INTRODUCTION

Of Bronze Things

There is nothing in this world as invisible as a monument. They are no doubt erected to be seen – indeed to attract attention. But at the same time they are impregnated with something that repels attention, causing the glance to roll right off, like water droplets off an oilcloth without even pausing for a moment.

Robert Musil *Monuments*[1]

On an old photograph found in the photo archive of the Kunsthistorisches Institut in Florence (Fig. 1), a man in uniform stands next to a large bronze sculpture. The sculpture is located on the threshold of the church of San Sepolcro in Barletta. In the foreground of the photograph is a streetlamp, somewhat isolated from the man and the colossal sculpture. There is a paradox in the juxtaposition. The sculpture makes the streetlamp look small, but at the same time the streetlamp situates the sculpture as a thing of the past. In an echo of Musil's words cited above, both sculpture and lamp seem invisible to the man, who appears to be occupied with something else in this public street, where one living human interacts – or perhaps does not interact – with these two objects. The street lamp and the sculpture are technological feats: as a device designed to generate light by use of gas lamps, the streetlamp has a utilitarian function; the achievement of the sculpture lies in the technique of bronze casting – the focus of this study.

The bronze in the photograph is the Colossus of Barletta, a late-antique sculpture of a Roman emperor more than 5 meters in height that occupies a public space in the square of the medieval city of Barletta, in southern Italy.

1. Romualdo Moscioni, bronze statue in Barletta, also known as the "Colossus of Barletta," h. 450 cm, albumin print, before 1893 (37.6 × 25.2 cm) inv. no. 4210 (Photothek des Kunsthistorisches Institut in Florenz – Max-Planck-Institut).

Above all else, the sculpture is a monument to monumentality itself, its grandeur announced by its size even in relationship to its modern surroundings such as the street lamp.[2]

Monuments are legendary. They are presented as memories, and they are perceived as myths. The reception of sculpture can therefore be studied through legends, which reflect the cultural intelligence of the historical past and thus illuminate how objects of the past were received and perceived by their viewers. This book is very much about legends and the place they hold in our imagination through one specific material, bronze. Bronze sculpture elicited a unique form of engagement of humans and objects that is a result of the particular nature of its medium.

According to legend, the Colossus of Barletta drifted to shore from the sea.[3] Beginning in the seventeenth century, the tale was told that the sculpture washed ashore from a Venetian ship that had sunk offshore, filled with booty looted from Constantinople during the Fourth Crusade.[4] An earlier account of the sculpture is found in an edict issued by Charles II of Anjou in 1309 that describes the Colossus as an image made in metal (*ymaginem metallis*).[5] The Colossus proved to be more than simply an image, for it provided a rich seam to mine, literally as well as metaphorically.[6] The lower sections of the sculpture, which included the part below the waist, were melted down and recast as new objects, this time not as images in bronze but as bells for the newly constructed church in the nearby town of Siponto.[7]

The ability to extract material from older sculpture and to recast it resulted in an ever-changing map of bronzes. We can assume that many medieval bronzes were cast from ancient sculptures that had been melted down to be made anew, while much of the bronze sculpture of the Renaissance was similarly made from medieval bronzes melted down and reused in turn.[8] The biography of the bronze object is therefore embedded in the material rather than in the form. In the intrinsic particles of the bronze object lies what we might term its hereditary code, for the material from which it is composed may in the past have formed and in the future form the body of another object. Those particles give the various copper alloys similar material structures and density.[9] The Colossus of Barletta undoubtedly holds the material structure or composite of an earlier bronze object and thus carries a hereditary lineage in which an alloy is transmuted from one object to the other. Symbolically, at least, the church bells cast from the legs of the Colossus retained some of the qualities of the feet of the Colossus, transformed from supports for the body of an emperor into sound-making devices.[10]

As an object, then, the Colossus went through a process of making, disappearance, rediscovery and partial destruction and, in a later period, through a process of ascribing and prescribing the personality of the emperor it portrayed, of reinstallation and reappropriation. But most of all, the Barletta statue has

offered forms of monumentality. Occupying a civic space in the medieval city of Barletta, the sculpture has been ascribed various identities, as representing everyone from a late Roman emperor to Charlemagne himself. This debate was mainly the antiquarians' prerogative, while the Colossus itself, guarding the threshold of the church at Barletta, came to be known through the fifteenth century as the *sedile del popolo* – the Seat of the People. Its monumentality became an object of public pride. The unifying statue was part of civic memory, where it enabled the association of an antique object with an imagined historical narrative. This marvel was amplified by the sheer size of the sculpture and the valuable material from which it had been wrought. Some of its intrinsic worth was extracted for the fabrication of the church bell, whose reverberations brought the community of worshippers together and which marked, like the Colossus at the threshold, the place of the church. Bell and sculpture were fabricated by the same method, the lost-wax technique – a commonality that further strengthened their ties. In varied monumental forms, both bell and sculpture occupied the public space of the medieval town.

