Loggia has been discussed by Dacos in Dacos and Furlan, *Giovanni da Udine*, pp. 76–93.



Fig. 3. 2: Cast vault of entrance hall towards Piazza Venezia, Palazzo Venezia, Rome, 1465.

executed after Raphael's death by Giovanni da Udine, Giulio Romano and Perino del Vaga, that Roman stucco ceilings emulated the ancient stucco ceilings of the Domus Aurea in terms of their design and iconography.²⁸

Following Vasari's account, Giovanni da Udine, like Bramante a painter, is generally credited with the rediscovery of the recipe of ancient Roman *stucco*. The structure of the Vasarian narrative has all the elements of good story telling: confronted with the ancient stucco decorations in the Domus Aurea, Giovanni wanted to develop a similar composition and after a few attempts and gradual improvements he finally came to the "true" ancient recipe, using burned lime to which he added ground marble.²⁹ All evidence confirms Giovanni's central role in the introduction of grotesques and stucco decorations in the Raphael workshop and there is no reason to doubt that he indeed developed the described recipe.³⁰ As to the consistency of ancient stucco, Giovanni may have turned rather to Vitruvius for advice. In Book Seven

28 For the stucco decoration of the Villa Madama see *ibid.*, pp. 111-19.

29 Vasari-Milanesi, VI, pp. 552-3.

30 N. Dacos, *La découverte de la Domus Aurea et la formation des grotesques à la renaissance* (London and Leiden, 1969), pp. 100-1; Dacos in Dacos and Furlan, *Giovanni da Udine*, pp. 34-5.

Virtruvius discusses the use of plaster made of lime and ground marble for ceiling decorations.³¹

The new Roman style of stucco decorations swiftly reached northern Italy, the Sack of Rome (1527) as with so many other Roman developments playing a major role in its dissemination. Perino del Vaga, who had collaborated with Giovanni da Udine at the Villa Madama went to Genoa to work for Andrea Doria and designed stucco decorations in the Palazzo Doria.³² Giulio Romano departed for Mantua and Giovanni da Udine, as well as Jacopo Sansovino, transferred themselves to Venice.³³ The publication in 1537 of Sebastiano Serlio's treatise *Tutte le opere dell'architettura*, made the designs of ancient and contemporary stucco ceilings accessible for those who had not been to Rome.³⁴

In Padua, the painter and architect Giovanni Maria Falconetto (1468–1534/5) designed stucco vaults in the new style for the Odeo Cornaro (begun in 1531) and the vault of the Chapel of St. Anthony in the Santo (1533–4). Vasari reports that Falconetto had stayed for twelve years in Rome, a claim that cannot be confirmed, but it is generally accepted that he must have spent some time in the city since he propagated its latest artistic developments.³⁵

The artists who executed the stucco work under Falconetto in the Cappella del Santo in Padua were Tiziano Minio, nicknamed Tiziano Aspetti, and Silvio Cosini, a Florentine artist who had collaborated in Genoa with Perino del Vaga on the Palazzo Doria.³⁶ Independently, Cosini and Minio later produced other works in stucco in Padua; Cosini a relief for the façade of the Monte di Pietà³⁷ and Tiziano Minio, among other works, the altar of the Scuola di San Rocco (1535–36 / Fig. 3. 3). Both sculptors apparently specialized in this

31 I. D. Rowland and T. Noble Howe (transl.), *Vitruvius, Ten Books on Architecture* (Cambridge and New York, 1999), pp. 88-90, esp. p. 89 (book 7, chapter 3 Ceilings).

32 E. Parma Armani, *Perino del Vaga, L'anello mancante. Studi sul Manierismo* (Genoa, 1986), pp. 73-208.

33 For Giovanni da Udine in the Veneto see Furlan in Dacos and Furlan, *Giovanni da Udine*, pp. 165-73.

34 S. Serlio, *Tutte le opere dell'architettura* (Venice, 1566), pp. 192-9. The fourth book that deals with ceiling decorations was first published in 1537; M. Vène, *Bibliographia serliana: Catalogue des éditions imprimées des livres du traité d'architecture de Sebastiano Serlio (1537-1681)* (Paris, 2007), pp. 14-16, 180; W. Wolters, *Plastische Deckendekorationen des Cinquecento in Venedig und im Veneto* (Berlin, 1968), p. 26, 54.

35 S. B. McHam, *The Chapel of St. Anthony at the Santo and the Development of Venetian Renaissance Sculpture* (Cambridge and New York, 1994), pp. 35, 81-3.

