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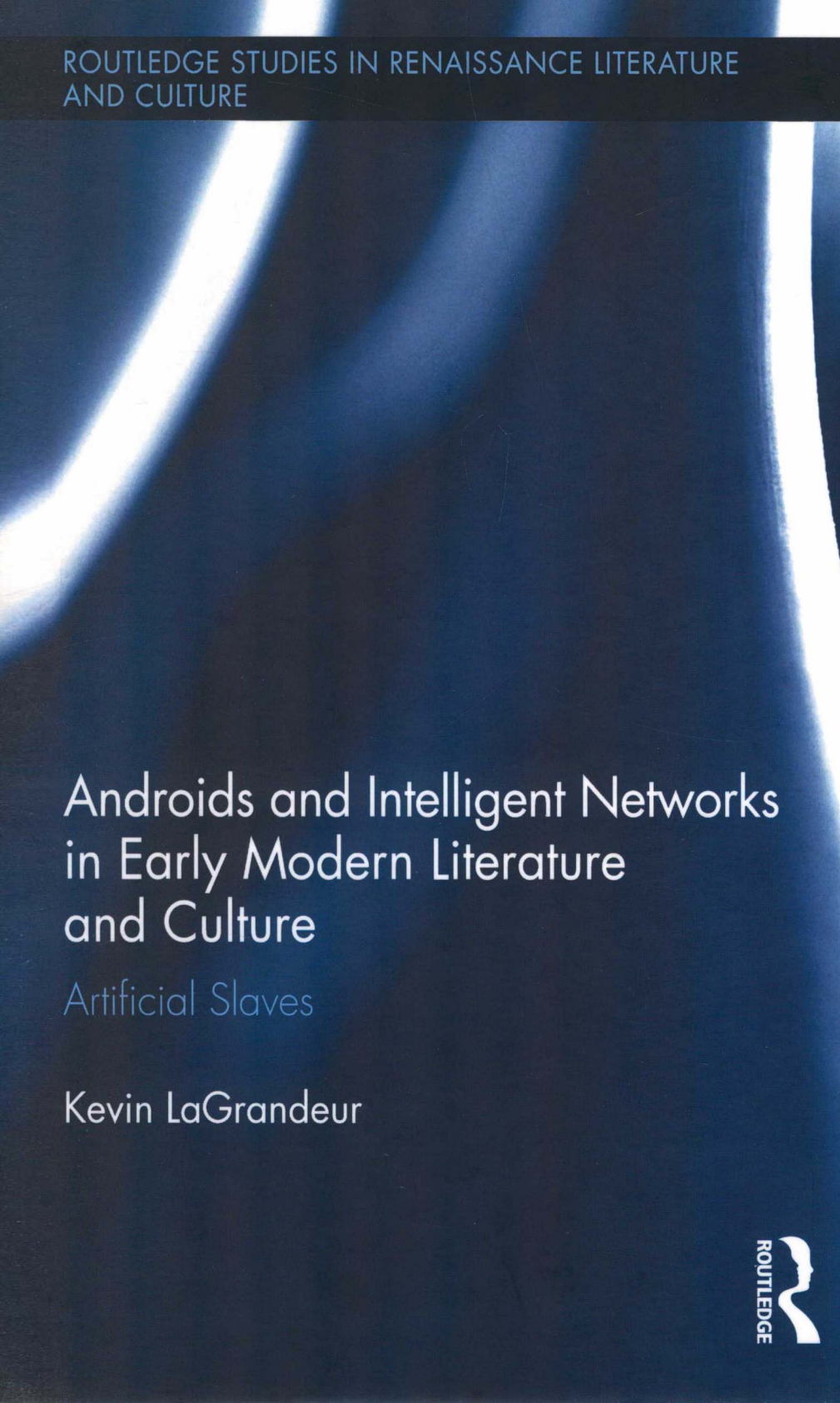

Androids and Intelligent Networks in Early Modern Literature and Culture

Artificial Slaves

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Androids and Intelligent Networks in Early Modern Literature and Culture

This book explores the creation and use of artificially made humanoid servants and servant networks by fictional and non-fictional scientists of the early modern period. Beginning with an investigation of the roots of artificial servants, humanoids, and automata from earlier times, LaGrandeur traces how these literary representations coincide with a surging interest in automata and experimentation, and how they blend with the magical science that preceded the empirical era. In the instances that this book considers, the idea of the artificial factotum is connected with an emotional paradox: the joy of self-enhancement is counterpoised with the anxiety of self-displacement that comes with distribution of agency. In this way, the older accounts of creating artificial slaves are accounts of modernity in the making—a modernity characterized by the project of extending the self and its powers, in which the vision of the extended self is fundamentally inseparable from the vision of an attenuated self. This book discusses the idea that fictional, artificial servants embody at once the ambitions of the scientific wizards who make them and society's perception of the dangers of those ambitions; and that artificial servants represent the cultural fears triggered by independent, experimental thinkers—the type of thinkers from whom our modern cyberneticists descend.