This study argues that bronze sculpture has a unique place within the history and historiography of medieval art and material culture. That unique place is derived from the distinctive, almost enchanting, qualities of the technical complexity of lost-wax casting and from material qualities distinct to the medium. Together, these give monumental cast bronze its particular place and impact in shaping the historical progress of medieval art.

MATTER

Bronze is a copper alloy consisting of copper and tin. Brass is also copper based but with zinc as the additive. While today we have clear definitions of both alloys, the understanding of what was brass and what was bronze were more fluid in the Middle Ages. Unlike silver or gold, both elemental materials, copper-based alloys were not clearly defined. Some objects labeled as bronze actually contained zinc, and some "brass" objects consisted mostly of tin and copper. The percentage of tin or zinc in medieval alloys varied across the centuries, and so too did definitions of what was bronze and what brass.[11] We do not know whether medieval craftsmen were aware of whether they were producing bronze or brass, and whether this distinction was significant for their practice. We can find copper alloyed with tin or with zinc, and analysis of bronze objects has shown that not just zinc and tin were added to the alloy but also materials such as iron, nickel and lead.[12] Thus, strict modern definitions of copper-based alloys such as bronze and brass cannot be applied to the study of bronze from the Middle Ages. Our definition of the material used must be looser, in keeping with the very nature of the alloy as it was perceived in the Middle Ages.[13]

The medieval distinction between bronze and brass was blurred, and the Latin term *aes* was used to designate both. Only in the late thirteenth century can we see a clear attempt to conceptualize brass semantically, with the word *aurichalcum*. Metallic zinc became available in Europe in the sixteenth century, but in the Middle Ages zinc was produced from calamine ore, a mineral rich in zinc.[14] It is important to underscore that many medieval alloys contained both tin and zinc, in different quantities, further clouding the distinction between bronze and brass. We should also note that though the levels of tin and zinc in bronze and brass copper alloy changed through time, the alloy's definition as bronze or brass remained the same. As we shall see, the ambiguous characterization of alloys such as bronze and brass is indicative of the flexible relations between man and material, a flexibility that impacted perceptions of the fabricated bronze object. In light of such flexibility, this book will not attempt to distinguish between the different types of copper alloys and will regard all copper-based cast metals as bronze.[15]

2. St. John, wax figurine on a wooden core, h. 20 cm, Fritzlar, Dommuseum (Photo: Dommuseum Fritzlar).

Bronze will be examined in this study almost exclusively through one means of manufacture – the lost-wax cast.[16] The technique of lost-wax casting (*cire perdue*) originated sometime before 4,000 BCE. It designates a process whereby a model composed of soft fungible materials such as wax or tallow with a solid core was encased in a plaster mold. The wax or tallow was then melted, creating a "lost" image inside the mold. Next, molten bronze was poured into the mold, generating the image that had previously been in wax. A rare surviving wax figurine, dated to 1179, exhibits what such a wax prototype would have looked like before it was enclosed in a mold (Fig. 2).

Lost-wax casting was the prevalent technique for the production of cast objects in Europe all the way through to the end of the Roman Empire. A recent study by Götz Lahusen presents a head of an empress in Nis that is dated to the fifth century as the last surviving cast object of the Roman world.[17] Literary sources provide later examples, such as the description of the equestrian statue of Emperor Theodoric taken by Charlemagne from

Ravenna to his newly formed capital at Aachen, indicating that lost-wax casting continued in the later decades of the fifth century and into the sixth century.[18] In Europe, small-scale cast objects such as brooches and pendants were manufactured throughout the Middle Ages using the lost-wax technique.[19] For example, an Avar bronze belt fitting (Fig. 3) displays a griffin in its center and was manufactured according to the lost-wax technique by using a relatively small quantity of wax, resulting in a solid bronze object. By contrast, large-scale cast bronze objects are typically hollow, avoiding the need to fill an entire mold with molten metal. For these, the wax model was shaped around a clay or wooden core, enabling the caster to create a hollow mold. The thickness of the metal of the final bronze cast is determined by the thickness of the layer of wax between the core and the mold.[20]