36 E. Parma Armani, *Perino del Vaga, L'anello mancante. Studi sul Manierismo* (Genoa, 1986), p. 128 with note 103.

37 M. Pizzo, 'Cosini, Silvio', in *Allgemeines Künstler Lexikon* (Munich, 1992-), XXI (1999), pp. 396-7, at p. 396 (the author gives mistakenly 1543 (instead of 1534) as the date for the Monte di Pietà relief); Boucher, *The Sculpture of Jacopo Sansovino*, p. 69.



Fig. 3. 3: Altarpiece with Saints Roche, Barbara and Lucy. Tiziano Minio, 1535–6. Gilded plaster on wood armature, 4.2 x 4.1 x 0.42 m. Museo Civico, Padua (formerly Oratorio di San Rocco).

medium, but to describe them as *stuccatori* may still be an anachronism. They were trained sculptors, the profession of the *stuccatore* did not exist as such and Minio would in fact collaborate later in other media with Jacopo Sansovino.³⁸

³⁸ The use of the term is common in the secondary literature but not used in the sixteenth century; the account book of 1533 of the Santo, for example, only refers to “lavorar de stuccho” or “lavorar de stucchi”; B. Gonzati, *La Basilica di S. Antonio di Padova descritta ed illustrata*, 2 vols (Padua, 1852–3), I (1852), p. XCVIII, doc. LXXXIX. On Minio’s works in other media see e.g. Boucher, *The Sculpture of Jacopo Sansovino*, pp. 165–7. Minio’s other important stucco work was at the Odeo Cornaro where he worked under Falconetto as well as independently; see W. Wolters, ‘Tiziano Minio als Stukkator im Odeo Cornaro zu Padua’, *Pantheon*, 21 (1963), pp. 20–8, 222–9.

Minio's altarpiece in the Scuola di San Rocco is a large architectural ensemble of more than four by four metres with three seemingly freestanding figures of Saints Roche, Barbara and Lucy in niches, six low reliefs in a predella and an attic zone, and rich figural framework. It relates in many ways directly to the recent sculptural decoration of the Chapel of St. Anthony and bears stylistically the imprint of Jacopo Sansovino's work in the Veneto. But in terms of its combination of architectural and sculptural grandeur and cheap medium it makes one think of ephemeral decorations, such as the facade of Florence cathedral, discussed below, that Sansovino had executed in 1515 for the entry of Leo X. Surprisingly, the choice of material, stipulated by the confraternity in their contract with Minio, has never been discussed.³⁹ Sixteenth-century stucco altarpieces and sculptures are relatively rare and there does not seem to be a 'tradition' that linked the individual examples.⁴⁰ Instead, in each case the choice of material would have been the result of case specific considerations. With regard to Minio's altarpiece there is no indication that it was intended to be temporary and, in fact, it remained *in situ* until 1931 when it was transferred into the local Museo Civico. In addition to the obvious financial savings entailed by the use of plaster, the choice of material could be construed as a gesture of humility, distinguishing between the seat of a confraternity and the marble decorated chapel of the second most important Franciscan saint. In fact, rather than imitating the stucco decoration of the vault of the chapel of St. Anthony the intention may have been to use a material that looked like marble and thus emulate the expensively carved marble reliefs that had recently been installed to decorate the walls of that chapel.⁴¹

39 For the most extensive discussion of the altar see the entry by M. Pizzo in Banzato *et al.* (eds), *Dal Medioevo a Canova*, pp. 126-8, no. 51.

40 See for example Alessandro Vittoria's Zane Altar (c. mid 1560s to 1575) in the Venetian church S. Maria Gloriosa dei Frari. It consisted originally of a large stucco relief of the *Assumption of the Virgin*, flanked by six stucco figures of saints in increasingly high relief and was crowned by two stucco sibyls. A marble figure of St Jerome above the altar table formed the focus of this altar. The ensemble was largely modified in the middle of the eighteenth century; only two figures of saints, the sibyls and the marble sculpture survive, none in their original position; Finocchi Gherzi, *Alessandro Vittoria*, pp. 156-64. That these works were among the most important of his output in the 1560s and 70s is discussed by M. Leithe-Jasper, 'Alessandro Vittoria e la scultura del suo tempo a Venezia', in A. Bacchi, L. Camerlengo and M. Leithe-Jasper, "*La bellissima maniera*": *Alessandro Vittoria e la scultura veneta del Cinquecento*, exh. cat. Trento 1999 (Trento, 1999), p. 29. Individual plaster sculptures can be found in the second half of the sixteenth century in Florence, Venice and elsewhere, they are usually positioned in defined architectural contexts, such as Vittoria's Evangelists in the internal facade of S. Giorgio in Venice (1574; Finocchi Gherzi, *Alessandro Vittoria*, p. 161) or Giambologna's *Charity* above a doorway in the retro-choir in the church of Santissima Annunziata in Florence (1578; C. Avery, *Giambologna – The Complete Sculpture* (Oxford, 1987), pp. 195-6, p. 275, p. 217, no. 179).