Kevin LaGrandeur is Associate Professor of English at the New York Institute of Technology (NYIT).

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This book is dedicated, with love and gratitude, to my wife, Katrina Benson

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1 Introduction

Artificial Slaves—Intelligent Tools/ Rebellious Agents

There has been increasing discussion, lately, of pre-modern notions of the self-operating machine, an idea that goes back to the classical era and that includes automata, devices which are meant to do work or to imitate living organisms.[1] My aim in this book is to examine pre-modern representations of a specific form of self-operating artifact that combines both of these purposes: the humanoid servant. We are just beginning to realize the aim of creating humanoid servants in our own time but, as we shall see, dreams of such servants have been surprisingly common throughout history—including ancient history. The stories we will examine are notable because they are not merely from the era preceding the robotic age, but also that preceding the twentieth century, the era of industry, and even the empirical age that began in the seventeenth century.

Given my focus on this early epoch, the premise of this book may seem surprising. It is reasonable to assume that most of us consider the dream of artificial servants a product of modern science—particularly cybernetics. The literary and cultural artifacts that I will discuss in this volume, however, convince me of the opposite: that modern cybernetics is at least partially the product of a very old archetypal drive that pits human ingenuity against nature via artificial proxies. From what we see in the artifacts I will discuss here, it becomes clear that we envision artificial slaves as prosthetic devices to expand the natural limits of those who make them; but sometimes, because of their very power and their makers' lack of wisdom, they become virtual proxies for their creators. Depending on the instance, this process may be part of the maker's plan or it may be accidental, but in either case, as the tales explored in this book caution, it is always dangerous; for trying to enhance human agency over nature by surrendering agency to a powerful proxy can catalyze a reversal of the master-slave relationship, prompting a dialectical inversion that leads to a complete collapse of the master's control over both the artificial servant and the natural process with which it is meant to provide help.

Thus the tales we will examine about artificial servants that predate the modern era signal ambivalence about our innate technological abilities. Their promises of vastly increased power over our own natural

limits are countervailed by fears about being overwhelmed by our own ingenuity. These tales, in other words, are about being blinded by our intellectual enthusiasm to the danger of our intellectual products, about becoming enslaved by those things which are meant to serve us, about being bound rather than liberated by the ambitions that produce them. On the other hand, they are also about the power and potential of *techne* and human artifice.

The medieval and Renaissance literature that I will discuss in the present volume depict natural philosophers who create and harness factotums whose functions and powers not only imitate their own too closely, but actually supersede them. The stories we will examine give clear reasons for the dangers of these devices, and scientific hubris is only one of them. The other reasons have more to do with the devices themselves: they all have three major flaws: they are too powerful; their coding is too complex; and they are (therefore) inappropriate proxies for their creators. The powers of these servants and their awareness of those powers make them unnatural slaves, and this makes it perilous to entrust them with the very responsibilities for which they were designed. A final, fourth flaw lies with the creators, for they lack awareness of how they are existentially entangled with and overly dependent on these intelligent creations.

These flaws bring us to the two really remarkable observations about these thematic dangers of artificial servants that caused me to write this book. The first, as the succeeding discussion will show, is that these themes about the dangers of artificial slaves, and indeed the very existence of those characters themselves, are present in literature and folktales preceding—often by a long while—the ages of industry and empiricism, let alone the digital age. The second remarkable element of these themes is that they have been, in these essential forms, persistent in Western literature over such a long period, and that they persist in pretty much the same form in the modern era. For instance, as I discuss in the concluding chapter, they are evident in Asimov's *I, Robot* (1950), Capek's *R.U.R* (1923), Heinlein's *The Moon is a Harsh Mistress* (1966), and Clarke's *2001: A Space Odyssey* (1968), all of which depict powerful and potentially dangerous forms of humanoid servants.

We will be limiting ourselves, though, to the exploration of the early literature, as I said above. For several reasons, this book explores tales primarily from the sixteenth and early seventeenth centuries which exhibit these themes. The first reason I focus especially on the literature of Elizabethan England is because it is there, in particular, that we can see evidence of the symbolic clash of older, traditional notions of science that emphasized received authority, with newer notions that valued experiment and personal observation. Some of these newer notions were, ironically, inspired by ancient, occult texts of the Hermetic tradition, which had only recently been recovered by Marsilio Ficino and his circle, and which detailed amazing possibilities for those who were willing to tinker with nature. As we

will see, it is this particular occult tradition, an element of the Renaissance humanist movement, which provided many of the practical means for creating artificial servants. A second reason I focus on the texts of this era is because there are many more examples of artificial servants in the myths and literature of this period in Western Europe and England—as well as surviving examples of some actual human automata—than there are in other pre-empirical cultures.