From Ireland in the Middle Ages, bones have been found with intricate ornamental motifs incised into their surfaces (Fig. 4). These designs were most likely impressed on a wax model before the wax itself was enclosed in the clay mold that was then filled with molten metal. This process produced a small-scale bronze cast ornament and could be repeated by pressing another piece of wax into the same design and repeating the casting process.[21] These

3. Avar Belt Fitting, eighth century (4.8 × 3.9 × 0.6 cm) (Metropolitan Museum of Art, OASC).

4. Trial Bone, Lagore, Co. Meath, eighth century (This image is reproduced with the kind permission of the National Museum of Ireland).

early medieval objects tell of a basic ability to cast objects in open molds, generating casts that were very thin, thus eliminating the need for material saving hollow casting. The persistence of the casting of wearable jewelry throughout the early Middle Ages and the survival of a number of large-scale cast objects from the first centuries after the end of Roman hegemony in Europe demonstrate that although objects were no longer produced using the lost-wax technique on the same scale, the method was not entirely forgotten.

Thus it is wrong to characterize the Late Antique period as time when knowledge of the lost-wax casting of large-scale objects was lost. Rather, we should think of the change between Late Antiquity and the early Middle Ages as a period when the ability to extract metal from mines declined, resulting in a reduced supply of raw material for casting and, as a result, an increase in the melting-down and recasting of ancient bronze sculpture. We should also bear in mind that this period can likely be characterized as one in which the taste and material need for large-scale bronze objects decreased, in a reflection of the rather small and transitory settlements of that age in the Latin West.[22]

Evidence of large-scale bronze casting in northwestern Europe in the late eighth century therefore, speaks not of a rediscovery of this method but rather of its intensification. That growth may indicate that the metal ingredients were more readily available because copper and tin mining revived in the eighth century. The copper mines of Germany and northern Italy will play a vital role in this study, for their existence enables us to understand the place of bronze sculpture in the Middle Ages.

With a work such as the Colossus of Barletta very much in mind, my primary concern is with the intensification of the production of large-scale bronze objects using the lost-wax technique and the implications of such objects for the construction of the medieval environment.[23]

FABRICATION

Bronze cast in the lost-wax technique is the subject of this study, but the bronze objects have something else in common – they are all monumental. Monumentality is not an easy term. Monumentality does not describe the "monument" that is a solemn, single, public structure, but rather has a flexibility that is useful for art-historical analysis. Alois Riegl distinguished between intentional and non-intentional monuments, recalling the value that age bestows upon the monument with the passing of time, which is indexed, especially in bronze, through the presence of corrosion. Riegl also notes the sheer directness of engagement with the monument, an engagement that requires no *a priori* knowledge.[24] He writes:

> These monuments are nothing more than indispensable catalysts, which trigger in the beholder a sense of life cycle, of the emergence of the particular from the general. This immediate emotional effect depends on neither scholarly knowledge nor historical education for its satisfaction, since it is evoked by mere sensory perception. Hence it is not restricted to the educated (to whom the task of caring for monuments necessarily has to be limited) but also touches the masses independent of their education.[25]

Monuments offer accessibility. The notion of monumentality can be ascribed to objects that remain steadily and consistently accessible to their viewers, even if these viewers are from different segments of society, be that clerical or lay, aristocratic or poor. And additionally, the object's monumentality enables access throughout both day and night and both ritualized and non-ritualized forms of viewing. This study does not engage with the question of who viewed these objects, for the majority of the objects in this study were placed outside buildings, readily accessible to all types of viewers, from all segments of society.

More recently, Wu Hung has proposed that *monumentality* can be recognized in a category of objects – some of which were miniscule – in light of their specific interaction with their viewer and, in particular with a public of viewers.[26] Any work of art, however small, retains aspects of monumentality that stem from how it is perceived. We can think of liturgical rites as moments in which sacred objects are granted visibility and thus attain monumentality. The object could achieve monumentality through its exhibition or through ritualistic commemoration.