41 Technical information about the work is limited and for the purposes of the present article the present author was unable to examine it first hand, but it appears that it is entirely modelled. The

Four high-relief putti that playfully support the entablature of Minio's altarpiece are based on similar figures on a famous ancient Roman relief, at the time located in Piazza San Marco and now in the Museo Archeologico Nazionale in Venice.⁴² They appear to be modelled and are rather variations upon the classical exemplar than strict replicas, but they may nevertheless be seen as an archaeological exercise that would have appealed to the classicizing taste prevalent in the Veneto and in Padua in particular.⁴³

Painters and Plaster

While it seems unlikely that there was ever more than an intermittent stucco production in Italy during the late middle ages and early fifteenth century, the existence during this period of a highly evolved terracotta practice meant that in the north some of the required modelling and moulding techniques and skills would have been available. But when it comes to the preparation of the raw material, and its application, modelling and moulding *in situ*, architectural stucco work and work in plaster in general requires specialist skill that a brick maker or somebody skilled in modelling clay would not necessarily possess.

Such skills were readily available, though, throughout the middle ages in painters' workshops. Painters were well acquainted with the raw materials of different kinds of plaster. The dominant medium for late medieval panel painting, egg-tempera, required a *gesso* ground, that covered the wooden support. This ground, applied in numerous thin layers, would cover any unevenness of the surface of the wood and later absorb its movements. Only on top of this ground the painter was able to apply paint or gilding with its underlying layer of bole. Elaborate gothic frames formed an intrinsic part of many panel paintings and, like these, they were decorated by the painters who would not only routinely gild them, but also contribute to the architectural design, adding arches, columns and ornaments in gesso. Known as *pastiglia* this kind of gesso relief work could also be used to render a third dimension to the representation of haloes as well as honorary features such as crowns and sword

core is formed by a substantial wooden armature that is mentioned in documents of 1536. M. Pizzo in Banzato *et al.*, *Dal Medioevo a Canova*, p. 127.

42 Cf. M. Pizzo in Banzato *et al.*, *Dal Medioevo a Canova*, p. 127.

43 For a brief sketch of the Paduan *milieu* and sculptural traditions of the fifteenth and early sixteenth century, see V. Krahn, 'Riccio's Formation and Early Career', in D. Allen and P. Motture (eds), *Andrea Riccio: Renaissance Master of Bronze*, exh. cat, Frick Collection New York 2008–9 (New York, 2008), pp. 3–14, at pp. 3–7.



Fig. 3. 4: *The Virgin and Child with Ten Saints*. Andrea di Bonaiuto da Firenze, c. 1360–70. Tempera on wood, 27.9 x 106 cm. National Gallery, London.

pommels.⁴⁴ In Andrea di Bonaiuto's *Virgin and Child with Saints* (c. 1365 / Fig. 3. 2), now in the National Gallery London, the arches and spandrels of the gallery of saints to either side of the Virgin Mary have been moulded, the gesso columns were then carved to give the appearance of twisted shafts.⁴⁵ Similarly, the painter would have applied gesso grounds to stone and/or wooden sculpture that was brought to his workshop to be painted. On occasions this may have included the covering of flaws or an enhancement of the sculptural design through *gesso* application.

Many Italian painters in the fourteenth and fifteenth centuries also practiced fresco painting. In this technique the practitioner first covers the wall with a rough layer of plaster (*arriccio*) onto which he sketches his composition. He then applies in patches a layer of fine plaster (*intonaco*) onto which he paints while it is still wet. Here too, features in actual relief were sometimes applied.⁴⁶

44 For the techniques of late medieval/early Renaissance panel painting see J. Dunkerton, S. Foister, D. Gordon and N. Penny, *Giotto to Dürer: Early Renaissance Painting in the National Gallery* (New Haven, Conn., and London, 1991), pp. 162–82 and 188–92; for a late fourteenth-century description of gesso grounds and various types of *pastiglia* work, see Cennini, *The Craftsman's Handbook*, pp. 69–76.