Although the primary focus of the present book is, therefore, the Renaissance, it will also be necessary to discuss some of the real and legendary artificial humanoids of earlier centuries in order to elucidate the scientific, cultural, and literary intersections in our period of focus. With the exception of certain ancient automata and particular stories of artificial servants that help lead us to the Renaissance, however, these discussions will be limited. This is partly because others, especially Douglas Bruce, have already done good work on the topic of medieval literary human automata and servants.[2] Also, most of these earlier humanoids, especially those in medieval romances, are of very limited intelligence and function and so are too one-dimensional for our exploration. There are exceptions to this, such as the *Roman de Troie,* but in most of the medieval romances, as Bruce notes, artificial androids only perform one simple function: typically, they merely guard an entrance of some sort. For example, as he points out, in the prose version of *Lancelot* written sometime near the beginning of the thirteenth century, the hero encounters two copper knights that guard the entrance to a chamber by swinging their swords at anyone who tries to enter. This motif is repeated in different variations in several of the Arthurian romances, as well as those written about other famous people, including Virgil, Tristan, and Alexander the Great. Sometimes the androids in these stories, figures which are not really much more than moving statues, wield clubs or spears or bows and arrows, but, as with the other examples mentioned previously, their intelligence and operation are limited (Bruce 524).

Because our focus is not just the pre-empirical artificial servant, but specifically the relationship between artificial servants and their makers, there will also be notable examples of Renaissance artificial humanoid servants excluded from our exploration, such as those in *The Faerie Queene* and in *Don Quixote.* Talus, the iron man who appears in Book 5 of *The Faerie Queene* as a servant of Artegall, and Disdain, a golden giant who guards an entrance in the Cave of Mammon in Book 2, Canto vii, do not fit the parameters of the present study, because there is no clear creator for either of them and so no creator-servant relationship to discuss.[3] Moreover, a character such as Disdain is, like its medieval models, too limited in function and intelligence to discuss here. The talking brass head in Cervantes' *Don Quixote* (Part 2, Chapter 62) does not fit our interests either because, unlike those I will discuss, the author presents it as a blatant hoax. We will focus on those devices that are represented as real achievements of natural philosophers.

The upper limit to our exploration will be the year 1614, because that is the year that the great classical scholar Isaac Casaubon definitively showed that the vocabulary in the *Corpus Hermeticum* could not have dated from pre-Christian times. This debunked the text itself as well as the existence of its author, Hermes Trismegistus, who was supposed to have been born around the time of Moses. The discrediting of Hermetic literature was an important intellectual watershed because the *Corpus* was a primary basis for the belief in the effectiveness of occult science, as well as for the belief that artificial human servants could really be made by means of that science.

Although some aspects of this magical science, such as alchemy, died a slow death, lasting well into the late seventeenth century and being secretly practiced by empiricists such as Isaac Newton, Casaubon's anti-Hermetic treatise provides at least one marker for the rise of empiricism and a mechanistic, rather than a magical science. After this point, the idea of making an organic artificial human (homunculus) was mentioned mainly in order to discredit it, and the theoretical basis for creating any kind of human, artificial or otherwise, shifted to a mechanistic perspective. This perspective begins most famously with Descartes' view of the human in his *Discourse on Method* as plausibly indistinguishable from a complex automaton (66), and attains its most extreme expression in Julien Offray de La Mettrie's eighteenth-century treatise, *L'Homme machine*, the premise of which is that humans are essentially cognizant machines and that, in fact, cognition itself is just a material process of the body. Not only does the rise of such a philosophical viewpoint radically shift the basis for discussion of artificial humans, after the early seventeenth century, beyond the parameters I have chosen—lodging them firmly in the empirical realm common to our era—but also the discussion of artificial humans in the early empirical period has been well covered by others, such as Zakiya Hanafi, Dennis Des Chene, and Bruce Mazlish. Hanafi, in particular, presents a cogent discussion of Descartes, Harvey, and Borelli and how they saw the human body in terms of the machine.[4] My study, on the other hand, centers on the transitional age where the boundaries of magic and science crossed.