This study addresses the construction of monumentality specifically in relation to large-scale bronzes made with the technology of lost-wax casting. This book is thus a study of large-scale bronzes made by the lost-wax technique and placed in the public realm, objects whose monumentality is founded on their accessibility. The three prerequisites for inclusion in this study – bronze, lost-wax technique, accessibility – enabled a specific form of engagement with the

object. There was a public monument in the Middle Ages, this study argues, and that public monument functioned within a medieval environment constituted through community.

MEDIUM

The historical background to this book lies in the premise that the lost-wax technique enabled a growth in the production of sculpture. We will follow the historical trajectory of the development of that technique, running from its first notable centers in Germany southward toward Italy. Exchange between north and south is an essential part of the discussion, an exchange not just of objects but also of ideas. Germany as well as parts of northern Italy were and are renowned for their metal deposits, and their copper and tin mines supplied the material basis for the production of alloys. As the main source of raw material, the north is vital to this narrative; supply is key to understanding the place of bronze in the Middle Ages.

The book is divided into four parts, each of which addresses one aspect of the place of bronze sculpture in medieval Germany and Italy. Chapter 1 deals with the act of *Making*. Chapter 2, *Signification*, considers how the bronze sculpture gained significance after the moment of production, separated from the mundane and ushered into the realm of the distant and marvelous. Chapter 3, *Acting*, focuses on the relationship of bronze sculpture to a series of responses that ascribed the production of the sculpture with supernatural qualities. Chapter 4, *Being*, deals with forms of reception of bronze sculpture – as something that *is*, as something whose existence is an integral part of its function, as something appreciated, almost passively, as an object that "is there." The four chapters of this study, *Making*, *Signification*, *Acting* and *Being*, form together a cultural as well as an intellectual history of bronze casting in medieval Europe. They follow a non-diachronic division of knowledge, an approach also found in the organization of the Warburg Library, London, into *Image*, *Word*, *Orientation* and *Action*; with the entire structure of the library presenting an organization of knowledge that is different from traditional trajectories, light is shed, by means of classification, on traditionally lesser visible cultural nodes.[27] The four chapters present a historical trajectory that starts in the early ninth century in Germany and ends in south and central Italy somewhere around the mid-thirteenth century. The aim of this study is to manufacture a history of the reception, response, and, above all, instrumentality of the bronze monument in the Middle Ages.[28] With the combination of the relative scarcity of its material and the complexity of its technique, bronze casting provides a framework for interpretation that is more complex than an approach based on the materiality of the fabricated object alone.[29] Thus through analysis of material and technique, we will

5. Wooden doors, St. Maria im Kapitol, Cologne, around 1049, h. 485 w. 248 cm (Rheinisches Bildarchiv Köln).

attempt not to comprehend the all-encompassing materiality of bronze but rather to construct a thick image of the medieval *mentalité* as expressed in the reception of the bronze object.[30]

The majority of the artifacts considered across this study are bronze doors, and while they can be compared and studied with other bronze objects, bronze doors are the most notable category of surviving monumental bronze objects from the Middle Ages. Sometimes these doors are made of a single metal object, with the entirety of each door-wing made of a solid piece of bronze, but in other examples bronze doors are made of individual bronze panels nailed onto a wooden core. Most of the surviving bronze doors are embedded with pictorial representations and are decorated with historiated narrative scenes taken chiefly from the Bible or from Christian hagiography. Ute Götz and Margaret English Frazer have tried through different forms of analysis to find common themes and iconographical motifs in bronze doors.[31] The historiated wooden doors from the church of St. Maria im Kapitol in Cologne dated to 1049 (Fig. 5) present, however, similar themes, notions of narrative, and even ornamental schemes to those of bronze doors from the same period.[32] And when we turn to liturgical rites, we find ritual benediction of church doors but no specific ritualistic consecration of bronze doors.[33] Thus the attempt to find an all-encompassing quality in bronze doors that will constitute them as separate from doors fabricated from other materials, in terms of iconography, figural motifs, or ritualized consecration, is futile. Here, then, is more reason to consider a category of monumental bronze objects that includes various types, including free-standing sculpture and even fountains, and not solely doors.

Furthermore, although I write of doors, I am not concerned here with the experience of a historical spectator as he or she marched over the threshold of the church, passing the open bronze wings of the doors.[34] In the medieval period, church bronze doors would have been kept closed most days of the week and would have been opened only on certain feast days and Sundays. Thus, throughout the week the doors presented a bronze *tableau* installed on