45 D. Gordon, 'Andrea di Bonaiuto's Painting in the National Gallery and S. Maria Novella: the memory of a church', *Burlington Magazine*, 151 (2009), pp. 512–18, at p. 512.

46 It may therefore be significant that one of the few survivals of thirteenth-century northern Italian stucco, a geometric band now in the Museo Civico of Pavia, originally formed the border of a fresco in the church of S. Maria del Popolo, Pavia. It is likely to have been the work of a painter; A. Peroni, *Pavia: Musei Civici del Castello Visconteo* (Bologna, 1975), pp. 37–8; see also C. Nenci, 'Gli stucchi Italiani. Nuove ricerche su alcune opere in stucco dell'Abruzzo', in Sapin (ed.), *Stucs et décors*, pp. 269–83, at p. 271, n. 6. Cennini discusses the application of lime based plaster for the purposes of murals (Cennini, *The Craftsman's Handbook*, pp. 42–50), as well as how to make plaster reliefs on walls, pp. 77–80. This section follows immediately on his discussion of the uses of gesso. See also Exner, 'La sculpture en stuc', pp. 324–37, at 327. A fifteenth-century Sienese document states that the painter Andrea di Niccolò di Giacomo was paid on 28 January 1489 for paintwork and gilded stucco in the chapel of the Compagnia della SS. Trinità in his hometown; M. Torriti, 'Andrea di Niccolò di Giacomo', in *Allgemeines Künstler Lexikon* (Munich, 1992–), III (1992), pp. 545–7, at p. 545.

It is in fact a painter who provides us with the first extensive description of how to work with plaster and make plaster casts. Writing at the end of the fourteenth century in Padua, Cennino Cennini gives not only detailed information about the various uses of plaster in a painter's workshop he also describes how to cast after life, and to reproduce medals in sulphur. His text also introduces the basics of the piece-mould technique.⁴⁷ Cennini writes as a practitioner, and it can be safely assumed that the techniques he describes were well-known to him and generally established.

Plaster casts of parts of the human body were of great use in painters' workshops, aiding the practice of 'life' drawing at one remove, enhancing the rendering of volume through the subtle manipulation of light and shade, a particular concern for Italian painters since Giotto. Evidence for this use of casts in workshops survives from the second half of the fifteenth century onwards in the form of drawings after casts, workshop inventories and last wills.⁴⁸ Learning through the study and emulation of exempla, that is, through the study of works by established masters, was also an important part of the training of any Italian painter or sculptor in the fifteenth-century.⁴⁹ Three-dimensional models played a major role – their use was encouraged by Alberti in his treatise *On Painting* and is documented through many surviving drawings after sculpture.⁵⁰ Casts would have facilitated this process. The well-known case of Francesco Squarcione in mid fifteenth-century Padua is too important not to be briefly mentioned. A painter of only moderate skills himself, Squarcione attracted students to his studio with reference to a teaching collection that he had built up on his travels in Italy and abroad. From the sources we can gather that it included casts after works by other masters, ancient and contemporary.⁵¹ Squarcione's collection was outstanding in quantity and scope, but small groups of casts after other artists can be found in many workshop inventories in the Veneto and Florence from the second half of the fifteenth century onwards.⁵²

47 Cennini, *The Craftsman's Handbook*, pp. 127-9; Stone, 'Antico and the Development of Bronze Casting', p. 94.

48 Cf. Marchand, 'Reproducing Relief', p. 209.

49 Cennini, *The Craftsman's Handbook*, pp. 3, 14-15 *et passim*.

50 L. B. Alberti, *On Painting and On Sculpture: The Latin Texts of De Pictura and De Statua*, ed. and transl. by C. Grayson (London, 1972), pp. 100-2 ('[...] I prefer you to take as your model a mediocre sculpture rather than an excellent painting'). See L. Syson and D. Thornton, *Objects of Virtue: art in Renaissance Italy* (London, 2001), pp. 96-8; Marchand, 'Reproducing Relief', p. 209, n. 31.

51 For Squarcione and his workshop see R. Lightbown, *Mantegna* (Oxford, 1986), pp. 15-25. Cf. also Marchand, 'Reproducing Relief', pp. 209-10.