THEORETICAL FRAMEWORK

Functional, Versus Physical, Human Simulacra

The stories I will focus on most closely concern philosophers' creations of robotic slaves, such as talking brass heads, as well as artificially-made organic humans like the homunculus and golem. As we will see in a later chapter, stories about androids created by medieval scientists such as Robert Grosseteste, Roger Bacon, and Albertus Magnus coalesced around and

persisted most strongly through the Renaissance in the figure of Bacon, finding literary expression in Robert Greene's play, *The Honorable History of Friar Bacon and Friar Bungay.*

However, the artificial humanoid servants that I will discuss are not limited to androids, which imitate the human *physical* form. The imitation of the human can reside in the simulacrum's human *functionalities* as well as its form. In fictional and in speculative scientific literature about artificial intelligence, for instance, networked systems such as computers are discussed mainly in terms of the human functions they imitate. In other words, these networked systems are defined in terms of what Norbert Wiener, one of the originators of cybernetics, would call an "operative image" of a human brain, rather than in a "pictorial image" of it, or of the human body. As he says when he discusses the idea of intelligent machines replicating themselves and, implicitly, human functions:

> Thus, besides pictorial images, we may have operative images. These operative images, which perform the functions of their original, may or may not bear a pictorial likeness to it. Whether they do or not, they may replace the original in its action, and this is a much deeper similarity. (*God and Golem* 31)

An example from modern fiction of this type of replication may be found in H.A.L., the computer that controls the spacecraft in Clarke's *2001: A Space Odyssey.* It has no human form—or any other form, for that matter. Instead, it is made as an operative image of the human brain, and replicates the actions of a nerve center. Its actions, functions, and composite mechanisms are embodied in a simulation of the human voice that it uses to communicate with the people aboard the ship. By means of this voice and the various elements of the ship itself it also interacts with them in most of the same ways a human would, and it also controls every aspect of the ship's environment.

A recent actual instance of this sort of replication of human action without human form is the "smart house" that Microsoft founder Bill Gates built for himself in Seattle. It can act on its own and interact with humans in order to maintain optimal environmental conditions in much the same ways as H.A.L., albeit without the latter's depth and variety of interactivity. The networked home does this by communicating wirelessly with a lapel pin that each person in the house wears. This digital lapel pin is preprogrammed with the person's preferences and transmits those preferences, as well as the wearer's whereabouts, in realtime to a central computing network. Gates' house contains approximately a hundred interconnected microprocessors and various types of sensors buried in its structure that allow it to independently monitor and adjust lights and temperature throughout itself in order to compensate for external climactic conditions and light. The home is also able to automatically adjust to each individual's

preferences for light, music, temperature, and even the kind of art that is displayed on the walls of the room in which the person is located. If a phone call arrives for that person, the home's computers will sense where she is and make only the phone closest to her ring ("Cybernotes: Facts and Photos of Bill Gates' House").

More to our purpose, there are also analogues to a construction like H.A.L. in literature of the sixteenth and early seventeenth century. Renaissance works such as *Dr. Faustus* and *The Tempest* depict natural philosophers who use their knowledge to conjure spirits that sometimes take corporeal form and that, as a group, constitute intelligent networks for accomplishing their creators' worldly ends. In *The Tempest,* for instance, as is detailed in a later chapter, Prospero uses his knowledge of the occult sciences to form an extended network out of the spirits, flora, and fauna that inhabit his island—a network for which Ariel is an embodiment. In this sense, Ariel is similar to the program in a computer—sometimes called an "avatar"—that forms an interface with its human operator. It is, like H.A.L.'s persona, a discrete entity and yet an expression of a larger whole. Similarly, in *Faustus*, the title character tries to harness a group of demons into a unit that will do his bidding, and Mephistopheles is the entity that represents the face of that hidden and complex network.

The significant thing that unites the various forms of physical and functional humanoid servant is that, unlike simple robots, which perform a series of functions in a predetermined order, the artificial servants mentioned above can make choices about how they are to perform their work, including which system or part of the system will do it, in which order, and how to get it done efficiently. A modern, real-world example of this complex decision-making ability—and one which is made in the physical image of a human and yet also employs the idea of virtual networking—can be seen in ASIMO, a Japanese humanoid robot that is designed, according to its maker, Honda Corporation, to "perform uninterrupted service to office guests," and that can "act autonomously . . . so that multiple ASIMOs can share tasks by adjusting to the situation and work together in coordination" ("Honda Develops Intelligence Technologies"). Although tasks are assigned by their masters (or programmers, as the case may be), the fact that the method of completion of those tasks is determined by the artificial servants themselves blurs the boundary between their status as prosthetic enhancements and virtual proxies for their human masters, as does the fact that in some ways, such as physical strength, they are more powerful than their makers.

We can turn to the Mars Rovers as another modern example of this difference between virtual enhancement and virtual proxy. These first generation Rovers (as opposed to the Curiosity Rover) are complex robots that are exploring the surface of Mars. Because they are supposed to stand in as replacements for human explorers, they have many human functionalities. For example, they have digital senses, and can see in stereoscopic fashion via a set of parallel cameras arranged on a metal "neck"; they can use those