52 Cf. Marchand, 'Reproducing Relief', p. 207; L. Syson and D. Thornton, *Objects of Virtue: art in Renaissance Italy* (London, 2001), pp. 95-6; F. Ames-Lewis, *The Intellectual Life of the Early Renaissance Artist* (New Haven, Conn., and London, 2000), pp. 76, 79-85. Jacopo Sansovino,

Sculptors' Use of Plaster

Attractive for painters, plaster casts of human limbs were of use to sculptors, too. Indeed, the documentary record points towards the existence of these objects in the workshops of painters and sculptors alike. Their training shared the same emphasis on design and the predominance of the human figure. Additionally, there is enough evidence to suggest that by the later part of the fifteenth century some sculptors had recognized the usefulness of the technique to record their own three-dimensional designs, copying perishable clay or wax models, or completed works that were about to leave the workshop.⁵³ In this context plaster casts could serve similar functions to drawings, or, if reproduced more than once, to prints. For Ghiberti's workshop, Anna Jolly has argued that the vast array of motifs invented during the work on the Baptistery doors may have been 'stored' using plaster casts.⁵⁴ This may be a compelling conjecture, but in the case of Donatello there are surviving casts after his works that, given the inaccessibility of the originals, are likely to derive from his workshop, such as the head of the *Gattamelata* in the Mantova Benavides Collection in Padua (Fig. 3. 5).⁵⁵ Towards the middle of the sixteenth century the production of full-scale plaster casts as well as reproductions in reduced scale increased dramatically. The most frequently reproduced and most widely distributed sculptures were Michelangelo's allegorical statues from the New Sacristy at San Lorenzo in Florence, of which full-scale plaster casts and small scale reproductions in plaster and terracotta were made early on.⁵⁶

discussed in this article, appears to have owned a substantial collection of casts after ancient and modern artists; Boucher, *The Sculpture of Jacopo Sansovino*, I, pp. 233-4, doc. 256.

53 Vasari reports about a bronze relief by Antonio Pollaiuolo that was exported to Spain and plaster casts of which were still in Florentine workshops at his time; Vasari-Milanesi, III, pp. 296-7. For an interpretation of the passage see A. Wright, *The Pollaiuolo Brothers: the arts of Florence and Rome* (New Haven, Conn., and London, 2005), pp. 324-6, 537; Marchand, 'Reproducing Relief', p. 197.

54 A. Jolly, *Madonnas by Donatello and his circle*, Europäische Hochschulschriften, series 28, CCCXIX (Frankfurt am Main, 1998), p. 18.

55 The provenance of this head can only be traced back to the second half of the sixteenth century, but given the difficulty of taking a cast or making a close copy of the head of the original monument with its towering plinth, it is most likely that it was made between 1447-53, that is, after the bronze was completed and before the monument was erected; M. Pizzo in *Donatello e il suo tempo: il bronzo a Padova nel quattrocento e nel cinquecento*, exh. cat. Padua, Museo Civico, 2001 (Milan, 2001), pp. 52-53, no. 3. The author rightly rejects the suggestion that it might reproduce or be an early model as previously discussed by B. Candida, *I calchi rinascimentali della collezione Mantova Benavides nel Museo del Liviano a Padova* (Padua, 1967), p. 84. See also L. Cavazzini, in A. Bacchi and L. Giacomelli (eds), *Rinascimento e passione per l'antico: Andrea Riccio e il suo tempo* (Trento, 2008), pp. 228-31. For other reproductions that may relate to Donatello's workshop see Marchand, 'Reproducing Relief', pp. 200-7.

56 See e.g. the collection of Alessandro Vittoria, V. J. Avery, 'Alessandro Vittoria collezionista', in A. Bacchi, L. Camerlengo and M. Leithe-Jasper (eds), *"La bellissima maniera": Alessandro*

Painters and sculptors also extended their services to clients, humanists and early collectors in order to reproduce and circulate carved gems, or satisfy the demand for authentic images of famous men from antiquity through casts after coins, medals or even heads, from the fifteenth century onwards.⁵⁷ An interesting example that again situates the early use of plaster casts in the painter's workshop is Botticelli's *Portrait of a Man holding a medal of Cosimo de' Medici* (1474–5) where the medal held by the sitter of this tempera panel painting is a gilded plaster cast applied onto a raised wooden disk left by the carver of the wooden panel.⁵⁸

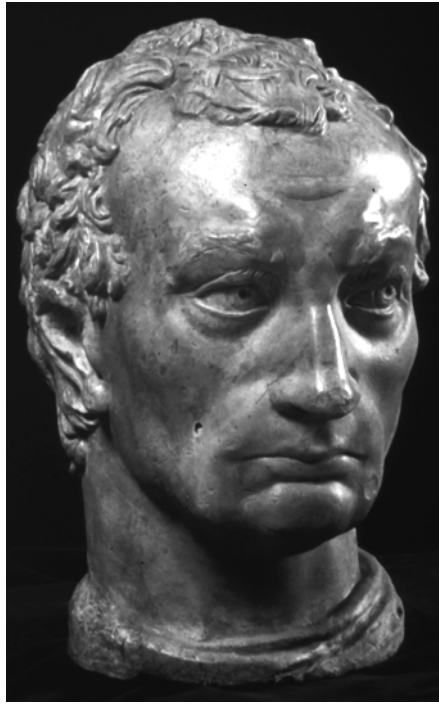


Fig. 3. 5: Head of *Gattamelata*, after (and by?) Donatello, 1447–53?. Plaster cast, h: 24 cm. Mantova Benavides Collection, Museo di Scienze Archeologiche e d'Arte, University of Padua.

Donatello and the Virgin and Child Relief

Another boost to the use of plaster and plaster casts in the sculptors' workshops came in Florence towards the beginning of the fifteenth century through a new demand for devotional reliefs of the Virgin and Child for domestic interiors.⁵⁹

Vittoria e la scultura veneta del Cinquecento, exh. cat. Trento 1999 (Trento, 1999), pp. 141–52, at pp. 148–9. Two large scale reproductions made by Egnazio Danti in 1570 survive in the Accademia di Belle Arti in Perugia, D. Zikos, in C. Davis and B. Paolozzi Strozzi, *I grandi bronzi del battistero: L'arte di Vincenzo Danti, discepolo di Michelangelo* (Florence, 2008), pp. 324–235.

57 As mentioned above, already Cennino Cennini describes how to make sulphur casts of medals, using clay or plaster moulds, an example for the actual use of a plaster cast in this context see Marchand, 'Reproducing Relief', pp. 212–13.

58 R. Lightbown, *Sandro Botticelli: Life and Work* (New York *et al.*, 1989), pp. 54–7.

59 The literature on the Virgin and Child reliefs is extensive. For a substantial review of it, that also pushes the debate forward, see S. B. McHam, 'Now and Then: Recovering a Sense of Different Values', in Cooper and Leino (eds), *Depth of Field*, pp. 305–50, at 309–45.



Fig. 3. 6: *The Virgin and Child (Verona Madonna)*. Donatello, c. 1450–75. Plaster cast, h: 95.3 cm. The Victoria and Albert Museum, London.

In the course of the century the custom also spread to parts of northern Italy.⁶⁰ Donatello had a significant impact on such designs, both in terms of the naturalistic rendering of the intimate mother and child relation, but also in his development of a very shallow relief. The reliefs survive in marble, stone, bronze, terracotta, cartapesta (an early type of papier maché) and plaster, the vast majority being reproductions in the latter three media that were the materially cheapest. Some reproductions can be traced back to marble originals, but in other cases, such as the *Verona Madonna* (Fig. 3. 6), the prototype may have been a clay model, made solely to be reproduced.⁶¹

The literature on these works has for long been troubled by issues of attribution, which are particularly difficult, given the techniques of reproduction involved.⁶² While many

works are casts, there are also copies, or variants that were modelled by hand. These in their turn may have been reproduced and started off new lines of cast copies. If casts can differ from their prototype, for example through deliberate changes to the mould or a reworking once the cast has been taken out of its mould, copies modelled by hand may also differ from their prototypes in size, style and individual details while still closely following the prototype. Finally, the reproductions were usually painted, fitted into frames or tabernacles and thus personalized. The record book (*Ricordanze*) of the painter Neri di Bicci provides us with over fifty cases of reliefs cast in plaster that passed through his workshop for these purposes and were apparently sold by him.⁶³ In most cases

60 M. Pizzo, in Banzato *et al.* (eds), *Dal Medioevo a Canova*, p. 100, cat. no. 23; Boucher, *The Sculpture of Jacopo Sansovino*, I, p. 100.

61 A. Jolly, *Madonnas by Donatello and his circle*, Europäische Hochschulschriften, series 28, CCCXIX (Frankfurt am Main, 1998), p. 54.

62 See note 59 above.

63 G. Gentilini, 'Desiderio in the Workshop: masters and pupils, works and clients mentioned in